

IPv6 Ready Phase-2
Network Mobility (NEMO)

Self Test Specification
for Home Agent

Technical Document
Revision 1.1.0



Modification Record

Revision 1.1.0 May 16, 2008

NEW

Added the IPsec advanced function "Fine-Grain Selectors" based on RFC4877.

- "Reference standards" in "1 Overview"
- IPsec setting in "3.1 Common Setup-1"
- Packet figure in "5. Common Packets" and "6. Test Specification"

Revision 1.0.1 November 1, 2007

Correct

"3. Common Setup"

- Correction the IPsec Parameter.

Typo

HA_2_1_8

ltime=32 -> 8

Editorial

Title, footer, and copyright were fixed.

Version 1.0.0 January 22, 2007

First Release



Acknowledgements

IPv6 Forum would like to acknowledge the efforts of the following organizations in the development of this test specification.

Principle Authors:

- IPv6 Promotion Council, Certification Working Group

Commentators:

- TTA/IT Testing Laboratory



Introduction

The IPv6 forum plays a major role to bring together industrial actors, to develop and deploy the new generation of IP protocols. Contrary to IPv4, which started with a small closed group of implementers, the universality of IPv6 leads to a huge number of implementations. Interoperability has always been considered as a critical feature in the Internet community. Due to the large number of IPv6 implementations, it is important to provide the market a strong signal proving the level of interoperability across various products.

To avoid confusion in the mind of customers, a globally unique logo programme should be defined. The IPv6 logo will give confidence to users that IPv6 is currently operational. It will also be a clear indication that the technology will still be used in the future. To summarize, this logo programme will contribute to the feeling that IPv6 is available and ready to be used.

The IPv6 Logo Programme consists in three phases

Phase 1 :

In a first stage, the Logo will indicate that the product includes IPv6 mandatory core protocols and can interoperate with other IPv6 implementations.

Phase 2 :

The "IPv6 ready" step implies a proper care, technical consensus and clear technical references. The IPv6 ready logo will indicate that a product has successfully satisfied strong requirements stated by the IPv6 Logo Committee (v6LC).

To avoid confusion, the logo "IPv6 Ready" will be generic. The v6LC will define the test profiles with associated requirements for specific functionalities.

Phase 3 :

Same as Phase 2 with IPsec mandated.



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1 Overview

This document organization tests by group based on related test methodology or goals. Each group begins with a brief set of comments pertaining to all tests within that group. This is followed by a series of description blocks; each block a single test. The format of the description block is as follows:

Description block

[PURPOSE]	The PURPOSE is the short statement describing what the test attempts to achieve. It is usually phrased as a simple assertion of the future or capability to be tested.
[CATEGORY]	The CATEGORY shows you who need to satisfy the test shortly.
[REQUIREMENT OF TEST]	The REQUIREMENT describes the condition of the RUT.
[TOPOLOGY]	The TOPOLOGY describes the network used in the test.
[TEST SETUP]	The TEST SETUP describes how to initialize and configure the RUT before starting each test. If a value is not provided, then the protocol's default value is used.
[INITIALIZATION]	The INITIALIZATION describes step-by-step instructions for carrying out the setting before the test.
[PROCEDURE]	The PROCEDURE describes step-by-step instructions for carrying out the test.
[JUDGMENT]	The JUDGEMENT describes expected result. If we can observe as same result as the description of Judgment, the RUT passes the test.
[REFERENCES]	The REFERENCE section contains some parts of specification related to the tests. It also shows the document names and section numbers.



Reference to Common

Refer to a common part for some blocks because there are only several kinds of content.

Reference to Common packets

The reference to Common packets in [INITIALIZATION] and [PROCEDURE] is described.

- Refer to the packet simply.
Example)
 5. Send Binding Update. (Refer to X.X.X)
- The packet is referred to, and amplification is described.
Example)
 5. Send Binding Update(Sequence No=10000). (Refer to X.X.X)
 6. Receive Binding Acknowledgement. (RUT -> MR0X) (Refer to X.X.X)
The Lifetime field is less than or equal to 60 seconds.
- Especially, the packet of the focus supplements the field to which it pays attention with the table form.
Example)

5. Send Binding Update. (Refer to X.X.X)

IPv6 Header	Source Address (Care-of Address of Mobile Node)	MR0X (Link0X,global)
	Destination Address (Correspondent Node Address)	RUT (Link0,global)
Destination Option	Home Address of Mobile Node	MN0 (HoA,global)
Mobility Header	MH Type	5
	A	1
	H	0
	Sequence	10000
Nonce Indices Option	Lifetime	60
	Home Nonce Index	Any
	Care-of Nonce Index	Any
Binding Authorization Data Option	Authenticator	Any

Acronyms

CN	- Correspondent Node
HA	- Home Agent
MN	- Mobile Node
MR	- Mobile Router
VMN	- Visited Mobile Node
LFN	- Local Fixed Node
HL	- Home Link
FL	- Foreign Link
HNP	- Home Network Prefix
MNP	- Mobile Network Prefix
HoA	- Home Address
HoA(from HNP)	- Home Address derived from the Home Network Prefix.
HoA(from MNP)	- Home Address derived from the Mobile Network Prefix.
CoA	- Care-of Address
BCE	- Binding Cache Entry
BLE	- Binding Update List Entry



ICMPv6	- Internet Control Message Protocol for IPv6
DHAAD	- Dynamic Home Agent Address Discovery
HAAD	- Home Agent Address Discovery
MPD	- Mobile Prefix Discovery
MPS	- Mobile Prefix Solicitation
MPA	- Mobile Prefix Advertisement
BRR	- Binding Refresh Request
RR	- Return Routability
HoTI	- Home Test Init
CoTI	- Care-of Test Init
HoT	- Home Test
CoT	- Care-of Test
BU	- Binding Update
BA	- Binding Acknowledgement
BE	- Binding Error
Re-Reg	- Re-Registration
De-Reg	- De-Registration
Co-Reg	- Correspondent Registration

Reference standards

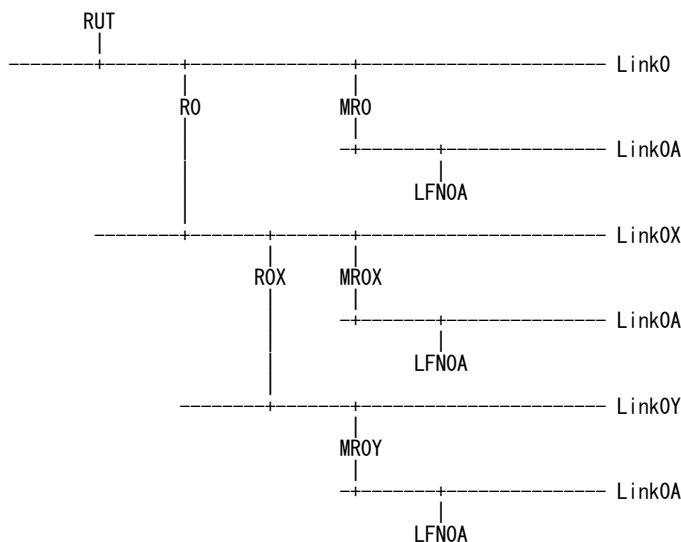
This documentation covers the functions specified in the IETF RFC and Mobile IPv6 Test Profile listed below.

- (1) RFC3963: Network Mobility (NEMO) Basic Support Protocol
(<http://www.ietf.org/rfc/rfc3963.txt>)
- (2) RFC3775: Mobility Support in IPv6
(<http://www.ietf.org/rfc/rfc3775.txt>)
- (3) RFC3776: Using IPsec to Protect Mobile IPv6 Signaling between Mobile Nodes and Home Agents
(<http://www.ietf.org/rfc/rfc3776.txt>)
- (4) RFC4877: Mobile IPv6 Operation with IKEv2 and the Revised IPsec Architecture
(<http://www.ietf.org/rfc/rfc4877.txt>)
- (5) IPv6 Ready Logo Phase-2 Network Mobility (NEMO) Policy
(http://www.ipv6ready.org/about_phase2_test.html)
- (6) IPv6 Ready Logo Phase-2 Network Mobility (NEMO) Test Specification Profile
(http://www.ipv6ready.org/about_phase2_test.html)

2 Common Topology

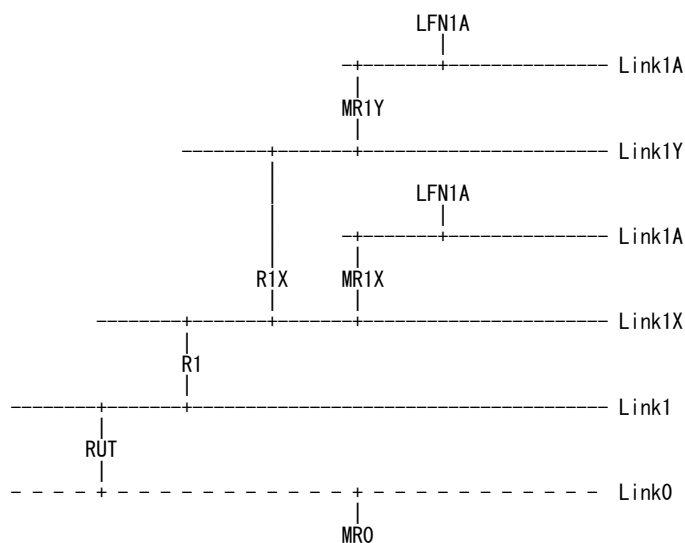
2.1 Common Topology-1

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3fe:501:fff:100::/64	home link
Link0X	prefix	3fe:501:fff:1100::/64	foreign link
Link0Y	prefix	3fe:501:fff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:fff:fff:ffe	
	global	3fe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3fe:501:fff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MRO(Link0)	global	3fe:501:fff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3fe:501:fff:1100:<mr_device1.egress_addr>	care-of address
MROY(Link0Y)	global	3fe:501:fff:2100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

- Virtual Home Link (If RUT supports Virtual Home Link.)

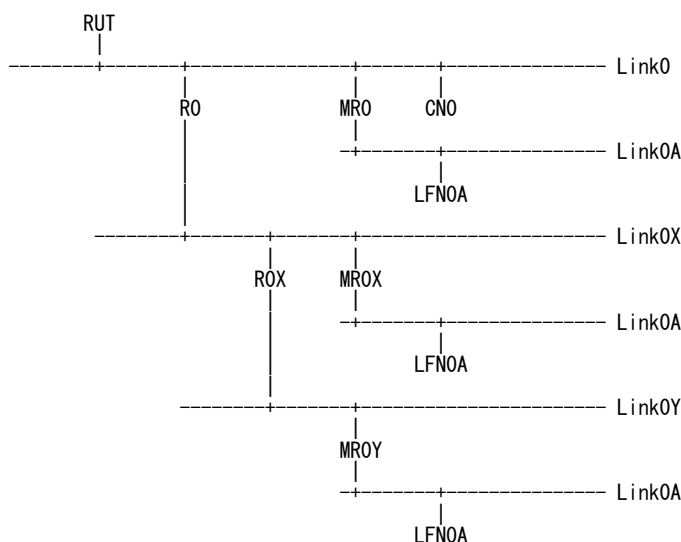


Link0	prefix	3fe:501:fff:100::/64	home link
Link1	prefix	3fe:501:fff:101::/64	foreign link
Link1X	prefix	3fe:501:fff:1101::/64	foreign link
Link1Y	prefix	3fe:501:fff:2101::/64	foreign link
Link1A	prefix	<mr_device1.mnp>:/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:ffff:ffff:fffe	
	global	3fe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3fe:501:fff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(link1)	global	3fe:501:fff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3fe:501:fff:100:<mr_device1.egress_addr>	egress interface
MR1X(Link1X)	global	3fe:501:fff:1101:<mr_device1.egress_addr>	care-of address
MR1Y(Link1Y)	global	3fe:501:fff:2101:<mr_device1.egress_addr>	care-of address
MR0(Link1A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress address
LFN1A(Link1A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

2.2 Common Topology-2

There is CN in Real Home Link.

- Real Home Link (If RUT supports Real Home Link.)

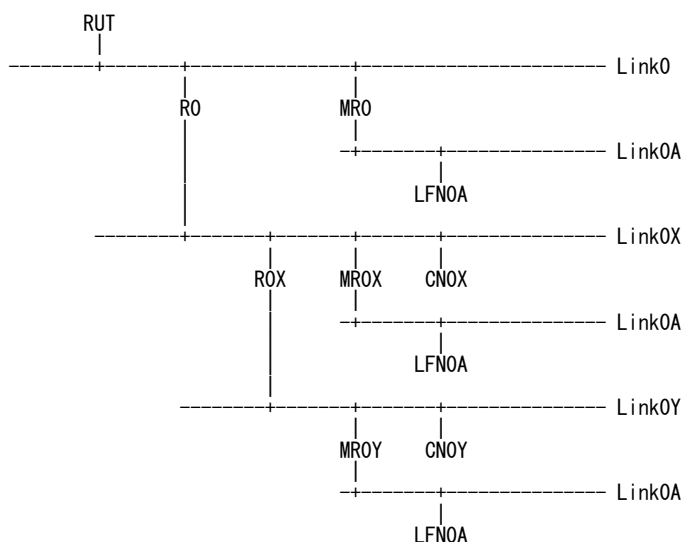


Link0	prefix	3fe:501:fff:100::/64	home link
Link0X	prefix	3fe:501:fff:1100::/64	foreign link
Link0Y	prefix	3fe:501:fff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>:/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:fff:fff:ffe	
	global	3fe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3fe:501:fff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
CNO(Link0)	global	3fe:501:fff:100:<some_addr>	correspondent node
	link-local	fe80::<some_addr>	
	ether	<some_ether>	
MRO(Link0)	global	3fe:501:fff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3fe:501:fff:1100:<mr_device1.egress_addr>	care-of address
MROY(Link0Y)	global	3fe:501:fff:2100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

2.3 Common Topology-3

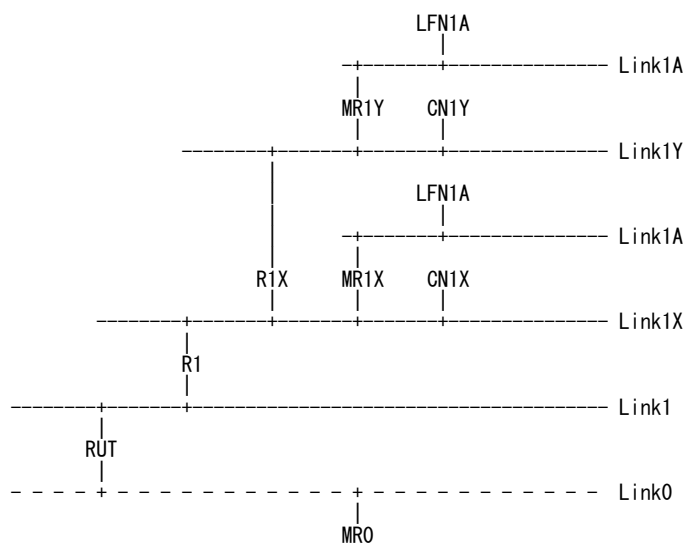
There is CN in each Foreign Link.

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3fe:501:fff:100::/64	home link
Link0X	prefix	3fe:501:fff:1100::/64	foreign link
Link0Y	prefix	3fe:501:fff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>:/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:fff:fff:ffe	
	global	3fe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3fe:501:fff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MRO(Link0)	global	3fe:501:fff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3fe:501:fff:1100:<mr_device1.egress_addr>	care-of address
MROY(Link0Y)	global	3fe:501:fff:2100:<mr_device1.egress_addr>	care-of address
MR0(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
CNOX(Link0X)	global	3fe:501:fff:1100:<some_addr>	correspondent node
CNOY(Link0Y)	global	3fe:501:fff:2100:<some_addr>	correspondent node

- Virtual Home Link (If RUT supports Virtual Home Link.)

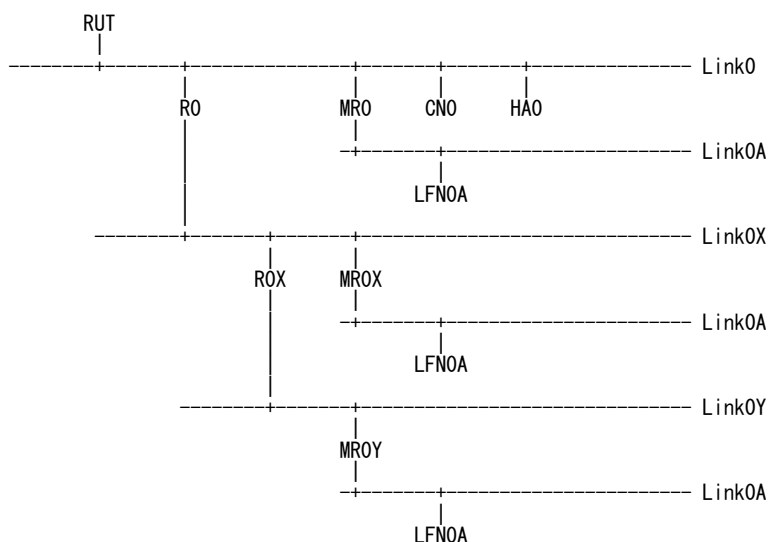


Link0	prefix	3ffe:501:ffff:100::/64	home link
Link1	prefix	3ffe:501:ffff:101::/64	foreign link
Link1X	prefix	3ffe:501:ffff:1101::/64	foreign link
Link1Y	prefix	3ffe:501:ffff:2101::/64	foreign link
Link1A	prefix	<mr_device1.mnp>:/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:fffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3ffe:501:ffff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(link1)	global	3ffe:501:ffff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
MR1X(Link1X)	global	3ffe:501:ffff:1101:<mr_device1.egress_addr>	care-of address
MR1Y(Link1Y)	global	3ffe:501:ffff:2101:<mr_device1.egress_addr>	care-of address
MR0(Link1A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress address
LFN1A(Link1A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
CN1X(Link1X)	global	3ffe:501:ffff:1101::<some_addr>	correspondent node
CN1Y(Link1Y)	global	3ffe:501:ffff:2101::<some_addr>	correspondent node

2.4 Common Topology-4

There are CN0 and HA0 in Real Home Link.

- Real Home Link (If RUT supports Real Home Link.)

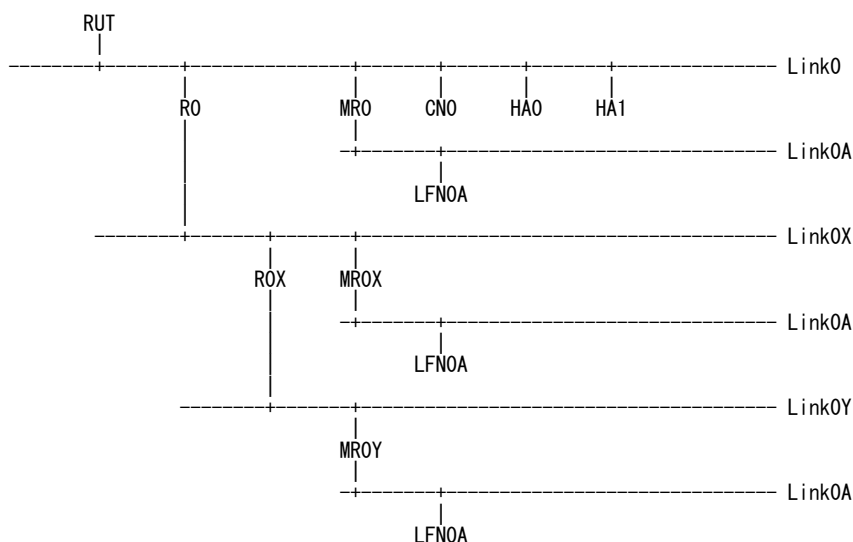


Link0	prefix	3fe:501:fff:100::/64	home link
Link0X	prefix	3fe:501:fff:1100::/64	foreign link
Link0Y	prefix	3fe:501:fff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:fff:ffe	
	global	3fe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3fe:501:fff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
CNO(Link0)	global	3fe:501:fff:100:<some_addr>	correspondent node
	link-local	fe80::<some_addr>	
	ether	<some_ether>	
HA0(Link0)	global	3fe:501:fff:100:200:ff:fe00:a2a2	home agent
	link-local	fe80::200:ff:fe00:a2a2	
	ether	00:00:00:00:a2:a2	
MRO(Link0)	global	3fe:501:fff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MR0X(Link0X)	global	3fe:501:fff:1100:<mr_device1.egress_addr>	care-of address
MR0Y(Link0Y)	global	3fe:501:fff:2100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

2.5 Common Topology-5

There are CN0, HA0, and HA1 in Real Home Link.

- Real Home Link (If RUT supports Real Home Link.)

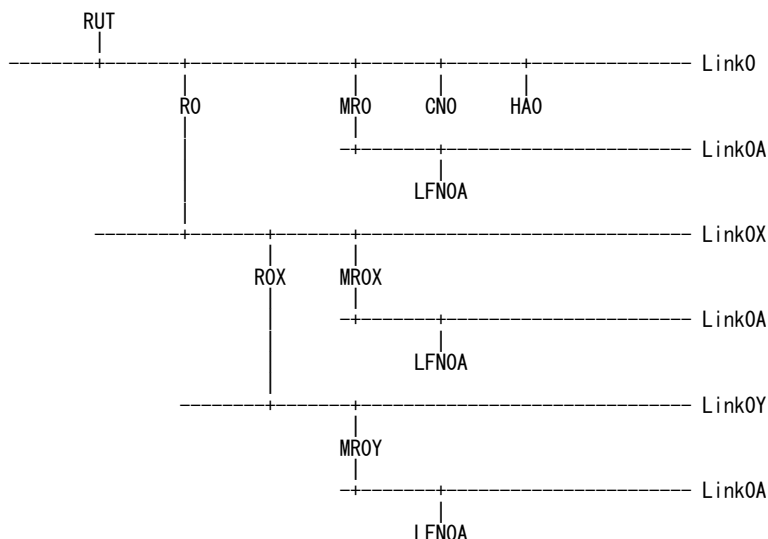


Link0	prefix	3ffe:501:ffff:100::/64	home link
Link0X	prefix	3ffe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:ffff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
CN0(Link0)	global	3ffe:501:ffff:100:<some_addr>	correspondent node
	link-local	fe80::<some_addr>	
	ether	<some_ether>	
HA0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a2a2	home agent
	link-local	fe80::200:ff:fe00:a2a2	
	ether	00:00:00:00:a2:a2	
HA1(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a3a3	home agent
	link-local	fe80::200:ff:fe00:a3a3	
	ether	00:00:00:00:a3:a3	
MRO(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3ffe:501:ffff:1100:<mr_device1.egress_addr>	care-of address
MROY(Link0Y)	global	3ffe:501:ffff:2100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

2.6 Common Topology-6

There are CN0 and HA0 in Real Home Link.
HA0 has two global addresses.

- Real Home Link (If RUT supports Real Home Link.)

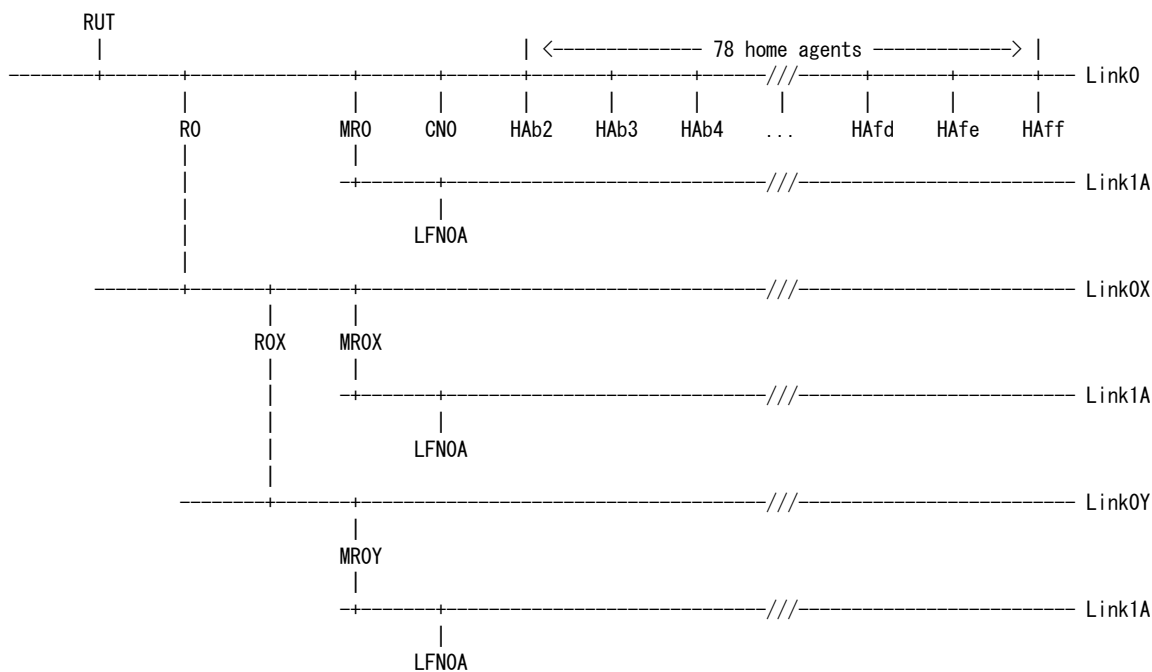


Link0	prefix	3ffe:501:ffff:100::/64	home link
Link0X	prefix	3ffe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:ffff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffff	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
CN0(Link0)	global	3ffe:501:ffff:100:<some_addr>	correspondent node
	link-local	fe80::<some_addr>	
	ether	<some_ether>	
HA0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a2a2	home agent
	global	3ffe:501:ffff:100:200:ff:fe00:a3a3	
	link-local	fe80::200:ff:fe00:a2a2	
	ether	00:00:00:00:a2:a2	
MRO(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MR0X(Link0X)	global	3ffe:501:ffff:1100:<mr_device1.egress_addr>	care-of address
MR0Y(Link0Y)	global	3ffe:501:ffff:2100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFNOA(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node

2.7 Common Topology-7

There are CN0 and a lot of HA in Real Home Link.

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3fe:501:ffff:100::/64	home link
Link0X	prefix	3fe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3fe:501:ffff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3fe:501:fff:100:fdff:fff:ffe	
	global	3fe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3fe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
CN0(Link0)	global	3fe:501:ffff:100:<some_addr>	correspondent node
	link-local	fe80::<some_addr>	
	ether	<some_ether>	
HAb2(Link0)	global	3fe:501:ffff:100:200:4dff:fe00:b2	home agent
	link-local	fe80::200:4dff:fe00:b2	
	ether	00:00:4d:00:00:b2	
HAb3(Link0)	global	3fe:501:ffff:100:200:4cff:fe00:b3	home agent
	link-local	fe80::200:4cff:fe00:b3	
	ether	00:00:4c:00:00:b3	
HAb4(Link0)	global	3fe:501:ffff:100:200:4bff:fe00:b4	home agent
	link-local	fe80::200:4bff:fe00:b4	
	ether	00:00:4b:00:00:b4	
...	
HAfd(Link0)	global	3fe:501:ffff:100:200:2ff:fe00:fd	home agent
	link-local	fe80::200:2ff:fe00:fd	
	ether	00:00:02:00:00:fd	
HAfe(Link0)	global	3fe:501:ffff:100:200:1ff:fe00:fe	home agent
	link-local	fe80::200:1ff:fe00:fe	
	ether	00:00:01:00:00:fe	
HAff(Link0)	global	3fe:501:ffff:100:200:ff:fe00:ff	home agent
	link-local	fe80::200:ff:fe00:ff	



	ether	00:00:00:00:00:ff	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MR0X(Link0X)	global	3ffe:501:ffff:1100:<mr_device1.egress_addr>	care-of address
MR0Y(Link0Y)	global	3ffe:501:ffff:2100:<mr_device1.egress_addr>	care-of address
MR0(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFN0A(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node



2.8 Common Topology-8

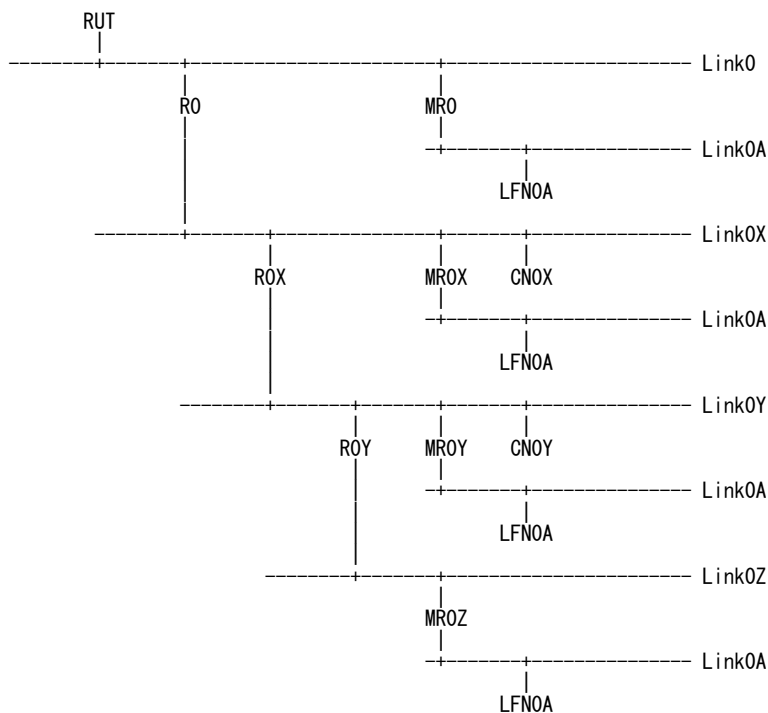
N/A

2.9 Common Topology-9

There is MR0Z.

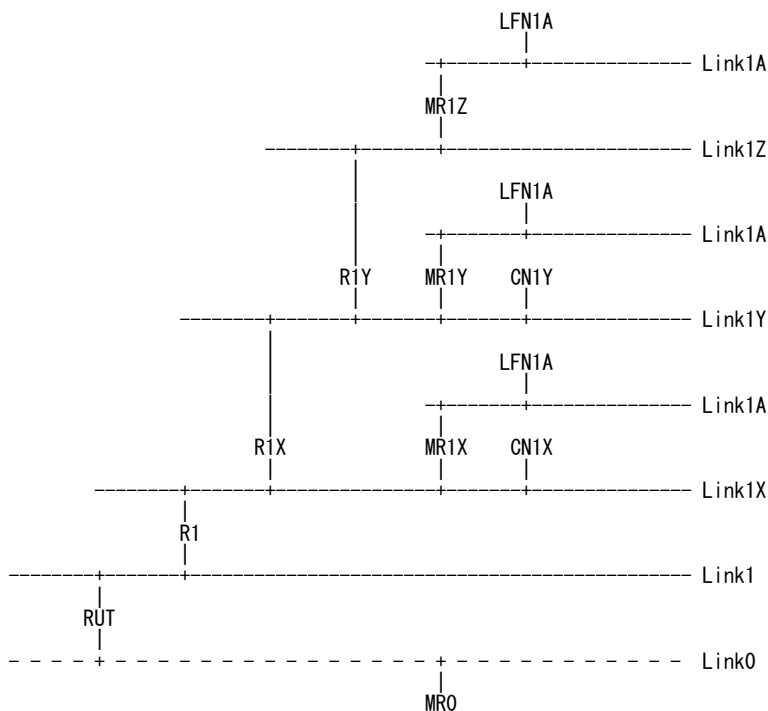
There is CN in each Foreign Link.

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link0X	prefix	3ffe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:ffff:2100::/64	foreign link
Link0Z	prefix	3ffe:501:ffff:3100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:fffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MRO(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3ffe:501:ffff:1100:<mr_device1.egress_addr>	care-of address
MROY(Link0Y)	global	3ffe:501:ffff:2100:<mr_device1.egress_addr>	care-of address
MROZ(Link0Z)	global	3ffe:501:ffff:3100:<mr_device1.egress_addr>	care-of address
MRO(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
LFN0A(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
CNOX(Link0X)	global	3ffe:501:ffff:1100:<some_addr>	correspondent node
CNOY(Link0Y)	global	3ffe:501:ffff:2100:<some_addr>	correspondent node

- Virtual Home Link (If RUT supports Virtual Home Link.)



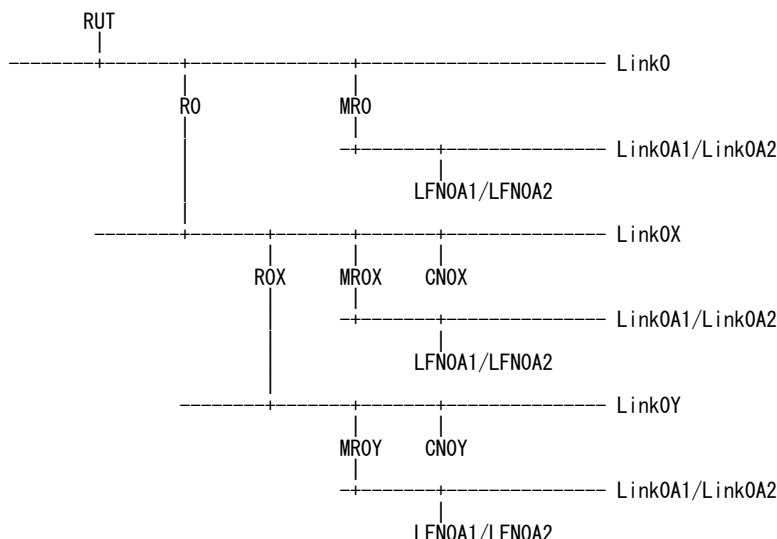
Link0	prefix	3ffe:501:ffff:100::/64	home link
Link1	prefix	3ffe:501:ffff:101::/64	foreign link
Link1X	prefix	3ffe:501:ffff:1101::/64	foreign link
Link1Y	prefix	3ffe:501:ffff:2101::/64	foreign link
Link1Z	prefix	3ffe:501:ffff:3101::/64	foreign link
Link1A	prefix	<mr_device1.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3ffe:501:ffff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(Link1)	global	3ffe:501:ffff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
MR1X(Link1X)	global	3ffe:501:ffff:1101:<mr_device1.egress_addr>	care-of address
MR1Y(Link1Y)	global	3ffe:501:ffff:2101:<mr_device1.egress_addr>	care-of address
MR1Z(Link1Z)	global	3ffe:501:ffff:3101:<mr_device1.egress_addr>	care-of address
MR0(Link1A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress address
LFN1A(Link1A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
CN1X(Link1X)	global	3ffe:501:ffff:1101::<some_addr>	correspondent node
CN1Y(Link1Y)	global	3ffe:501:ffff:2101::<some_addr>	correspondent node

2.10 Common Topology-10

There is CN in each Foreign Link.

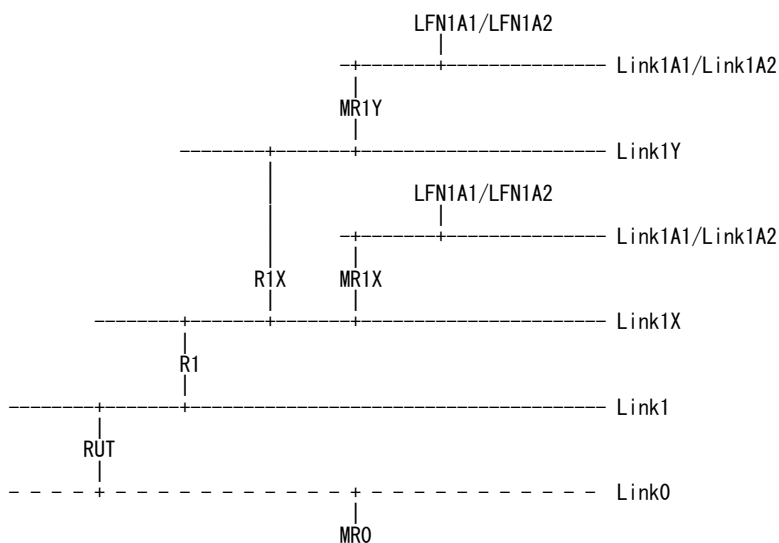
MR0 has two mobile network prefixes.

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link0X	prefix	3ffe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:ffff:2100::/64	foreign link
Link0A1	prefix	<mr_device2.mnp 1>::/64	nemo link
Link0A1	prefix	<mr_device2.mnp 2>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffff	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device2.egress_addr>	egress interface
	link-local	fe80::<mr_device2.egress_addr>	
	ether	<mr_device1.egress_ether>	
MROX(Link0X)	global	3ffe:501:ffff:1100:<mr_device2.egress_addr>	care-of address
MROY(Link0Y)	global	3ffe:501:ffff:2100:<mr_device2.egress_addr>	care-of address
MR0(Link0A1)	global	<mr_device2.mnp 1>:<mr_device2.ingress_addr>	ingress interface
MR0(Link0A2)	global	<mr_device2.mnp 2>:<mr_device2.ingress_addr>	ingress interface
LFN0A1(Link0A1)	global	<mr_device2.mnp 1>:200:ff:fe00:100	local fixed node
LFN0A2(Link0A2)	global	<mr_device2.mnp 2>:200:ff:fe00:100	local fixed node
CN0X(Link0X)	global	3ffe:501:ffff:1100::<some_addr>	correspondent node
CN0Y(Link0Y)	global	3ffe:501:ffff:2100::<some_addr>	correspondent node

- Virtual Home Link (If RUT supports Virtual Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link1	prefix	3ffe:501:ffff:101::/64	foreign link
Link1X	prefix	3ffe:501:ffff:1101::/64	foreign link
Link1Y	prefix	3ffe:501:ffff:2101::/64	foreign link
Link1A1	prefix	<mr_device2.mnp 1>::/64	nemo link
Link1A2	prefix	<mr_device2.mnp 2>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:fffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3ffe:501:ffff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(link1)	global	3ffe:501:ffff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device2.egress_addr>	egress interface
MR1X(Link1X)	global	3ffe:501:ffff:1101:<mr_device2.egress_addr>	care-of address
MR1Y(Link1Y)	global	3ffe:501:ffff:2101:<mr_device2.egress_addr>	care-of address
MR0(Link1A1)	global	<mr_device2.mnp 1>:<mr_device2.ingress_addr>	ingress address
MR0(Link1A2)	global	<mr_device2.mnp 2>:<mr_device2.ingress_addr>	ingress address
LFN1A1(Link1A1)	global	<mr_device2.mnp 1>:200:ff:fe00:100	local fixed node
LFN1A2(Link1A2)	global	<mr_device2.mnp 2>:200:ff:fe00:100	local fixed node
CN1X(Link1X)	global	3ffe:501:ffff:1101::<some_addr>	correspondent node
CN1Y(Link1Y)	global	3ffe:501:ffff:2101::<some_addr>	correspondent node

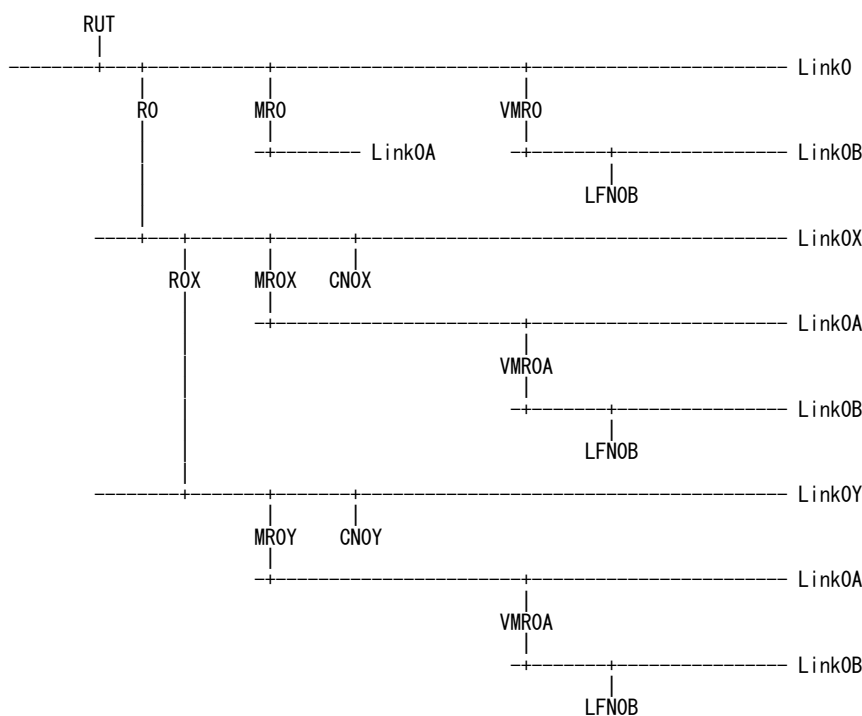
2.11 Common Topology-11

There is CN in each Foreign Link.

VMR belong to RUT.

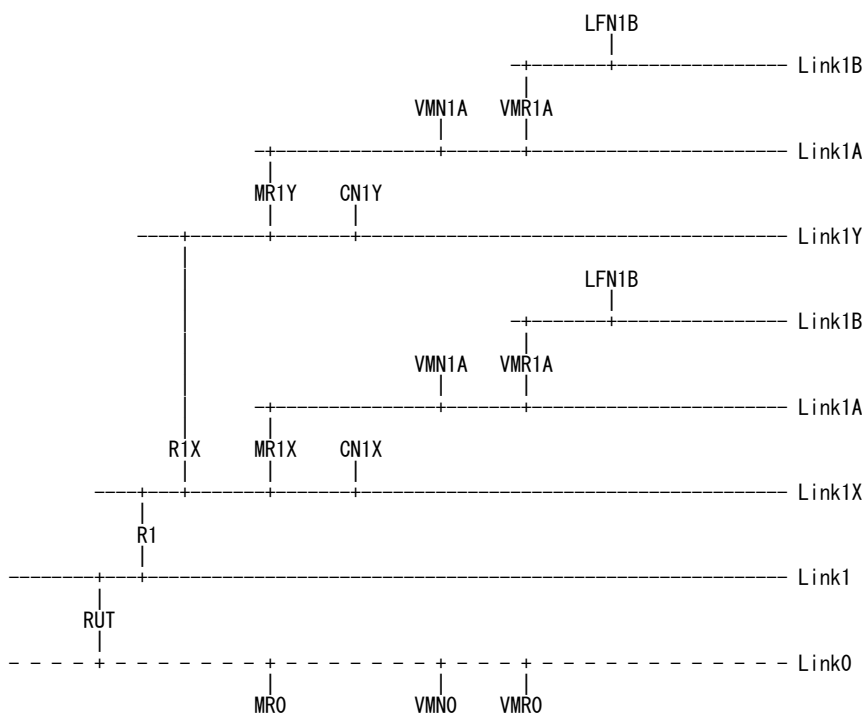
VMR are attached to MR0 mobile network.

- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link0X	prefix	3ffe:501:ffff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:ffff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
Link0B	prefix	<mr_device4.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:fff:fff:ffe	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:ffff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MR0X(Link0X)	global	3ffe:501:ffff:1100:<mr_device1.egress_addr>	care-of address
MR0Y(Link0Y)	global	3ffe:501:ffff:2100:<mr_device1.egress_addr>	care-of address
MR0(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
VMR0(Link0)	global	3ffe:501:ffff:100:<mr_device4.egress_addr>	egress interface
	link-local	fe80::<mr_device4.egress_addr>	
	ether	<mr_device4.egress_ether>	
VMR0A(Link0A)	global	<mr_device1.mnp>:<mr_device4.egress_addr>	care-of address
VMR0(Link0B)	global	<mr_device4.mnp>:<mr_device4.ingress_addr>	ingress interface
LFN0B(Link0B)	global	<mr_device4.mnp>:200:ff:fe00:200	local fixed node
CN0X(Link0X)	global	3ffe:501:ffff:1100:<some_addr>	correspondent node
CN0Y(Link0Y)	global	3ffe:501:ffff:2100:<some_addr>	correspondent node

- Virtual Home Link (If RUT supports Virtual Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link1	prefix	3ffe:501:ffff:101::/64	foreign link
Link1X	prefix	3ffe:501:ffff:1101::/64	foreign link
Link1Y	prefix	3ffe:501:ffff:2101::/64	foreign link
Link1A	prefix	<mr_device1.mnp>::/64	nemo link
Link1B	prefix	<mr_device4.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffff	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3ffe:501:ffff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(link1)	global	3ffe:501:ffff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
MR1X(Link1X)	global	3ffe:501:ffff:1101:<mr_device1.egress_addr>	care-of address
MR1Y(Link1Y)	global	3ffe:501:ffff:2101:<mr_device1.egress_addr>	care-of address
MR0(Link1A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress address
VMR0(Link0)	global	3ffe:501:ffff:100:<mr_device4.egress_addr>	egress interface
VMR1A(Link1A)	global	<mr_device1.mnp>:<mr_device4.egress_addr>	care-of address
VMR0(Link1B)	global	<mr_device4.mnp>:<mr_device4.ingress_addr>	ingress address
LFN1B(Link1B)	global	<mr_device4.mnp>:200:ff:fe00:200	local fixed node
CN1X(Link1X)	global	3ffe:501:ffff:1101::<some_addr>	correspondent node
CN1Y(Link1Y)	global	3ffe:501:ffff:2101::<some_addr>	correspondent node

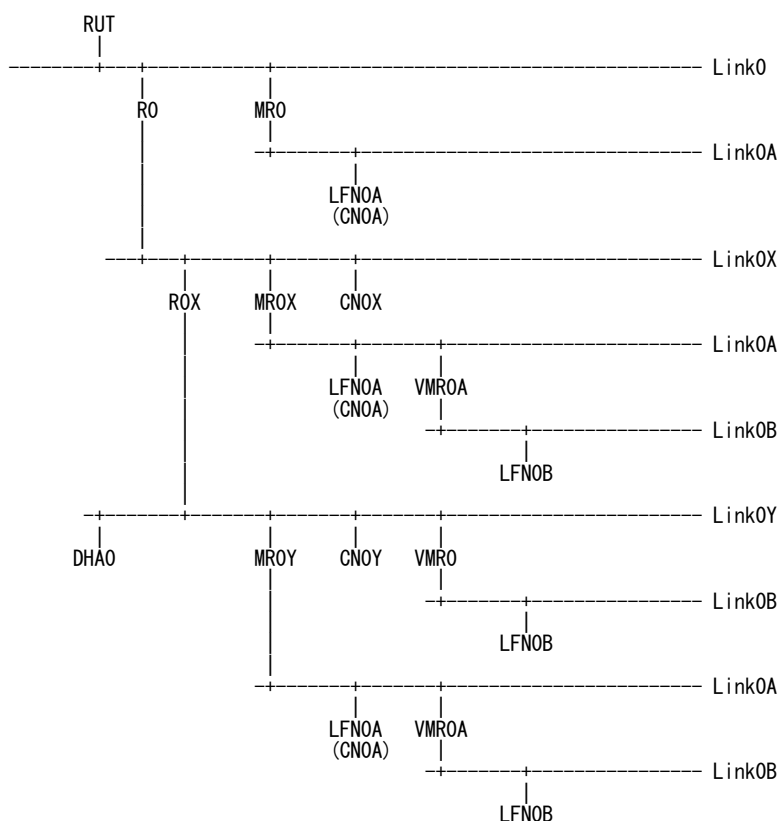
2.12 Common Topology-12

There is CN in each Foreign Links.

VMR belong to other HA on other link.

VMR are attached to MR0 mobile network.

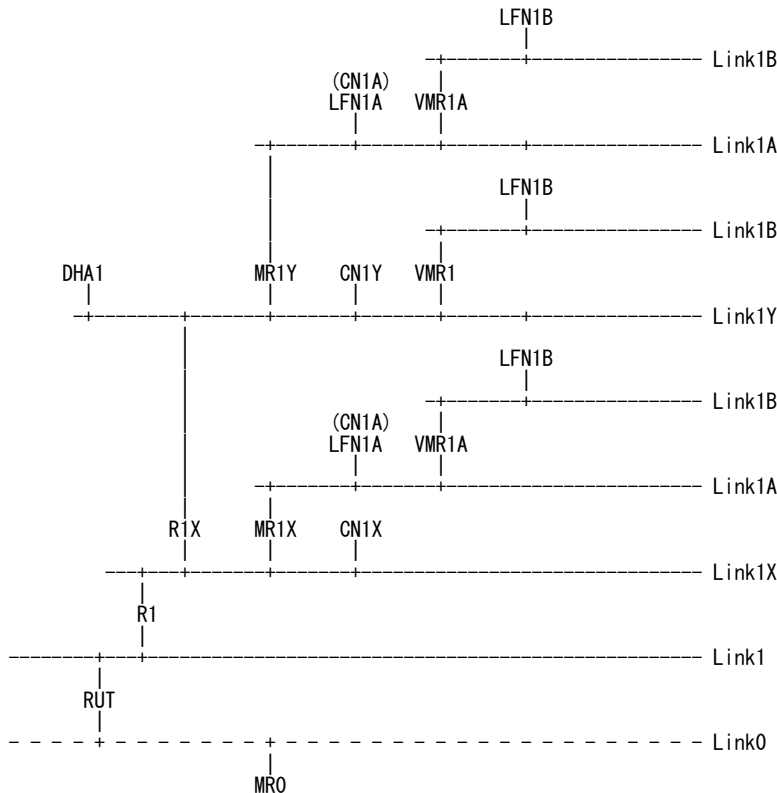
- Real Home Link (If RUT supports Real Home Link.)



Link0	prefix	3ffe:501:fff:100::/64	home link
Link0X	prefix	3ffe:501:fff:1100::/64	foreign link
Link0Y	prefix	3ffe:501:fff:2100::/64	foreign link
Link0A	prefix	<mr_device1.mnp>::/64	nemo link
Link0B	prefix	<vmr.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:fff:100:fdff:fff:fff:ffe	
	global	3ffe:501:fff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
R0(Link0)	global	3ffe:501:fff:100:200:ff:fe00:a0a0	
	link-local	fe80::200:ff:fe00:a0a0	
	ether	00:00:00:00:a0:a0	
MRO(Link0)	global	3ffe:501:fff:100:<mr_device1.egress_addr>	egress interface
	link-local	fe80::<mr_device1.egress_addr>	
	ether	<mr_device1.egress_ether>	
MR0X(Link0X)	global	3ffe:501:fff:1100:<mr_device1.egress_addr>	care-of address
MR0Y(Link0Y)	global	3ffe:501:fff:2100:<mr_device1.egress_addr>	care-of address
MR0(Link0A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress interface
VMR0(Link0Y)	global	3ffe:501:fff:2100:200:ff:fe00:210f	egress interface
VMR0A(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:210f	care-of address
VMR0B(Link0B)	global	<vmr.mnp>:200:ff:fe00:210f	ingress interface
LFN0A(Link0A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
LFN0B(Link0B)	global	<vmr.mnp>:200:ff:fe00:200	local fixed node

CN0X(Link0X)	global	3ffe:501:ffff:1100:<some_addr>	correspondent node
CN0Y(Link0Y)	global	3ffe:501:ffff:2100:<some_addr>	correspondent node
DHA0(Link0Y)	global	3ffe:501:ffff:2100:200:ff:fe00:21a0	home agent

- Virtual Home Link (If RUT supports Virtual Home Link.)



Link0	prefix	3ffe:501:ffff:100::/64	home link
Link1	prefix	3ffe:501:ffff:101::/64	foreign link
Link1X	prefix	3ffe:501:ffff:1101::/64	foreign link
Link1Y	prefix	3ffe:501:ffff:2101::/64	foreign link
Link1A	prefix	<mr_device1.mnp>::/64	nemo link
Link1B	prefix	<vmr.mnp>::/64	nemo link
RUT(Link0)	anycast	3ffe:501:ffff:100:fdff:ffff:ffff:ffff	
	global	3ffe:501:ffff:100:<RUT.link0_addr>	
	link-local	fe80::<RUT.link0_addr>	
	ether	<RUT.link0_ether>	
RUT(Link1)	global	3ffe:501:ffff:101:<RUT.link1_addr>	
	link-local	fe80::<RUT.link1_addr>	
	ether	<RUT.link1_ether>	
R1(link1)	global	3ffe:501:ffff:101:200:ff:fe00:a1a1	
	link-local	fe80::200:ff:fe00:a1a1	
	ether	00:00:00:00:a1:a1	
MR0(Link0)	global	3ffe:501:ffff:100:<mr_device1.egress_addr>	egress interface
MR1X(Link1X)	global	3ffe:501:ffff:1101:<mr_device1.egress_addr>	care-of address
MR1Y(Link1Y)	global	3ffe:501:ffff:2101:<mr_device1.egress_addr>	care-of address
MR0(Link1A)	global	<mr_device1.mnp>:<mr_device1.ingress_addr>	ingress address
VMR0(Link1Y)	global	3ffe:501:ffff:2101:200:ff:fe00:210f	egress interface
VMR1A(Link1A)	global	<mr_device1.mnp>:200:ff:fe00:210f	care-of address
VMR0(Link1B)	global	<vmr.mnp>:200:ff:fe00:210f	ingress address
LFN1A(Link1A)	global	<mr_device1.mnp>:200:ff:fe00:100	local fixed node
LFN1B(Link1B)	global	<vmr.mnp>:200:ff:fe00:200	local fixed node
CN1X(Link1X)	global	3ffe:501:ffff:1101::<some_addr>	correspondent node
CN1Y(Link1Y)	global	3ffe:501:ffff:2101::<some_addr>	correspondent node
DHA1	global	3ffe:501:ffff:2101:200:ff:fe00:21a0	home agent

3 Common Setup

3.1 Common Setup-1

- Reboot RUT
- Assign the global addresses

Interface	Address	Type	Note
<RUT.link0_device>	3ffe:501:ffff:100::<RUT.link0_addr>	unicast	
	3ffe:501:ffff:100:fdff:ffff:ffff:ffff	anycast	Mobile IPv6 Home Agents anycast address
<RUT.link1_device>	3ffe:501:ffff:101::<RUT.link1_addr>	unicast	

- Select the setting and assign the mobile network prefix
 - Home Address derived from the Home Network Prefix and Implicit mode

MR device ID	egress address (Home Address)	Mobile network prefix (Implicit)	ingress address	Note
<mr_device1>	3ffe:501:ffff:100:200:ff:fe00:11	3ffe:501:ffff:111::/64	3ffe:501:ffff:111:200:ff:fe00:11	
<mr_device2>	3ffe:501:ffff:100:200:ff:fe00:12	3ffe:501:ffff:112::/64	3ffe:501:ffff:112:200:ff:fe00:12	multi
		3ffe:501:ffff:113::/64	3ffe:501:ffff:113:200:ff:fe00:13	
<mr_device4>	3ffe:501:ffff:100:200:ff:fe00:14	3ffe:501:ffff:114::/64	3ffe:501:ffff:114:200:ff:fe00:14	

- Home Address derived from the Home Network Prefix and Explicit mode

MR device ID	egress address (Home Address)	Mobile network prefix (Explicit)	ingress address	Note
<mr_device1>	3ffe:501:ffff:100:200:ff:fe00:21	3ffe:501:ffff:121::/64	3ffe:501:ffff:121:200:ff:fe00:21	
<mr_device2>	3ffe:501:ffff:100:200:ff:fe00:22	3ffe:501:ffff:122::/64	3ffe:501:ffff:122:200:ff:fe00:22	multi
		3ffe:501:ffff:123::/64	3ffe:501:ffff:123:200:ff:fe00:23	
<mr_device4>	3ffe:501:ffff:100:200:ff:fe00:24	3ffe:501:ffff:124::/64	3ffe:501:ffff:124:200:ff:fe00:24	

- Enable HA function
 - Turn on HA functions
- Configure the routing table of RUT
 - HA has only physical home link

Destination	Gateway	Interface	Preference
::/0 (default)	fe80::200:ff:fe00:a0a0	<RUT.link0_device>	medium
3ffe:501:ffff:111::/64	fe80::200:ff:fe00:11	<RUT.link0_device>	high
3ffe:501:ffff:112::/64	fe80::200:ff:fe00:12	<RUT.link0_device>	high
3ffe:501:ffff:113::/64	fe80::200:ff:fe00:12	<RUT.link0_device>	high
3ffe:501:ffff:114::/64	fe80::200:ff:fe00:14	<RUT.link0_device>	high
3ffe:501:ffff:121::/64	fe80::200:ff:fe00:21	<RUT.link0_device>	high
3ffe:501:ffff:122::/64	fe80::200:ff:fe00:21	<RUT.link0_device>	high
3ffe:501:ffff:123::/64	fe80::200:ff:fe00:22	<RUT.link0_device>	high
3ffe:501:ffff:124::/64	fe80::200:ff:fe00:24	<RUT.link0_device>	high

- HA has physical home link and physical foreign link

Destination	Gateway	Interface	Preference
::/0 (default)	fe80::200:ff:fe00:a0a0	<RUT.link0_device>	medium
3ffe:501:ffff:111::/64	fe80::200:ff:fe00:11	<RUT.link0_device>	high
3ffe:501:ffff:112::/64	fe80::200:ff:fe00:12	<RUT.link0_device>	high
3ffe:501:ffff:113::/64	fe80::200:ff:fe00:12	<RUT.link0_device>	high
3ffe:501:ffff:114::/64	fe80::200:ff:fe00:14	<RUT.link0_device>	high
3ffe:501:ffff:121::/64	fe80::200:ff:fe00:21	<RUT.link0_device>	high
3ffe:501:ffff:122::/64	fe80::200:ff:fe00:21	<RUT.link0_device>	high
3ffe:501:ffff:123::/64	fe80::200:ff:fe00:22	<RUT.link0_device>	high
3ffe:501:ffff:124::/64	fe80::200:ff:fe00:24	<RUT.link0_device>	high
3ffe:501:ffff:1101::/64	fe80::200:ff:fe00:a1a1	<RUT.link1_device>	high



3ffe:501:ffff:2101::/64	fe80::200:ff:fe00:a1a1	<RUT.link1_device>	high
3ffe:501:ffff:3101::/64	fe80::200:ff:fe00:a1a1	<RUT.link1_device>	high

➤ HA has virtual home link and physical foreign link

Destination	Gateway	Interface
default	fe80::200:ff:fe00:a1a1	<RUT.link1_device>

- Configure the IPsec
 - * SA9 and SA10 are not appeared in RFC3775, RFC3776. These are assumed.
 - * SA7, SA8, SA9 and SA10 are not used on the test.

HA sets SPI (Security Parameters Index) to each SA of MR devices

SPI	Implicit mode			Explicit mode		
	mr_device1	mr_device2	mr_device4	mr_device1	mr_device2	mr_device4
SA1	0x111	0x121	0x141	0x211	0x221	0x241
SA2	0x112	0x122	0x142	0x212	0x222	0x242
SA3	0x113	0x123	0x143	0x213	0x223	0x243
SA4	0x114	0x124	0x144	0x214	0x224	0x244
SA5	0x115	0x125	0x145	0x215	0x225	0x245
SA6	0x116	0x126	0x146	0x216	0x226	0x246
SA7	0x117	0x127	0x147	0x217	0x227	0x247
SA8	0x118	0x128	0x148	0x218	0x228	0x248
SA9	0x119	0x129	0x149	0x219	0x229	0x249
SA10	0x11a	0x12a	0x14a	0x21a	0x22a	0x24a
2 nd SA9	-	0x12b	-	-	0x22b	-
2 nd SA10	-	0x12c	-	-	0x22c	-

➤ ESP transport mode (BU/BA)

* <SPI> of the key character string uses the above SPI value.

For instance, "111" is put for SA1 of mr_device1.

- SA1 (inbound ESP transport mode)

Source address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Destination address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Mode	ESP Transport	
Upper Layer	Mobility Header (default)	
	Binding Update Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>-12345678901234
Authentication Algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>-1234567890

- SA2 (outbound ESP transport mode)

Source address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Destination address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Mode	ESP Transport	
Upper Layer	Mobility Header (default)	
	Binding Acknowledgement Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>-12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>-1234567890

➤ ESP tunnel mode (HoTI/HoT)

- SA3 (inbound ESP tunnel mode)

Source address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Destination address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Mode	ESP Tunnel	
Upper Layer	Mobility Header (default)	
	Home Test Init Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--1234567890

- SA4 (outbound ESP tunnel mode)

Source address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Destination address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Mode	ESP Tunnel	
Upper Layer	Mobility Header (default)	
	Home Test Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--12345678901234

- ESP transport mode (MPS/MPA)

- SA5 (inbound ESP transport mode)

Source address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Destination address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Mode	ESP Transport	
Upper Layer	ICMP Header (default)	
	Mobile Prefix Solicitation Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--12345678901234

- SA6 (outbound ESP transport mode)

Source address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Destination address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Mode	ESP Transport	
Upper Layer	ICMP Header (default)	
	Mobile Prefix Advertisement Message (Advanced Function "Fine-Grain Selectors")	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--12345678901234

- ESP tunnel mode (payload packets)

- SA7 (inbound ESP tunnel mode)

Source address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Destination address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Mode	ESP Tunnel	
Upper Layer	X (No using)	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	



	key (default)	V6LC-<SPI>--1234567890
--	---------------	------------------------

- SA8 (outbound ESP tunnel mode)

Source address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Destination address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Mode	ESP Tunnel	
Upper Layer	X (No using)	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--1234567890

- ESP tunnel mode (payload packets of Mobile Network Prefix)

- SA9 (inbound ESP tunnel mode)

Source address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Destination address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Mode	ESP Tunnel	
Upper Layer	X (No using)	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--1234567890

- SA10 (outbound ESP tunnel mode)

Source address	HA	3ffe:501:ffff:100:<RUT.link0_addr>
Destination address	MR HoA(from HNP)	3ffe:501:ffff:100:<mr_device.egress_addr>
Mode	ESP Tunnel	
Upper Layer	X (No using)	
Encryption algorithm	3des-cdc	
	key (default)	V6LC-<SPI>--12345678901234
Authentication algorithm	hmac-sha1	
	key (default)	V6LC-<SPI>--12345678901234

- Real Home Link (If RUT supports Real Home Link.)

- Configure RA parameter

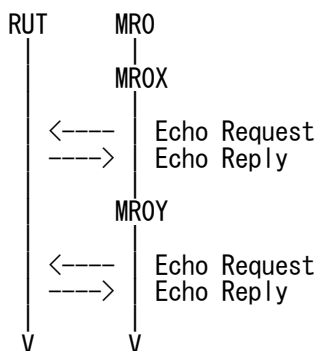
- Set Home Agent Flag to ON
- Attach Home Agent Information Option
 - Set Mobile Router Support Flag to ON
 - Set Home Agent Preference to 10
- Attach Prefix Information Option
 - Set Router Address Flag to ON
 - Set Prefix field to Home Agent Address

4 Common Initialization

4.1 Common Initialization-1

- Real Home Link

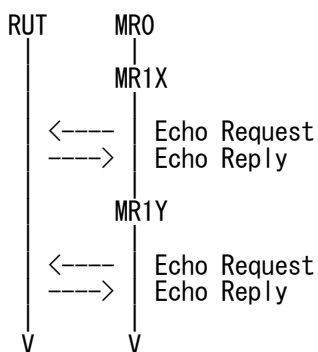
Check Link0 routing table



1. MROX sends Echo Request (Refer to 5.5.1)
2. MROX receives Echo Reply (Refer to 5.6.1)
3. MROY sends Echo Request (Refer to 5.5.1)
4. MROY receives Echo Reply (Refer to 5.6.1)

- Virtual Home Link

Check Link1 routing table



1. MR1X sends Echo Request (Refer to 5.5.1)
2. MR1X receives Echo Reply (Refer to 5.6.1)
3. MR1Y sends Echo Request (Refer to 5.5.1)
4. MR1Y receives Echo Reply (Refer to 5.6.1)

5 Common Packets

5.1 ICMPv6 Router Solicitation

5.1.1 Router Solicitation

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133
	Code	0

5.2 ICMPv6 Router Advertisement

5.2.1 Router Advertisement

IPv6 Header	Source Address	HA (link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	Code	0
	Cur Hop Limit	64
	M Flag	0
	O Flag	0
	H Flag	1
	Router Lifetime	Any
	Reachable Time	0
	Retrans Timer	0
	Home Agent Information Option	Type
R Flag		1
Home Agent Preference		Any
Home Agent Lifetime		Any
Prefix Information Option	Type	3
	Length	4
	Prefix Length	64
	L Flag	1
	A Flag	1
	R Flag	1
	Reserved1	0
	Valid Lifetime	Any
	Preferred Lifetime	Any
	Reserved2	0
	Prefix	HA (global)

5.3 ICMPv6 Neighbor Solicitation

5.3.1 Neighbor Solicitation

IPv6 Header	Source Address	(global/link-local/Unspecified address)
	Destination Address	(global/link-local/Solicited-node multicast address)
ICMPv6 Header	Type	135
	Code	0
	Target Address	(global/link-local)

5.3.2 Neighbor Solicitation w/ SLL

IPv6 Header	Source Address	(global/link-local)
	Destination Address	(global/link-local/Solicited-node multicast address)
ICMPv6 Header	Type	135
	Code	0
	Target Address	(global/link-local)
SLL Option	Type	1
	Length	1
	Link Layer Address	(ether)

5.4 ICMPv6 Neighbor Advertisement

5.4.1 Neighbor Advertisement

IPv6 Header	Source Address	(global/link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	Code	0
	R Flag	Any
	S Flag	Any
	O Flag	Any
	Target Address	(global/link-local)

5.4.2 Neighbor Advertisement w/ TTL

IPv6 Header	Source Address	(global/link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	Any
	S Flag	Any
	O Flag	Any
	Target Address	(global/link-local)
TTL Option	Type	2
	Length	1
	Link Layer Address	(ether)

5.5 ICMPv6 Echo Request

5.5.1 ICMPv6 Echo Request

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.5.2 ICMPv6 Echo Request w/ HaO

a) from MN/MR to HA, Basic

IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
ICMPv6 Header	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

b) from MN/MR to HA, Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ICMPv6 Header	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

c) from MN to CN

IPv6 Header	Source Address	MN/MR (global)
	Destination Address	CN (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ICMPv6 Header	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.5.3 ICMPv6 Echo Request (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.5.4 ICMPv6 Echo Request w/ HaO (tunneled)

a) from MN/MR to HA, Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vecto	Any
ICMPv6	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

b) from MN/MR to HA, Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ICMPv6	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

c) from MN/MR to CN

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN/MR (global)
	Destination Address	CN (global)
Destination Option Header	Option Type	0xC9
	Home Address	MN/MR (global)
ICMPv6	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.5.5 ICMPv6 Echo Request (tunneled tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6	Type	128
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.6 ICMPv6 Echo Reply

5.6.1 ICMPv6 Echo Reply

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.6.2 ICMPv6 Echo Reply w/ RH

a) from HA to MN/MR, Basic

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Hdr Ext Len	2
	Routing Type	2
	Segments Left	1
	Home Address	(global)
	Security Parameters Index	Any
ESP Header	Sequence Number	Any
	Initialization Vecto	Any
	ICMPv6 Header	Type
ICMPv6 Header	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

b) from HA to MN/MR, Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Hdr Ext Len	2
	Routing Type	2
	Segments Left	1
	Home Address	MN/MR (global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

c) from CN to MN/MR

IPv6 Header	Source Address	CN (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Hdr Ext Len	2
	Routing Type	2
	Segments Left	1
	Home Address	MN/MR (global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.6.3 ICMPv6 Echo Reply (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.6.4 ICMPv6 Echo Reply w/ RH (tunneled)

a) from HA to MN/MR, Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vecto	Any
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

b) from HA to MN/MR, Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MN/MR (global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

c) from CN to MN/MR

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	CN (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MN/MR (global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.6.5 ICMPv6 Echo Reply (tunneled tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	129
	Code	0
	Identifier	Any
	Sequence Number	Any
	Payload Data	Any

5.7 MIPv6 Binding Refresh Request

5.7.1 Binding Refresh Request

IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	0
	MH Type	0
	Reserved	0
	Checksum	Any
	Reserved	0

5.7.2 Binding Refresh Request (tunneled)

a) Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	0
	MH Type	0
	Reserved	0
	Checksum	Any
	Reserved	0

b) Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	0
	MH Type	0
	Reserved	0
	Checksum	Any
	Reserved	0

5.8 MIPv6 Home Test Init

5.8.1 Home Test Init

IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	1
	Reserved	0
	Checksum	Any
	Reserved	0
	Hot Init Cookie	Any

5.8.2 Home Test Init (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	1
	Reserved	0
	Checksum	Any
	Reserved	0
	Hot Init Cookie	Any

5.8.3 Home Test Init (tunneled tunnel)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	1
	Reserved	0
	Checksum	Any
	Reserved	0
	Hot Init Cookie	Any

5.9 MIPv6 Care-of Test Init

5.9.1 Care-of Test Init

IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	2
	Reserved	0
	Checksum	Any
	Reserved	0
	Care-of Init Cookie	Any

5.9.2 Care-of Test Init (tunneled)

a) Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	2
	Reserved	0
	Checksum	Any
	Reserved	0
	Care-of Init Cookie	Any

b) Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	1
	MH Type	2
	Reserved	0
	Checksum	Any
	Reserved	0
	Care-of Init Cookie	Any

5.10 MIPv6 Home Test

5.10.1 Home Test

IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	3
	Reserved	0
	Checksum	Any
	Home Nonce Index	Any
	Hot Init Cookie	Any
	Home Keygen Token	Any

5.10.1 Home Test (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	3
	Reserved	0
	Checksum	Any
	Home Nonce Index	Any
	Hot Init Cookie	Any
	Home Keygen Token	Any

5.10.2 Home Test (tunneled tunnel)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	(global)
	Destination Address	(global)
	Source Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	3
	Reserved	0
	Checksum	Any
	Home Nonce Index	Any
	Hot Init Cookie	Any
	Home Keygen Token	Any

5.11 MIPv6 Care-of Test

5.11.1 Care-of Test

IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	4
	Reserved	0
	Checksum	Any
	Care-of Nonce Index	Any
	Care-of Init Cookie	Any
	Care-of Keygen Token	Any

5.11.2 Care-of Test (tunneled)

a) Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	4
	Reserved	0
	Checksum	Any
	Care-of Nonce Index	Any
	Care-of Init Cookie	Any
	Care-of Keygen Token	Any

b) Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	2
	MH Type	4
	Reserved	0
	Checksum	Any
	Care-of Nonce Index	Any
	Care-of Init Cookie	Any
	Care-of Keygen Token	Any

5.12 MIPv6 Binding Update

5.12.1 Binding Update w/ HaO

a) Implicit mode

IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)

b) Explicit mode

IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)
PadN	Option Type	1
	Option Length	2
	Pad	Any
Mobile Network Prefix	Option Type	6
	Option Length	18
	Reserved	0
	Prefix Length	64
	Prefix	MNP

5.12.2 Binding Update w/o HaO

a) Implicit mode

IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)

b) Explicit mode

IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)
PadN	Option Type	1
	Option Length	2
	Pad	Any
Mobile Network Prefix	Option Type	6
	Option Length	18
	Reserved	0
	Prefix Length	64
	Prefix	MNP

5.12.3 Binding Update w/ HaO to CN

IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Destination Option Header	Home Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	0
	L Flag	0
	K Flag	0
	M Flag	0
	R Flag	0
	Reserved	0
Lifetime	Any	
Nonce Indices Option	Option Type	4
	Option Length	4
	Home Nonce Index	Any
	Care-of Nonce Index	Any
Binding Authorization Data Option	Option Type	5
	Option Length	12
	Authenticator	Any

5.12.4 Binding Update w/o HaO to CN

IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	0
	L Flag	0
	K Flag	0
	M Flag	0
	R Flag	0
	Reserved	0
Lifetime	Any	
Nonce Indices Option	Option Type	4
	Option Length	4
	Home Nonce Index	Any
	Care-of Nonce Index	Any
Binding Authorization Data Option	Option Type	5
	Option Length	12
	Authenticator	Any

5.12.5 Binding Update w/ HaO (tunneled)

a) Implicit mode

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)

b) Explicit mode

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	Any
	L Flag	Any
	K Flag	Any
	M Flag	0
	R Flag	Any
	Reserved	Any
Lifetime	Any	
PadN	Type	1
	Option Length	0
	Option Data	-
Alternate Care-of Address Option	Type	3
	Option Length	16
	Alternate Care-of Address	MR (global)
PadN	Option Type	1
	Option Length	2
	Pad	Any
Mobile Network Prefix	Option Type	6
	Option Length	18
	Reserved	0
	Prefix Length	64
	Prefix	MNP

5.12.6 Binding Update w/ HaO to CN (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN (global)
	Destination Address	CN (global)
Destination Option Header	Home Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	5
	Reserved	0
	Checksum	Any
	Sequence Number	Any
	A Flag	Any
	H Flag	0
	L Flag	0
	K Flag	0
	M Flag	0
	R Flag	0
	Reserved	0
	Lifetime	Any
Nonce Indices Option	Option Type	4
	Option Length	4
	Home Nonce Index	Any
	Care-of-Nonde Index	Any
Binding Authorization Data Option	Option Type	5
	Option Length	12
	Authenticator	Any

5.13 MIPv6 Binding Acknowledgement

5.13.1 Binding Acknowledgement w/ RH

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
	Reserved	0
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
Binding Refresh Advice	Type	2
	Length	2
	Refresh Interval	Any

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
	Reserved	0
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
PadN	Option Type	1
	Option Length	Any
	Pad	Any

5.13.2 Binding Acknowledgement w/o RH2

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
	Binding Refresh Advice	Type
Length		2
Refresh Interval		Any

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
	PadN	Option Type
Option Length		Any
Pad		Any
Pad		Any

5.13.3 Binding Acknowledgement from CN

IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
	PadN	Option Type
Option Length		4
Pad		Any
Pad		Any
Binding Authorization Data Option	Option Type	5
	Option Length	12
	Authenticator	Any

5.13.4 Binding Acknowledgement w/o RH from CN

IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
	PadN	Option Type
Option Length		4
Pad		Any
Pad		Any
Binding Authorization Data Option	Option Type	5
	Option Length	12
	Authenticator	Any

5.13.5 Binding Acknowledgement (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	0
	K Flag	0
	R Flag	Any
	Reserved	0
	Sequence Number	Any (=BU)
	Lifetime	Any
Binding Refresh Advice	Type	2
	Length	2
	Refresh Interval	Any

5.13.6 Binding Acknowledgement from CN (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	CN (global)
	Destination Address	MN (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN (global)
Mobility Header	Payload Prot	59
	Header Len	3
	MH Type	6
	Reserved	0
	Checksum	Any
	Status	Any
	K Flag	0
	R Flag	0
	Reserved	0
	Sequence	Any (=BU)
	Lifetime	Any
PadN	Option Type	1
	Option Length	4
	Pad	Any
Binding Authorization Data	Option Type	5
	Option Length	12
	Authenticator	Any

5.14 MIPv6 Binding Error

5.14.1 Binding Error

IPv6 Header	Source Address	(global)
	Destination Address	(global)
Mobility Header	Payload Proto	59
	Header Len	2
	MH Type	7
	Reserved	0
	Checksum	Any
	Status	1 or 2
	Reserved	0
	Home Address	(global)/Unspecified address

5.14.2 Binding Error (ESP)

a) Basic

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
Mobility Header	Payload Proto	59
	Header Len	2
	MH Type	7
	Reserved	0
	Checksum	Any
	Status	1 or 2
	Reserved	0
	Home Address	(global)/Unspecified address

b) Advanced Function "Fine-Grain Selectors"

IPv6 Header	Source Address	(global)
	Destination Address	(global)
Mobility Header	Payload Proto	59
	Header Len	2
	MH Type	7
	Reserved	0
	Checksum	Any
	Status	1 or 2
	Reserved	0
	Home Address	(global)/Unspecified address

5.15 ICMPv6 Home Agent Address Discovery Request

5.15.1 ICMPv6 Home Agent Address Discovery Request

IPv6 Header	Source Address	MN/MR (global)
	Destination Address	Mobile IPv6 Home Agents anycast address
ICMPv6 Header	Type	144
	Code	0
	Checksum	Any
	Identifier	Any
	R Flag	Any
	Reserved	0

5.15.2 ICMPv6 Home Agent Address Discovery Request (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN/MR (global)
	Destination Address	Mobile IPv6 Home Agents anycast address
ICMPv6 Header	Type	144
	Code	0
	Checksum	Any
	Identifier	Any
	R Flag	Any
	Reserved	0

5.16 ICMPv6 Home Agent Address Discovery Reply

5.16.1 ICMPv6 Home Agent Address Discovery Reply

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
ICMPv6 Header	Type	145
	Code	0
	Checksum	Any
	Identifier	Any (=HAAD request)
	R Flag	Any
	Reserved	0
	Addresses	HA (global)

5.16.2 ICMPv6 Home Agent Address Discovery Reply (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
ICMPv6 Header	Type	145
	Code	0
	Checksum	Any
	Identifier	Any (=HAAD request)
	R Flag	Any
	Reserved	0
	Addresses	HA (global)

5.17 ICMPv6 Mobile Prefix Solicitation

5.17.1 ICMPv6 Mobile Prefix Solicitation w/ HaO

IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MN/MR (global)
	Security Parameters Index	Any
ESP Header	Sequence Number	Any
	Initialization Vector	Any
	Type	146
ICMPv6 Header	Code	0
	Checksum	Any
	Identifier	Any
	Reserved	0

5.17.2 ICMPv6 Mobile Prefix Solicitation w/ HaO (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	MN/MR (global)
	Destination Address	HA (global)
Destination Option Header	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
ICMPv6 Header	Type	146
	Code	0
	Checksum	Any
	Identifier	Any
	Reserved	0

5.18 ICMPv6 Mobile Prefix Advertisement

5.18.1 ICMPv6 Mobile Prefix Advertisement w/ RH

IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
ICMPv6 Header	Type	147
	Code	0
	Checksum	Any
	Identifier	Any
	M flag	0
	O flag	0
	Reserved	0
Prefix Information option	Type	3
	Length	4
	Prefix Length	64
	L Flag	1
	A Flag	1
	R Flag	1
	Reserved1	0
	Valid Lifetime	Any
	Preferred Lifetime	Any
	Reserved2	0
Prefix	HA (global)	

5.18.2 ICMPv6 Mobile Prefix Advertisement w/ RH (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Source Address	HA (global)
	Destination Address	MN/MR (global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MN/MR (global)
ESP Header	Security Parameters Index	Any
	Sequence Number	Any
	Initialization Vector	Any
ICMPv6 Header	Type	147
	Code	0
	Checksum	Any
	Identifier	Any
	M flag	0
	O flag	0
	Reserved	0
Prefix Information option	Type	3
	Length	4
	Prefix Length	64
	L Flag	1
	A Flag	1
	R Flag	1
	Reserved1	0
	Valid Lifetime	Any
	Preferred Lifetime	Any
	Reserved2	0
Prefix	HA (global)	

5.19 ICMPv6 Destination Unreachable

5.19.1 ICMPv6 Destination Unreachable

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	1
	Code	3
	Checksum	Any
	Unused	0
	Payload Data	Any



5.19.2 ICMPv6 Destination Unreachable (tunneled)

IPv6 Header	Source Address	(global)
	Destination Address	(global)
IPv6 Header	Hoplimit	64
	Source Address	(global)
	Destination Address	(global)
ICMPv6 HHeader	Type	1
	Code	3
	Checksum	Any
	Unused	0
	Payload Data	Any

5.20 ICMPv6 Time Exceeded

5.20.1 ICMPv6 Time Exceeded

IPv6 Header	Source Address	(global)
	Destination Address	(global)
ICMPv6 Header	Type	3
	Code	0
	Checksum	Any
	Unused	0
	Payload Data	Any

6. Test Specification: Home Agent operation

6.1 Initialization

6.1.1 NEMO-HA_0_0_0 - Initialization and general configuration

[PURPOSE]

NEMO-HA_0_0_0 - Initialization and general configuration

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

NONE

[TOPOLOGY]

Refer to 2.1 Common Topology-1

[TEST SETUP]

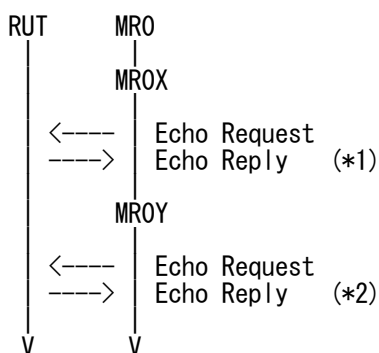
Refer to 3.1 Common Setup-1

[INITIALIZATION]

NONE

[PROCEDURE]

- Real Home Link
- Check Link0 routing table



1. MROX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	128

2. MROX receives Echo Reply (*1) (Refer to 5.6.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)

ICMPv6 Header	Type	129
---------------	------	-----

3. MR0Y sends Echo Request (Refer to 5.5.1)

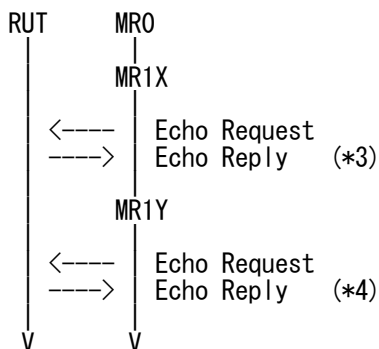
IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply (*2) (Refer to 5.6.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
ICMPv6 Header	Type	129

- Virtual Home Link

Check Link1 routing table



1. MR1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	128

2. MR1X receives Echo Reply (*3) (Refer to 5.6.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
ICMPv6 Header	Type	129

3. MR1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply (*4) (Refer to 5.6.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- Real Home Link

(*1) PASS: MR0X receives Echo Reply

(*2) PASS: MR0Y receives Echo Reply

- Virtual Home Link

(*3) PASS: MR1X receives Echo Reply

(*4) PASS: MR1Y receives Echo Reply



[REFERENCES]

NONE

6.2 Processing Mobility Headers

6.2.1 Real Home Link

6.2.1.1 NEMO-HA_1_1_3 - Receiving invalid BU (invalid checksum)

[PURPOSE]

NEMO-HA_1_1_3 - Receiving invalid BU (invalid checksum)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

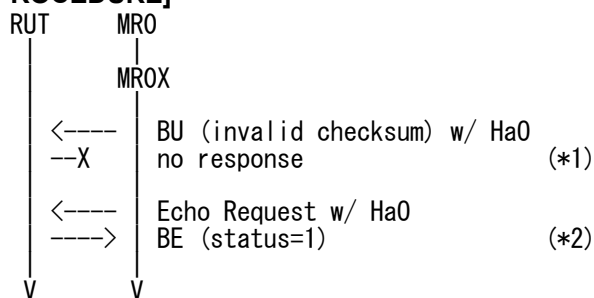
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Checksum	0
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Checksum	0
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. no response (*1)

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.2.

6.2.1.2 NEMO-HA_1_1_1 - Unrecognized MH Type value

[PURPOSE]

NEMO-HA_1_1_1 - Unrecognized MH Type value

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

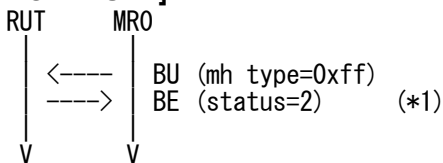
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0 sends BU w/o HaO (Refer to 5.12.2)

● Basic

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	0xff
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

● Advanced fuction “fine-grain”

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Mobility Header	MH Type	0xff
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

2. MR0 receives BE (*1) (Refer to 5.14.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI



Mobility Header	MH Type	7
	Status	2
	Home Address	Unspecified address

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Mobility Header	MH Type	7
	Status	2
	Home Address	Unspecified address

[JUDGMENT]

(*1) PASS: MR0 receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.2 and Section 9.3.3.

6.2.1.3 NEMO-HA_1_1_5 - Unrecognized MH Type value w/ BCE

[PURPOSE]

NEMO-HA_1_1_5 - Unrecognized MH Type value w/ BCE

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

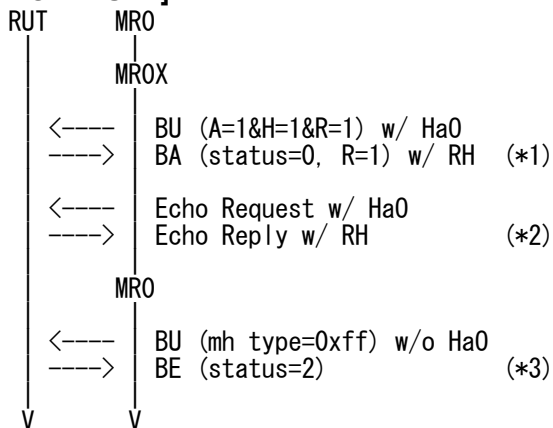
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- **Basic**

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- **Advanced function “fine-grain”**

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- **Basic**

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- **Advanced function “fine-grain”**

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/o HaO (Refer to 5.12.2)

- **Basic**

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI

Mobility Header	MH Type	0xff
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Mobility Header	MH Type	0xff
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)

6. MR0 receives BE (*3) (Refer to 5.14.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	7
	Status	2
	Home Address	Unspecified address

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Mobility Header	MH Type	7
	Status	2
	Home Address	Unspecified address

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.2 and Section 9.3.3.

6.2.2 Virtual Home Link

6.2.2.1 NEMO-HA_1_1_8 - Receiving invalid BU (invalid checksum)

[PURPOSE]

NEMO-HA_1_1_8 - Receiving invalid BU (invalid checksum)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

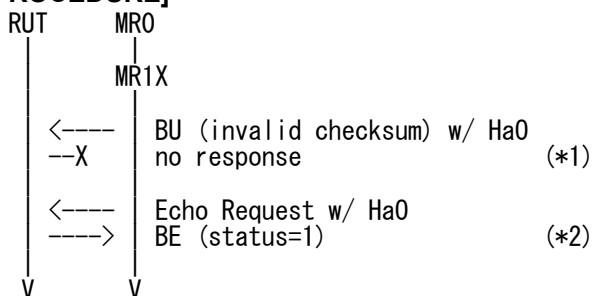
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Checksum	0
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Checksum	0
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix Length	64
	Prefix	MNP (Link1A,prefix)

2. no response (*1)

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.2.

6.3 Mobile network Prefix Registration

6.3.1 Valid Registration

6.3.1.1 Real Home Link

6.3.1.1.1 NEMO-HA_2_1_1 - Receiving valid BU A=1 & R=1

[PURPOSE]

NEMO-HA_2_1_1 - Valid Registration, Receiving valid BU A=1 & R=1

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

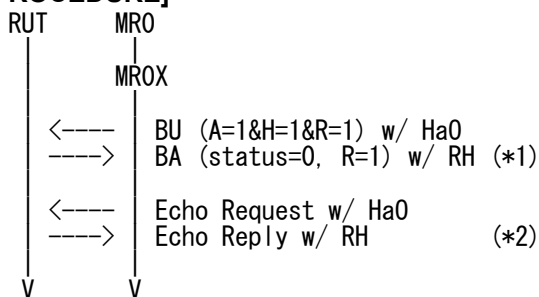
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129



[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1 and Section 10.4.1.



6.3.1.1.2 NEMO-HA_2_1_2 - Receiving valid BU A=0 & R=1

[PURPOSE]

NEMO-HA_2_1_2 - Valid Registration, Receiving valid BU A=0 & R=1

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

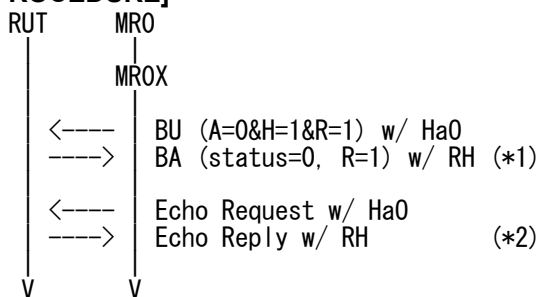
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6



See Section 10.3.1 and Section 10.4.1.

6.3.1.1.3 NEMO-HA_2_1_14 - Receiving suspicious BU non-zero reserved field

[PURPOSE]

NEMO-HA_2_1_14 - Valid Registration, Receiving suspicious BU non-zero reserved field

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

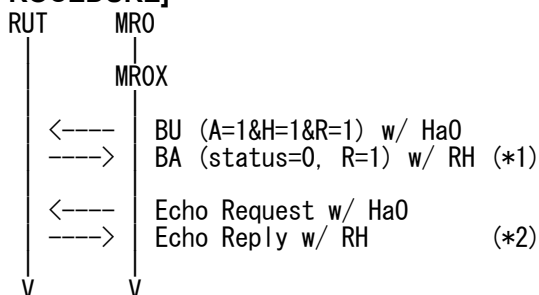
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MHType	5
	Reserved	1
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Reserved	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MHType	5
	Reserved	1
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Reserved	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Option Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	126

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]



RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 4.1.

RFC3775 Mobility Support in IPv6

See Section 6.1.7.

6.3.1.1.4 NEMO-HA_2_1_3 - Decrease lifetime

[PURPOSE]

NEMO-HA_2_1_3 - Valid Registration, Decrease lifetime

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

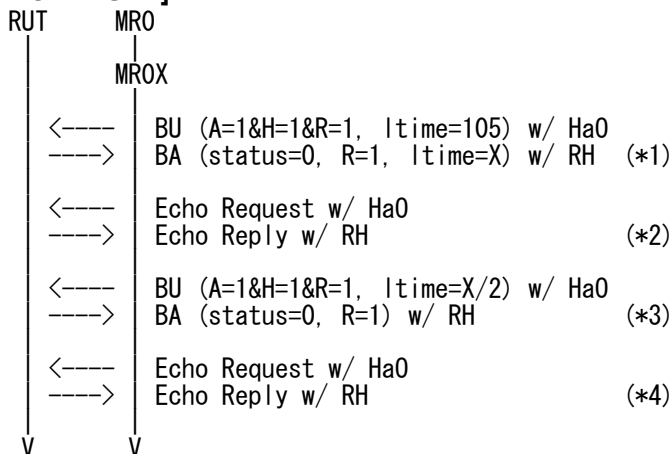
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Option Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0X (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	15	
	Lifetime	<=105 (=X)	
	Binding Refresh Advice Option	Interval	<=105 (=X)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0X (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	15	
	Lifetime	<=105 (=X)	
	PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. MR0X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	X/2
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	X/2
	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Option Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

6. MR0X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=X/2
Binding Refresh Advice Option	Interval	<=X/2

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=X/2
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI



ICMPv6 Header	Type	129
---------------	------	-----

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR0X (Link0X_global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives BA w/ RH
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.1.1.5 NEMO-HA_2_1_4 - Lifetime expired

[PURPOSE]

NEMO-HA_2_1_4 - Valid Registration, Lifetime expired

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

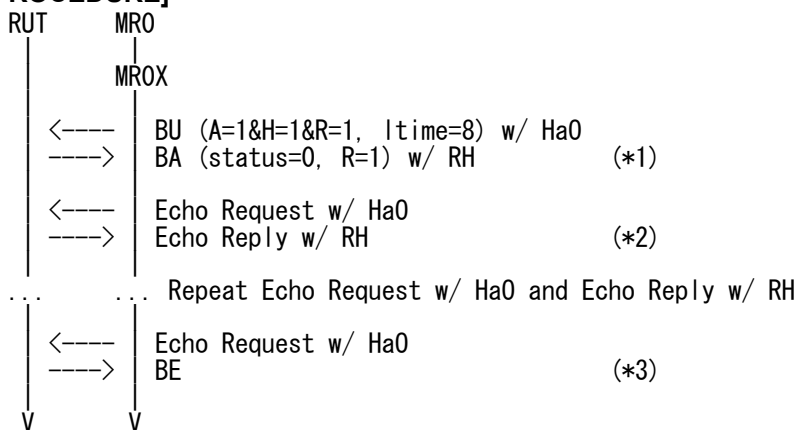
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	6
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	8
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	6

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	8
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=8
Binding Refresh Advice Option	Interval	<=8

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=8
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. Repeat Step 3 and 4 every second until the lifetime of the binding expires.

6. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

7. MR0X receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.1.1.6 NEMO-HA_2_1_9 - Comparison of binding lifetime and prefix lifetime

[PURPOSE]

NEMO-HA_2_1_9 – Valid Registration, Comparison of binding lifetime and prefix lifetime

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.2 Common Topology-2

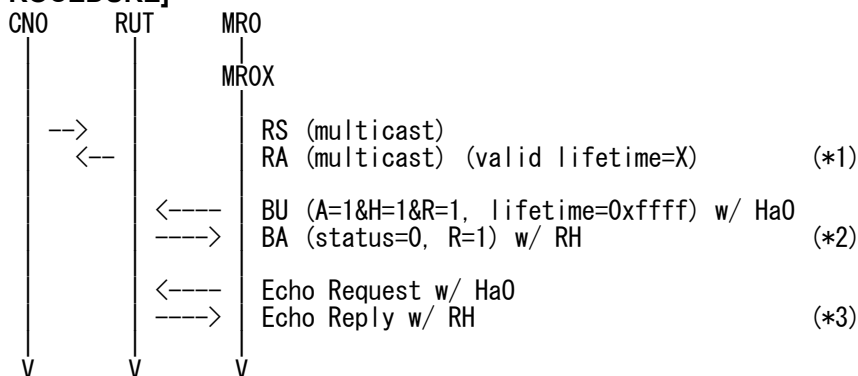
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	X
	Prefix	RUT (Link0.global)

3. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

4. MR0X receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=X
Binding Refresh Advice Option	Interval	<=X

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=X
PadN	length	2

5. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Reply w/ RH (*3) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)



Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.1.2 Virtual Home Link

6.3.1.2.1 NEMO-HA_2_1_5 - Receiving valid BU A=1 & R=1

[PURPOSE]

NEMO-HA_2_1_5 - Valid Registration, Receiving valid BU A=1 & R=1

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

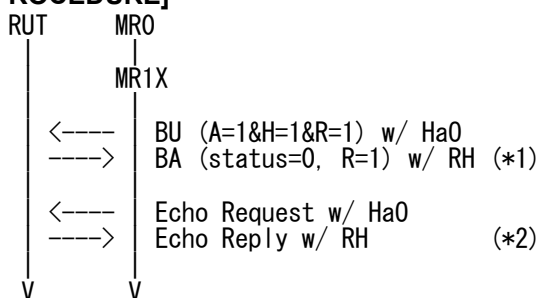
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
	Alternate CoA Option	Address

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]



RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1 and Section 10.4.2.

6.3.1.2.2 NEMO-HA_2_1_6 - Receiving valid BU A=0 & R=1

[PURPOSE]

NEMO-HA_2_1_6 - Valid Registration, Receiving valid BU A=0 & R=1

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

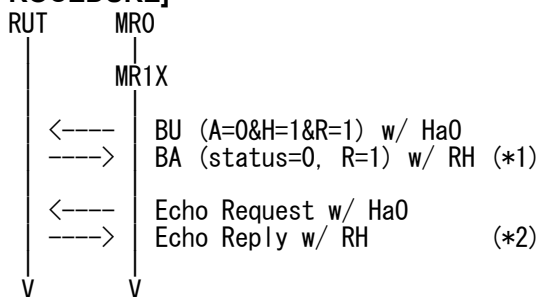
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0

Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
Binding Refresh Advice Option	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
PadN	Lifetime	<=105
	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6



See Section 10.3.1 and Section 10.4.2.



6.3.1.2.3 NEMO-HA_2_1_15 - Receiving suspicious BU non-zero reserved field

[PURPOSE]

HA_2_1_15 - Valid Registration, Receiving suspicious BU non-zero reserved field

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

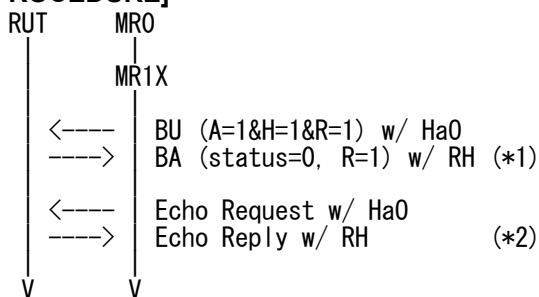
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Reserved	1
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Reserved	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Reserved	1
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Reserved	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	126

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]



RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 4.1.

RFC3775 Mobility Support in IPv6

See Section 6.1.7.

6.3.1.2.4 NEMO-HA_2_1_7 - Decrease lifetime

[PURPOSE]

NEMO-HA_2_1_7 - Valid Registration, Decrease lifetime

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

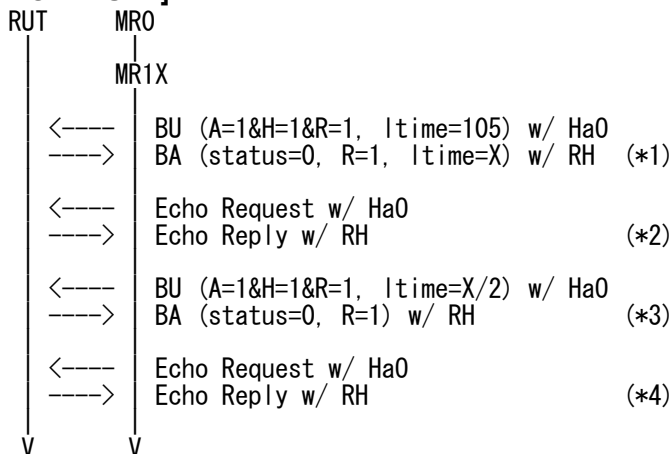
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MR1X (Link1X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105 (=X)	
		Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MR1X (Link1X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105 (=X)	
		PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

5. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
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Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	X/2
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	X/2
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A.prefix)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=X/2
Binding Refresh Advice Option	Interval	<=X/2

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=X/2
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI



ICMPv6 Header	Type	129
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● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR1X (Link1X_global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.1.2.5 NEMO-HA_2_1_8 - Lifetime expired

[PURPOSE]

NEMO-HA_2_1_8 - Valid Registration, Lifetime expired

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

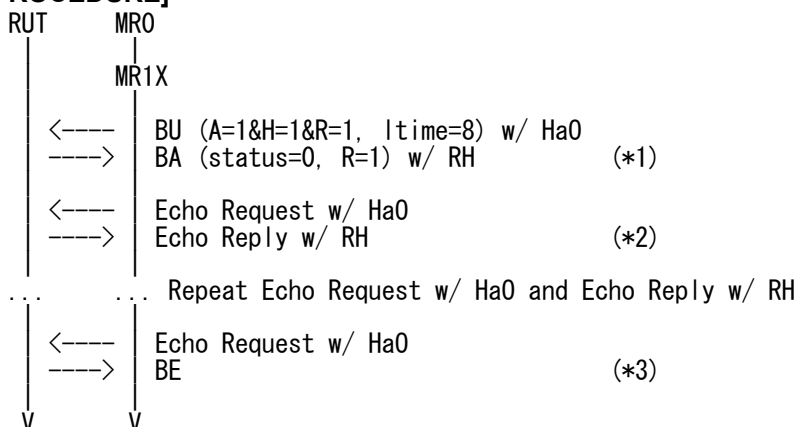
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	6
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	8
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	6

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	8
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=8
Binding Refresh Advice Option	Interval	<=8

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=8
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. Repeat Step 3 and 4 every second until the lifetime of the binding expires.

6. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

Ipv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

Ipv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

7. MR1X receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.1.

6.3.2 Invalid Registration

6.3.2.1 Real Home Link

6.3.2.1.1 NEMO-HA_2_2_3 - Receiving invalid BU (unauthorization)

[PURPOSE]

NEMO-HA_2_2_3 – Invalid Registration, Receiving invalid BU (unauthorization)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

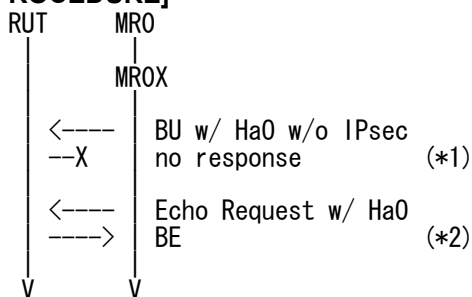
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO w/o ESP (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. no response (*1)

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.2.1.2 NEMO-HA_2_2_7 - Receiving invalid BU w/ Nonce Indices option

[PURPOSE]

NEMO-HA_2_2_7 – Invalid Registration, Receiving invalid BU w/ Nonce Indices option

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

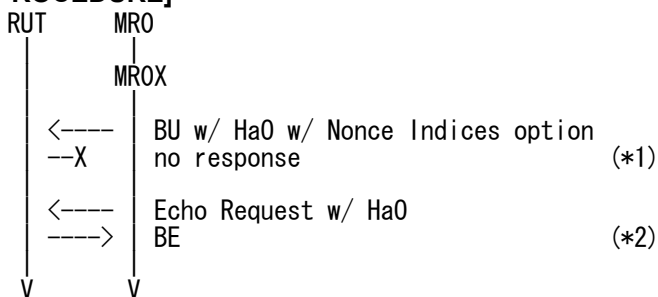
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (LinkOX,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
Nonce Indices Option	Nonce Index	Any
PadN	Length	2
Alternate CoA Option	Address	MROX (LinkOX,global)

● explicit mode

IPv6 Header	Source Address	MROX (LinkOX,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

Nonce Indices Option	Nonce Index	Any
PadN	Length	2
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. no response (*1)

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.2.1.3 NEMO-HA_2_2_13 - Receiving invalid BU, HaO contains multicast address

[PURPOSE]

NEMO-HA_2_2_13 – Invalid Registration, Receiving invalid BU, HaO contains multicast address

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

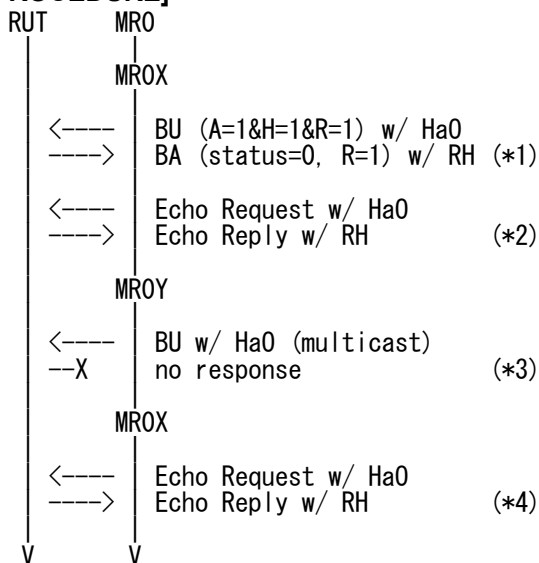
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
----------------------	---------	----------------------

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (HoA,global,solicited-node multicast address)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (HoA,global,solicited-node multicast address)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. no response (*3)

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH



(*3) PASS: no response

(*4) PASS: MROX receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.2.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.

6.3.2.2 Virtual Home Link

6.3.2.2.1 NEMO-HA_2_2_6 - Receiving invalid BU (unauthorization)

[PURPOSE]

NEMO-HA_2_2_6 – Invalid Registration, Receiving invalid BU (unauthorization)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

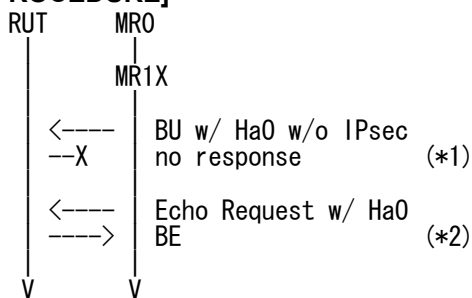
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO w/o ESP (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. no response (*1)

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.2.2.2 NEMO-HA_2_2_8 - Receiving invalid BU w/ Nonce Indices option

[PURPOSE]

NEMO-HA_2_2_8 – Invalid Registration, Receiving invalid BU w/ Nonce Indices option

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

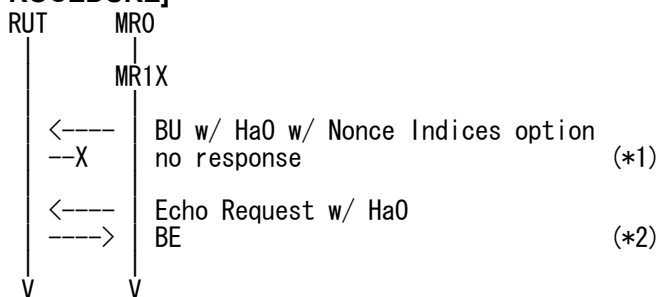
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	
Nonce Indices Option	Nonce Index	Any
PadN	Length	2
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	



Nonce Indices Option	Nonce Index	Any
PadN	Length	2
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. no response (*1)

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: no response

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.2.2.3 NEMO-HA_2_2_14 - Receiving invalid BU, HaO contains multicast address

[PURPOSE]

NEMO-HA_2_2_14 – Invalid Registration, Receiving invalid BU, HaO contains multicast address

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

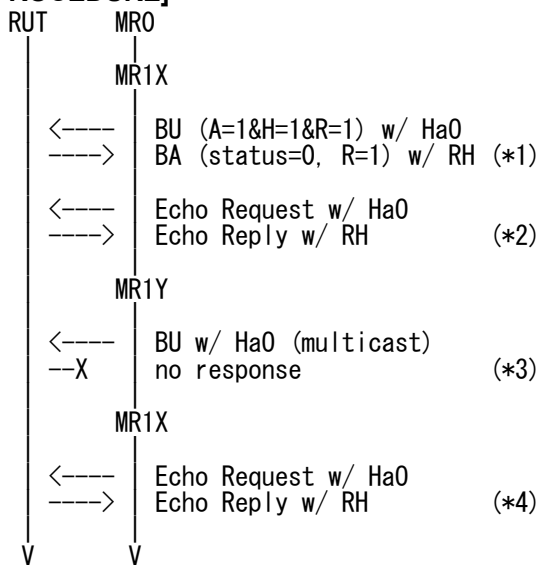
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR1X (Link1X,global)
----------------------	---------	----------------------

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (HoA,global,solicited-node multicast address)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (HoA,global,solicited-node multicast address)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Option Length	0
MNP Option	Prefix	MNP (Link1A,prefix)

6. no response (*3)

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

(*3) PASS: no response



(*4) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.2.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.3 Proxy DAD Succeeded

6.3.3.1 Real Home Link

6.3.3.1.1 NEMO-HA_2_3_1 - DAD succeeded (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_2_3_1 - DAD succeeded (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

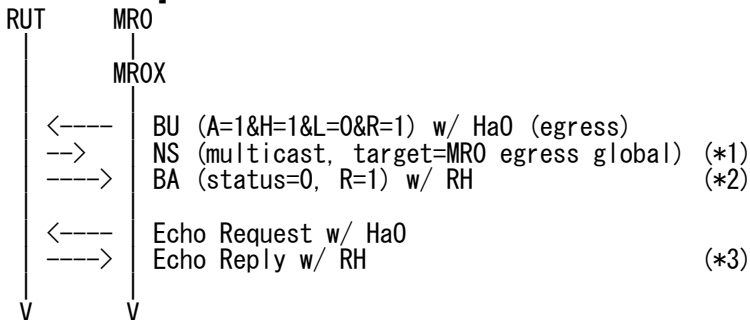
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
		0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. MR0X receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

4. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

5. MR0X receives Echo Reply w/ RH (*3) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2



	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: RUT sends NS to multicast, target is MR0 global address
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.1.

6.3.3.1.2 NEMO-HA_2_3_2 - DAD succeeded (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_2_3_2 - DAD succeeded (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

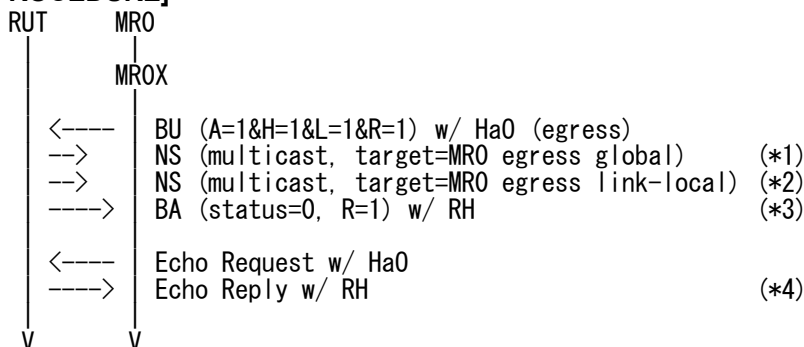
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1

	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. RUT sends NS to multicast (*2) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,link-local)

4. MROX receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)



Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: RUT sends NS to multicast, target is MR0 global address
- (*2) PASS: RUT sends NS to multicast, target is MR0 link-local address
- (*3) PASS: MR0X receives BA w/ RH
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.3.1.3 NEMO-HA_2_3_3 - DAD succeeded (HoA(from), L=0), but receipt of NA w/ egress link-local target address

[PURPOSE]

NEMO-HA_2_3_3 - DAD succeeded (HoA(from HNP), L=0), but receipt of NA w/ egress link-local target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

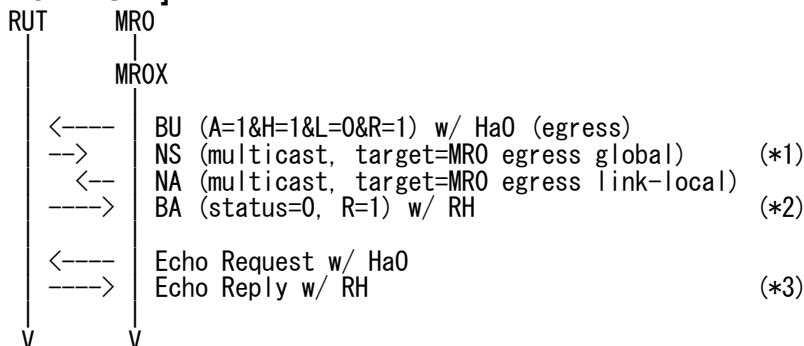
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.global)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0.link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0.link-local)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)	
	Destination Address	MROX (Link0X.global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0.global)	
	Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	15	
	Lifetime	<=105	
	Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)	
	Destination Address	MROX (Link0X.global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0.global)	
	Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	15	
	Lifetime	<=105	
	PadN	length	2

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

6. MROX receives Echo Reply w/ RH (*3) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129



● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: RUT sends NS to multicast, target is MR0 global address
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.1.

6.3.4 Proxy DAD Failed

6.3.4.1 Real Home Link

6.3.4.1.1 NEMO-HA_2_4_1 - Receipt of NA w/ egress global target address (HoA(from HNP), A=1 & L=0)

[PURPOSE]

HA_2_4_1 - Proxy DAD Failed (HoA(from HNP), A=1 & L=0), Receipt of NA w/ egress global target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

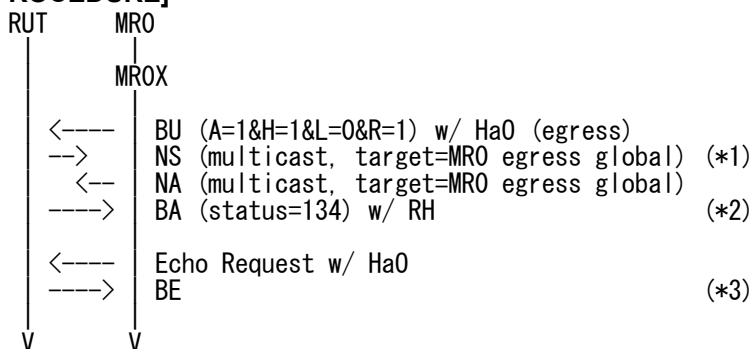
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)

4. MR0X receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

5. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MR0X receives BE (*3) (Refer to 5.14.1)



IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: RUT sends NS to multicast, target is MR0 global address
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.1.



6.3.4.1.2 NEMO-HA_2_4_4 - Receipt of NA w/ egress global target address (HoA(from HNP), A=0 & L=0)

[PURPOSE]

NEMO-HA_2_4_4 - Proxy DAD Failed (HoA(from HNP), A=0 & L=0), Receipt of NA w/ egress global target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

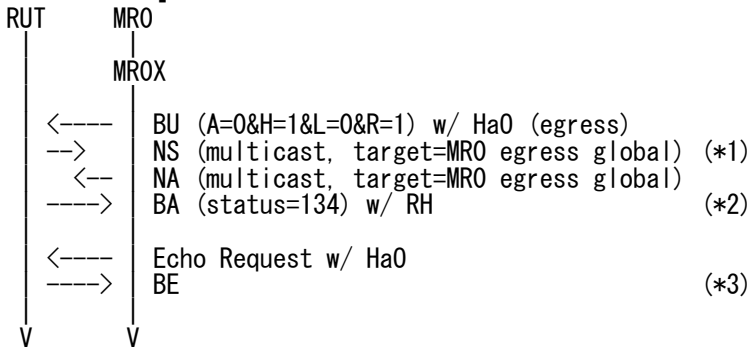
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]



(*1) PASS: RUT sends NS to multicast, target is MR0 global address

(*2) PASS: MR0X receives BA w/ RH

(*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.4.1.3 NEMO-HA_2_4_2 - Receipt of NA w/ egress global target address (HoA(from HNP), A=1 & L=1)

[PURPOSE]

NEMO-HA_2_4_2 - Proxy DAD Failed (HoA(from HNP), A=1 & L=1), Receipt of NA w/ egress global target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

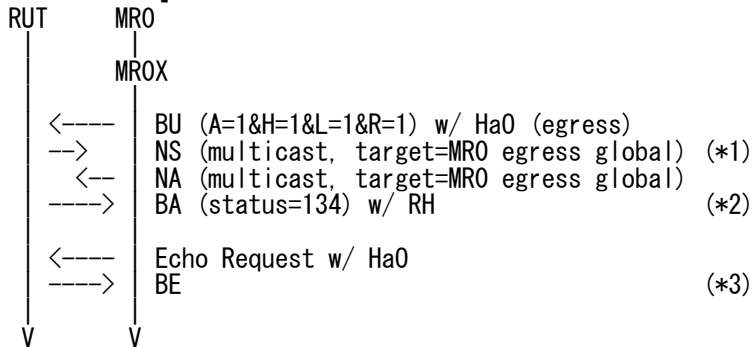
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0,link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	134
		K Flag	0
		R Flag	Any
		Sequence	15
		Lifetime	Any
		Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	134
		K Flag	0
		R Flag	Any
		Sequence	15
		Lifetime	Any
		PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]



(*1) PASS: RUT sends NS to multicast, target is MR0 global address

(*2) PASS: MR0X receives BA w/ RH

(*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.4.1.4 NEMO-HA_2_4_5 - Receipt of NA w/ egress global target address (HoA(from HNP), A=0 & L=1)

[PURPOSE]

NEMO-HA_2_4_5 - Proxy DAD Failed (HoA(from HNP), A=0 & L=1), Receipt of NA w/ egress global target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

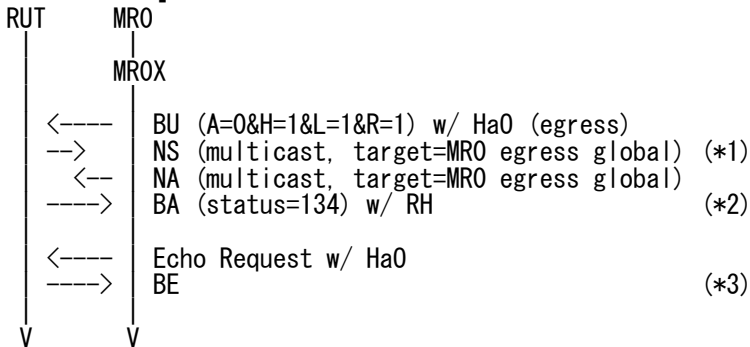
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]



- (*1) PASS: RUT sends NS to multicast, target is MR0 global address
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.4.1.5 NEMO-HA_2_4_3 - Receipt of NA w/ egress link-local target address (HoA(from HNP), A=1 & L=1)

[PURPOSE]

NEMO-HA_2_4_3 - Proxy DAD Failed (HoA(from HNP), A=1 & L=1), Receipt of NA w/ egress link-local target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

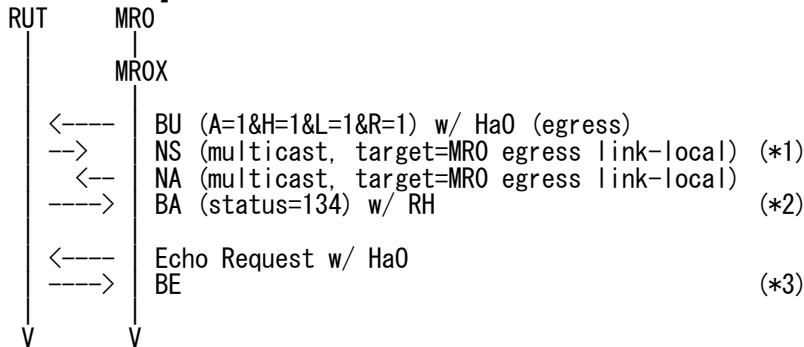
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
	Alternate CoA Option	Address

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.link-local,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.link-local)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0.link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	0
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0.link-local)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]



(*1) PASS: RUT sends NS to multicast, target is MR0 global address

(*2) PASS: MR0X receives BA w/ RH

(*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.



6.3.4.1.6 NEMO-HA_2_4_6 - Receipt of NA w/ egress link-local target address (HoA(from HNP), A=0 & L=1)

[PURPOSE]

NEMO-HA_2_4_6 - Proxy DAD Failed (HoA(from HNP), A=0 & L=1), Receipt of NA w/ egress link-local target address

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

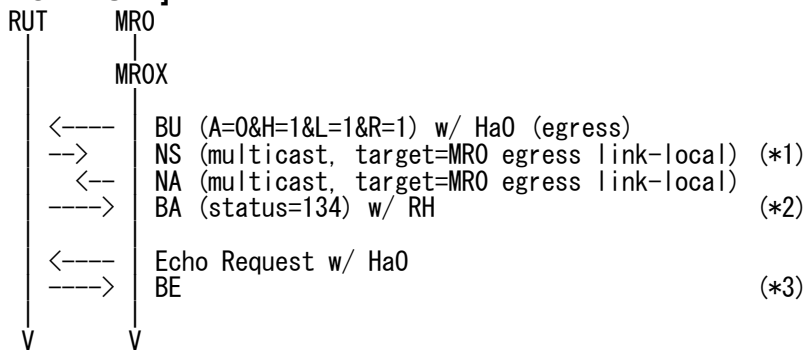
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MRO (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. RUT sends NS to multicast (*1) (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.link-local,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.link-local)

3. MR0 sends NA to multicast (Refer to 5.4.1)

IPv6 Header	Source Address	MR0 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R	0
	S	0
	O	1
	Target Address	MR0 (Link0.link-local)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	134
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

5. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

6. MROX receives BE (*3) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]



(*1) PASS: RUT sends NS to multicast, target is MR0 global address

(*2) PASS: MR0X receives BA w/ RH

(*3) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.1.

6.3.5 Valid Sequence Number

6.3.5.1 Real Home Link

6.3.5.1.1 NEMO-HA_2_5_1 - 1st=15, 2nd=16 (A=1)

[PURPOSE]

NEMO-HA_2_5_1 - Valid Sequence Number, 1st=15, 2nd=16 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

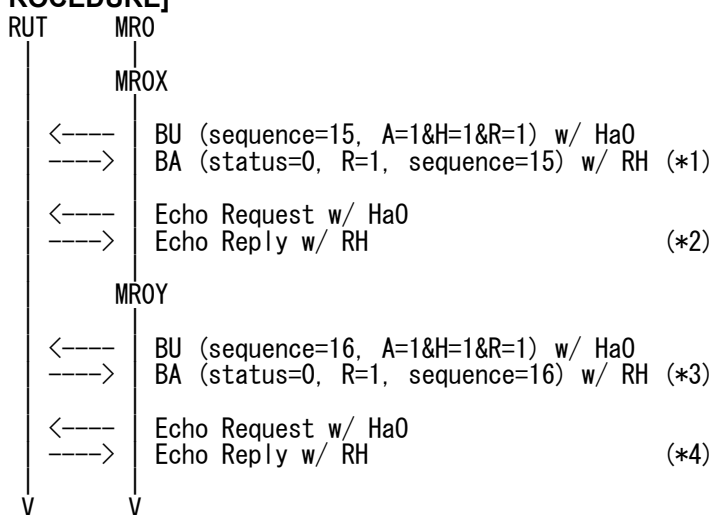
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (LinkO.global)
Destination Option Header	Home Address	MRO (LinkO.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
	PadN	length

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
Lifetime		<=105	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128



8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.1.2 NEMO-HA_2_5_5 - 1st=15, 2nd=16 (A=0)

[PURPOSE]

NEMO-HA_2_5_5 - Valid Sequence Number, 1st=15, 2nd=16 (A=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

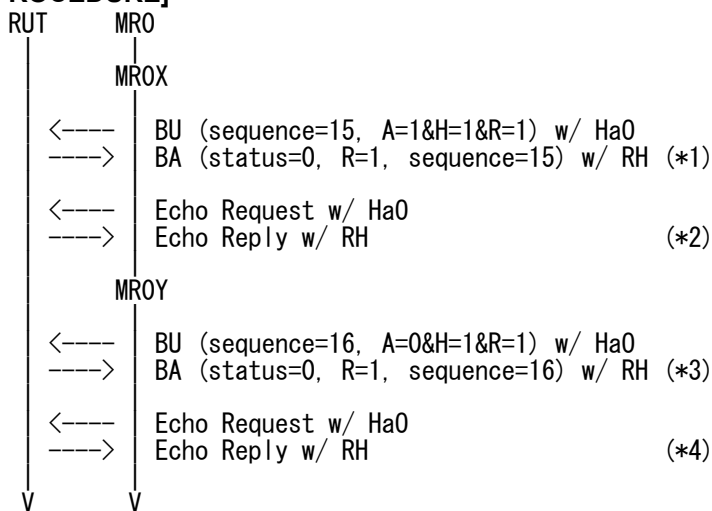
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.1.3 NEMO-HA_2_5_2 - 1st=15, 2nd=32782 (A=1)

[PURPOSE]

NEMO-HA_2_5_2 - Valid Sequence Number, 1st=15, 2nd=32782 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

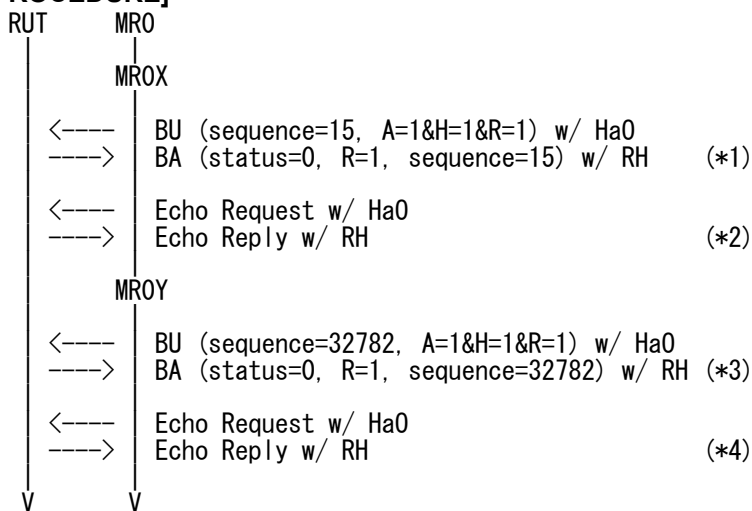
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32782
		Lifetime	<=105
Binding Refresh Advice Option		Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32782
		Lifetime	<=105
PadN		length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.1.4 NEMO-HA_2_7_1 - 1st=32783, 2nd=32784 (A=1)

[PURPOSE]

NEMO-HA_2_7_1 - Valid Sequence Number, 1st=32783, 2nd=32784 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

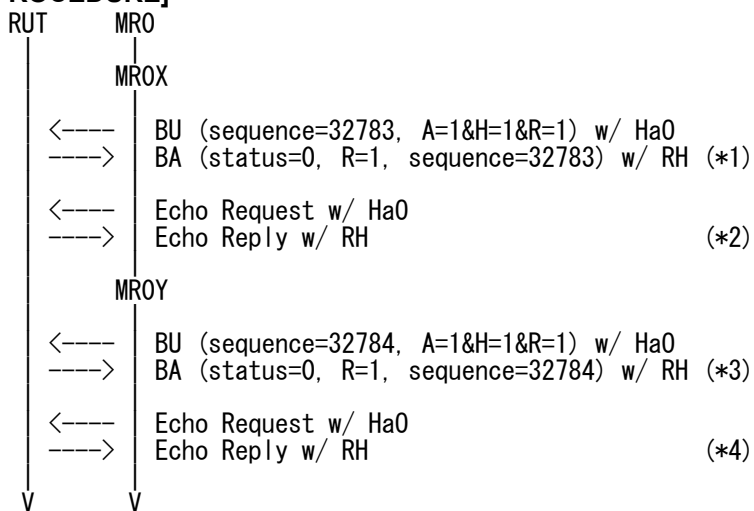
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32784
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32784
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32784
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R flag	1
		Sequence	32784
Lifetime		<=105	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.1.5 NEMO-HA_2_7_2 - 1st=32783, 2nd=14 (A=1)

[PURPOSE]

NEMO-HA_2_7_2 - Valid Sequence Number, 1st=32783, 2nd=14 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

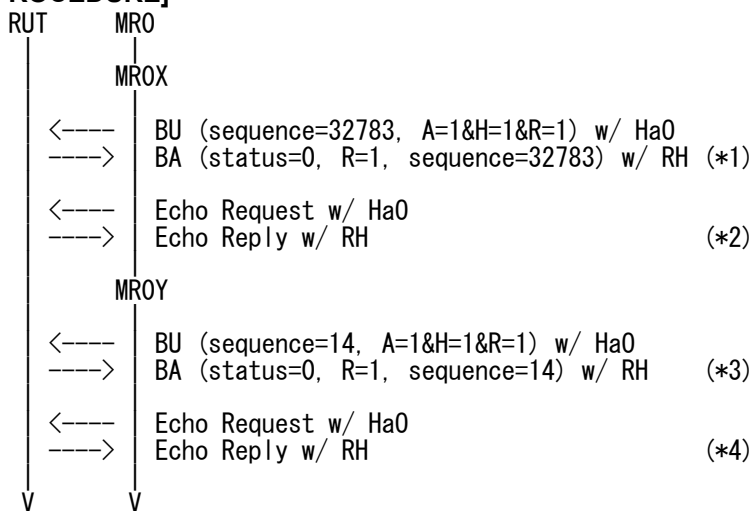
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	14
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	14
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.2 Virtual Home Link

6.3.5.2.1 NEMO-HA_2_5_3 - 1st=15, 2nd=16 (A=1)

[PURPOSE]

NEMO-HA_2_5_3 - Valid Sequence Number, 1st=15, 2nd=16 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

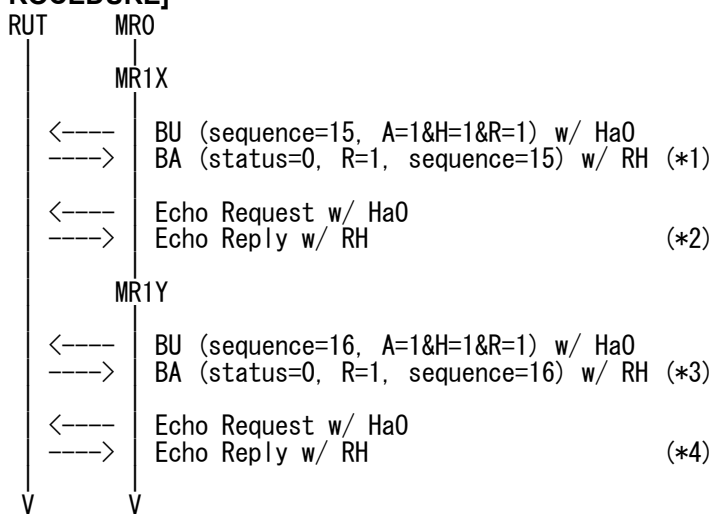
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.2.2 NEMO-HA_2_5_7 - 1st=15, 2nd=16 (A=0)

[PURPOSE]

NEMO-HA_2_5_7 - Valid Sequence Number, 1st=15, 2nd=16 (A=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

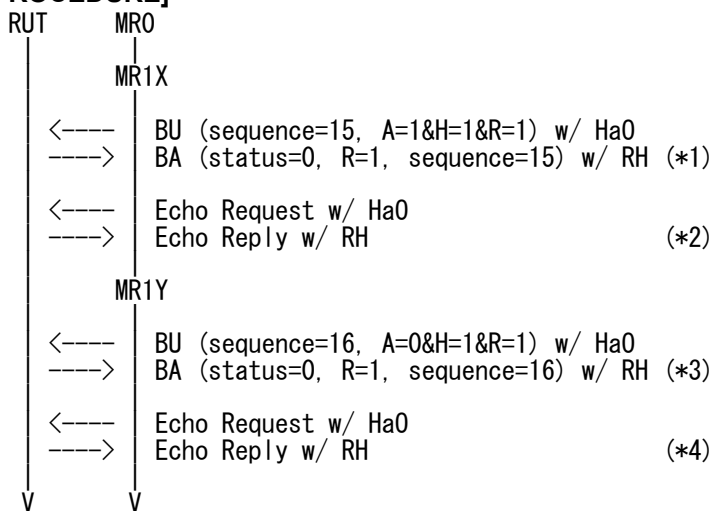
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ Ha0 (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
Lifetime		<=105	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.2.3 NEMO-HA_2_5_4 - 1st=15, 2nd=32782 (A=1)

[PURPOSE]

NEMO-HA_2_5_4 - Valid Sequence Number, 1st=15, 2nd=32782 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

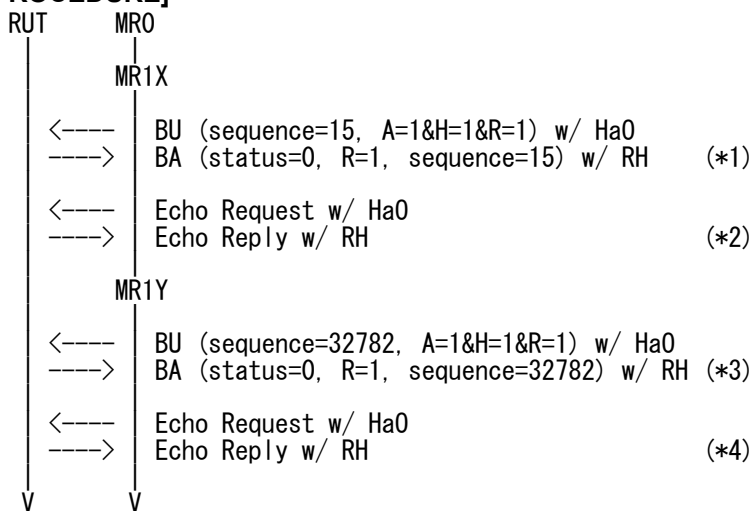
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32782
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32782
Lifetime		<=105	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.2.4 NEMO-HA_2_7_3 - 1st=32783, 2nd=32784 (A=1)

[PURPOSE]

NEMO-HA_2_7_3 - Valid Sequence Number, 1st=32783, 2nd=32784 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

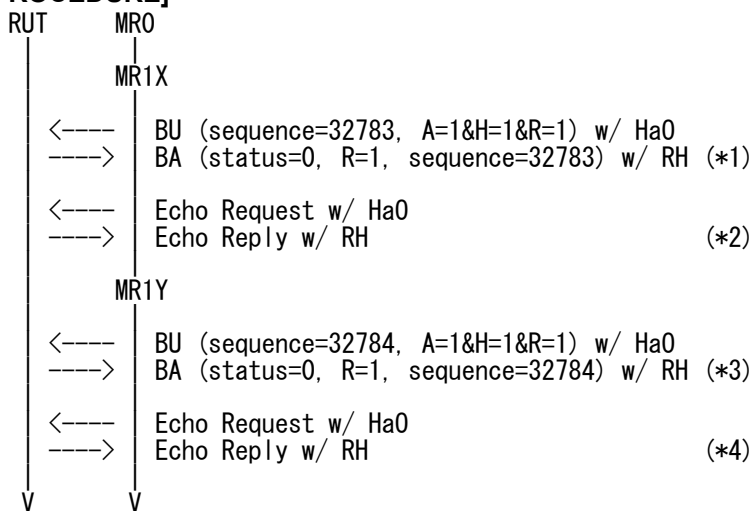
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32784
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32784
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32784
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	32784
Lifetime		<=105	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.5.2.5 NEMO-HA_2_7_4 - 1st=32783, 2nd=14 (A=1)

[PURPOSE]

NEMO-HA_2_7_4 - Valid Sequence Number, 1st=32783, 2nd=14 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

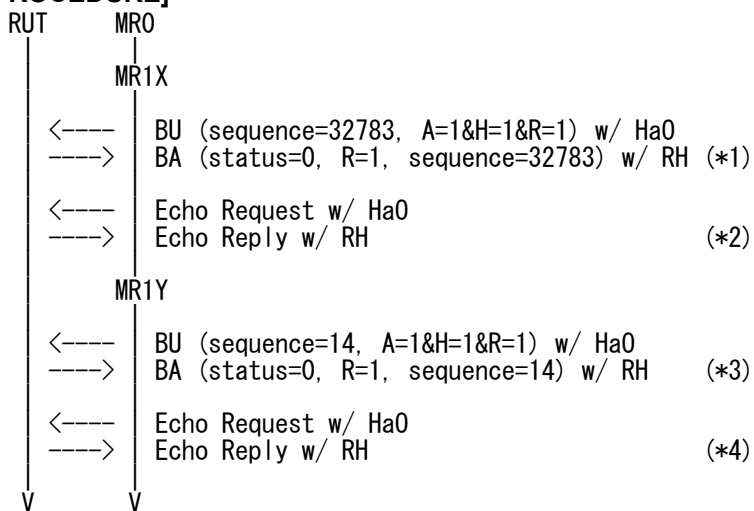
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	14
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	14
Lifetime		<=105	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	ICMPv6 Header	Type

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.

6.3.6 Invalid Sequence Number

6.3.6.1 Real Home Link

6.3.6.1.1 NEMO-HA_2_6_1 - 1st=15, 2nd=14 (A=1)

[PURPOSE]

NEMO-HA_2_6_1 - Invalid Sequence Number, 1st=15, 2nd=14 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

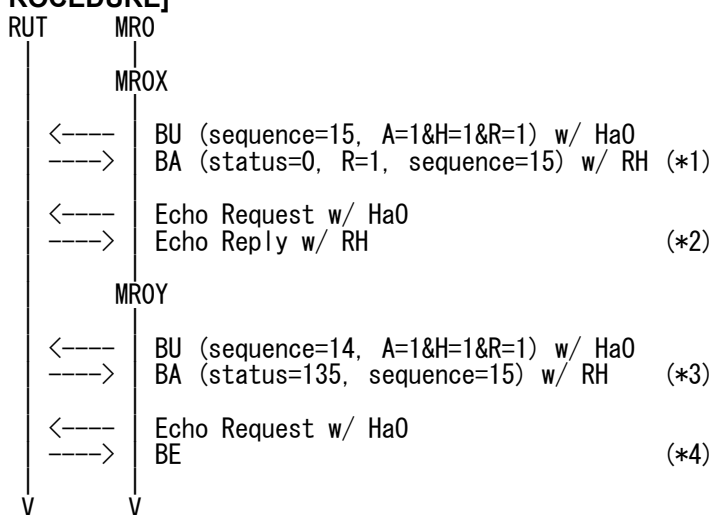
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
	PadN	length

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128



8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.6.1.2 NEMO-HA_2_6_4 - 1st=15, 2nd=14 (A=0)

[PURPOSE]

NEMO-HA_2_6_4 - Invalid Sequence Number, 1st=15, 2nd=14 (A=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

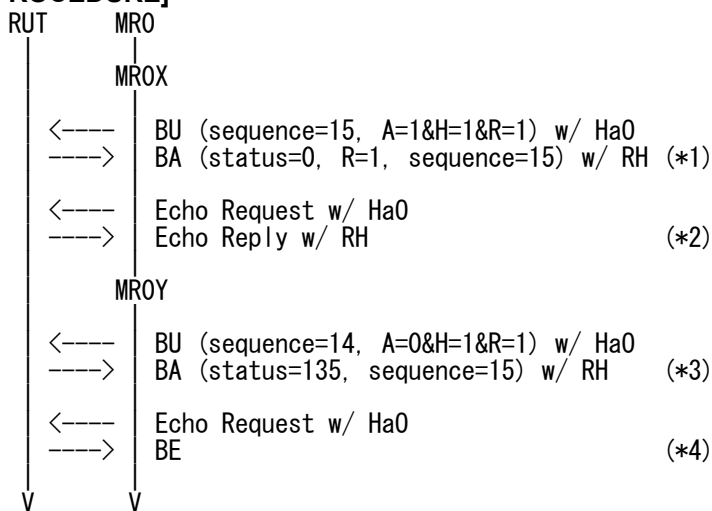
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.1.3 NEMO-HA_2_6_2 - 1st=15, 2nd=15 (A=1)

[PURPOSE]

NEMO-HA_2_6_2 - Invalid Sequence Number, 1st=15, 2nd=15 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

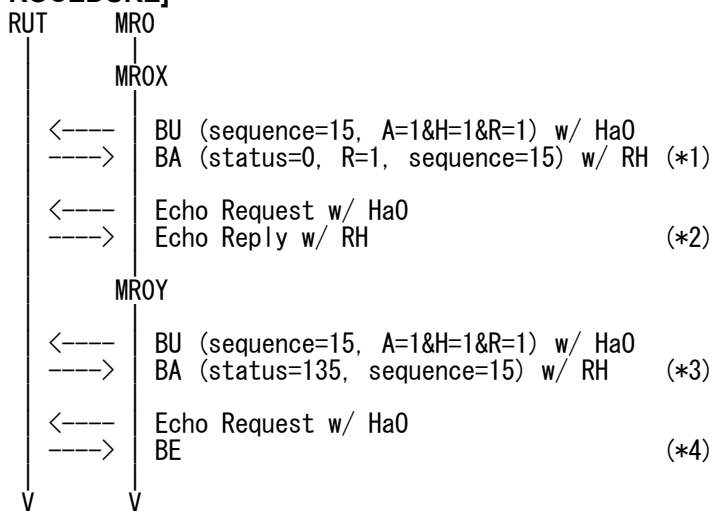
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.1.4 NEMO-HA_2_6_3 - 1st=15, 2nd=32783 (A=1)

[PURPOSE]

NEMO-HA_2_6_3 - Invalid Sequence Number, 1st=15, 2nd=32783 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

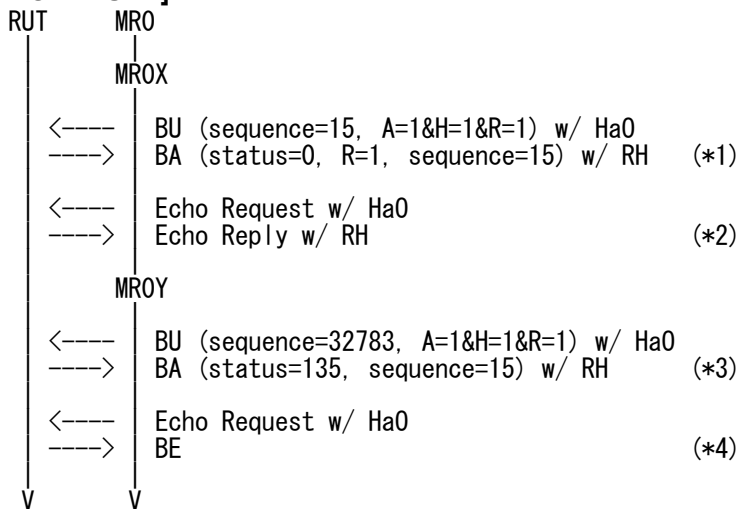
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.1.5 NEMO-HA_2_8_1 - 1st=32783, 2nd=32782 (A=1)

[PURPOSE]

NEMO-HA_2_8_1 - Invalid Sequence Number, 1st=32783, 2nd=32782 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

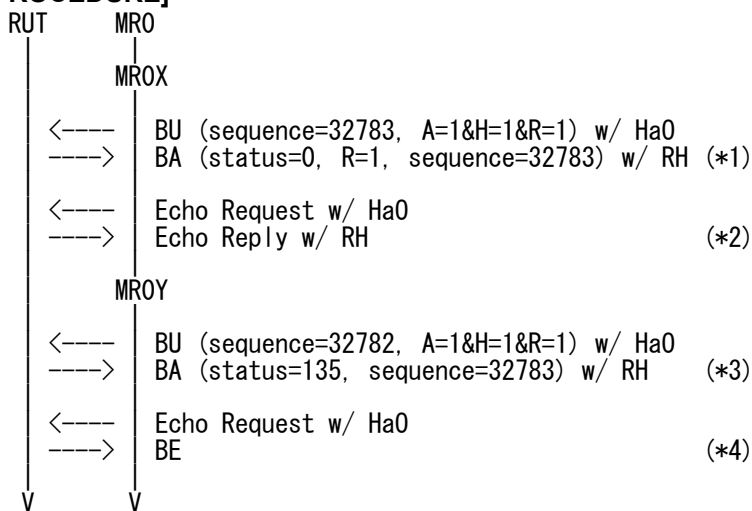
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	32783
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	32783
	Lifetime	Any
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.1.6 NEMO-HA_2_8_2 - 1st=32783, 2nd=32783 (A=1)

[PURPOSE]

NEMO-HA_2_8_2 - Invalid Sequence Number, 1st=32783, 2nd=32783 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

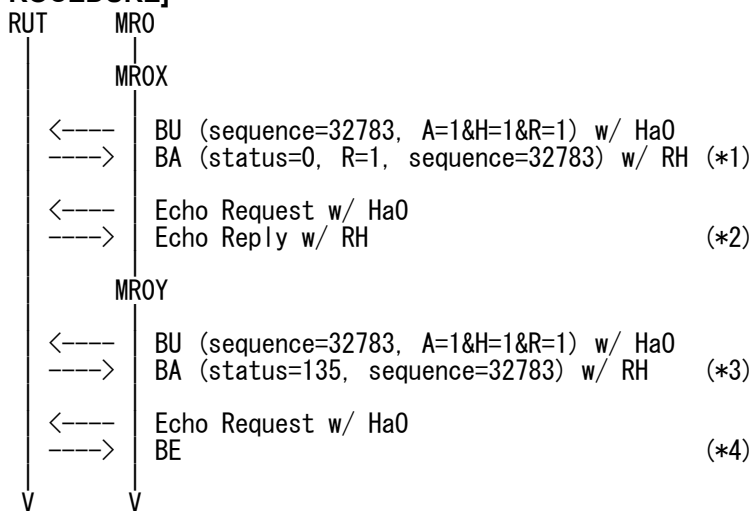
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	32783
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	32783
	Lifetime	Any
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.1.7 NEMO-HA_2_8_3 - 1st=32783, 2nd=15 (A=1)

[PURPOSE]

NEMO-HA_2_8_3 - Invalid Sequence Number, 1st=32783, 2nd=15 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

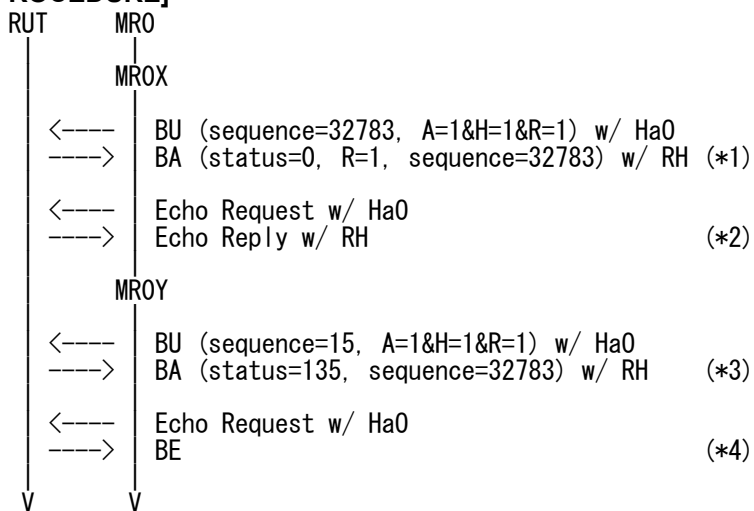
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● implicit mode

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
PadN	length	2	

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.

6.3.6.2 Virtual Home Link

6.3.6.2.1 NEMO-HA_2_6_7 - 1st=15, 2nd=14 (A=1)

[PURPOSE]

NEMO-HA_2_6_7 - Invalid Sequence Number, 1st=15, 2nd=14 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

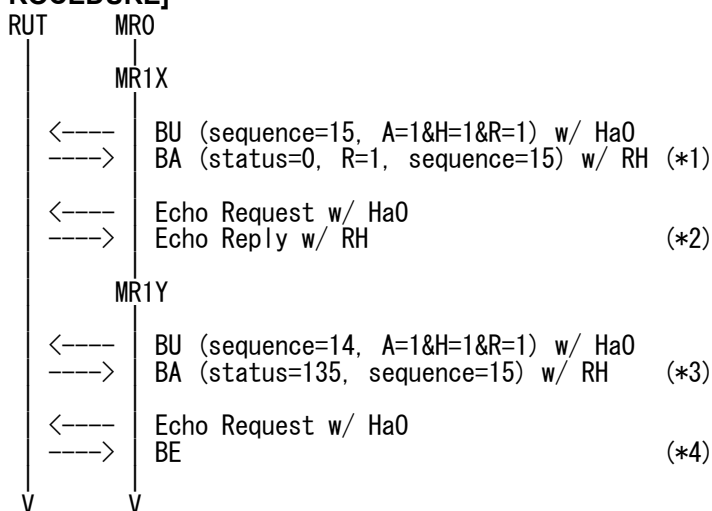
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)



Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 9.5.1.



6.3.6.2.2 NEMO-HA_2_6_10 - 1st=15, 2nd=14 (A=0)

[PURPOSE]

NEMO-HA_2_6_10 - Invalid Sequence Number, 1st=15, 2nd=14 (A=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

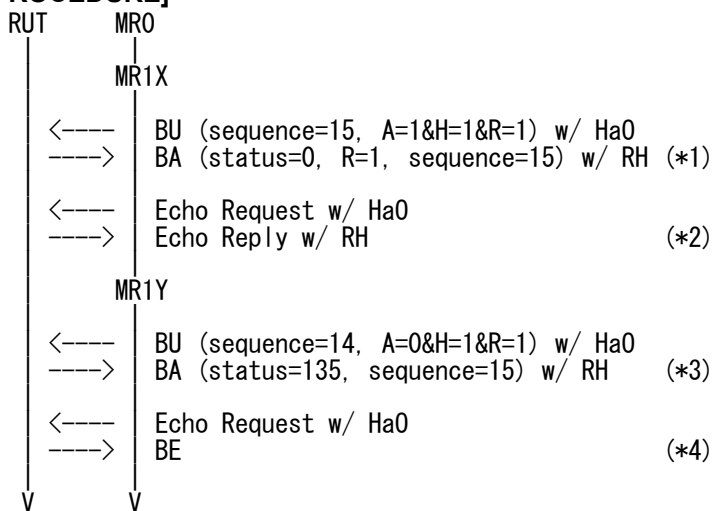
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.2.3 NEMO-HA_2_6_8 - 1st=15, 2nd=15 (A=1)

[PURPOSE]

NEMO-HA_2_6_8 - Invalid Sequence Number, 1st=15, 2nd=15 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

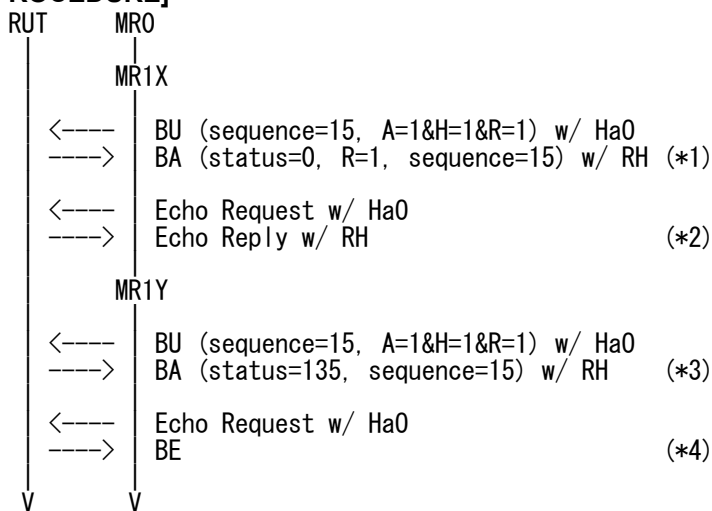
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.2.4 NEMO-HA_2_6_9 - 1st=15, 2nd=32783 (A=1)

[PURPOSE]

NEMO-HA_2_6_9 - Invalid Sequence Number, 1st=15, 2nd=32783 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

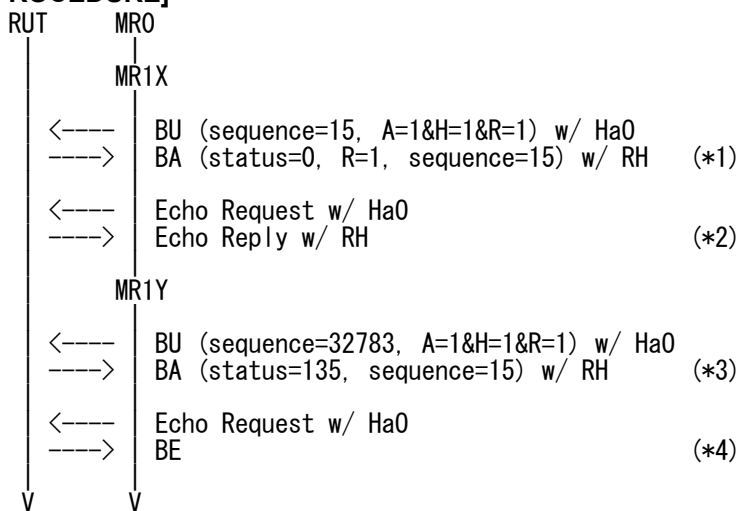
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	15
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.2.5 NEMO-HA_2_8_7 - 1st=32783, 2nd=32782 (A=1)

[PURPOSE]

NEMO-HA_2_8_7 - Invalid Sequence Number, 1st=32783, 2nd=32782 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

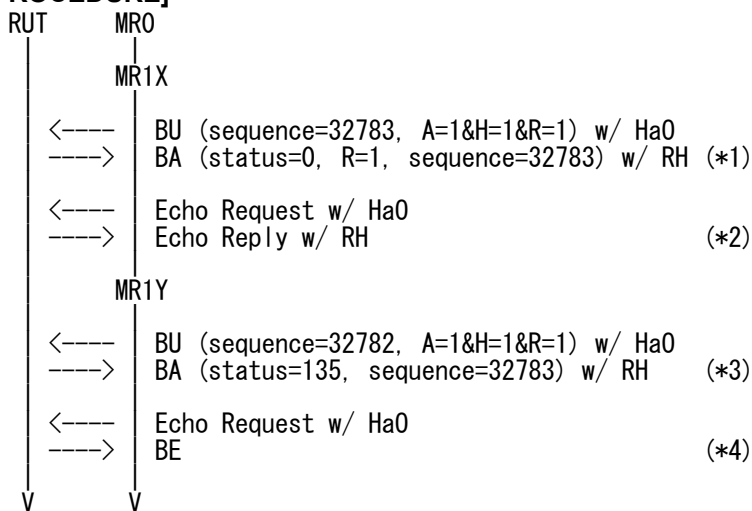
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,Bglobal)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,Bglobal)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32782
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.2.6 NEMO-HA_2_8_8 - 1st=32783, 2nd=32783 (A=1)

[PURPOSE]

NEMO-HA_2_8_8 - Invalid Sequence Number, 1st=32783, 2nd=32783 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

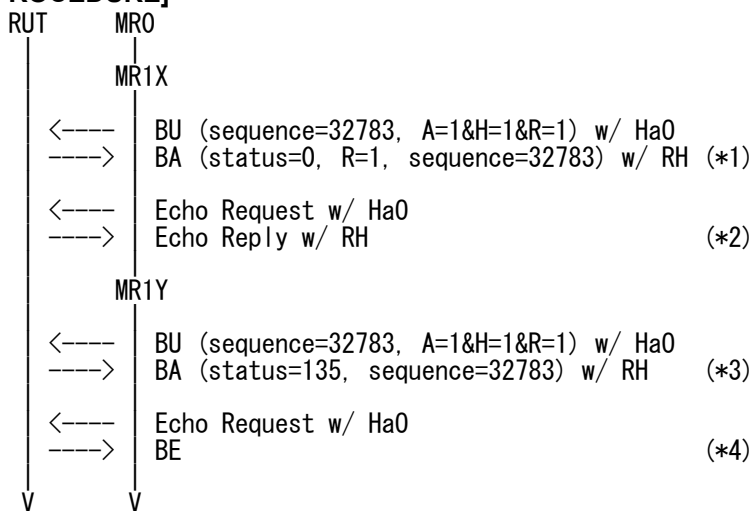
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.6.2.7 NEMO-HA_2_8_9 - 1st=32783, 2nd=15 (A=1)

[PURPOSE]

NEMO-HA_2_8_9 - Invalid Sequence Number, 1st=32783, 2nd=15 (A=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

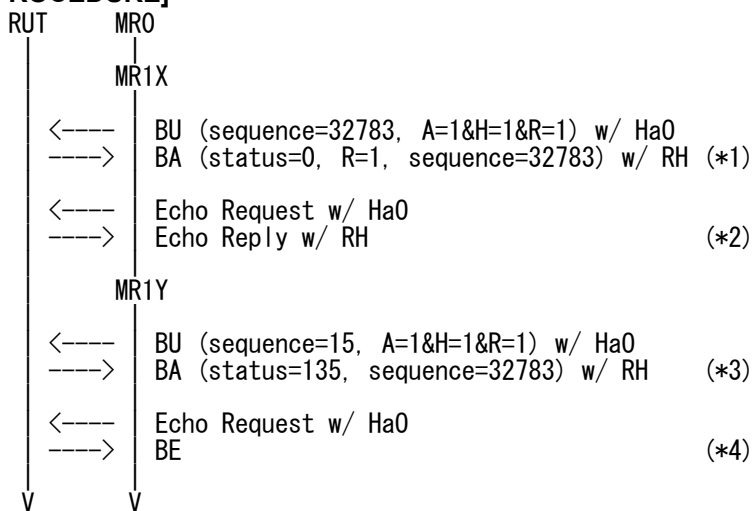
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	32783
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	32783
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
Binding Refresh Advice Option	Interval	Any	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	135
		K Flag	0
		R Flag	Any
		Sequence	32783
Lifetime		Any	
PadN	length	2	

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.5.1.



6.3.7 Valid Registration w/ Mobile Network Prefix

6.3.7.1 Real Home Link

6.3.7.1.1 NEMO-HA_2_9_1 - Explicit mode (Two Mobile Network Prefix Options are included)

[PURPOSE]

NEMO-HA_2_9_1 - Valid Registration w/ Mobile Network Prefix, Explicit mode (Two Mobile Network Prefix Options are included)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

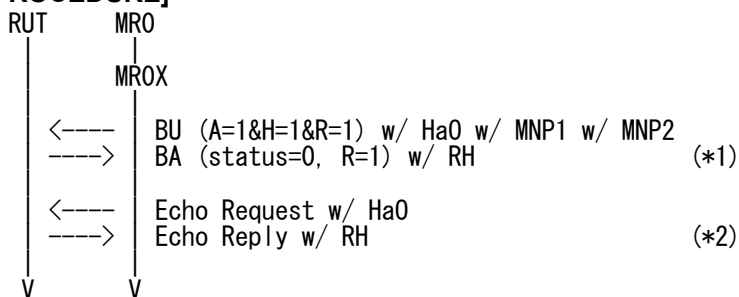
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	
PadN	Option Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Option Length	2

MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.1.2 NEMO-HA_2_9_2 - Explicit mode (update MNP A1 -> MNP A2)

[PURPOSE]

NEMO-HA_2_9_2 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1 -> MNP A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

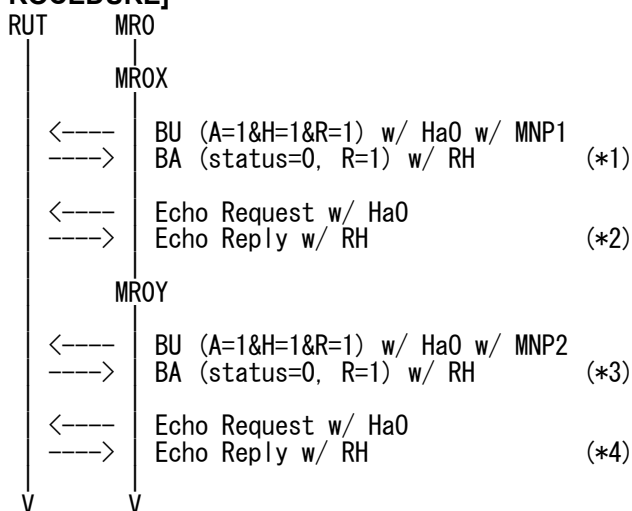
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Option Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.1.3 NEMO-HA_2_9_3 - Explicit mode (update MNP A1 -> MNP A1,A2)

[PURPOSE]

NEMO-HA_2_9_3 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1 -> MNP A1,A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

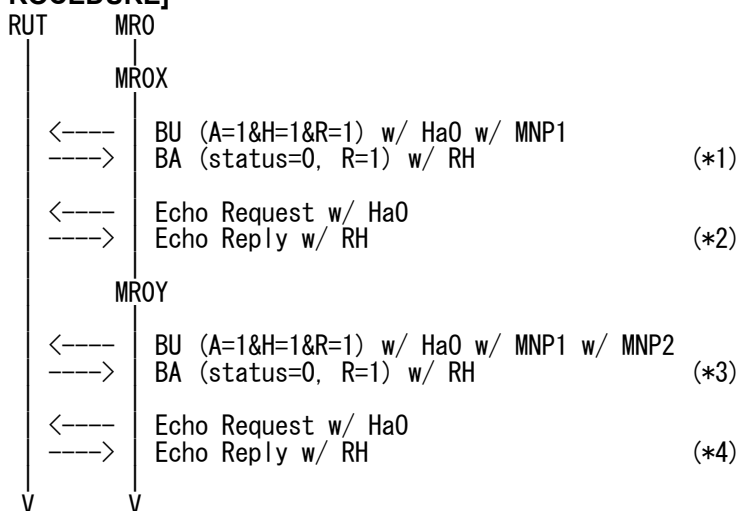
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Option Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.1.4 NEMO-HA_2_9_4 - Explicit mode (update MNP A1,A2 -> MNP A1,A2)

[PURPOSE]

NEMO-HA_2_9_4 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1,A2 -> MNP A1,A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

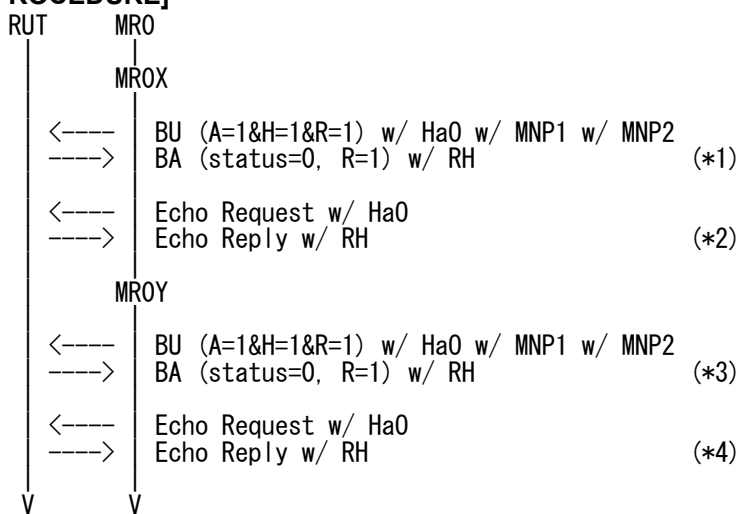
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.1.5 NEMO-HA_2_9_5 - Explicit mode (update MNP A1,A2 -> MNP A1)

[PURPOSE]

NEMO-HA_2_9_5 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1,A2 -> MNP A1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

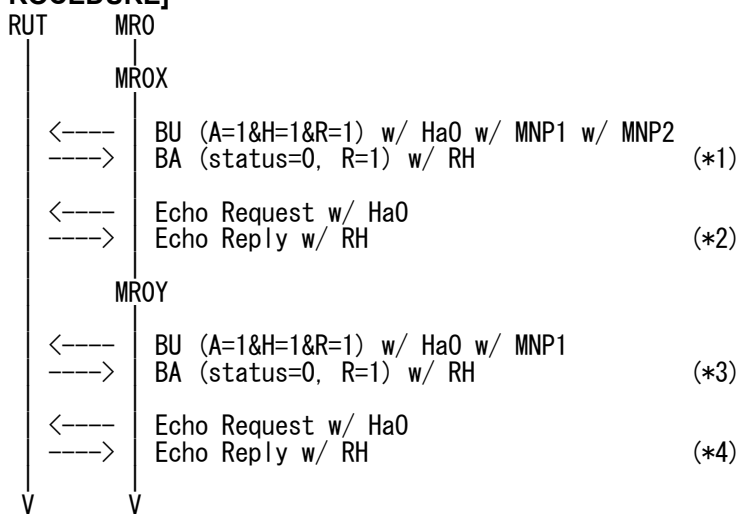
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.

6.3.7.1.6 NEMO-HA_2_12_1 - Implicit mode (Two Mobile Network Prefix are defined on Prefix table)

[PURPOSE]

NEMO-HA_2_12_1 - Valid Registration w/ Mobile Network Prefix, Implicit mode (Two Mobile Network Prefix are defined on Prefix table)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

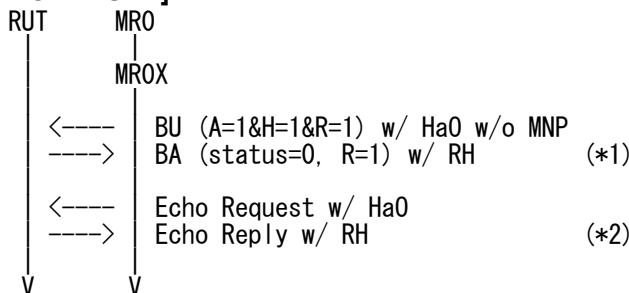
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MRO (Link0.global)

Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	ICMPv6 Header	Type

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.6.

6.3.7.2 Virtual Home Link

6.3.7.2.1 NEMO-HA_2_9_11 - Explicit mode (Two Mobile Network Prefix Options are included)

[PURPOSE]

NEMO-HA_2_9_11 - Valid Registration w/ Mobile Network Prefix, Explicit mode (Two Mobile Network Prefix Options are included)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

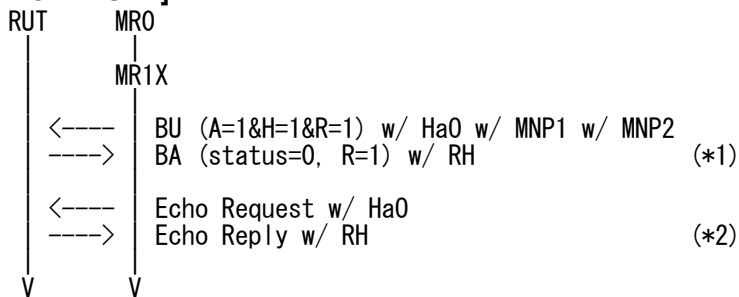
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.2.2 NEMO-HA_2_9_12 - Explicit mode (update MNP A1 -> MNP A2)

[PURPOSE]

NEMO-HA_2_9_12 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1 -> MNP A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

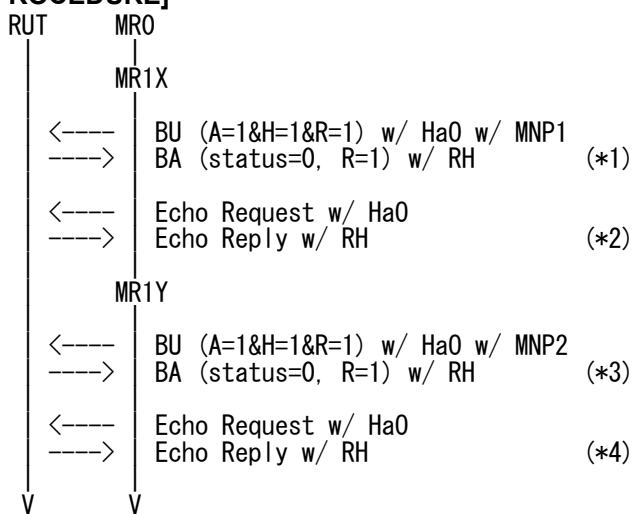
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Option Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.2.3 NEMO-HA_2_9_13 - Explicit mode (update MNP A1 -> MNP A1,A2)

[PURPOSE]

NEMO-HA_2_9_13 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1 -> MNP A1,A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

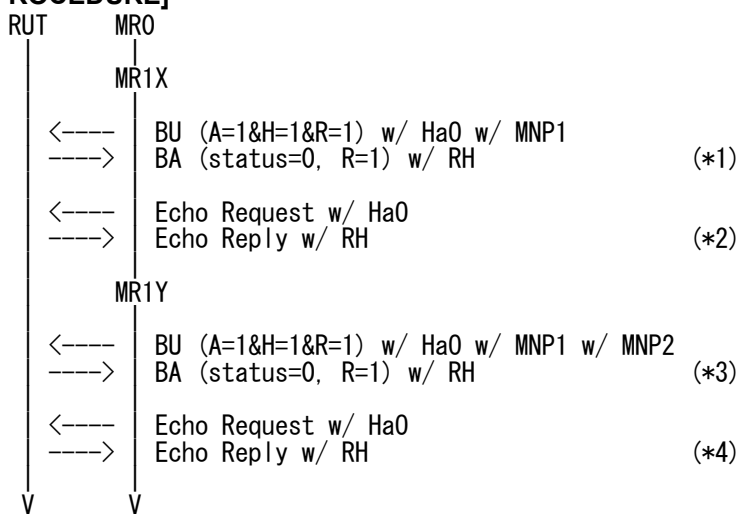
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Option Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.2.4 NEMO-HA_2_9_14 - Explicit mode (update MNP A1,A2 -> MNP A1,A2)

[PURPOSE]

NEMO-HA_2_9_14 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1,A2 -> MNP A1,A2)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

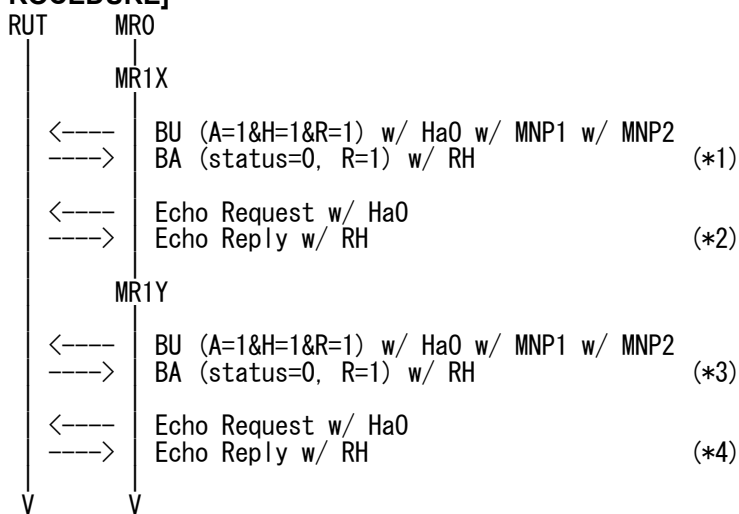
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA1_SP1
Encapsulating Security Payload	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
	Alternate CoA Option	Address MR1X (Link1X,global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.3.7.2.5 NEMO-HA_2_9_15 - Explicit mode (update MNP A1,A2 -> MNP A1)

[PURPOSE]

NEMO-HA_2_9_15 - Valid Registration w/ Mobile Network Prefix, Explicit mode (update MNP A1,A2 -> MNP A1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

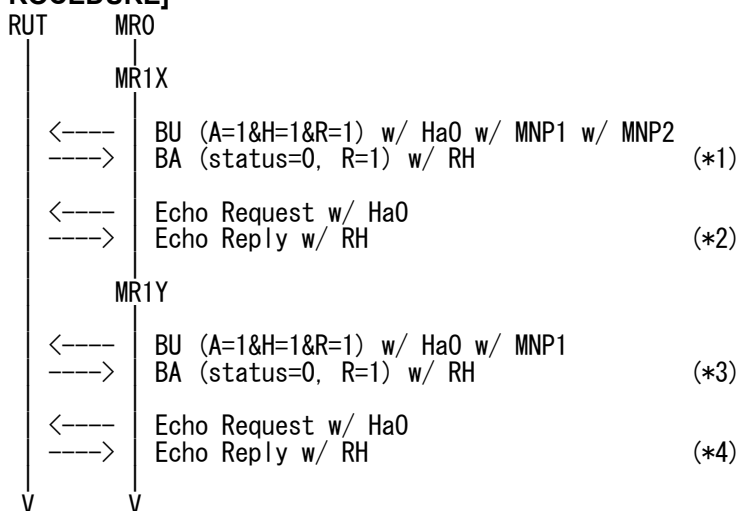
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1Y receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1Y receives Echo Reply w/ RH



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.

6.3.7.2.6 NEMO-HA_2_12_4 - Implicit mode (Two Mobile Network Prefix are defined on Prefix table)

[PURPOSE]

NEMO-HA_2_12_4 - Valid Registration w/ Mobile Network Prefix, Implicit mode (Two Mobile Network Prefix are defined on Prefix table)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Implicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-10

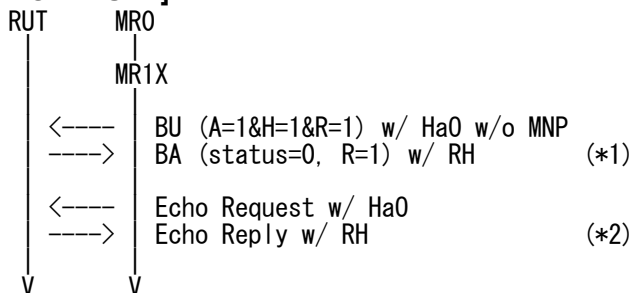
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)

Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	ICMPv6 Header	Type

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.6.

6.3.8 Invalid Registration w/ Rbit

6.3.8.1 Real Home Link

6.3.8.1.1 NEMO-HA_2_10_1 – Invalid Mobile Router Flag 1st(H=0 & R=1)

[PURPOSE]

NEMO-HA_2_10_1 – Invalid Registration w/ Rbit, Invalid Mobile Router Flag 1st(H=0 & R=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

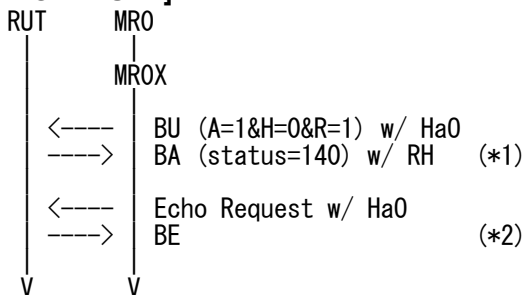
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	0
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
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Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	0
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	140
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	140
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.2.



6.3.8.1.2 NEMO-HA_2_10_6 – Invalid Mobile Router Flag 1st(H=1 & R=1), 2nd(H=1 & R=0)

[PURPOSE]

NEMO-HA_2_10_6 – Invalid Registration w/ Rbit, Invalid Mobile Router Flag 1st(H=1 & R=1), 2nd(H=1 & R=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

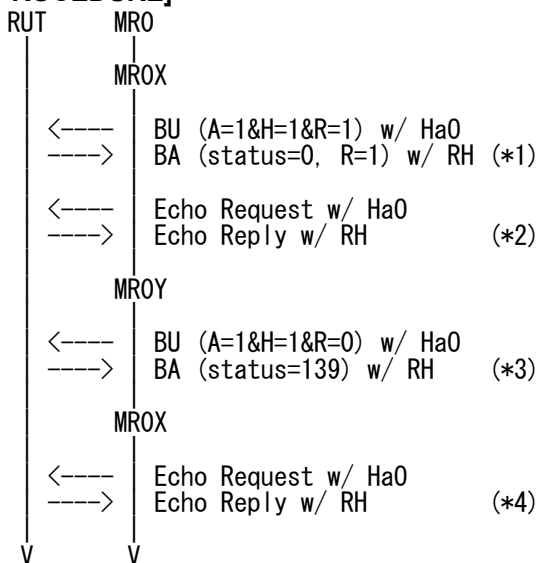
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	
PadN	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
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● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	139
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	139
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic



IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0Y receives BA w/ RH
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2 and Section 9.5.1.

6.3.8.2 Virtual Home Link

6.3.8.2.1 NEMO-HA_2_10_7 – Invalid Mobile Router Flag 1st(H=0 & R=1)

[PURPOSE]

NEMO-HA_2_10_7 – Invalid Registration w/ Rbit, Invalid Mobile Router Flag 1st(H=0 & R=1)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

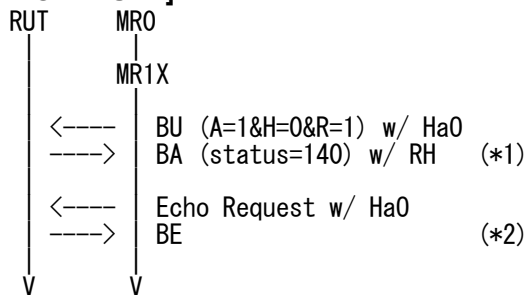
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	0
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	0
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	140
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	140
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.2.



6.3.8.2.2 NEMO-HA_2_10_12 – Invalid Mobile Router Flag 1st(H=1 & R=1), 2nd(H=1 & R=0)

[PURPOSE]

NEMO-HA_2_10_12 – Invalid Registration w/ Rbit, Invalid Mobile Router Flag 1st(H=0 & R=1), 2nd(H=1 & R=0)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

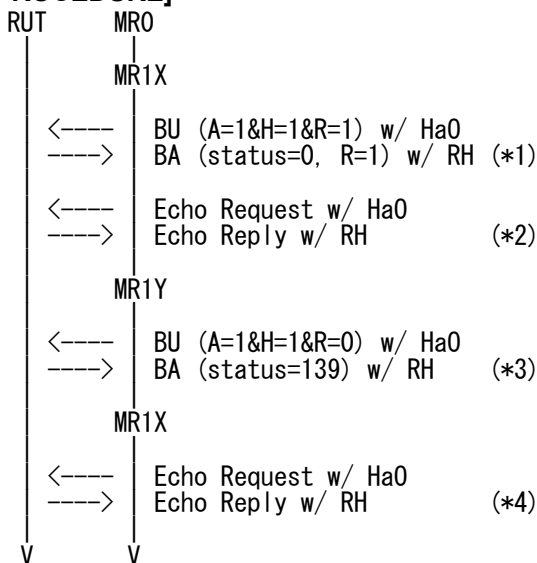
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR1X (Link1X,global)
----------------------	---------	----------------------

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1Y receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	139
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	139
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1Y receives BA w/ RH
- (*4) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2 and Section 9.5.1.

6.3.9 Invalid Registration w/ Mobile Network Prefix Option

6.3.9.1 Real Home Link

6.3.9.1.1 NEMO-HA_2_11_1 – Mobile Network Prefix Option (Unrecognized Type value)

[PURPOSE]

NEMO-HA_2_11_1 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Unrecognized Type value)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

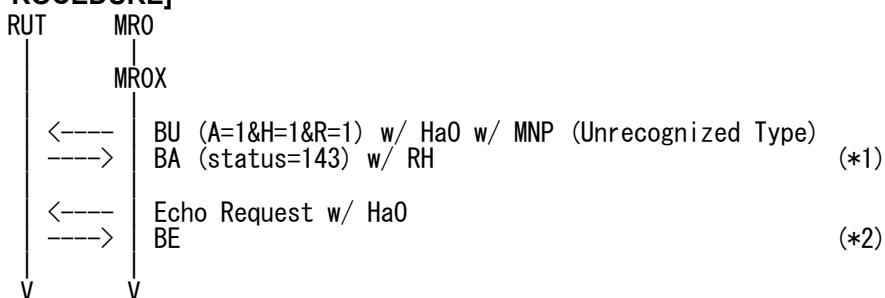
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MRO (Link0,global)	
Encapsulating Security Payload	SPI	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	15	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2	
	Type	0xff	
MNP Option	Prefix length	64	
	Prefix	MNP (Link0A,prefix)	

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	143
	K Flag	0
	R Flag	Any
	Sequence	15
Binding Refresh Advice Option	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	143
	K Flag	0
	R Flag	Any
	Sequence	15
PadN	Lifetime	<=105
	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6

See Section 6.2.1.

6.3.9.1.2 NEMO-HA_2_11_4 – Mobile Network Prefix Option (non-zero reserved field)

[PURPOSE]

NEMO-HA_2_11_4 - Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (non-zero reserved field)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

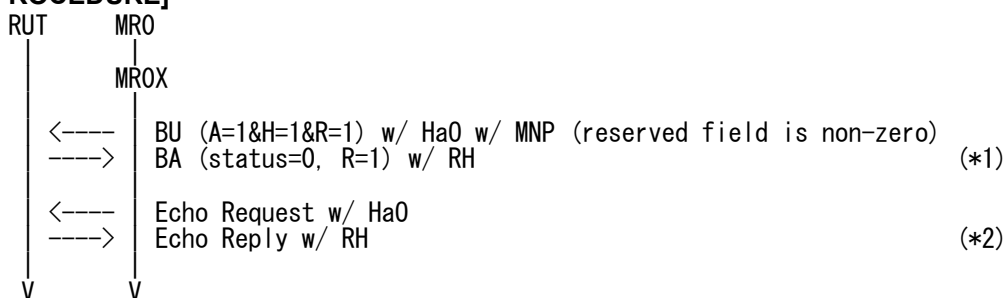
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	
PadN	Option Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Option Length	2
MNP Option	Reserved	1
	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.1.3 NEMO-HA_2_11_5 –Mobile Network Prefix Option (Invalid Prefix Length 63)

[PURPOSE]

NEMO-HA_2_11_5 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid Prefix Length 63)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

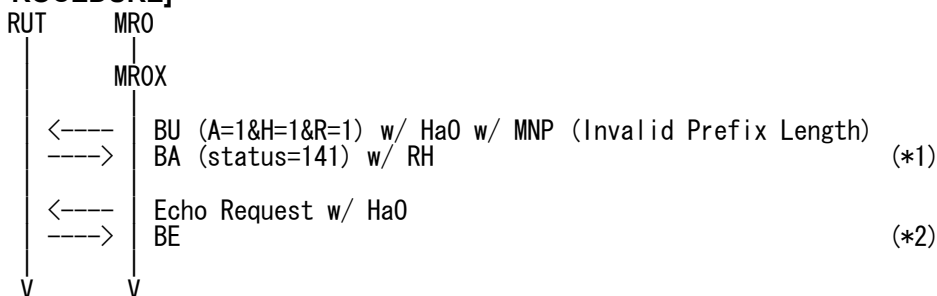
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix Length	63
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.1.4 NEMO-HA_2_11_7 –Mobile Network Prefix Option (Invalid, multicast address)

[PURPOSE]

NEMO-HA_2_11_7 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid, multicast address)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

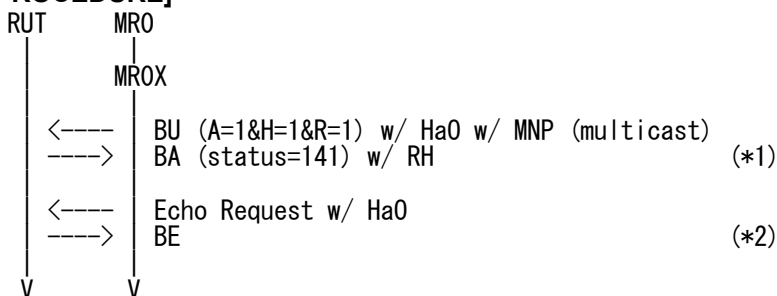
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
	Encapsulating Security Payload	SPI
Mobility Header	SPI	SA1 SPI
	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
	PadN	Length
MNP Option	Prefix length	64
	Prefix	MRO (Link0A.global.multicast)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.1.5 NEMO-HA_2_11_8 –Mobile Network Prefix Option (Invalid, link-local address)

[PURPOSE]

NEMO-HA_2_11_8 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid, link-local address)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

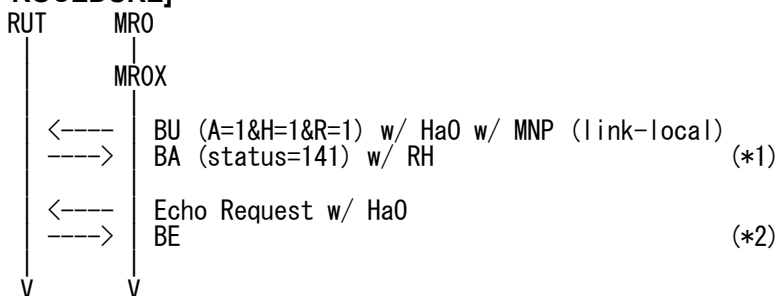
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MRO (Link0A,link-local)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

Encapsulating Security Payload	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.1.6 NEMO-HA_2_11_9 –Mobile Network Prefix Option (Not Authorized for Prefix)

[PURPOSE]

NEMO-HA_2_11_9 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Not Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

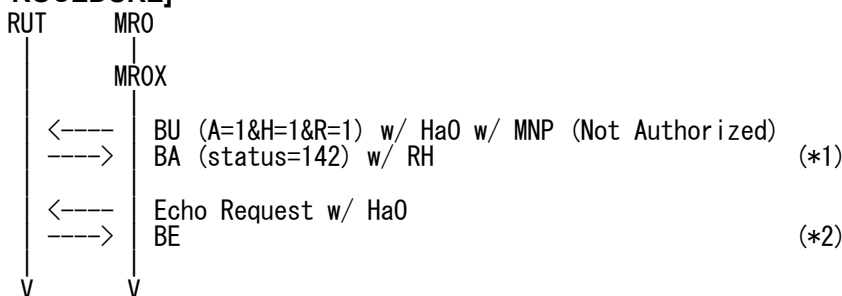
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
	Encapsulating Security Payload	SPI
Mobility Header	SPI	SA1 SPI
	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	105	
PadN	Length	2
Alternate CoA Option	Address	MROX (Link0X.global)
	PadN	Length
MNP Option	Prefix length	64
	Prefix	MNP (Not Authorized prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	142
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	142
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MROX receives BA w/ RH

(*2) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.

6.3.9.2 Virtual Home Link

6.3.9.2.1 NEMO-HA_2_11_11 – Mobile Network Prefix Option (Unrecognized Type value)

[PURPOSE]

NEMO-HA_2_11_11 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Unrecognized Type value)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

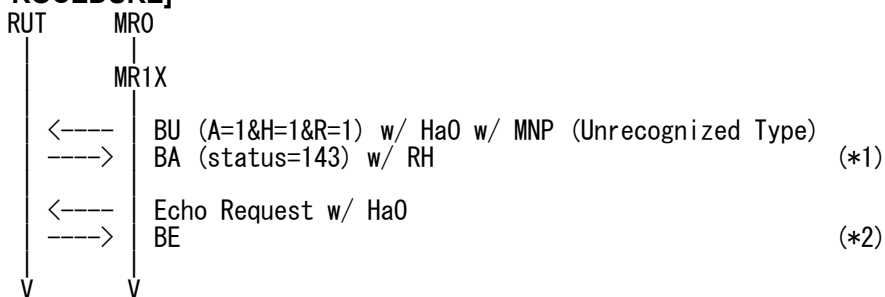
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Type	0xff
	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	143
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	143
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

RFC3775 Mobility Support in IPv6

See Section 6.2.1.

6.3.9.2.2 NEMO-HA_2_11_14 – Mobile Network Prefix Option (non-zero reserved field)

[PURPOSE]

NEMO-HA_2_11_14 - Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (non-zero reserved field)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

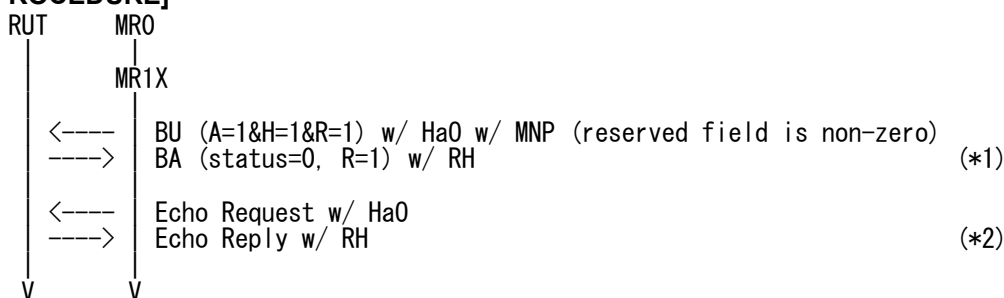
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Option Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Option Length	2
MNP Option	Reserved	1
	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.2.3 NEMO-HA_2_11_15 –Mobile Network Prefix Option (Invalid Prefix Length 63)

[PURPOSE]

NEMO-HA_2_11_15 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid Prefix Length 63)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

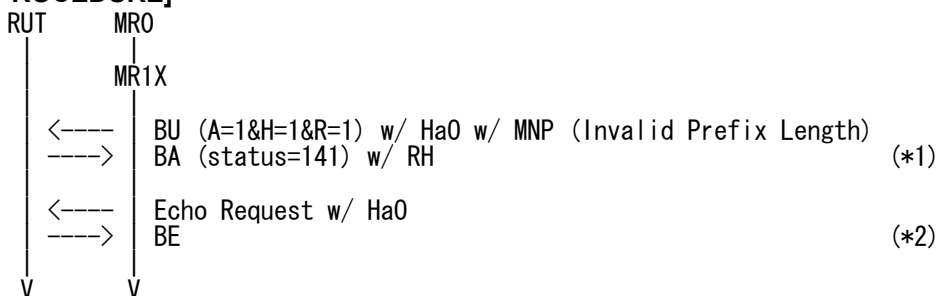
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	SPI	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	2
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix Length	63
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

Encapsulating Security Payload	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.



6.3.9.2.4 NEMO-HA_2_11_17 –Mobile Network Prefix Option (Invalid, multicast address)

[PURPOSE]

NEMO-HA_2_11_17 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid, multicast address)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

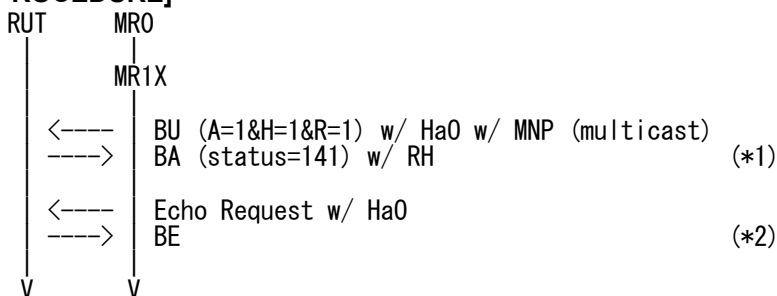
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	SPI	SA1 SPI
Encapsulating Security Payload	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
	Length	2
MNP Option	Prefix length	64
	Prefix	MR0 (Link0A,global,multicast)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.

6.3.9.2.5 NEMO-HA_2_11_18 –Mobile Network Prefix Option (Invalid, link-local address)

[PURPOSE]

NEMO-HA_2_11_18 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Invalid, link-local address)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

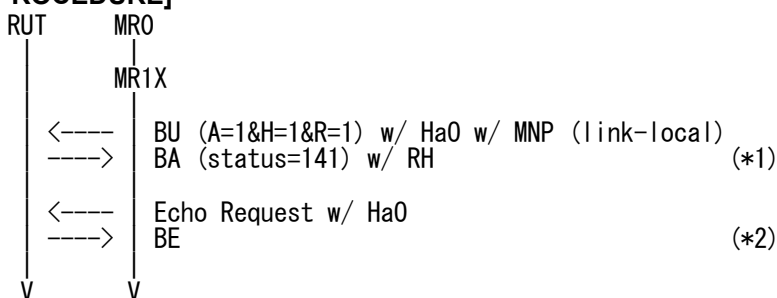
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
	SPI	SA1 SPI	
Encapsulating Security Payload	MH Type	5	
	Sequence Number	15	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2	
	Prefix length	64	
MNP Option	Prefix	MR0 (Link0A,link-local)	

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

Encapsulating Security Payload	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	141
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 4.3, Section 6, Section 6.2 and Section 6.6.



6.3.9.2.6 NEMO-HA_2_11_19 –Mobile Network Prefix Option (Not Authorized for Prefix)

[PURPOSE]

NEMO-HA_2_11_19 – Invalid Registration w/ Mobile Network Prefix Option, Mobile Network Prefix Option (Not Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.1 Common Topology-1

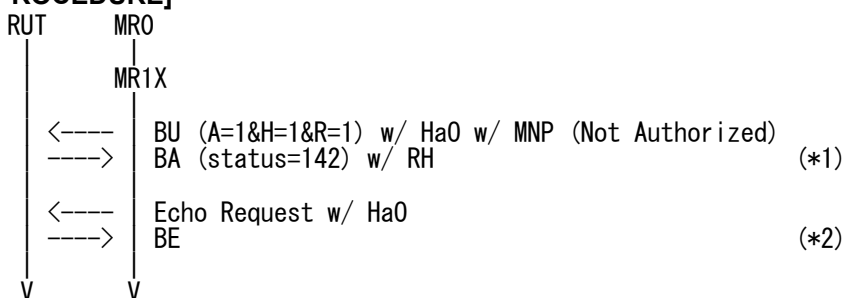
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	SA1 SPI	SA1 SPI
Encapsulating Security Payload	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Not Authorized prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

Encapsulating Security Payload	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	142
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	142
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.1.1, Section 6.1.2, Section 6.2 and Section 6.6.



6.4 Mobile network prefix De-Registration

6.4.1 Valid De-Registration

6.4.1.1 Real Home Link

6.4.1.1.1 NEMO-HA_3_1_1 - CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_1 - Valid De-Registration, CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

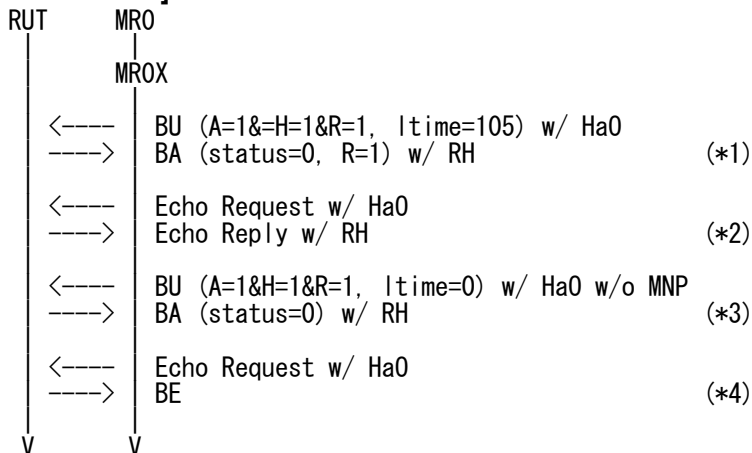
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
Lifetime	0	
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

6. MR0X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives BA w/ RH
- (*4) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.1.2 NEMO-HA_3_1_6 - CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_6 - Valid De-Registration, CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

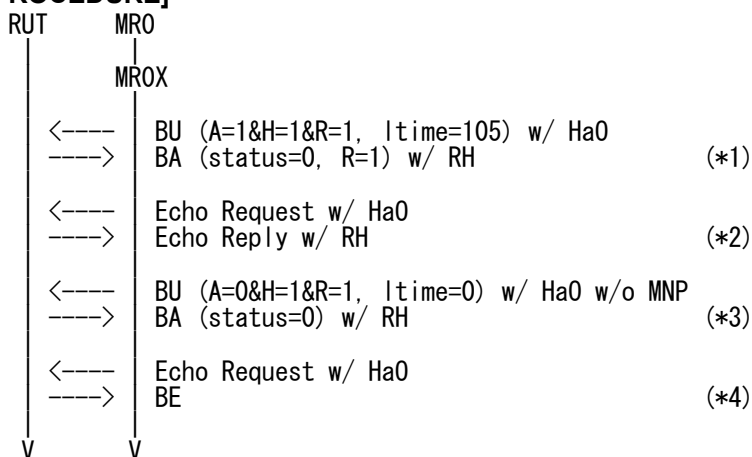
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (LinkOX.global)

- explicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
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	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

6. MROX receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MROX receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: MROX receives BA w/ RH
- (*4) PASS: MROX receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.1.3 NEMO-HA_3_1_2 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_2 - Valid De-Registration, CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

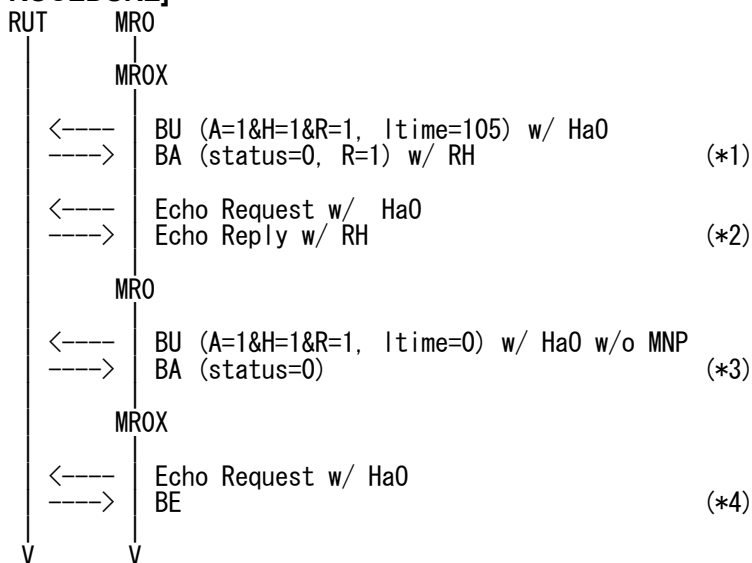
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (LinkO.global)
Destination Option Header	Home Address	MRO (LinkO.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
----------------------	---------	----------------------

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	Length	2
PadN	Length	2

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	length	2
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE

[REFERENCES]



RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.1.4 NEMO-HA_3_1_7 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_7 - Valid De-Registration, CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

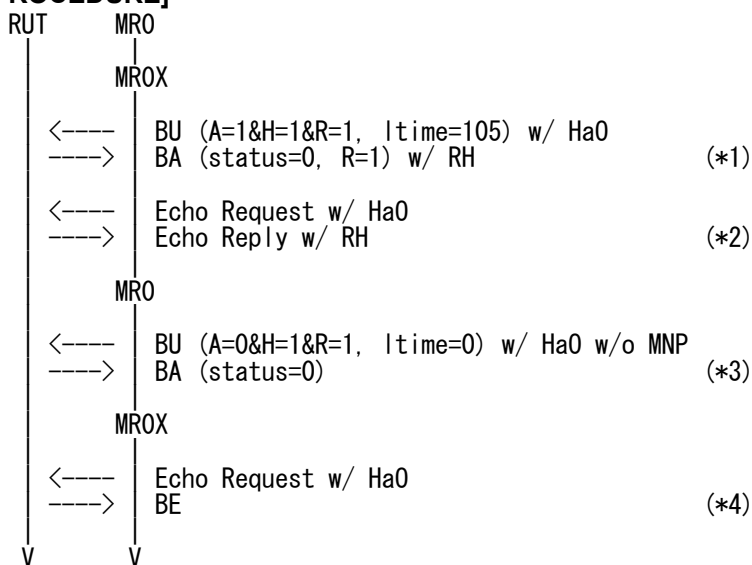
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
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● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE

[REFERENCES]



RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.1.5 NEMO-HA_3_1_4 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_4 - Valid De-Registration, CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

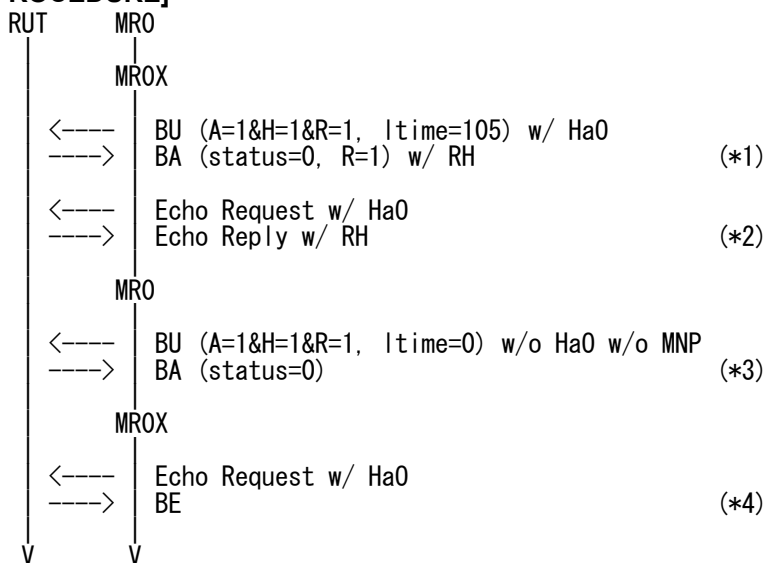
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
R Flag	1	

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
Binding Refresh Advice Option	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
PadN	Lifetime	<=105
	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.1)

● HoA(from MNP)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.1.6 NEMO-HA_3_1_9 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_9 - Valid De-Registration, CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

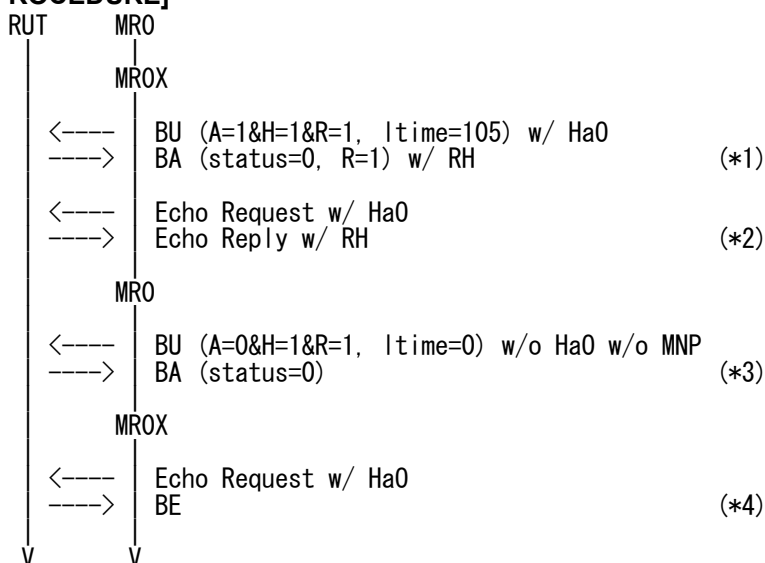
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
R Flag	1	

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.1)

● HoA(from HNP)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.2 Virtual Home Link

6.4.1.2.1 NEMO-HA_3_1_11 - CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_11 - Valid De-Registration, CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

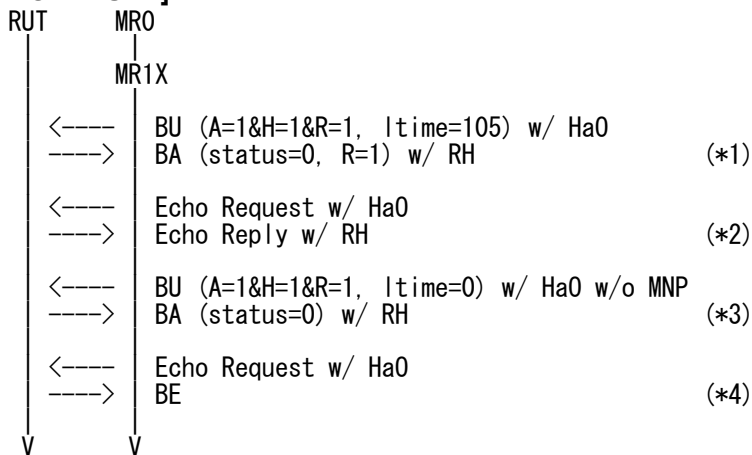
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.1.2.2 NEMO-HA_3_1_12 - CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_1_12 - Valid De-Registration, CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

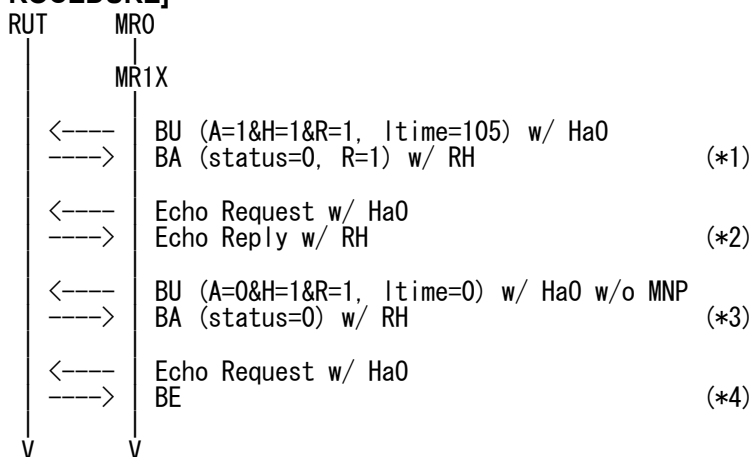
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR1X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link0,global)
Mobility Header	MH Type	7
	Status	1
	Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.

6.4.2 Invalid De-Registration (Not home agent for this mobile router)

6.4.2.1 Real Home Link

6.4.2.1.1 NEMO-HA_3_2_1 - CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_1 - Invalid De-Registration (Not home agent for this mobile node),
CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

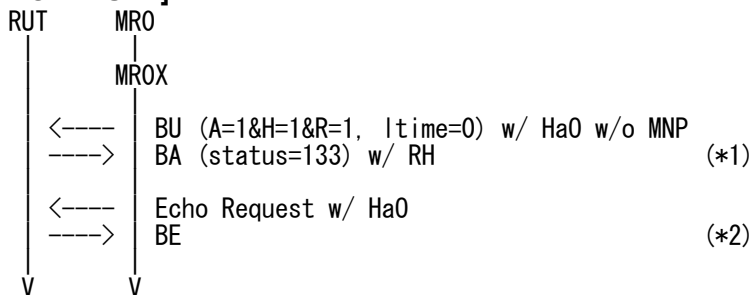
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
Binding Refresh Advice Option	Interval	Any

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.2.1.2 NEMO-HA_3_2_6 - CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_6 - Invalid De-Registration (Not home agent for this mobile node),
CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

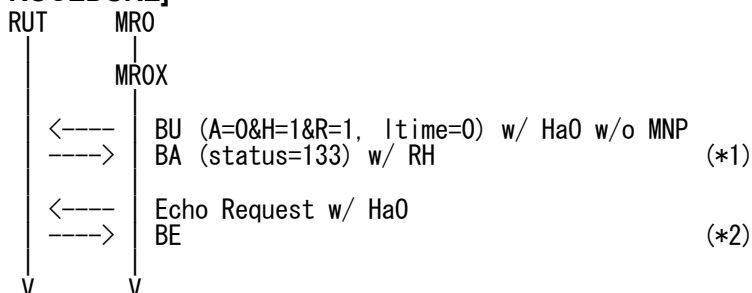
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any

Binding Refresh Advice Option	Interval	Any
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IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
Encapsulating Security Payload	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.1.3 NEMO-HA_3_2_2 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_2 - Invalid De-Registration (Not home agent for this mobile node),
CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

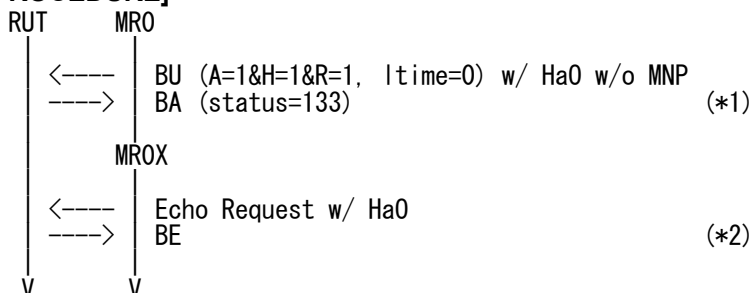
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

2. MR0 receives BA (*1) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
PadN	Lifetime	Any
	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR0 receives BA

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.1.4 NEMO-HA_3_2_7 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_7 - Invalid De-Registration (Not home agent for this mobile node),
CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

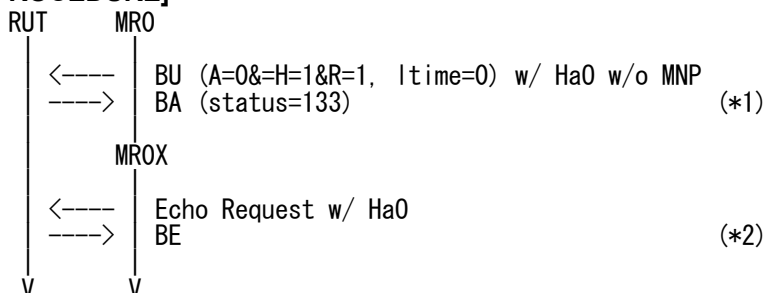
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

2. MR0 receives BA (*1) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
PadN	Lifetime	Any
	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0 receives BA

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.1.5 NEMO-HA_3_2_4 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_4 - Invalid De-Registration (Not home agent for this mobile node),
CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

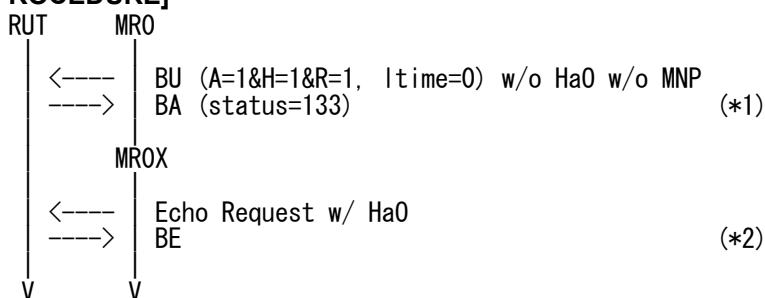
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.1)

● HoA(from HNP)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
	Mobility Header	
	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

2. MR0 receives BA (*1) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
	Mobility Header	
	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any

	Sequence	15
	Lifetime	Any
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0 receives BA

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.1.6 NEMO-HA_3_2_9 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_9 - Invalid De-Registration (Not home agent for this mobile router),
CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

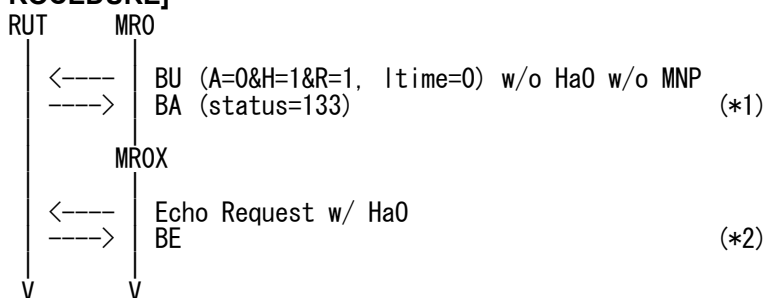
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.2)

● HoA(from HNP)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

2. MR0 receives BA (*1) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any

	Sequence	15
	Lifetime	Any
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR0 receives BA

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.2 Virtual Home Link

6.4.2.2.1 NEMO-HA_3_2_11 - CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_11 - Invalid De-Registration (Not home agent for this mobile router),
CoA!=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

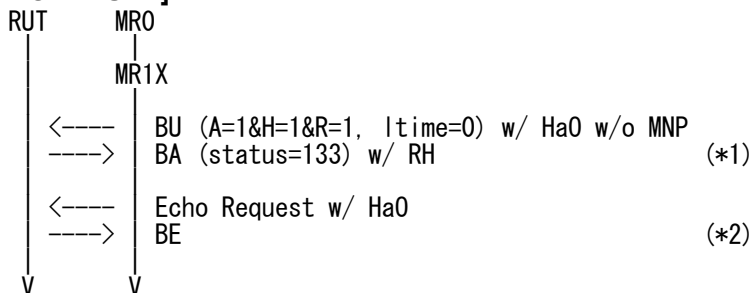
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6

	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.4.2.2.2 NEMO-HA_3_2_12 - CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_2_12 - Invalid De-Registration (Not home agent for this mobile router),
CoA!=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

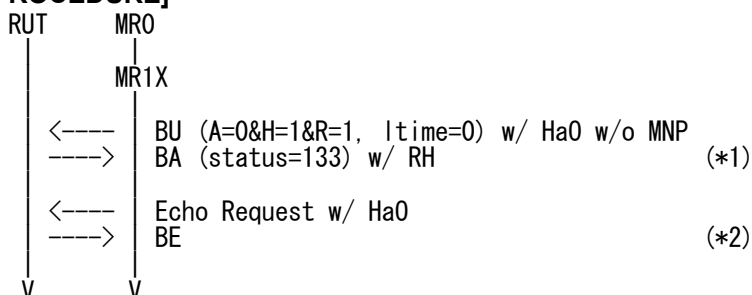
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	133
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any

PadN	length	2
------	--------	---

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives BE

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.3 Invalid De-Registration (Sequence number out of window)

6.4.3.1 Real Home Link

6.4.3.1.1 NEMO-HA_3_3_1 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_3_1 - Invalid De-Registration, Sequence number out of window, CoA=HoA (A=1 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

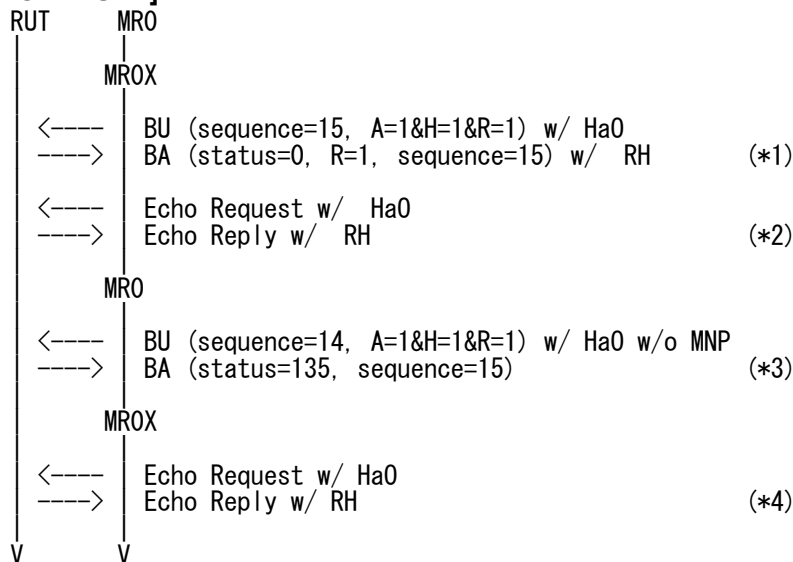
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
	PadN	Length
Alternate CoA Option	Address	MR0 (Link0,global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	Length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A,global)
	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	Length

7. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MROX receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
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Type2 Routing Header	Destination Address	MR0X (Link0X_global)
	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.3.1.2 NEMO-HA_3_3_2 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_3_2 - Invalid De-Registration, Sequence number out of window, CoA=HoA (A=0 & R=1 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

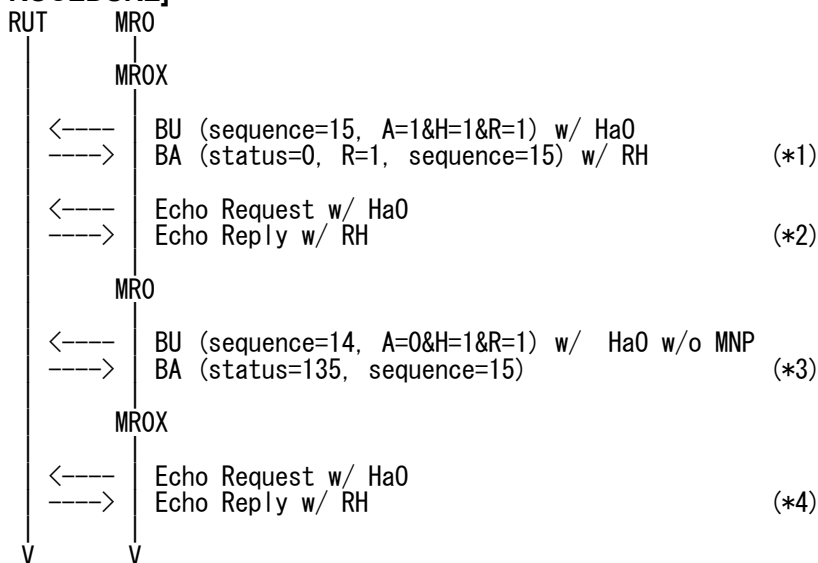
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
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● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Length	2
PadN	Length	2

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	Length	2
PadN	Length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]

- RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.3.1.3 NEMO-HA_3_3_3 - CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_3_3 - Invalid De-Registration, Sequence number out of window, CoA=HoA (A=1 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

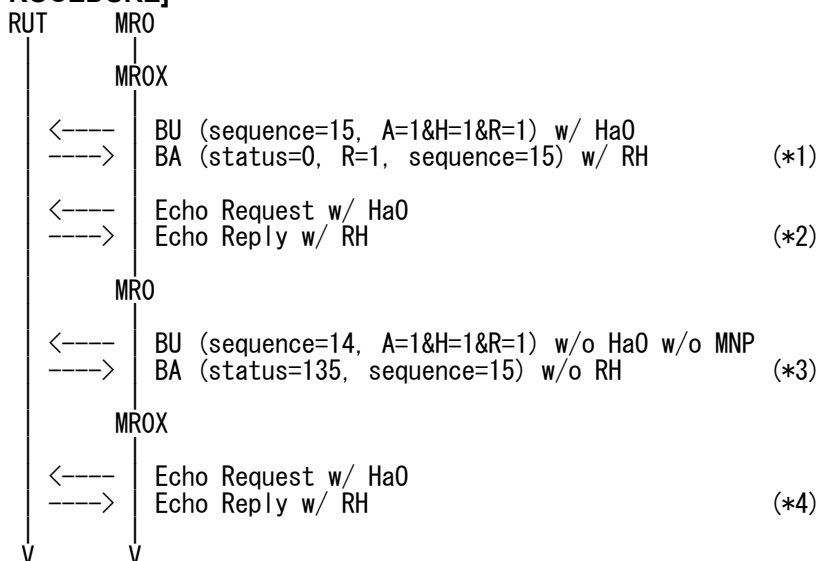
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
R Flag	1	

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.1)

● HoA(from HNP)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	Length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]



RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.3.1.4 NEMO-HA_3_3_4 - CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[PURPOSE]

NEMO-HA_3_3_4 - Invalid De-Registration, Sequence number out of window, CoA=HoA (A=0 & R=1 & Lifetime=0) w/o HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

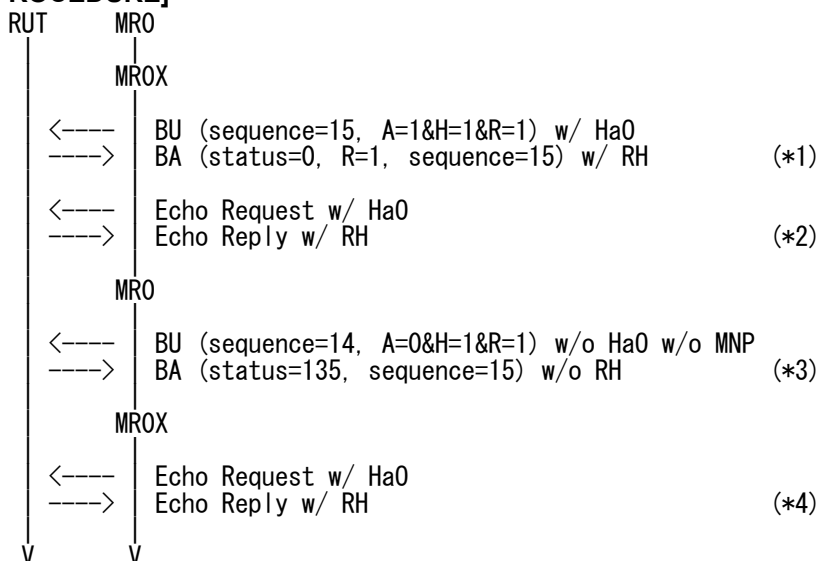
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
R Flag	1	

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	0
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/o HaO w/o MNP (Refer to 5.12.1)

● HoA(from HNP)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	14
	A Flag	0
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	135
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	Any
	PadN	Length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Reply w/ RH (*4) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives Echo Reply w/ RH

[REFERENCES]



RFC3775 Mobility Support in IPv6
See Section 10.3.2.

6.4.4 Valid De-Registration w/ disregarded value

6.4.4.1 Real Home Link

6.4.4.1.1 NEMO-HA_3_4_1 – CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_4_1 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

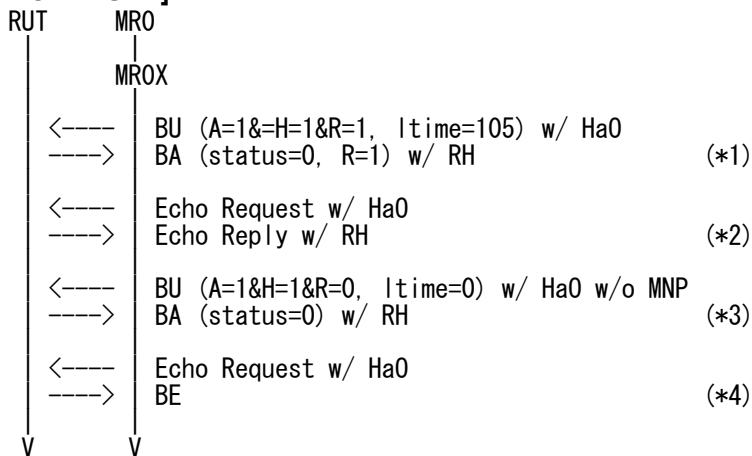
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
	PadN	length

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

6. MR0X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives BA w/ RH
- (*4) PASS: MR0X receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2 and Section 6.7.
- RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.4.1.2 NEMO-HA_3_4_2 – CoA!=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[PURPOSE]

NEMO-HA_3_4_2 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

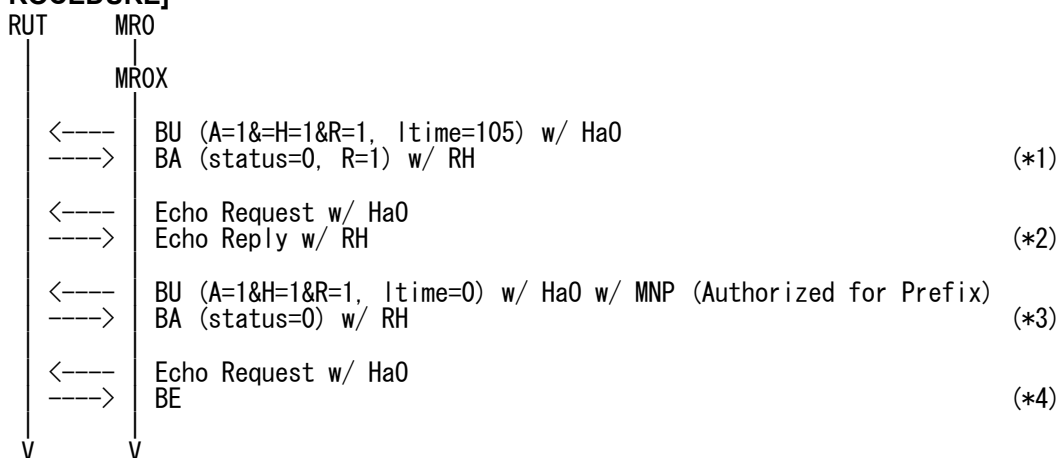
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

6. MROX receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MROX receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: MROX receives BA w/ RH
- (*4) PASS: MROX receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.1.3 NEMO-HA_3_4_4 – CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[PURPOSE]

NEMO-HA_3_4_4 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

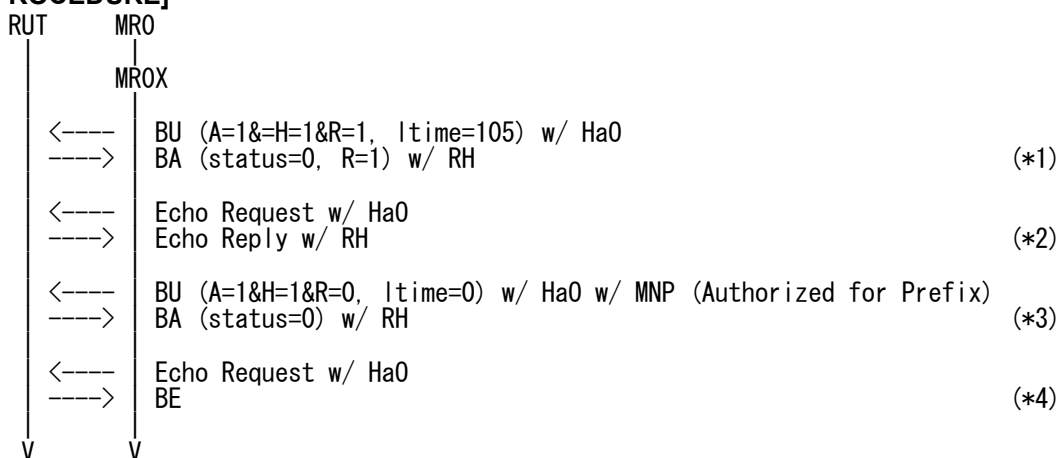
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. MROX sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MROX receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MROX receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: MROX receives BA w/ RH
- (*4) PASS: MROX receives BE

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2 and Section 6.7.
- RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.4.4.1.4 NEMO-HA_3_4_6 - CoA=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_4_6 - Valid De-Registration (w/ disregarded value), CoA=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

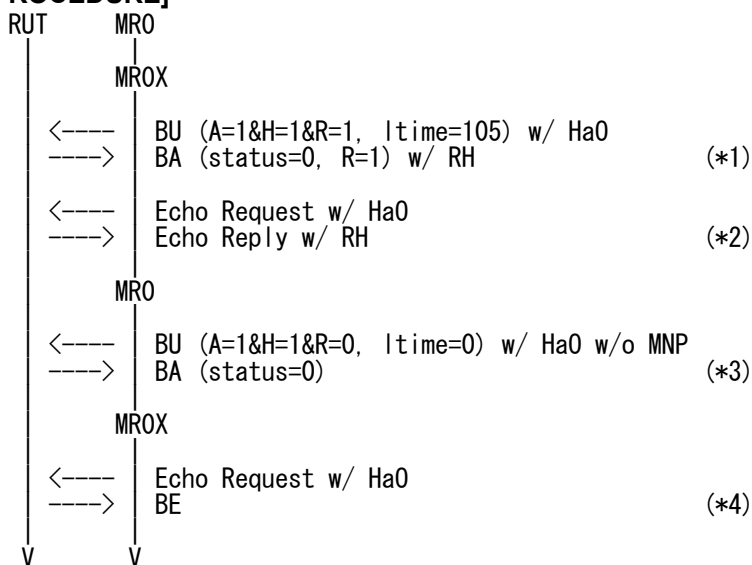
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (LinkO.global)
Destination Option Header	Home Address	MRO (LinkO.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
----------------------	---------	----------------------

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	R Flag	0
	K Flag	0
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0.global)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	Length	2
PadN	Length	2

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0 (Link0.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	length	2
PadN	length	2

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE

[REFERENCES]



RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.1.5 NEMO-HA_3_4_7 - CoA=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized Prefix)

[PURPOSE]

NEMO-HA_3_4_7 - Valid De-Registration (w/ disregarded value), CoA=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized Prefix)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

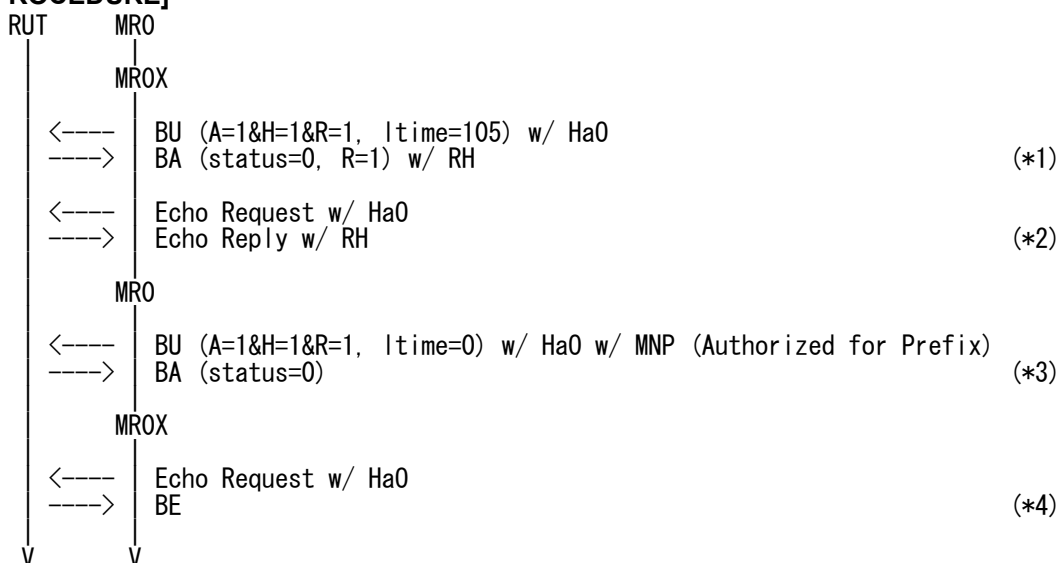
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	Length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.1.6 NEMO-HA_3_4_9 - CoA=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized Prefix)

[PURPOSE]

NEMO-HA_3_4_9 - Valid De-Registration (w/ disregarded value), CoA=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized Prefix)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

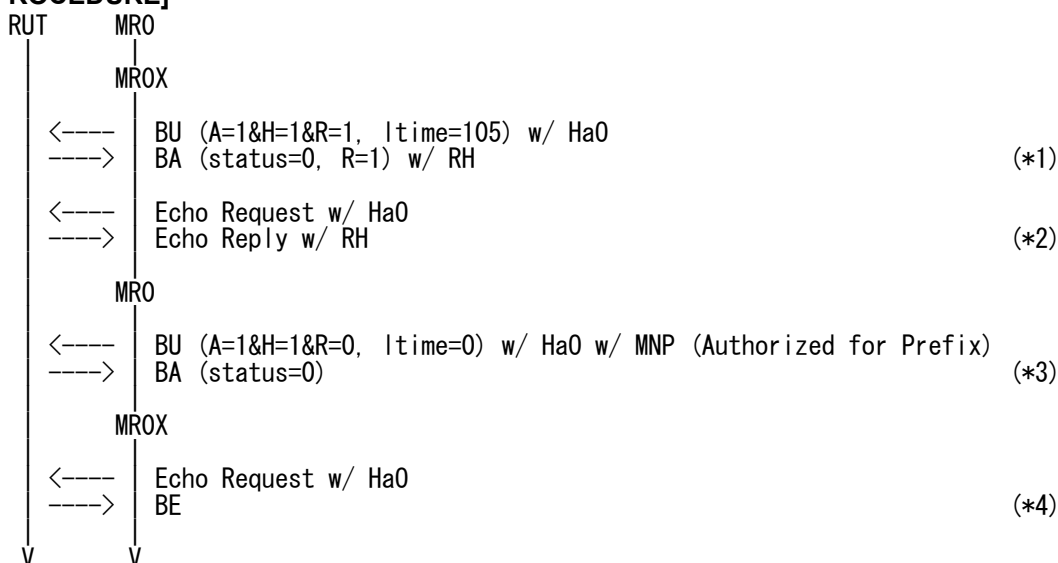
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
R Flag	1	

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1

	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0 sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0 (Link0,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

6. MR0 receives BA (*3) (Refer to 5.13.2, 5.13.1)

● HoA(from HNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	Length

● HoA(from MNP)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0 (Link0,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0A,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

7. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR0X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0 receives BA
- (*4) PASS: MR0X receives BE



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.2 Virtual Home Link

6.4.4.2.1 NEMO-HA_3_4_16 – CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[PURPOSE]

NEMO-HA_3_4_16 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/o MNP

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

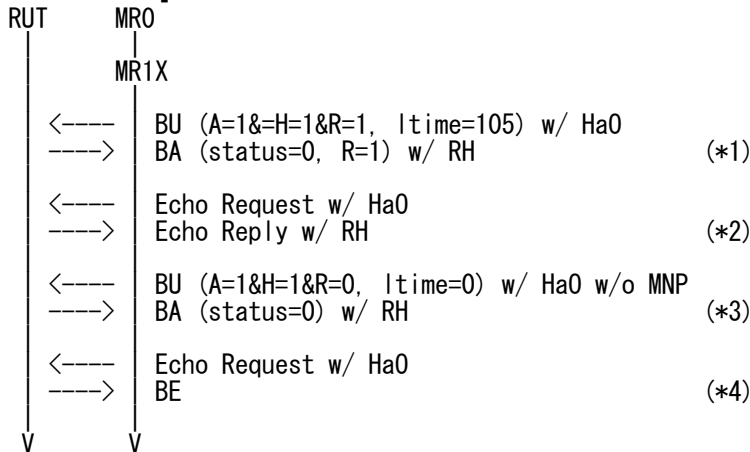
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.2.2 NEMO-HA_3_4_17 – CoA!=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[PURPOSE]

NEMO-HA_3_4_17 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=1 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

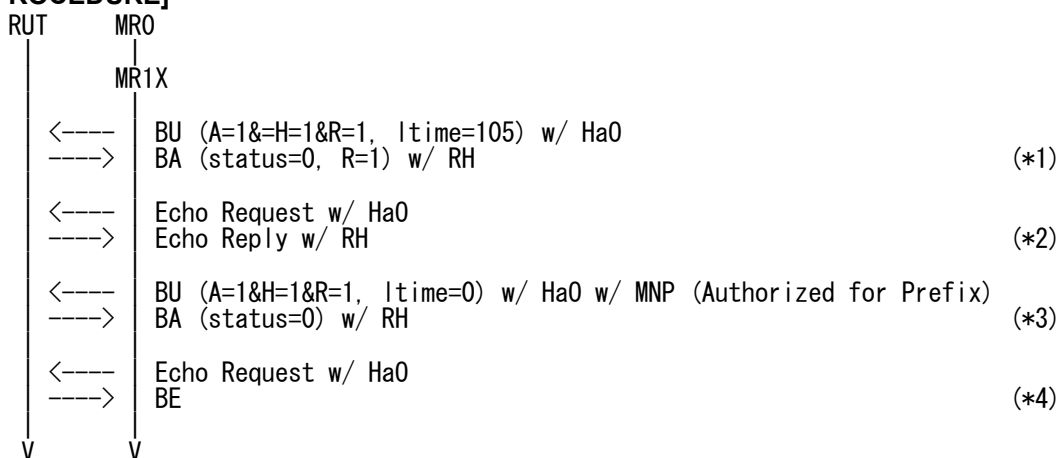
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1X sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	0
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.4.4.2.3 NEMO-HA_3_4_19 – CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[PURPOSE]

NEMO-HA_3_4_19 - Valid De-Registration (w/ disregarded value), CoA!=HoA (R=0 & Lifetime=0) w/ HaO w/ MNP(Authorized for Prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-1

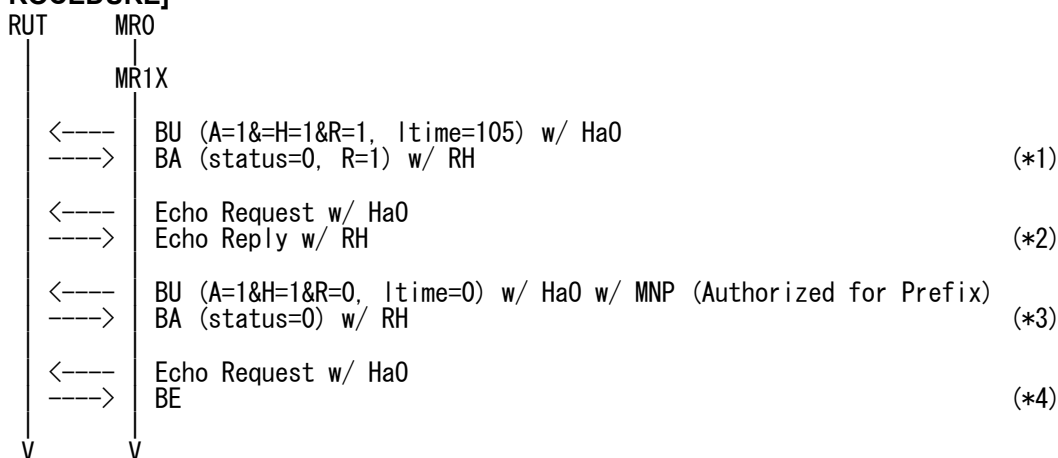
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	length	2
PadN	length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. MR1X sends BU w/ HaO w/ MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	0
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

6. MR1X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	length	2

7. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

8. MR1X receives BE (*4) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives BA w/ RH
- (*4) PASS: MR1X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.7.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.

6.5 Intercepting Packets for a Mobile Router

6.5.1 Sending Multicast NA

6.5.1.1 Real Home Link

6.5.1.1.1 NEMO-HA_4_1_1 - Sending multicast NA, (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_1_1 - Sending multicast NA, (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

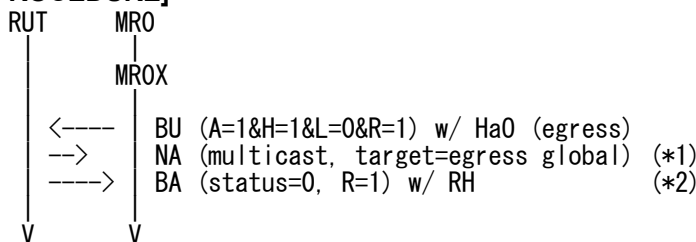
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NA to multicast (*1) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,link-local)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

3. MR0X receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	PadN	Length

[JUDGMENT]

(*1) PASS: RUT sends NA (target=egress global) to multicast

(*2) PASS: MR0X receives BA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

6.5.1.1.2 NEMO-HA_4_1_2 - Sending multicast NA, (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_1_2 - Sending multicast NA, (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.1 Common Topology-1

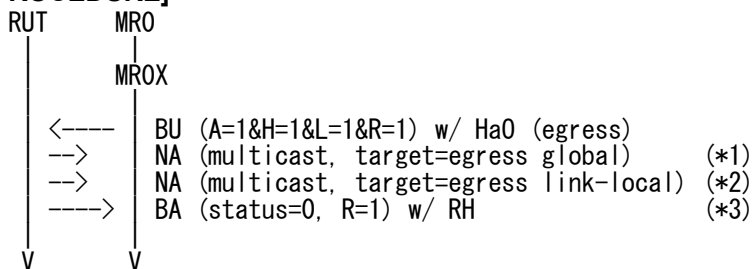
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. RUT sends NA to multicast (*1) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

3. RUT sends NA to multicast (*2) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,link-local)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-node multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	1
	Target Address	MR0 (Link0,link-local)
TTL Option	Link Layer Address	RUT (Link0,ether)

4. MR0X receives BA w/ RH (*3) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

[JUDGMENT]

- (*1) PASS: RUT sends NA (target=egress global) to multicast
- (*2) PASS: RUT sends NA (target=egress link-local) to multicast
- (*3) PASS: MR0X receives BA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol



See Section 6.2.
RFC3775 Mobility Support in IPv6
See Section 10.4.1.

6.5.2 Proxy ND

6.5.2.1 Real Home Link

6.5.2.1.1 NEMO-HA_4_2_1 - Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_2_1 - Proxy ND, (Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

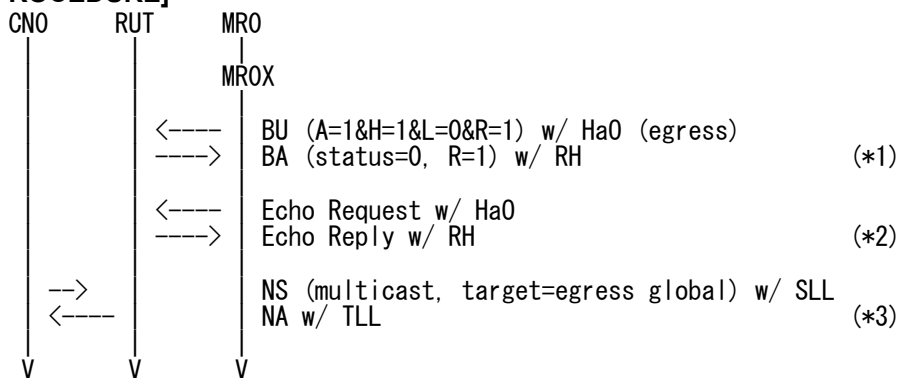
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1



	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
	SLL Option	Link Layer Address
		CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0, global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.2 NEMO-HA_4_2_2 - Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_2_2 - Proxy ND, Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

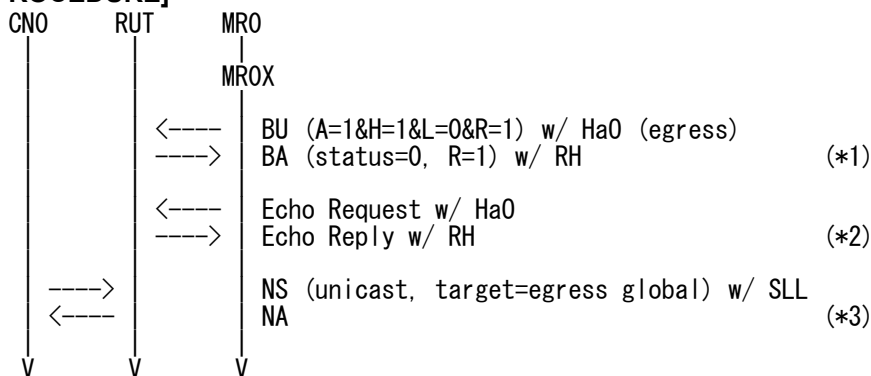
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
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Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)

ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.3, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.3 NEMO-HA_4_2_13 - Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_2_13 - Proxy ND, Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

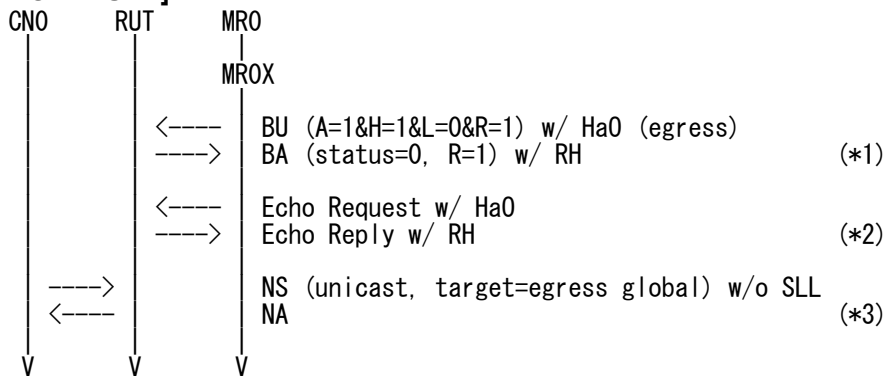
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (global)
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	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)

ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)

6. CN0 receives NA (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

RFC2461 Neighbor Discovery for IPv6

See Section 7.2.4 and Section 7.2.8.



6.5.2.1.4 NEMO-HA_4_2_3 - Receiving DAD NS (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_2_3 - Proxy ND, Receiving DAD NS (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

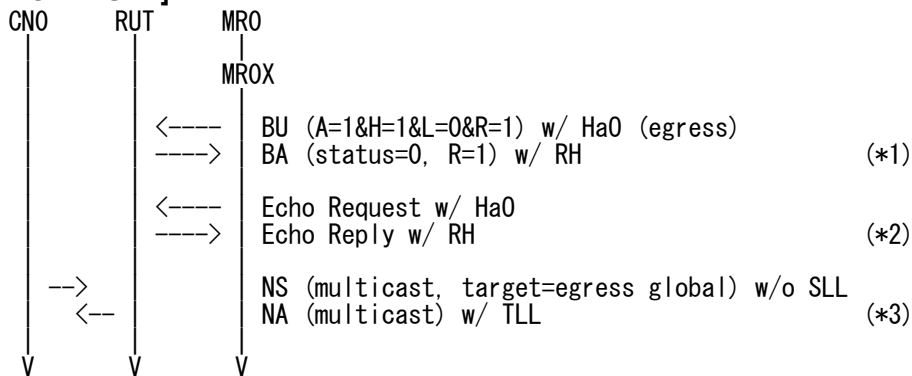
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
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Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)



ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)

6. RUT sends NA to multicast (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: RUT sends NA to all-nodes multicast address

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.5 NEMO-HA_4_2_4 - Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_2_4 - Proxy ND, Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

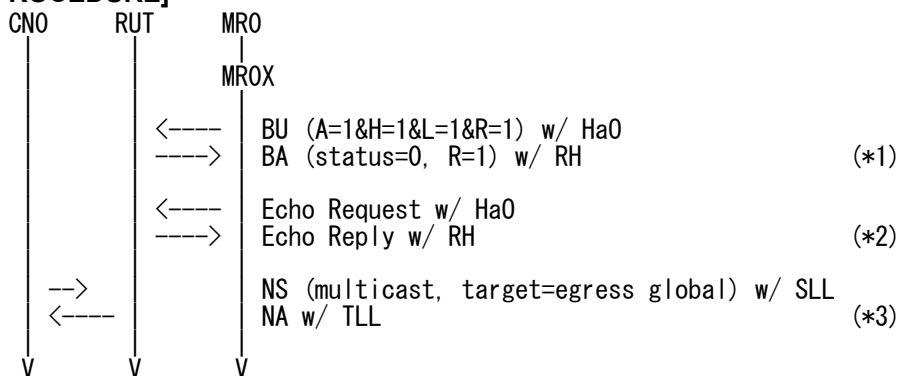
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Type	129
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.6 NEMO-HA_4_2_5 - Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_2_5 - Proxy ND, Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

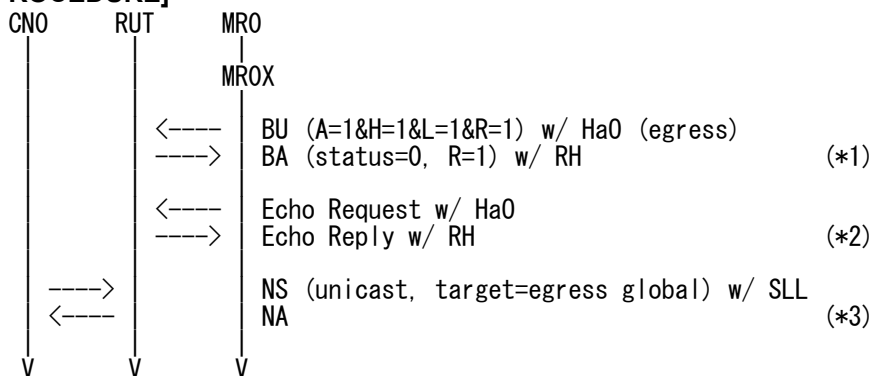
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)

ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)
SLLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.2, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TLL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.7 NEMO-HA_4_2_14 - Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_2_14 - Proxy ND, Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

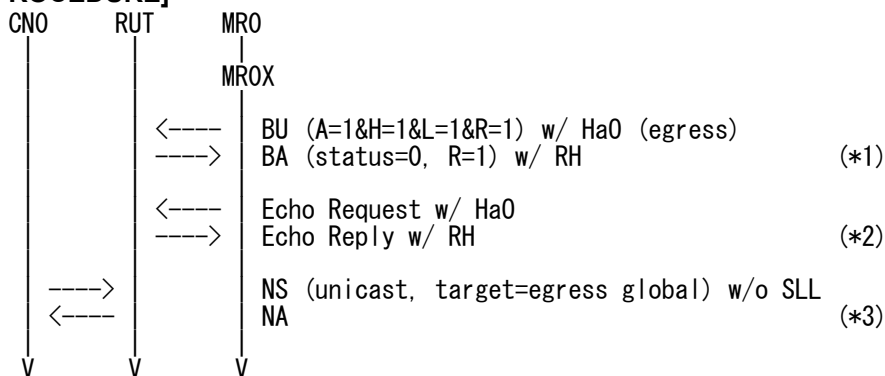
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)

ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)

6. CN0 receives NA (*3) (Refer to 5.4.2, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TLL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.
- RFC2461 Neighbor Discovery for IPv6
See Section 7.2.4 and Section 7.2.8.



6.5.2.1.8 NEMO-HA_4_2_6 - Receiving DAD NS (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_2_6 - Proxy ND, Receiving DAD NS (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

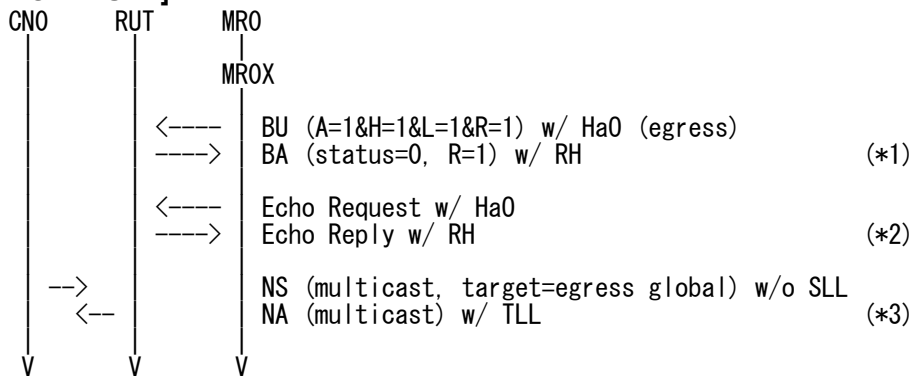
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	2
Binding Refresh Advice Option	Interval	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)



ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,global)

6. RUT sends NA to multicast (*3) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL Option	Link Layer Address	RUT (Link0,ether)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: RUT sends NA to all-nodes multicast address

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

RFC2461 Neighbor Discovery for IPv6

See Section 7.2.4 and Section 7.2.8.



6.5.2.1.9 NEMO-HA_4_2_9 - Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_2_9 - Proxy ND, Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

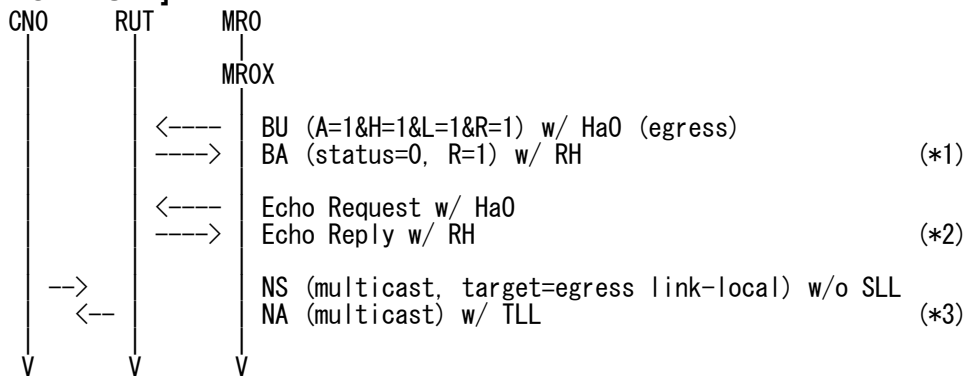
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)



ICMPv6 Header	Type	136
	Target Address	MR0 (Link0,link-local)

6. RUT sends NA to multicast (*3) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,link-local)
TTL Option	Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,link-local)
TTL Option	Link Layer Address	RUT (Link0,ether)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: RUT sends NA to all-nodes multicast address

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

RFC2461 Neighbor Discovery for IPv6

See Section 7.2.4 and Section 7.2.8.



6.5.3 Stop Proxy ND after De-Registration

6.5.3.1 Real Home Link

6.5.3.1.1 NEMO-HA_4_4_1 - Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_4_1 - Stop proxy ND after De-Registration, Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

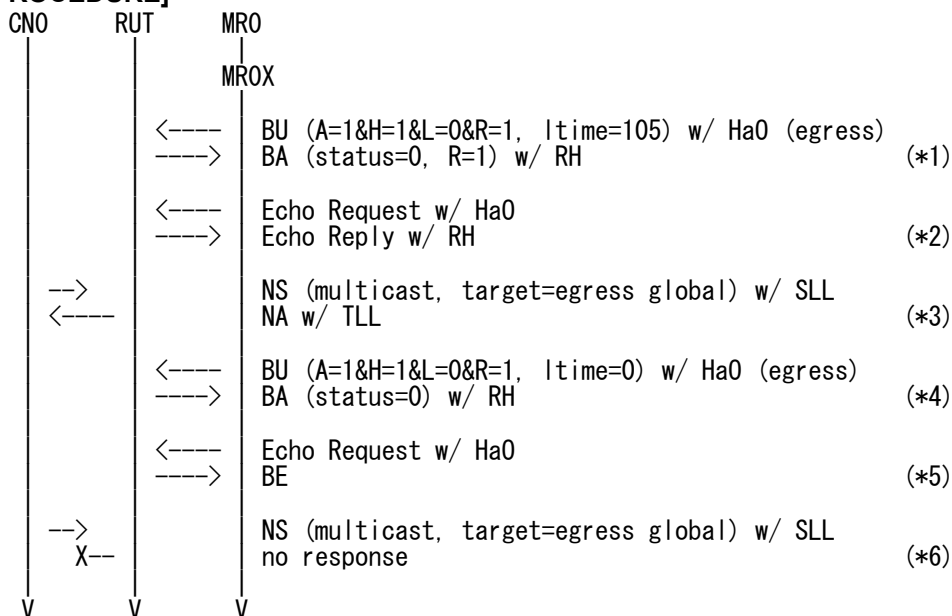
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)

Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”



IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.5.3.1.2 NEMO-HA_4_4_2 - Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_4_2 - Stop proxy ND after De-Registration, Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

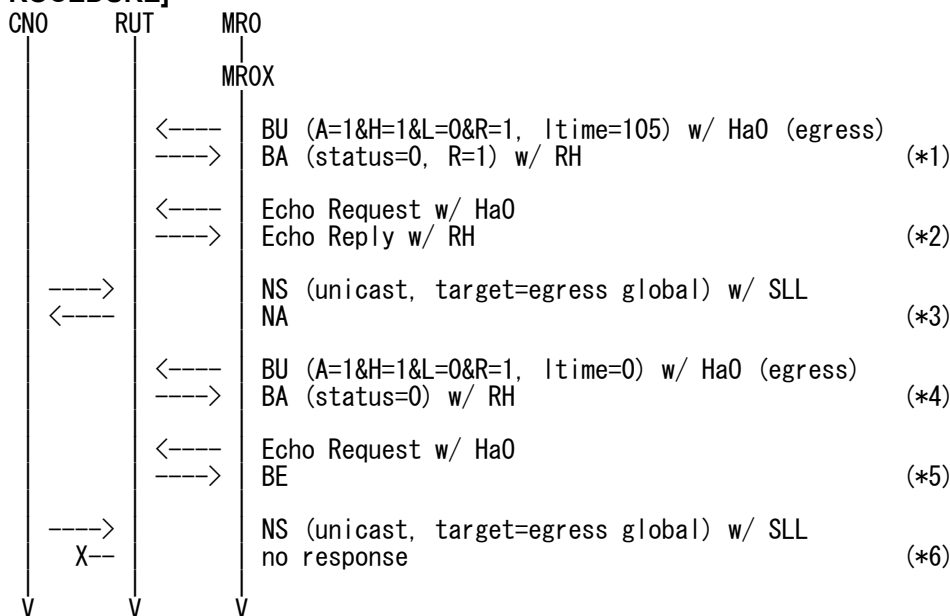
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.2, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TLL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	length

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic



IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.3 NEMO-HA_4_4_13 - Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_4_13 - Stop proxy ND after De-Registration, Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

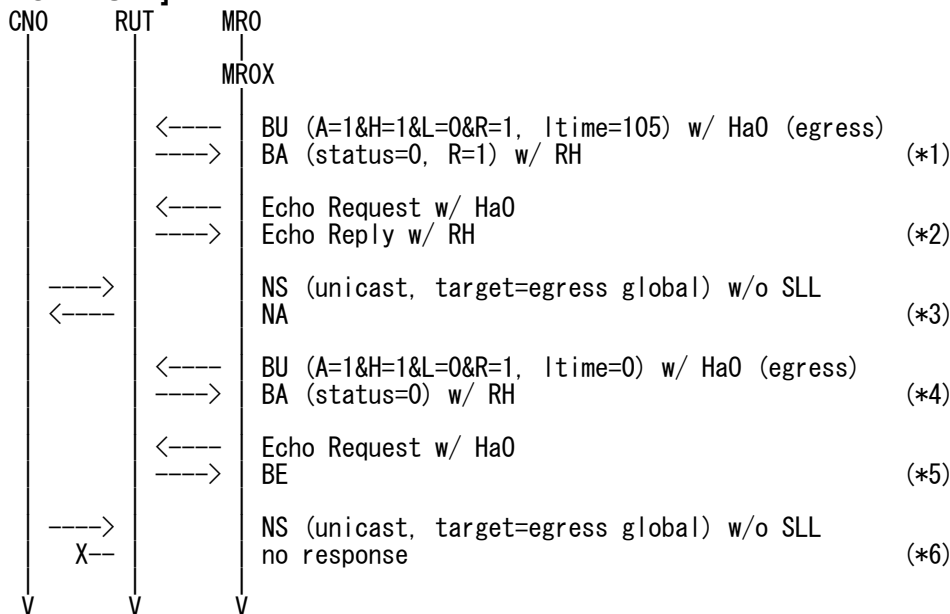
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

6. CN0 receives NA (*3) (Refer to 5.4.2, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	Length

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
-------------	----------------	----------------------



	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.4 NEMO-HA_4_4_3 - Receiving DAD NS (target=egress global), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_4_3 - Stop proxy ND after De-Registration, Receiving DAD NS (target=egress global), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

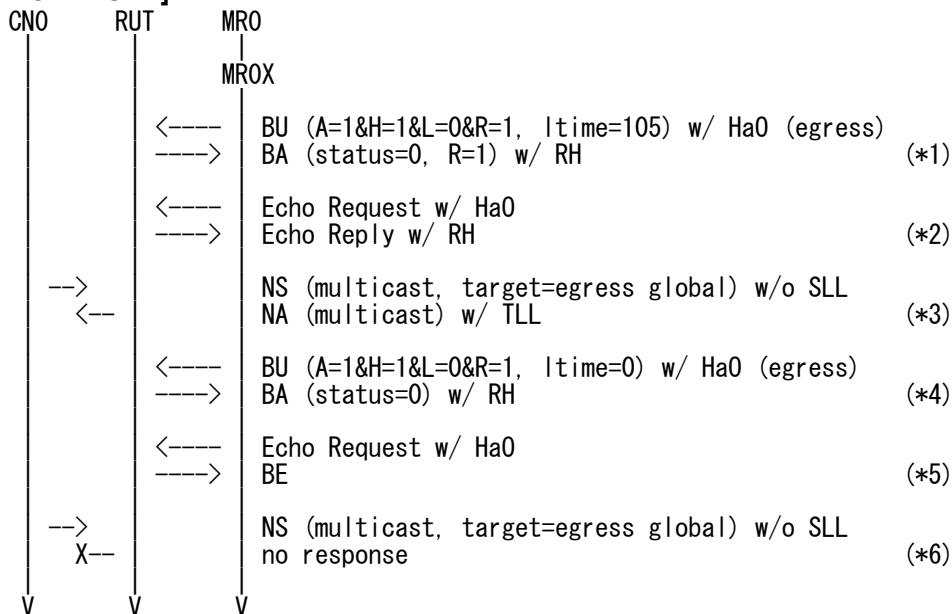
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

6. RUT sends NA to multicast (*3) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	Sequence	16
	Lifetime	0
PadN	Length	2

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)



Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

11. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.global.solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.global)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: RUT sends NA to all-nodes multicast address
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.2.



6.5.3.1.5 NEMO-HA_4_4_4 - Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_4_4 - Stop proxy ND after De-Registration, Receiving multicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

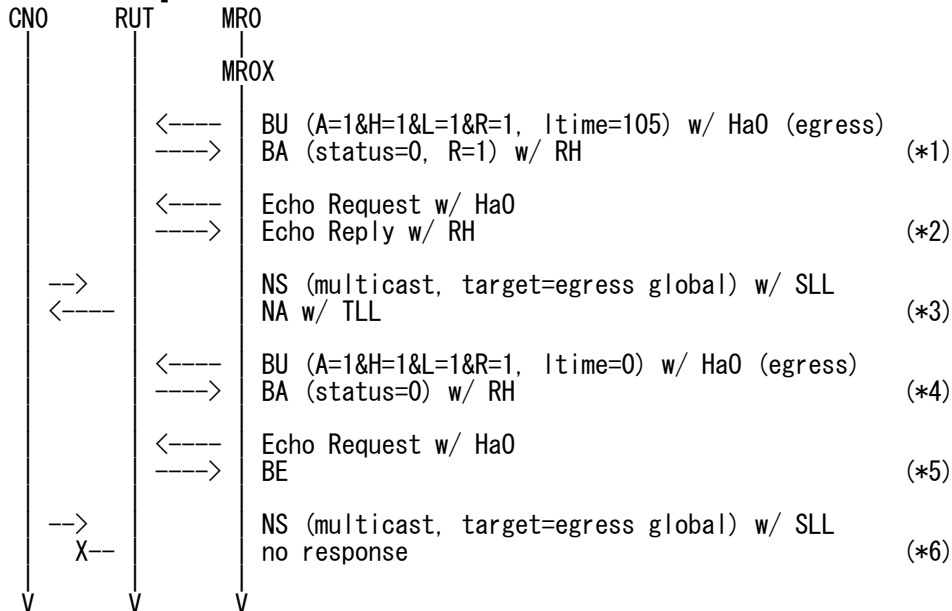
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

7. MROX sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	1	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MROX (Link0X,global)

8. MROX receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	Any	
	Sequence	16	
	Lifetime	0	
	PadN	Length	2

9. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MROX receives BE (*5) (Refer to 5.14.1)



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.6 NEMO-HA_4_4_5 – NEMO-Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_4_5 - Stop proxy ND after De-Registration, Receiving unicast NS w/ SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

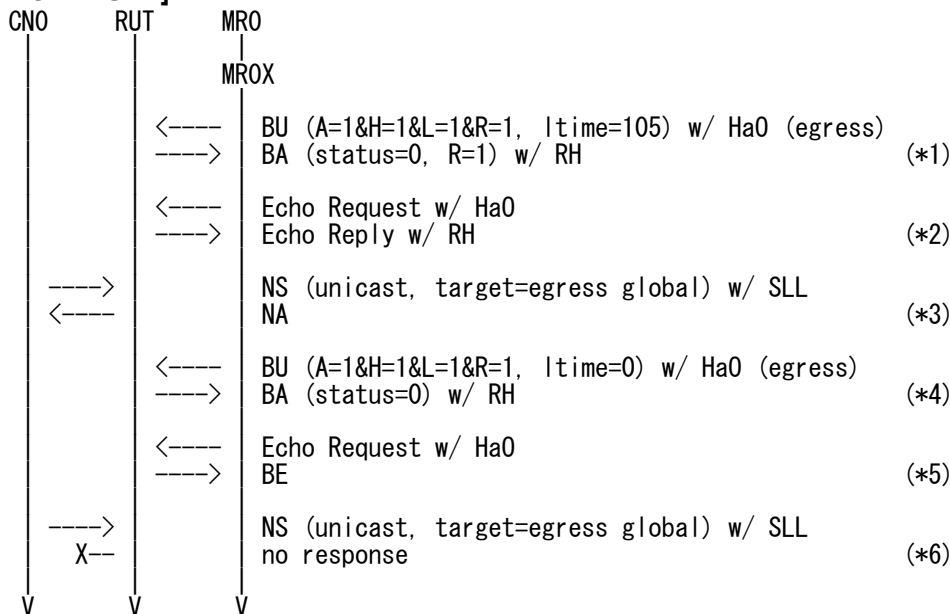
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. CN0 receives NA (*3) (Refer to 5.6.2, 5.6.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TTL option	Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
TLL option	Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	0
	PadN	Length
Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	Length	2

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MROX receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MROX receives BA w/ RH
- (*5) PASS: MROX receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.7 NEMO-HA_4_4_14 - Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_4_14 - Stop proxy ND after De-Registration, Receiving unicast NS w/o SLL (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

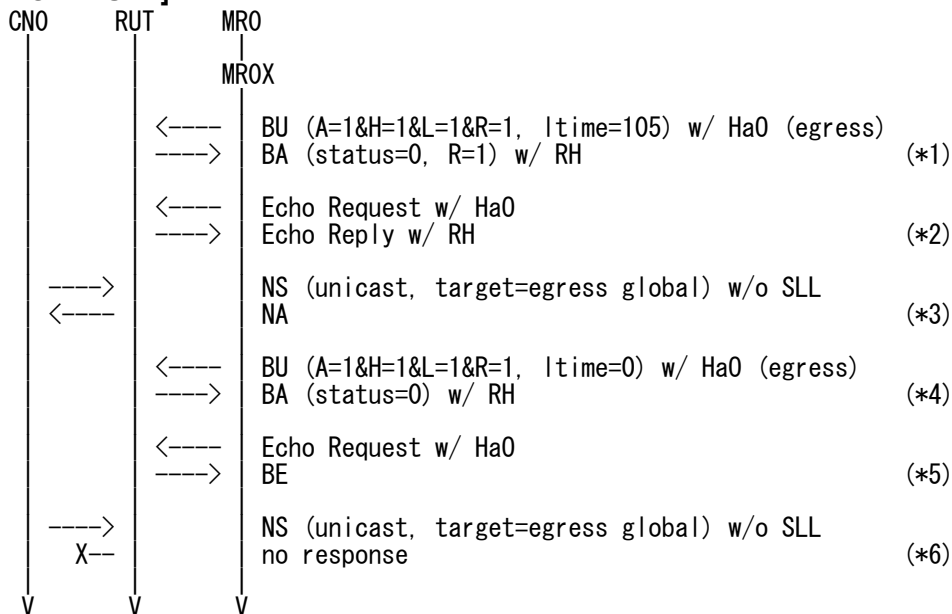
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

6. CN0 receives NA (*3) (Refer to 5.4.2, 5.4.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)
	TLL Option	Address

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,global)
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	1
	O Flag	0
	Target Address	MR0 (Link0,global)

7. MR0X sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MR0X (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	1	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MR0X (Link0X,global)

8. MR0X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	15
	Lifetime	0
	PadN	Length

9. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
-------------	----------------	----------------------



	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

11. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.global)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives NA
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.8 NEMO-HA_4_4_6 - Receiving DAD NS (target=egress global), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_4_6 - Stop proxy ND after de-registration, Receiving DAD NS (target=egress global), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

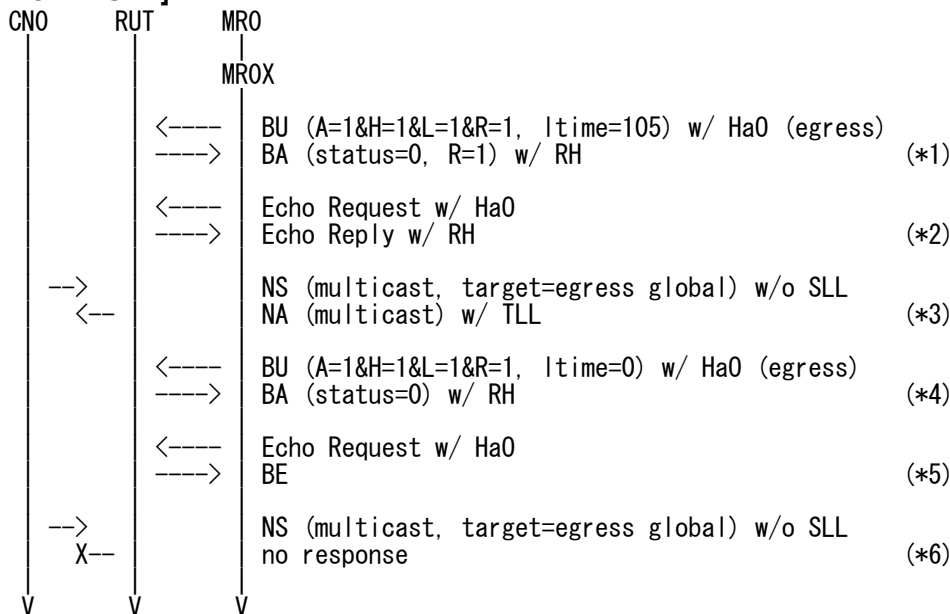
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,global)

6. RUT sends NA to multicast (*3) (Refer to 5.4.2)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
	Link Layer Address	RUT (Link0,ether)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0,global)
	Link Layer Address	RUT (Link0,ether)

7. MROX sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	0
	PadN	Length
Alternate CoA Option	Address	MROX (Link0X,global)

8. MROX receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	Length	2

9. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128



10. MR0X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

11. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.global,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.global)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: RUT sends NA to all-nodes multicast address
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.3.1.9 NEMO-HA_4_4_9 - Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_4_9 - Stop proxy ND after de-registration, Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

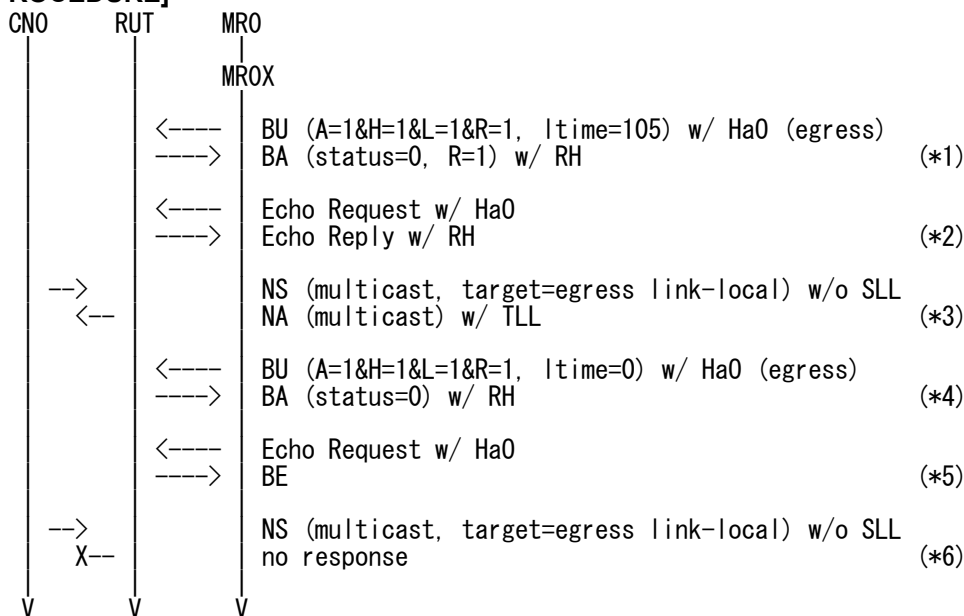
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.link-llocal,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0.link-llocal)

6. RUT sends NA to multicast (*3) (Refer to 5.4.3)

IPv6 Header	Source Address	RUT (Link0, link-llocal)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0.link-llocal)
	TTL Option	Link Layer Address

IPv6 Header	Source Address	RUT (Link0, global)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	136
	R Flag	1
	S Flag	0
	O Flag	0
	Target Address	MR0 (Link0.link-llocal)
	TTL Option	Link Layer Address

7. MROX sends BU w/ HaO (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	1	
	K Flag	0	
	R Flag	1	
	Lifetime	0	
	PadN	Length	0
	Alternate CoA Option	Address	MROX (Link0X,global)

8. MROX receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
	PadN	Length

9. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	RUT (Link0, global)
Destination Option Header	Home Address	MR0 (Link0, global)
ICMPv6 Header	Type	128

10. MROX receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
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Mobility Header	Destination Address	MR0X (Link0X,global)
	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0,link-local)

12. no response (*6)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: RUT sends NA to all-nodes multicast address
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.3.2.



6.5.4 Receiving invalid NS (the target address has a different address scope.)

6.5.4.1 Real Home Link

6.5.4.1.1 NEMO-HA_4_2_12 - Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_2_12 - Receiving invalid NS (the target address has a different address scope.),
Receiving DAD NS (target=egress link-local), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

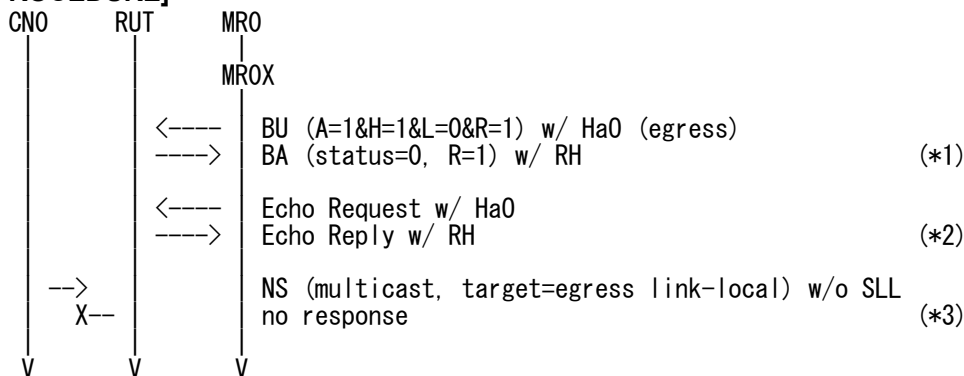
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)



Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0_link-local_solicited-node_multicast_address)
ICMPv6 Header	Type	135
	Target Address	MR0 (Link0_link-local)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

6.5.5 Receiving invalid NS (invalid target)

6.5.5.1 Real Home Link

6.5.5.1.1 NEMO-HA_4_3_1 - Receiving multicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_1 - Receiving invalid NS (invalid target), Receiving multicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

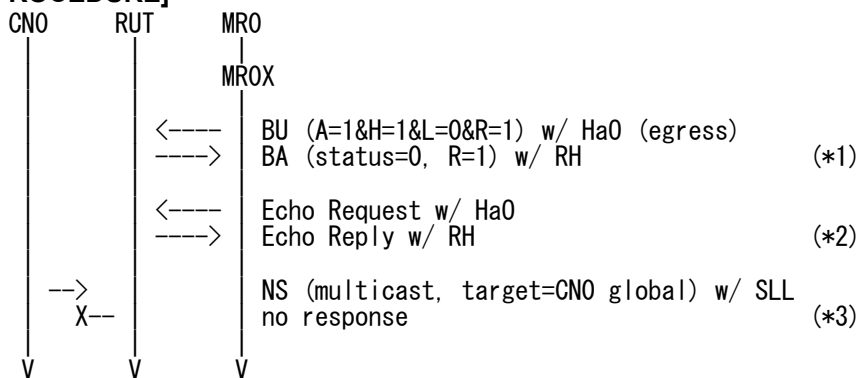
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1



	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)
ICMPv6 Header	Type	135
	Target Address	CN0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.2 NEMO-HA_4_3_2 - Receiving unicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_2 - Receiving invalid NS (invalid target), Receiving unicast NS w/ SLL (target=egress global, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

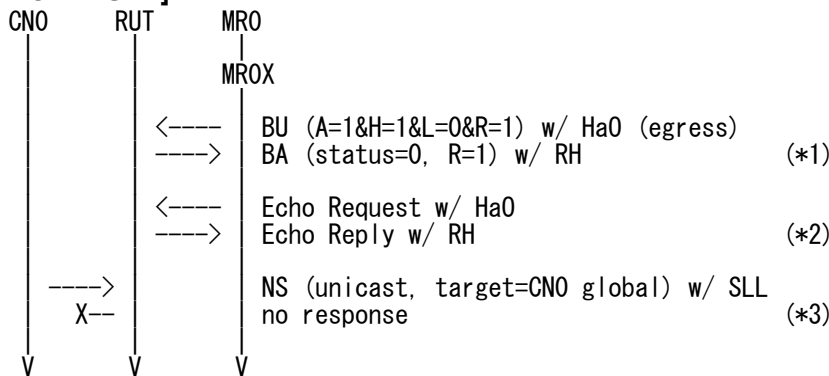
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,global)
	Destination Address	MR0 (Link0,global)



ICMPv6 Header	Type	135
	Target Address	CN0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.3 NEMO-HA_4_3_13 - Receiving unicast NS w/o SLL (target=global, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_13 - Receiving invalid NS (invalid target), Receiving unicast NS w/o SLL (target=global, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

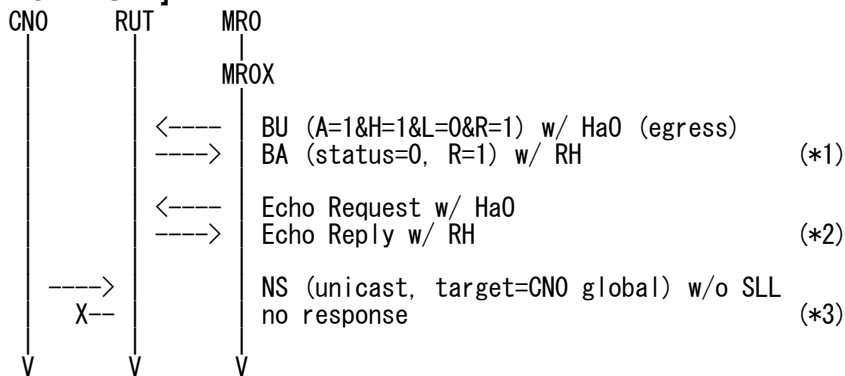
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Type	129
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,global)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.4 NEMO-HA_4_3_3 - Receiving DAD NS (target=global, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_3 - Receiving invalid NS (invalid target), Receiving DAD NS (target=global, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

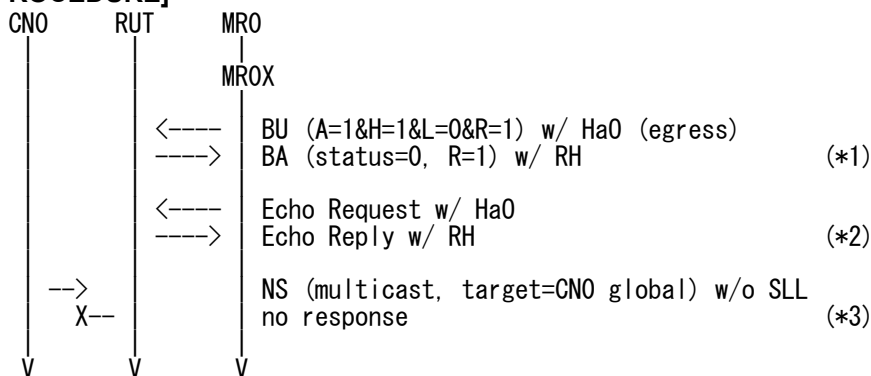
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,global,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,global)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.



6.5.5.1.5 NEMO-HA_4_3_10 - Receiving multicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_10 - Receiving invalid NS (invalid target), Receiving multicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

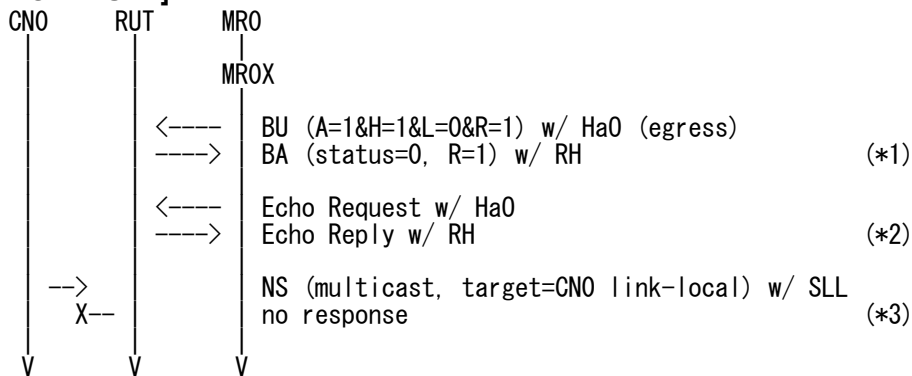
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)
SLL Option	Link Layer Address	CNO (Link0,ether)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.

6.5.5.1.6 NEMO-HA_4_3_11 - Receiving unicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_11 - Receiving invalid NS (invalid target), Receiving unicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

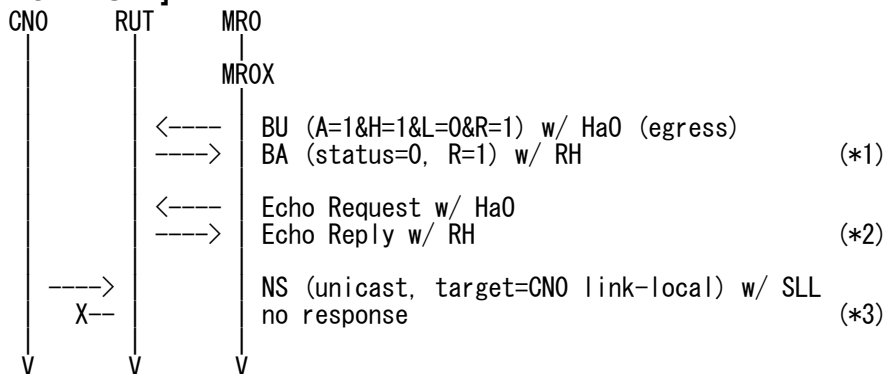
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.link-local)
	Destination Address	MR0 (Link0.link-local)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)
SLL Option	Link Layer Address	CNO (Link0,ether)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.7 NEMO-HA_4_3_16 - Receiving unicast NS w/o SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_16 - Receiving invalid NS (invalid target), Receiving unicast NS w/o SLL (target=link-local, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

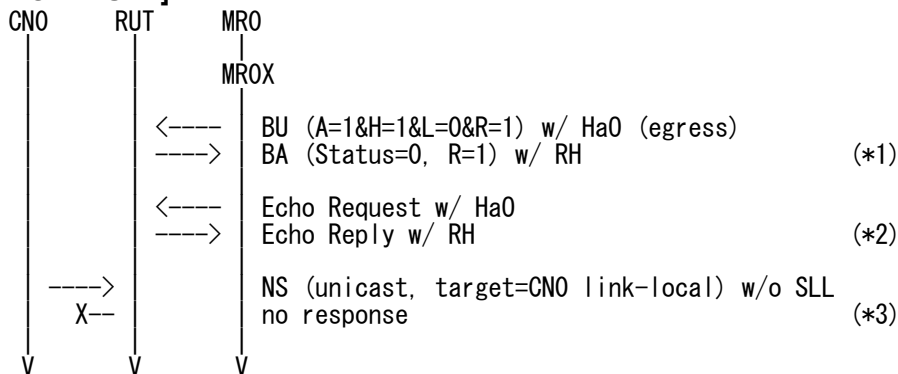
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.



6.5.5.1.8 NEMO-HA_4_3_12 - Receiving DAD NS (target=link-local, invalid), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_4_3_12 - Receiving invalid NS (invalid target), Receiving DAD NS (target=link-local, invalid), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

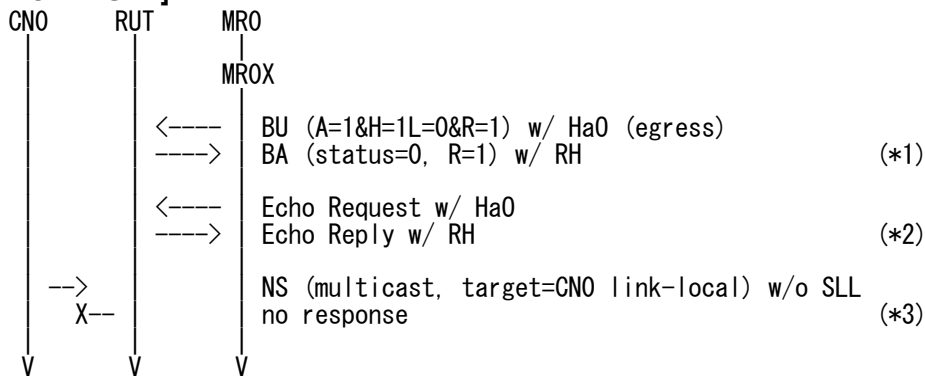
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.link-local.solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.9 NEMO-HA_4_3_4 - Receiving multicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_4 - Receiving invalid NS (invalid target), Receiving multicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link]
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

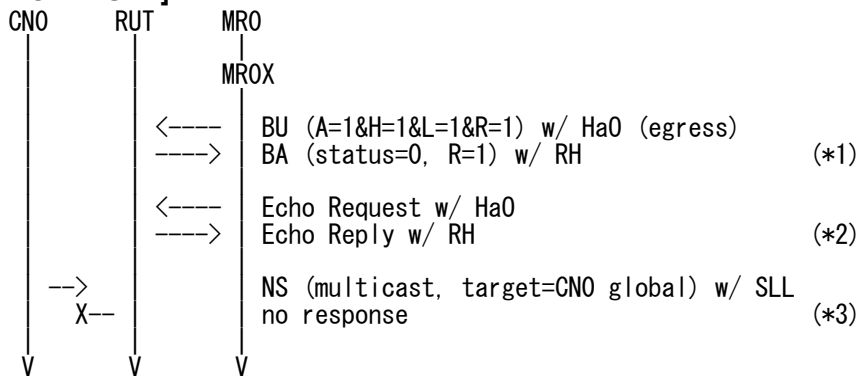
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
	Type	129
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CN0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.

6.5.5.1.10 NEMO-HA_4_3_5 - Receiving unicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_5 - Receiving invalid NS (invalid target), Receiving unicast NS w/ SLL (target=global, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

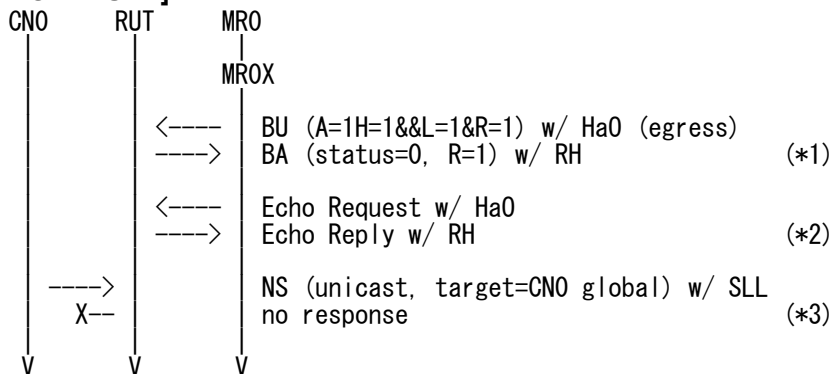
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CNO sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CNO (Link0,global)
	Destination Address	MR0 (Link0,global)



ICMPv6 Header	Type	135
	Target Address	CN0 (Link0,global)
SLL Option	Link Layer Address	CN0 (Link0,ether)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.



6.5.5.1.11 NEMO-HA_4_3_14 - Receiving unicast NS w/o SLL (target=global, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_14 - Receiving invalid NS (invalid target), Receiving unicast NS w/o SLL (target=global, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

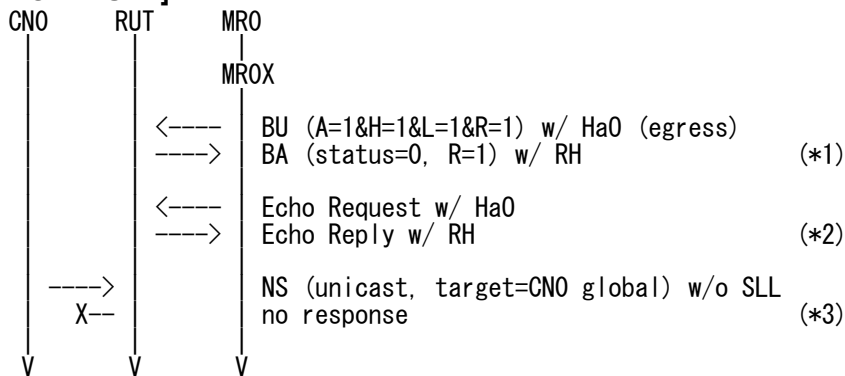
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0.global)
	Destination Address	MR0 (Link0.global)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,global)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

6.5.5.1.12 NEMO-HA_4_3_6 - Receiving DAD NS (target=global, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_6 - Receiving invalid NS (invalid target), Receiving DAD NS (target=global, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

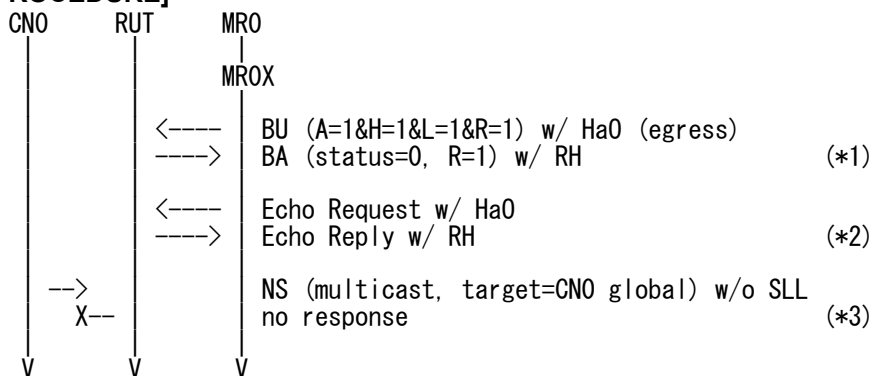
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0.global)
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0.global,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,global)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.



6.5.5.1.13 NEMO-HA_4_3_7 – NEMO-Receiving multicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_7 - Receiving invalid NS (invalid target), Receiving multicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

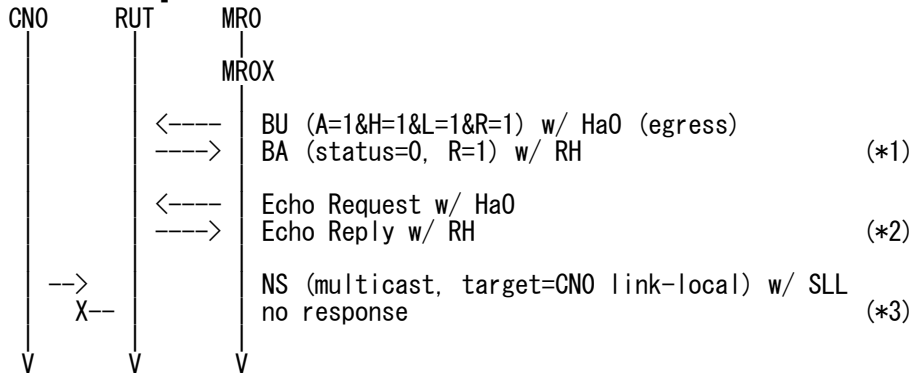
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)
SLL Option	Link Layer Address	CNO (Link0,ether)

6. no response (*3)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.1.



6.5.5.1.14 NEMO-HA_4_3_8 - Receiving unicast NS w/ SLL (target=link-local, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_8 - Receiving invalid NS (invalid target), Receiving unicast NS w/ SLL (target=linklocal, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

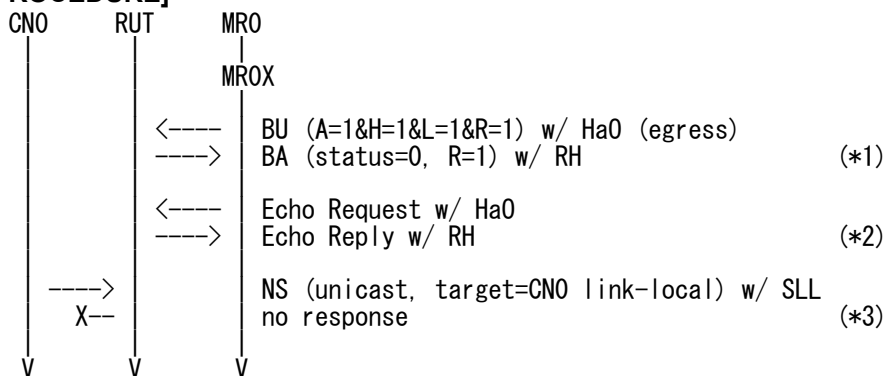
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.2)

IPv6 Header	Source Address	CN0 (Link0.link-local)
	Destination Address	MR0 (Link0.link-local)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)
SLL Option	Link Layer Address	CNO (Link0,ether)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.15 NEMO-HA_4_3_15 - Receiving unicast NS w/o SLL (target=link-local, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_15 - Receiving invalid NS (invalid target), Receiving unicast NS w/o SLL (target=linklocal, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

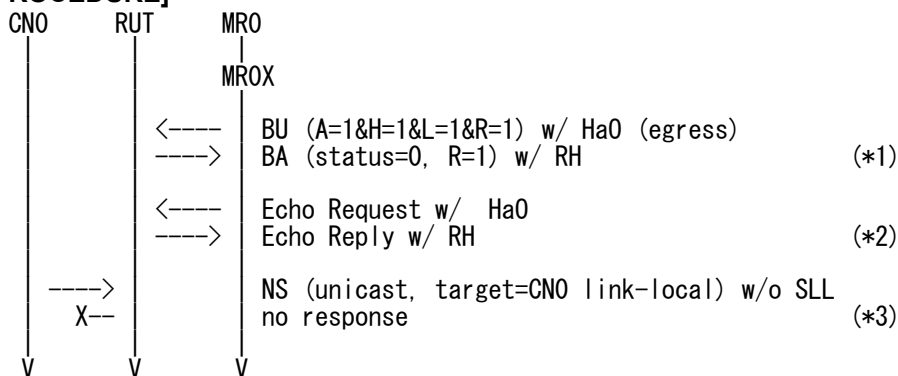
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local)
ICMPv6 Header	Type	135



	Target Address	CNO (Link0,link-local)
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6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.



6.5.5.1.16 NEMO-HA_4_3_9 - Receiving DAD NS (target=link-local, invalid), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_4_3_9 - Receiving invalid NS (invalid target), Receiving DAD NS (target=link-local, invalid), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

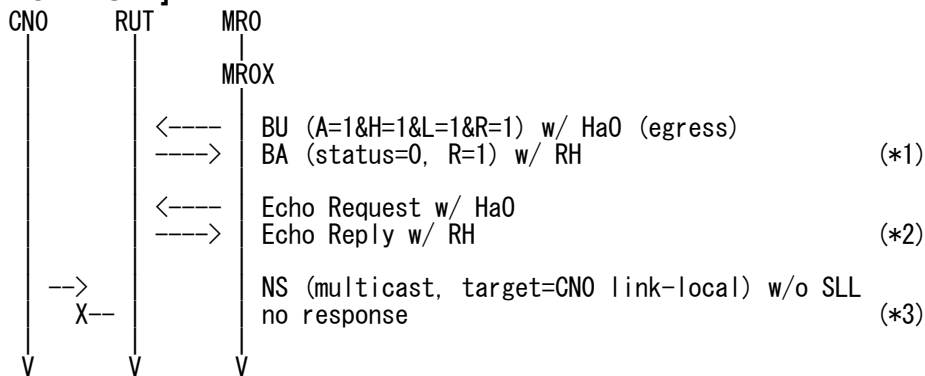
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends NS (Refer to 5.3.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	MR0 (Link0,link-local,solicited-node multicast address)



ICMPv6 Header	Type	135
	Target Address	CNO (Link0,link-local)

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.1.

6.6 Processing Intercepted Packets

6.6.1 Tunneling Intercepted Packets

6.6.1.1 Real Home Link

6.6.1.1.1 NEMO-HA_5_1_1 - Echo Request from CN to MR (global)

[PURPOSE]

NEMO-HA_5_1_1 - Tunneling Intercepted Packets, Echo Request from CN to MR (global)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

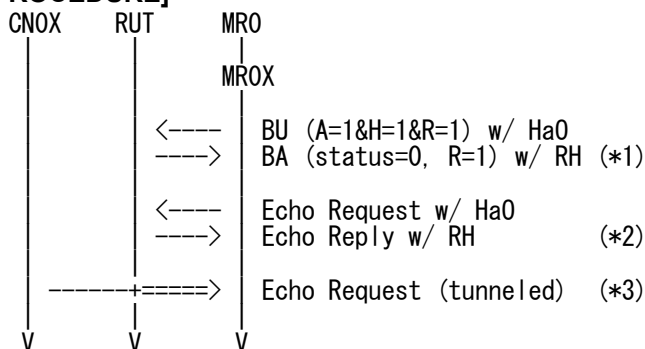
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
	Encapsulating Security Payload	Security Parameters Index SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)



ICMPv6 Header	Type	129
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5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives Echo Request (tunneled)

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.4.2.



6.6.1.1.2 NEMO-HA_5_1_4 - Update tunnel end point

[PURPOSE]

NEMO-HA_5_1_4 - Tunneling Intercepted Packets, Update tunnel end point

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

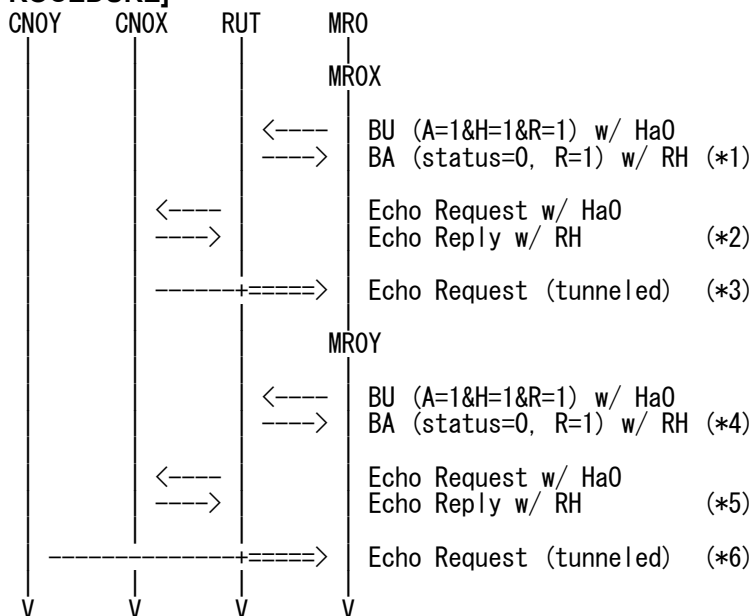
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)

ICMPv6 Header	Type	129
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5. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

11. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives Echo Request (tunneled)
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: MR0Y receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.2.

6.6.1.2 Virtual Home Link

6.6.1.2.1 NEMO-HA_5_1_5 - Echo Request from CN to MR (global)

[PURPOSE]

NEMO-HA_5_1_5 - Tunneling Intercepted Packets, Echo Request from CN to MR (global)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

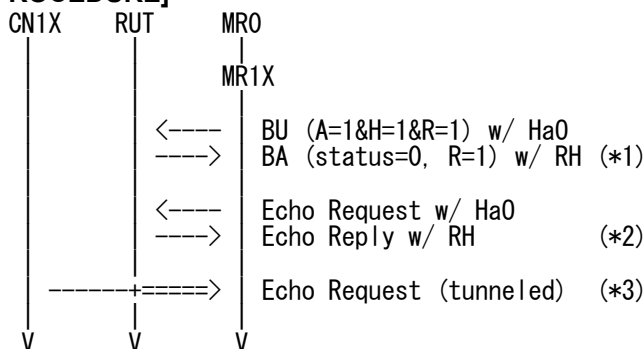
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128



6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.2.



6.6.1.2.2 NEMO-HA_5_1_6 - Update tunnel end point

[PURPOSE]

NEMO-HA_5_1_6 - Tunneling Intercepted Packets, Update tunnel end point

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

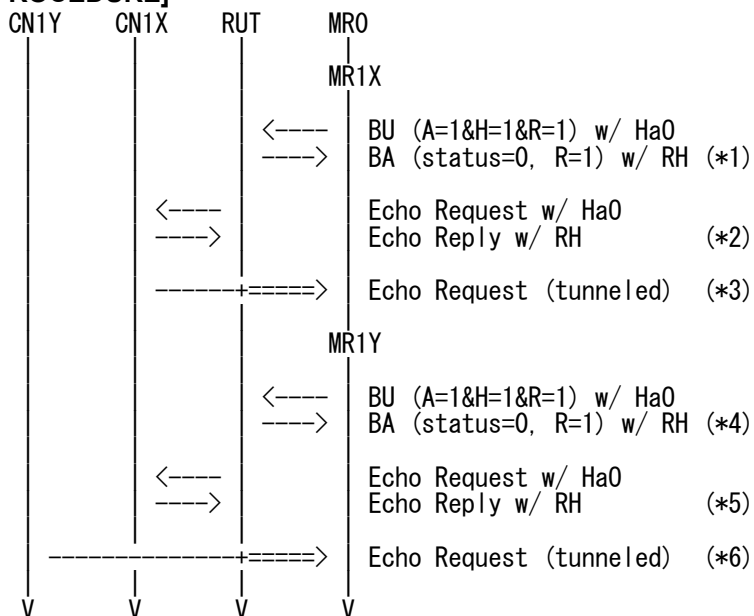
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)

ICMPv6 Header	Type	129
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5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)

Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

11. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y.global)
	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
IPv6 Header	Source Address	CN1Y (Link1Y.global)
	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives Echo Request (tunneled)
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: MR1Y receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.2.

6.6.2 Tunneling Intercepted Packets - error handling

6.6.2.1 Real Home Link

6.6.2.1.1 NEMO-HA_5_1_2 - Echo Request from CN to MR (link-local), (HoA(from HNP), L=1)

[PURPOSE]

NEMO-HA_5_1_2 - Tunneling Intercepted Packets - error handling, Echo Request from CN to MR (link-local), (HoA(from HNP), L=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

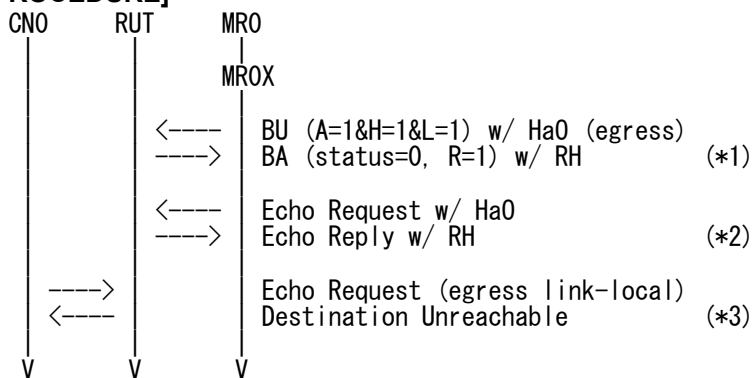
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1

	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	1
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1



	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0 sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local)
ICMPv6 Header	Type	128

6. CN0 receives Destination Unreachable (*3) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	CN0 (Link0,link-local)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Hoplimit (63 or 64) Echo Request

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: CN0 receives Destination Unreachable

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.4.2.

6.6.2.1.2 NEMO-HA_5_1_3 - Relay ICMP error while using bi-directional tunnel

[PURPOSE]

NEMO-HA_5_1_3 - Relay ICMP error while using bi-directional tunnel

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

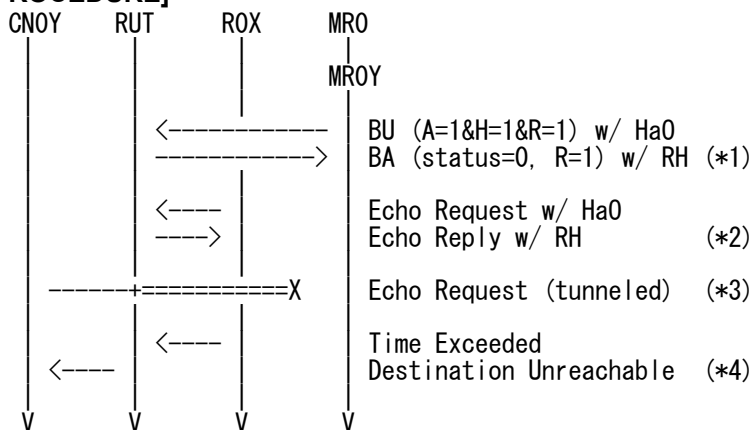
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128



6. RUT sends Echo Request to MR0Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

7. R0X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R0X (Link0X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 header ESP IPv6 header Echo Request

8. CN0Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0Y receives BA w/ RH
- (*2) PASS: MR0Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR0Y(tunneled)
- (*4) PASS: CN0Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.6.2.2 Virtual Home Link

6.6.2.2.1 NEMO-HA_5_1_7 - Relay ICMP error while using bi-directional tunnel

[PURPOSE]

NEMO-HA_5_1_7 - Relay ICMP error while using bi-directional tunnel

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

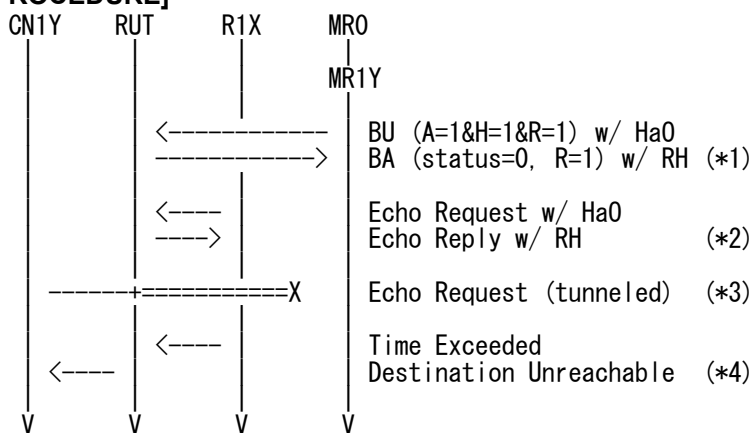
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
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	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR1Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
IPv6 Header	Source Address	CN1Y (Link1Y.global)
	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

7. R1X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R1X (Link1X.global)
	Destination Address	RUT (Link0.global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN1Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0 or Link1.global)
	Destination Address	CN1Y (Link1Y.global)
ICMPv6 Header	Type	1
	Code	3
	Payload Date	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR1Y receives BA w/ RH
- (*2) PASS: MR1Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR1Y (tunneled)
- (*4) PASS: CN1Y receives Destination Unreachable

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC 3775 - Mobility Support in IPv6

See Section 9.3.4.

RFC 2473 - Generic Packet Tunneling in IPv6

See Section 8.2.

6.6.3 Tunneling Intercepted Packets

6.6.3.1 Real Home Link

6.6.3.1.1 NEMO-HA_5_2_1 - Echo Request from CN to MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_2_1 - Tunneling Intercepted Packets, Echo Request from CN to MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

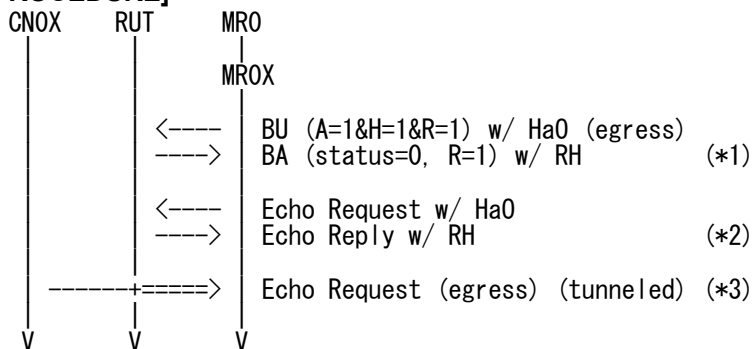
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129



5. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.2, Section 6.4 and Section 6.5.

6.6.3.1.2 NEMO-HA_5_2_2 - Echo Request from CN to MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_2_2 - Tunneling Intercepted Packets, Echo Request from CN to MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

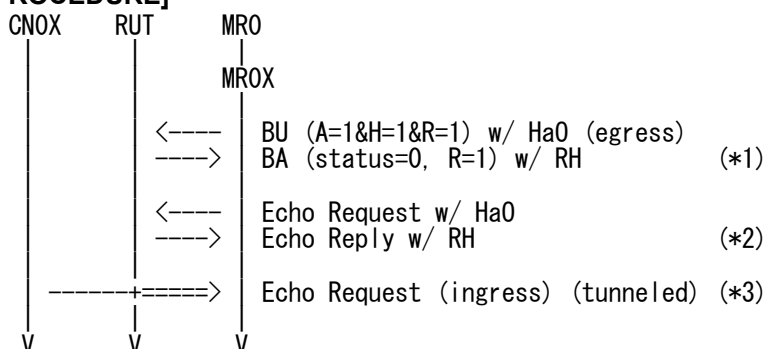
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	MR0 (Link0A,global)
ICMPv6 Header	Type	128



6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	MRO (Link0A.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: MROX receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2, Section 6.4 and Section 6.5.

6.6.3.2 Virtual Home Link

6.6.3.2.1 NEMO-HA_5_2_5 - Echo Request from CN to MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_2_5 - Tunneling Intercepted Packets, Echo Request from CN to MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

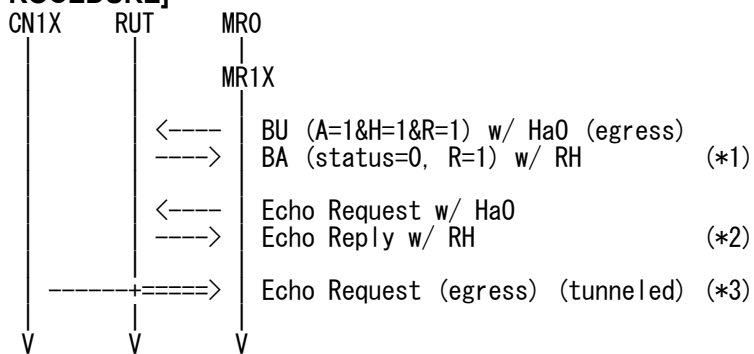
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
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	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.2, Section 6.4 and Section 6.5.

6.6.3.2.2 NEMO-HA_5_2_6 - Echo Request from CN to MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_2_6 - Tunneling Intercepted Packets, Echo Request from CN to MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

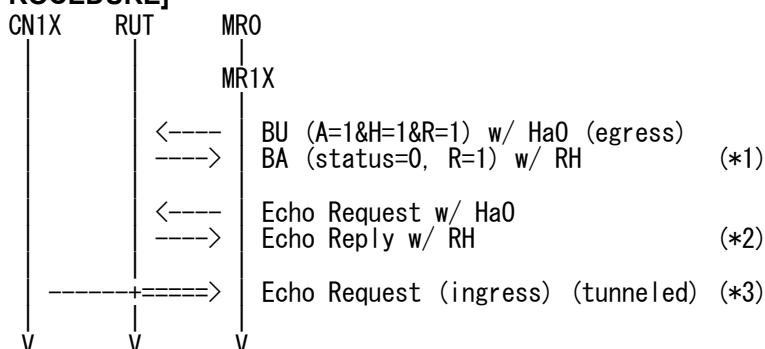
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	MR0 (Link1A,global)
ICMPv6 Header	Type	128



6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	MR0 (Link1A.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.2, Section 6.4 and Section 6.5.

6.6.4 Tunneling Intercepted Packets – error handling

6.6.4.1 Real Home Link

6.6.4.1.1 NEMO-HA_5_3_5 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_3_5 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

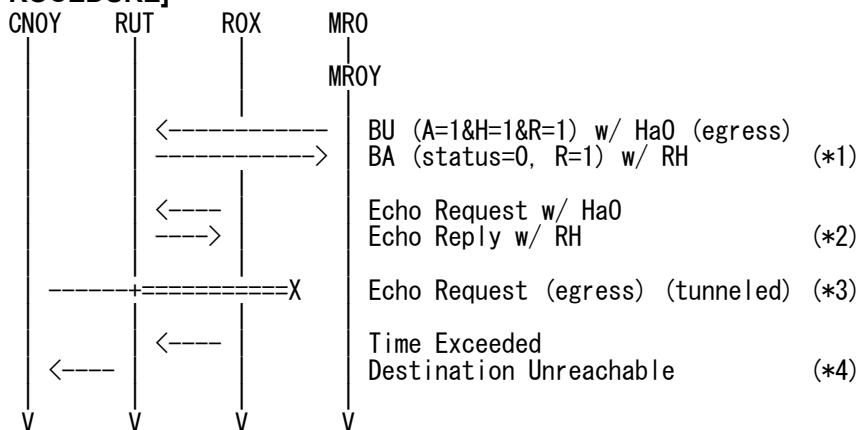
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1

	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
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Type2 Routing Header	Destination Address	MR0Y (Link0Y,global)
	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR0Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

7. R0X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R0X (Link0X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN0Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0Y receives BA w/ RH
- (*2) PASS: MR0Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR0Y(tunneled)
- (*4) PASS: CN0Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.6.4.1.2 NEMO-HA_5_3_6 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_3_6 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

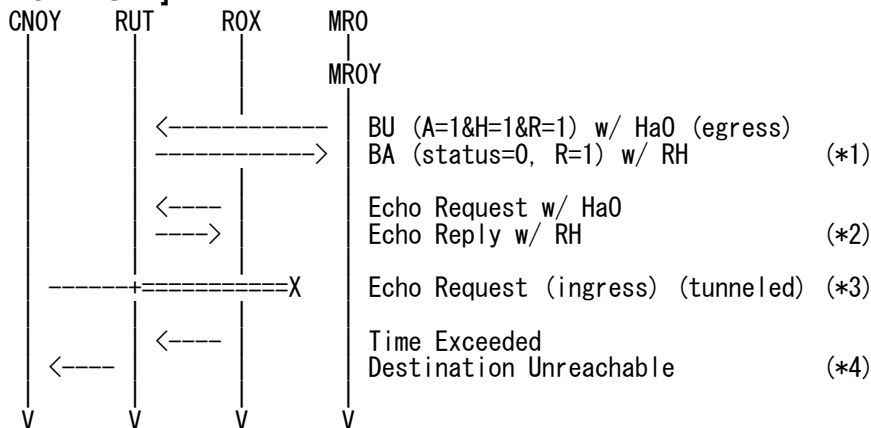
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MRO sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROY (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROY (Link0Y.global)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129



5. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0A,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR0Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	MR0 (Link0A,global)
ICMPv6 Header	Type	128

7. R0X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R0X (Link0X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN0Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0Y receives BA w/ RH
- (*2) PASS: MR0Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR0Y(tunneled)
- (*4) PASS: CN0Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.



6.6.4.1.3 NEMO-HA_5_3_1 – Reply Destination Unreachable, Echo Request from CN to MR (egress link-local), (HoA(from HNP), L=0)

[PURPOSE]

NEMO-HA_5_3_1 – Reply Destination Unreachable, Echo Request from CN to MR (egress link-local), (HoA(from HNP), L=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION (REAL HOME LINK)

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.2 Common Topology-2

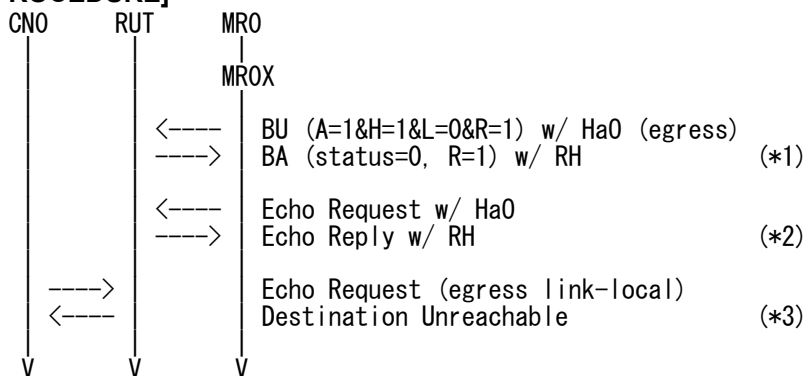
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
-------------	----------------	----------------------

Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
	Prefix length	64
MNP Option	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. CN0 sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0 (Link0,link-local)
	Destination Address	MR0 (Link0,link-local)



ICMPv6 Header	Type	128
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6. CN0 receives Destination Unreachable (*3) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	CN0 (Link0.link-local)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0 receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.3.1 and Section 10.4.1.

6.6.4.2 Virtual Home Link

6.6.4.2.1 NEMO-HA_5_3_9 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_3_9 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

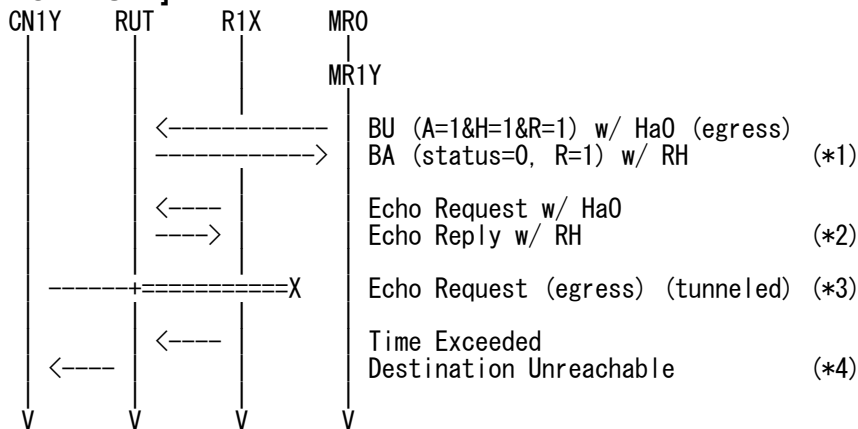
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI

ICMPv6 Header	Type	129
---------------	------	-----

5. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR1Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

7. R1X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R1X (Link1X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN1Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0 or Link1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR1Y receives BA w/ RH
- (*2) PASS: MR1Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR1Y(tunneled)
- (*4) PASS: CN1Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.



6.6.4.2.2 NEMO-HA_5_3_10 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_5_3_10 - Relay ICMP error while using bi-directional tunnel, Echo Request from CN to MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

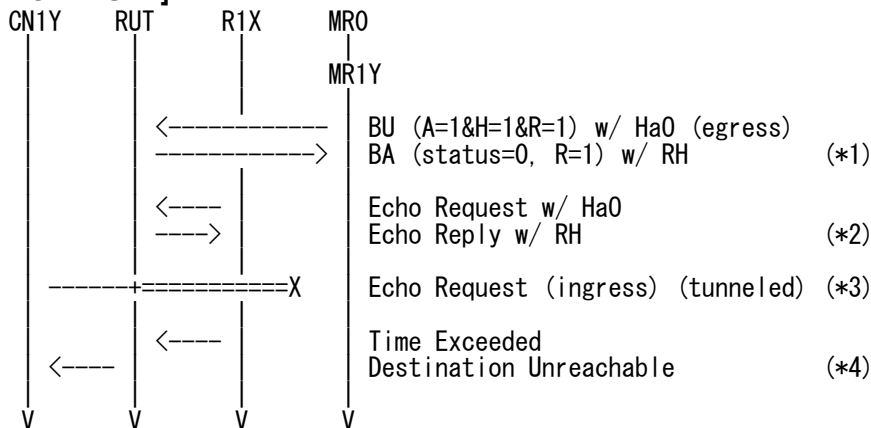
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129



5. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	MR0 (Link1A,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR1Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	MR0 (Link1A,global)
ICMPv6 Header	Type	128

7. R1X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R1X (Link1X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN1Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0 or Link1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR1Y receives BA w/ RH
- (*2) PASS: MR1Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR1Y(tunneled)
- (*4) PASS: CN1Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.6.5 Tunneling Intercepted Packets for Mobile Network Prefix

6.6.5.1 Real Home Link

6.6.5.1.1 NEMO-HA_5_4_1 - Echo Request from CN to LFN under MR, (Implicit)

[PURPOSE]

NEMO-HA_5_4_1 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

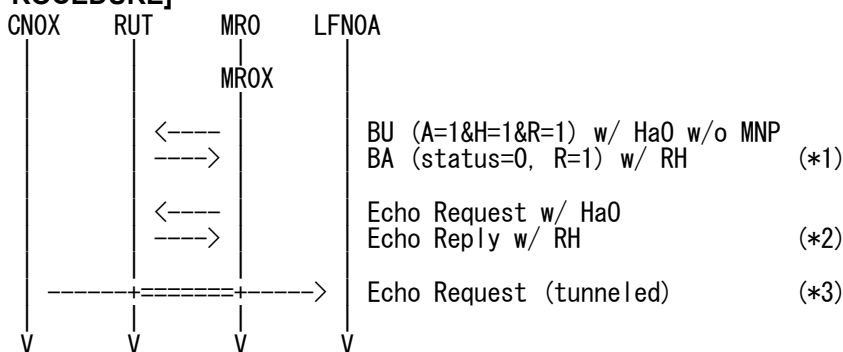
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA (Link0A,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA (Link0A,global)
ICMPv6 Header	Type	128

[JUDGMENT]



- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.1.2 NEMO-HA_5_4_2 – Update tunnel end point, (Implicit)

[PURPOSE]

NEMO-HA_5_4_2 - Tunneling Intercepted Packets, Update tunnel end point, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

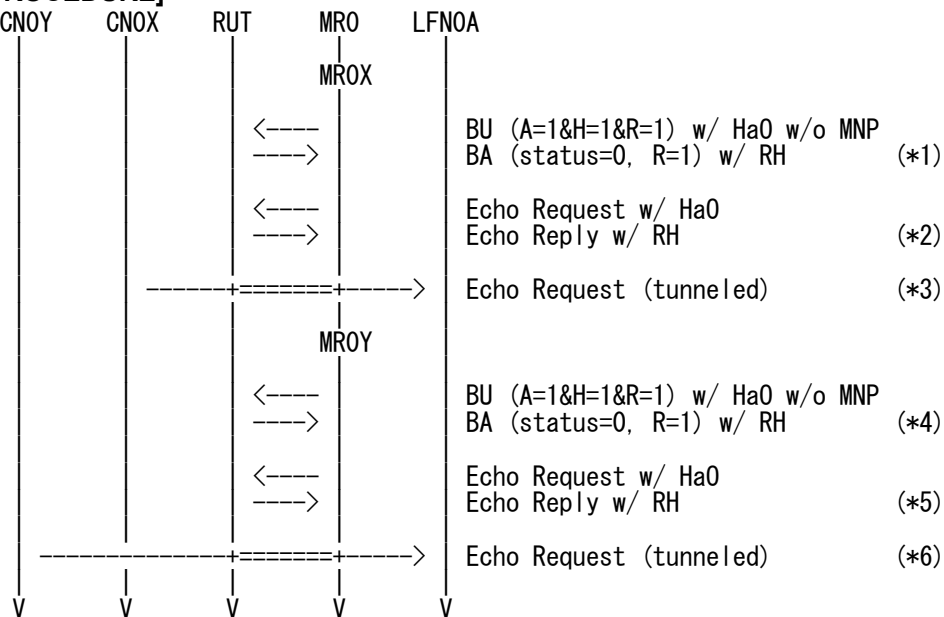
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129



11. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A receives Echo Request (tunneled)
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: LFN0A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.1.3 NEMO-HA_5_4_5 - Echo Request from CN to LFN under MR, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_5_4_5 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Explicit, single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

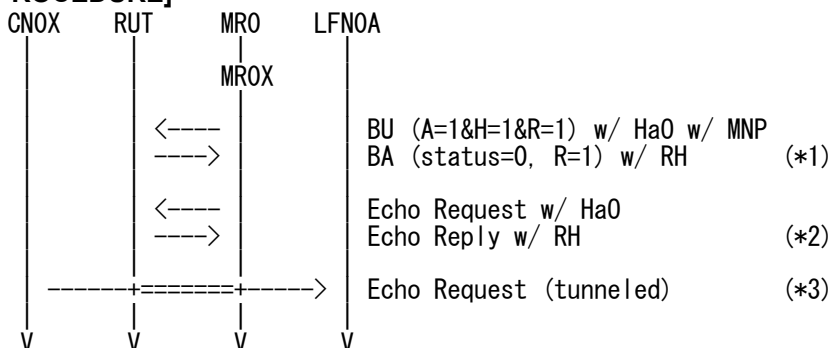
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
Binding Refresh Advice Option	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
PadN	Lifetime	<=105
	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X.global)
	Destination Address	LFN0A (Link0A.global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	CN0X (Link0X.global)
	Destination Address	LFN0A (Link0A.global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH



(*3) PASS: LFN0A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.1.4 NEMO-HA_5_4_7 – Update tunnel end point, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_5_4_7 - Tunneling Intercepted Packets, Update tunnel end point, (Explicit, same single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

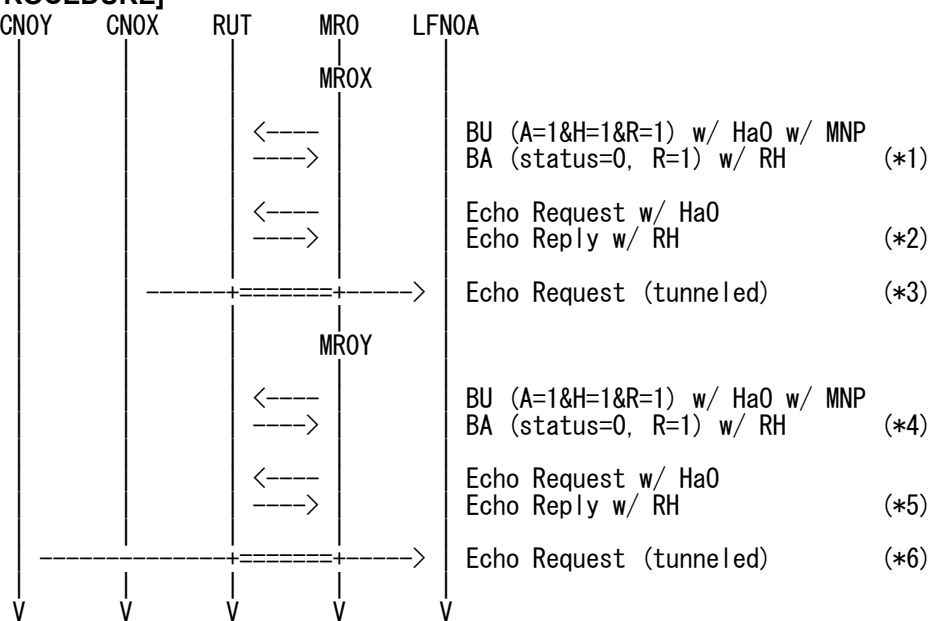
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
-------------	----------------	--------------------

IPv6 Header	Destination Address	MR0X (Link0X.global)
	Source Address	CNOX (Link0X.global)
ICMPv6 Header	Destination Address	LFN0A (Link0A.global)
	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
-------------	----------------	--------------------



Type2 Routing Header	Destination Address	MR0Y (Link0Y,global)
	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A receives Echo Request (tunneled)
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: LFN0A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.1.5 NEMO-HA_5_4_6 - Echo Request from CN to LFN under MR, (Explicit, multiple MNP)

[PURPOSE]

NEMO-HA_5_4_6 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Explicit, multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

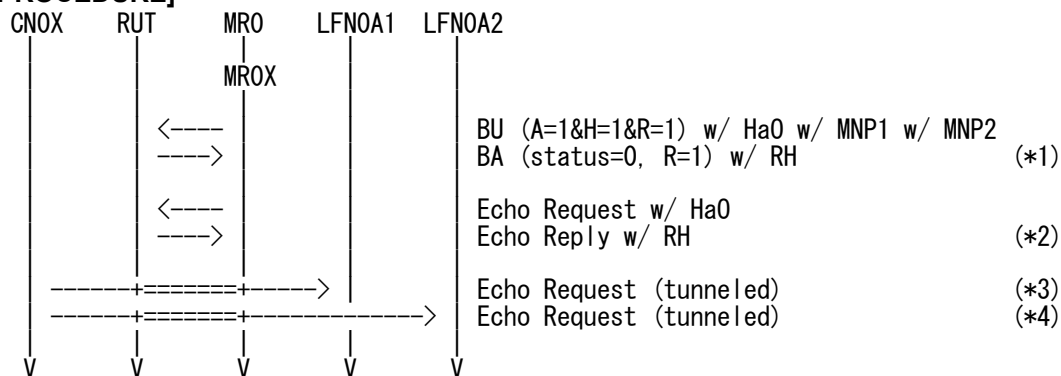
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA1 (Link0A1,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA1 (Link0A1,global)
ICMPv6 Header	Type	128

7. CNOX sends Echo Request (Refer to 5.5.1)



IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A1 receives Echo Request (tunneled)
- (*4) PASS: LFN0A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.1.6 NEMO-HA_5_4_8 – Update tunnel end point, (Explicit, same multiple MNP)

[PURPOSE]

NEMO-HA_5_4_8 - Tunneling Intercepted Packets, Update tunnel end point, (Explicit, same multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

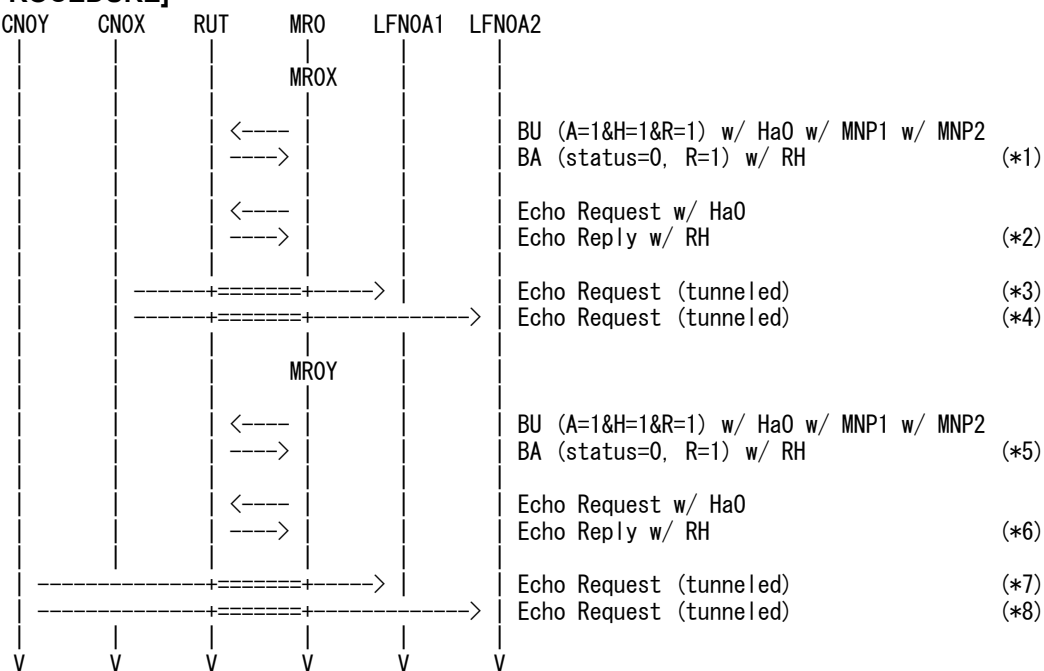
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	LFN0A1 (Link0A1.global)
ICMPv6 Header	Type	128

7. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

8. MROX receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	CNOX (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

9. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)	
	Destination Address	RUT (Link0.global)	
Destination Option Header	Home Address	MR0 (Link0.global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	15	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2	
MNP Option	Prefix length	64	
	Prefix	MNP1 (Link0A1.prefix)	
MNP Option	Prefix length	64	
	Prefix	MNP2 (Link0A2.prefix)	

10. MR0Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<= 105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<= 105
	PadN	Length

11. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

13. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

14. MR0Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

15. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

16. MR0Y receives Echo Request (tunneled) (*8) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A1 receives Echo Request (tunneled)
- (*4) PASS: LFN0A2 receives Echo Request (tunneled)
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: LFN0A1 receives Echo Request (tunneled)
- (*8) PASS: LFN0A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.1.7 NEMO-HA_5_4_9 – Update tunnel end point & create new tunnel, (Explicit, add MNP)

[PURPOSE]

NEMO-HA_5_4_9 - Tunneling Intercepted Packets, Update tunnel end point & create new tunnel, (Explicit, add MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

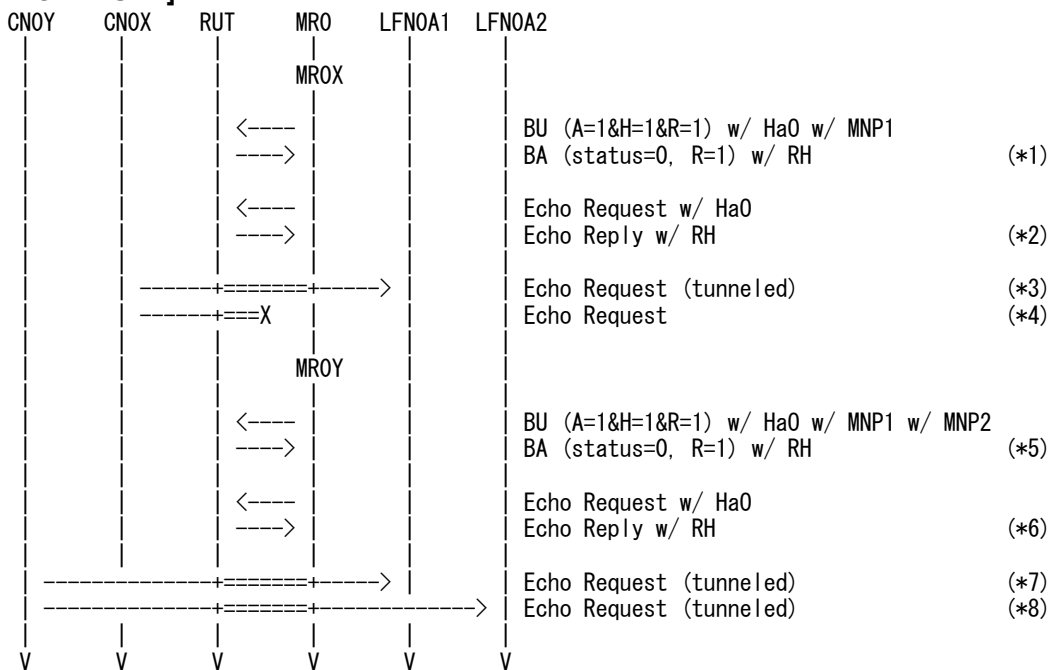
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

6. MROX receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA1 (Link0A1,global)
ICMPv6 Header	Type	128

7. CNOX sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFNOA2 (Link0A2,global)
ICMPv6 Header	Type	128

8. no response (*4)

9. MROY sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MROY (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROY (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

10. MROY receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROY (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROY (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

11. MROY sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROY (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROY (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

13. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

14. MR0Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

15. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

16. MR0Y receives Echo Request (tunneled) (*8) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A1 receives Echo Request (tunneled)
- (*4) PASS: no response
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: LFN0A1 receives Echo Request (tunneled)
- (*8) PASS: LFN0A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.1.8 NEMO-HA_5_4_10 – Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[PURPOSE]

NEMO-HA_5_4_10 - Tunneling Intercepted Packets, Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

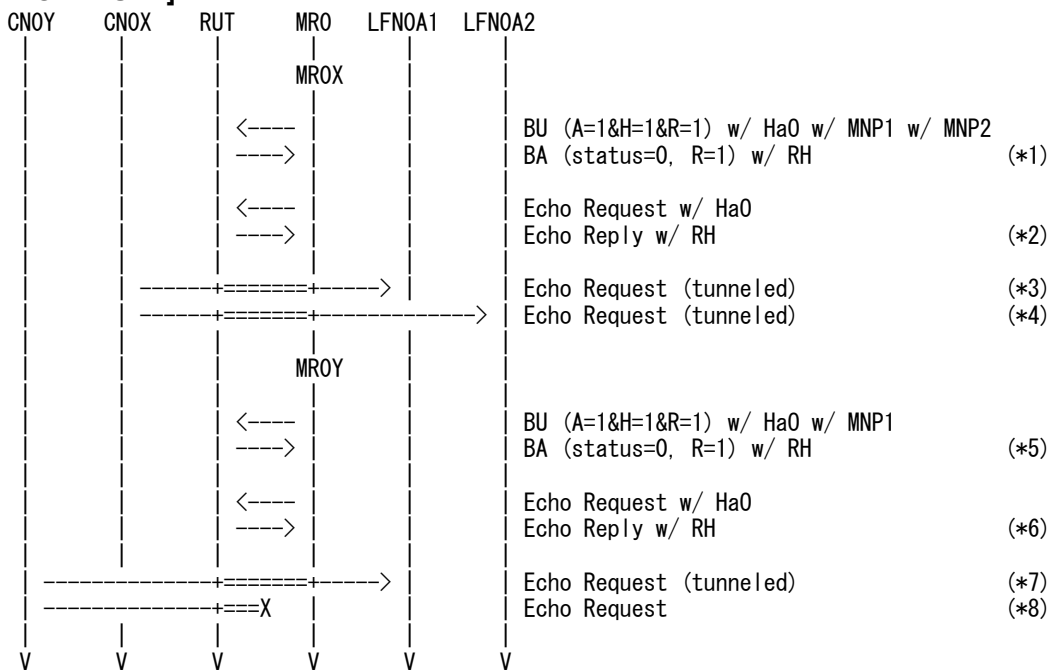
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
-------------	----------------	----------------------

	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

6. MR0X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

7. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CNOX (Link0X,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

9. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	PadN	Length
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)

10. MR0Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		PadN	Length

11. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

13. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

14. MR0Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

15. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

16. no response (*8)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: LFN0A1 receives Echo Request (tunneled)
- (*4) PASS: LFN0A2 receives Echo Request (tunneled)
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: LFN0A1 receives Echo Request (tunneled)
- (*8) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.1.9 NEMO-HA_5_4_11 – Create new tunnel & delete tunnel, (Explicit, different MNP)

[PURPOSE]

NEMO-HA_5_4_11 - Tunneling Intercepted Packets, Create new tunnel & delete tunnel, (Explicit, different MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

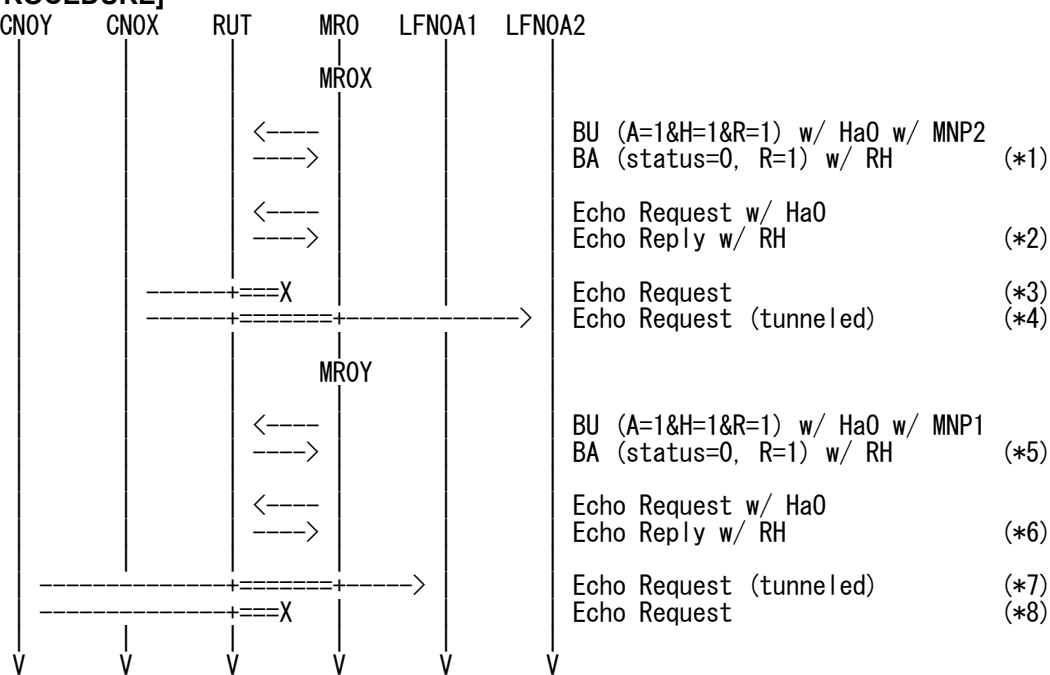
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

6. no response (*3)

7. CN0X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0X (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

8. MR0X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	CN0X (Link0X.global)
	Destination Address	LFN0A2 (Link0A2.global)
ICMPv6 Header	Type	128

9. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

10. MR0Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)	
	Destination Address	MR0Y (Link0Y.global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0.global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Interval	<=105
Binding Refresh Advice Option		Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)	
	Destination Address	MR0Y (Link0Y.global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0.global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Length	2
PadN		Length	2

11. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

14. MR0Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A1 (Link0A1,global)
ICMPv6 Header	Type	128

15. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A2 (Link0A2,global)
ICMPv6 Header	Type	128

16. no response (*8)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: no response
- (*4) PASS: LFN0A2 receives Echo Request (tunneled)
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: LFN0A1 receives Echo Request (tunneled)
- (*8) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.2 Virtual Home Link

6.6.5.2.1 NEMO-HA_5_4_3 - Echo Request from CN to LFN under MR, (Implicit)

[PURPOSE]

NEMO-HA_5_4_3 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

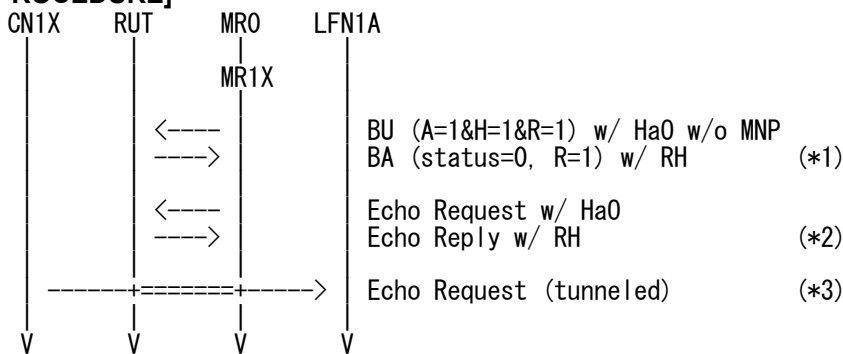
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
Binding Refresh Advice Option	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
PadN	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH



(*3) PASS: LFN1A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.2.2 NEMO-HA_5_4_4 – Update tunnel end point, (Implicit)

[PURPOSE]

NEMO-HA_5_4_4 - Tunneling Intercepted Packets, Update tunnel end point, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

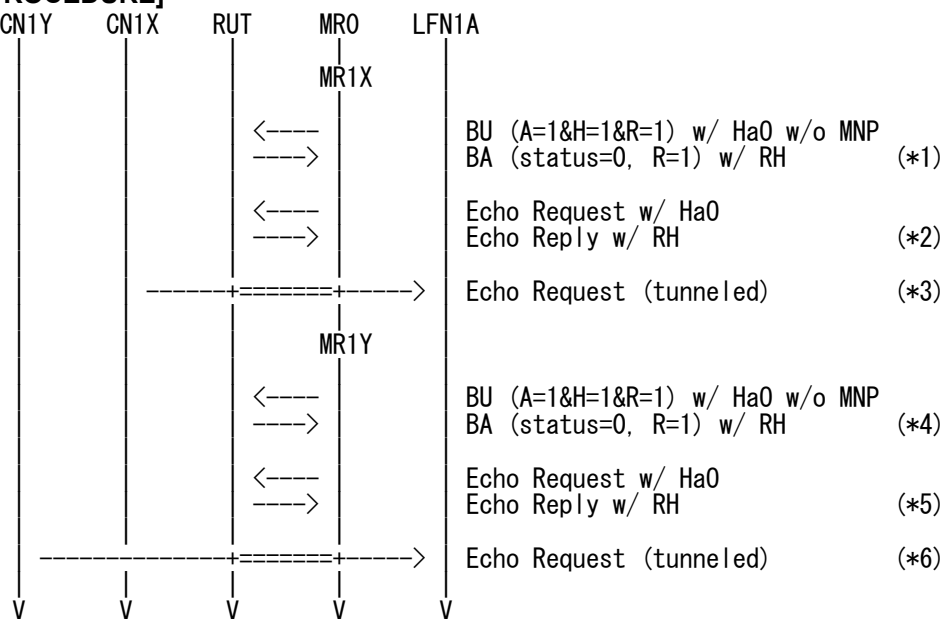
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129



11. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A receives Echo Request (tunneled)
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: LFN1A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.2.3 NEMO-HA_5_4_12 - Echo Request from CN to LFN under MR, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_5_4_12 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Explicit, single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

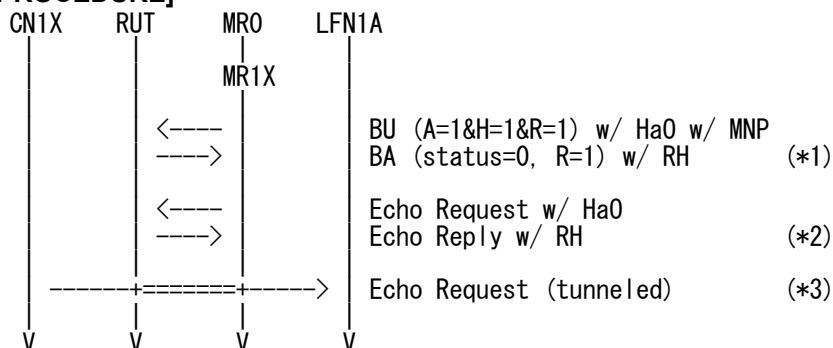
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH



(*3) PASS: LFN1A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.5.2.4 NEMO-HA_5_4_14 – Update tunnel end point, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_5_4_14 - Tunneling Intercepted Packets, Update tunnel end point, (Explicit, same single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

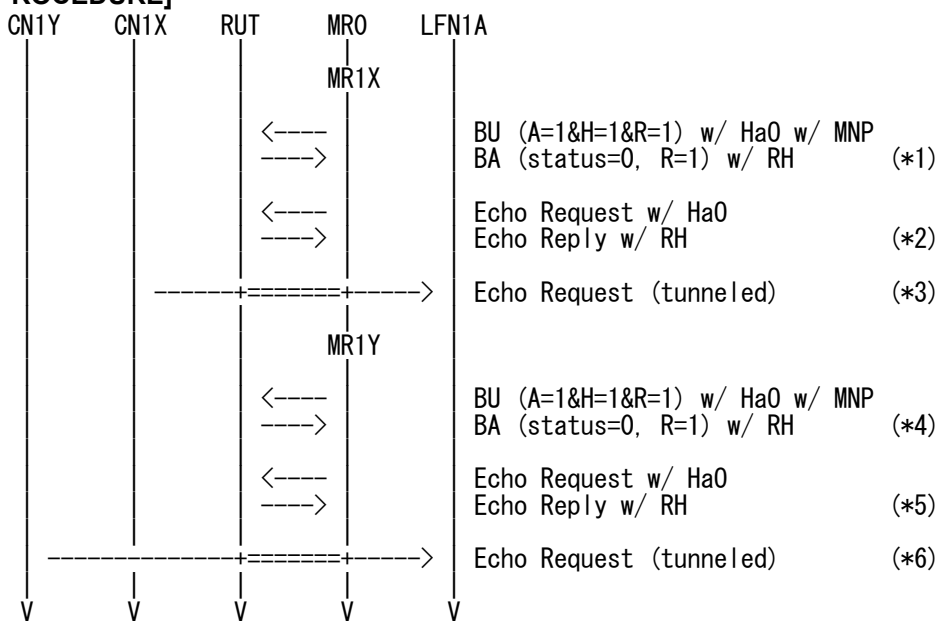
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LN1A (Link1A,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
-------------	----------------	--------------------

IPv6 Header	Destination Address	MR1X (Link1X.global)
	Source Address	CN1X (Link1X.global)
ICMPv6 Header	Destination Address	LFN1A (Link1A.global)
	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A.prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
-------------	----------------	--------------------



Type2 Routing Header	Destination Address	MR1Y (Link1Y,global)
	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link0Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Request (tunneled) (*6) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A receives Echo Request (tunneled)
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: LFN1A receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.2.5 NEMO-HA_5_4_13 - Echo Request from CN to LFN under MR, (Explicit, multiple MNP)

[PURPOSE]

NEMO-HA_5_4_13 - Tunneling Intercepted Packets, Echo Request from CN to LFN under MR, (Explicit, multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

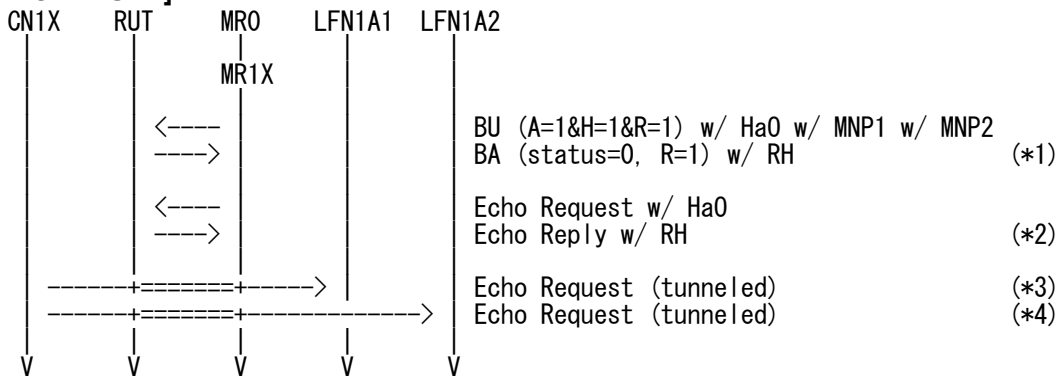
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA1_SPI
Encapsulating Security Payload	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
	Address	MR1X (Link1X,global)
Alternate CoA Option	Length	2
	Prefix length	64
MNP Option	Prefix	MNP1 (Link1A1,prefix)
	Prefix length	64
MNP Option	Prefix	MNP2 (Link1A2,prefix)
	Prefix length	64

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A1 (Link1A1.global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A1 (Link1A1.global)
ICMPv6 Header	Type	128

7. CN1X sends Echo Request (Refer to 5.5.1)



IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A1 receives Echo Request (tunneled)
- (*4) PASS: LFN1A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.2.6 NEMO-HA_5_4_15 – Update tunnel end point, (Explicit, same multiple MNP)

[PURPOSE]

NEMO-HA_5_4_15 - Tunneling Intercepted Packets, Update tunnel end point, (Explicit, same multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

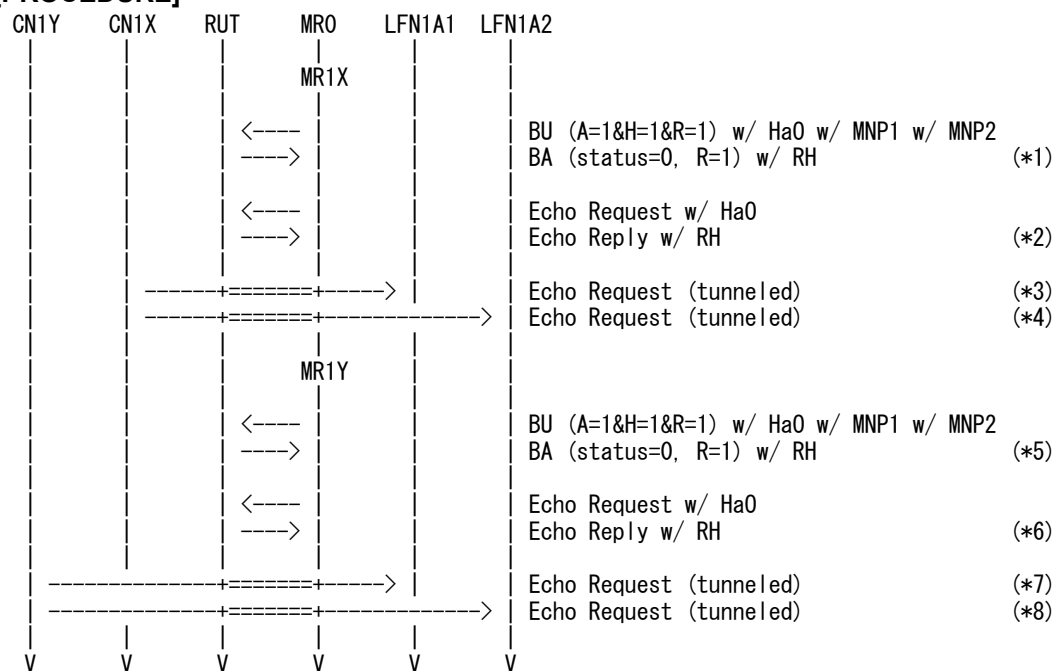
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A1 (Link1A1.global)
ICMPv6 Header	Type	128

7. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A2 (Link1A2.global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A2 (Link1A2.global)
ICMPv6 Header	Type	128

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)	
	Destination Address	RUT (Link0.global)	
Destination Option Header	Home Address	MR0 (Link0.global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	15	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR1Y (Link1Y.global)
PadN	Length	2	
MNP Option	Prefix length	64	
	Prefix	MNP1 (Link1A1.prefix)	
MNP Option	Prefix length	64	
	Prefix	MNP2 (Link1A2.prefix)	

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	PadN	Length

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

13. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

14. MR1Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1 (Link1A1,global)
ICMPv6 Header	Type	128

15. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

16. MR1Y receives Echo Request (tunneled) (*8) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A1 receives Echo Request (tunneled)
- (*4) PASS: LFN1A2 receives Echo Request (tunneled)
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: LFN1A1 receives Echo Request (tunneled)
- (*8) PASS: LFN1A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.2.7 NEMO-HA_5_4_16 – Update tunnel end point & create new tunnel, (Explicit, add MNP)

[PURPOSE]

NEMO-HA_5_4_16 - Tunneling Intercepted Packets, Update tunnel end point & create new tunnel, (Explicit, add MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

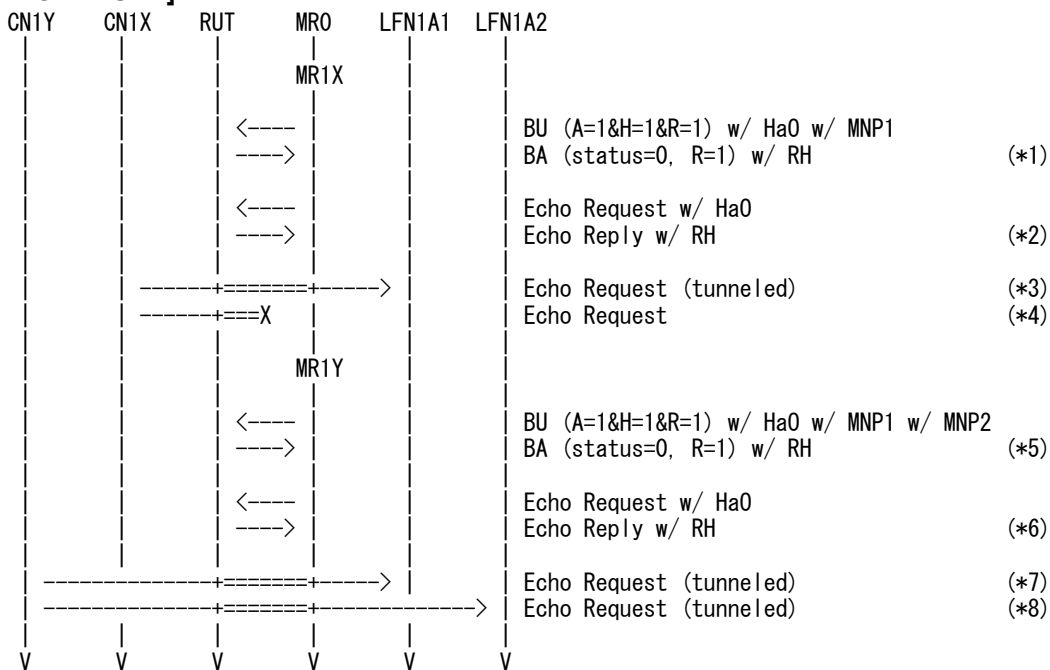
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1A1 (Link1A1.global)
ICMPv6 Header	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

7. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

8. no response (*4)

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

14. MR1Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

15. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

16. MR1Y receives Echo Request (tunneled) (*8) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A1 receives Echo Request (tunneled)
- (*4) PASS: no response
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: LFN1A1 receives Echo Request (tunneled)
- (*8) PASS: LFN1A2 receives Echo Request (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.2.8 NEMO-HA_5_4_17 – Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[PURPOSE]

NEMO-HA_5_4_17 - Tunneling Intercepted Packets, Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

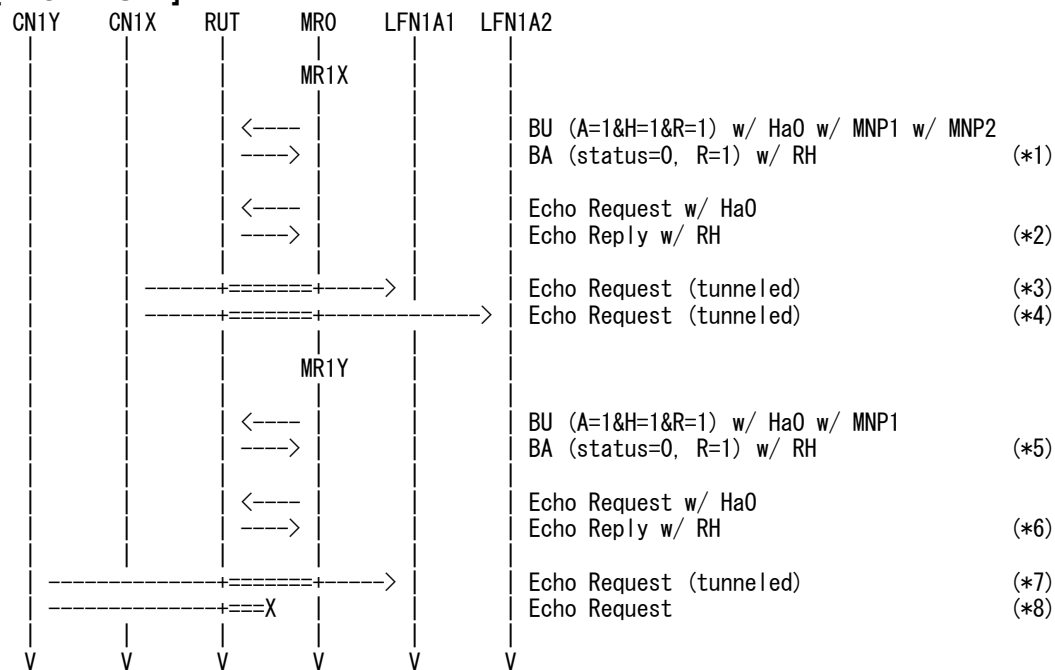
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X.global)
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ICMPv6 Header	Destination Address	LFN1A1 (Link1A1,global)
	Type	128

6. MR1X receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

7. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6	Type	128

8. MR1X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	PadN	Length
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Binding Refresh Advice Option		Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
PadN		Length	2

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA3_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

13. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

14. MR1Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

15. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

16. no response (*8)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: LFN1A1 receives Echo Request (tunneled)
- (*4) PASS: LFN1A2 receives Echo Request (tunneled)
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: LFN1A1 receives Echo Request (tunneled)
- (*8) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.



6.6.5.2.9 NEMO-HA_5_4_18 – Create new tunnel & delete tunnel, (Explicit, different MNP)

[PURPOSE]

NEMO-HA_5_4_18 - Tunneling Intercepted Packets, Create new tunnel & delete tunnel, (Explicit, different MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

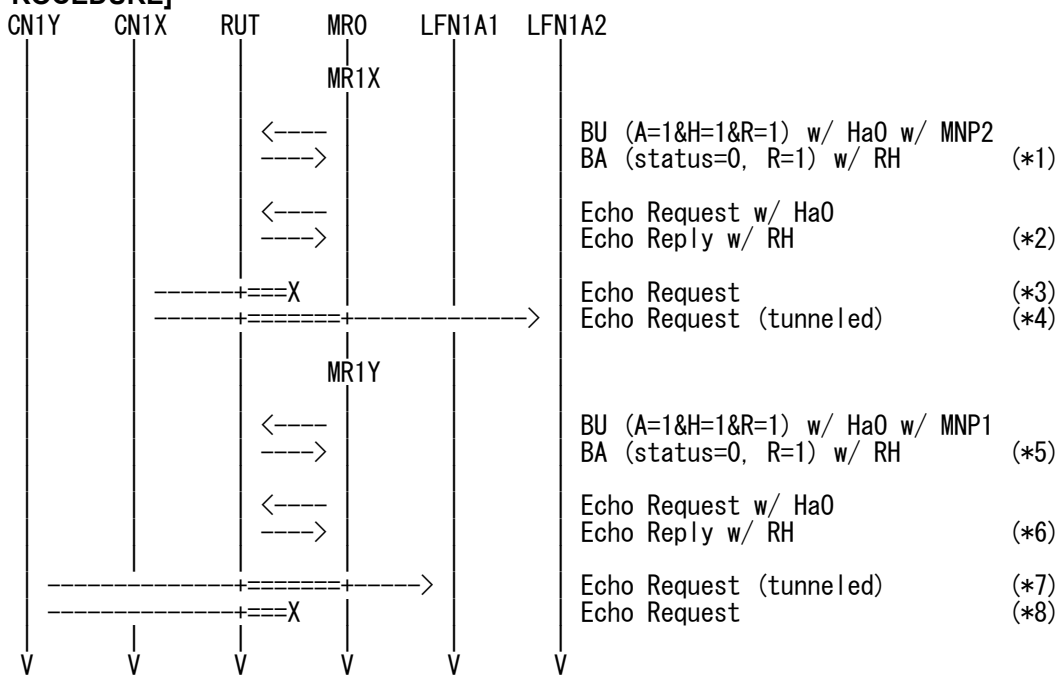
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

6. no response (*3)

7. CN1X sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

8. MR1X receives Echo Request (tunneled) (*4) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A,prefix)

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

14. MR1Y receives Echo Request (tunneled) (*7) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A1 (Link1A1,global)
ICMPv6 Header	Type	128

15. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A2 (Link1A2,global)
ICMPv6 Header	Type	128

16. no response (*8)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: no response
- (*4) PASS: LFN1A2 receives Echo Request (tunneled)
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: LFN1A1 receives Echo Request (tunneled)
- (*8) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 6.5.

6.6.6 Tunneling Intercepted Packets – error handling

6.6.6.1 Real Home Link

6.6.6.1.1 NEMO-HA_5_5_1 - Relay ICMP error while using bi-directional tunnel. From router that relays tunnel

[PURPOSE]

NEMO-HA_5_5_1 - Relay ICMP error while using bi-directional tunnel. From router that relays tunnel

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

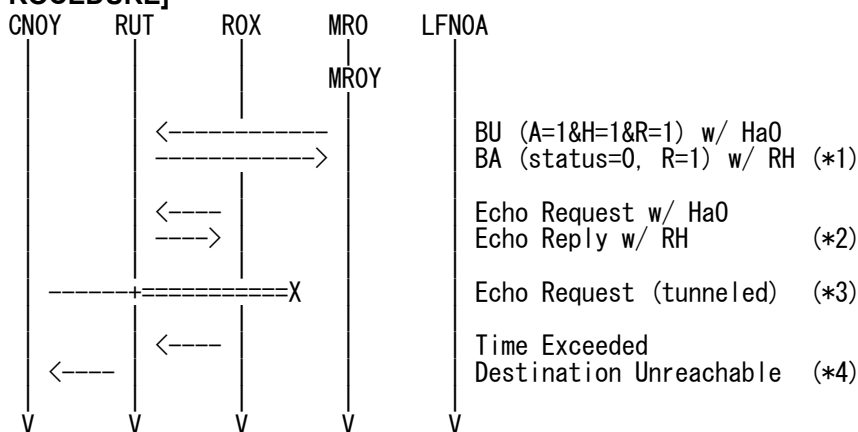
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROY sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROY (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2



	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR0Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

7. R0X sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R0X (Link0X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN0Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0Y receives BA w/ RH
- (*2) PASS: MR0Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR0Y(tunneled)
- (*4) PASS: CN0Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.



6.6.6.1.2 NEMO-HA_5_5_3 - Relay ICMP error while using bi-directional tunnel. From mobile prefix

[PURPOSE]

NEMO-HA_5_5_3 - Relay ICMP error while using bi-directional tunnel. From mobile prefix

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

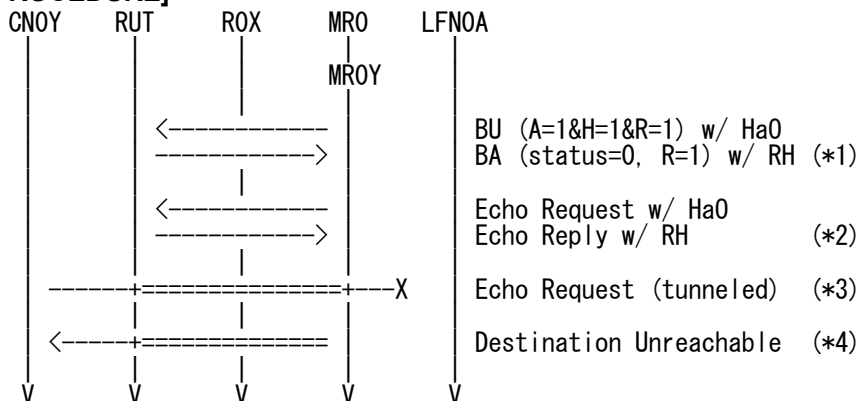
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0Y (Link0Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. CN0Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

6. LFN0A receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
IPv6 Header	Source Address	CN0Y (Link0Y,global)
	Destination Address	LFN0A (Link0A,global)
ICMPv6 Header	Type	128

7. MR0Y sends Destination Unreachable (tunneled) (Refer to 5.19.2)

● HoA(from HNP)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

● HoA(from MNP)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

8. CN0Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	MR0 (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR0Y receives BA w/ RH
- (*2) PASS: MR0Y receives Echo Reply w/ RH
- (*3) PASS: LFN0A receives Echo Request (tunneled)
- (*4) PASS: CN0Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.6.6.2 Virtual Home Link

6.6.6.2.1 NEMO-HA_5_5_4 - Relay ICMP error while using bi-directional tunnel. From router that relays tunnel

[PURPOSE]

NEMO-HA_5_5_4 - Relay ICMP error while using bi-directional tunnel. From router that relays tunnel

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

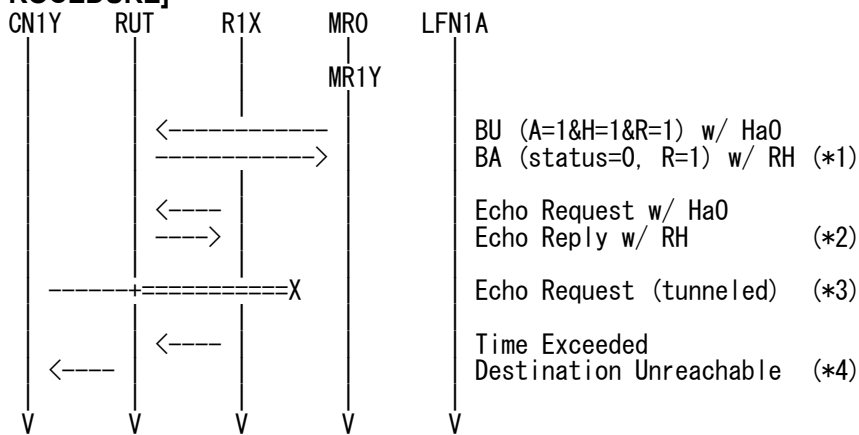
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

6. RUT sends Echo Request to MR1Y (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

7. R1Y sends Time Exceeded (Refer to 5.20.1)

IPv6 Header	Source Address	R1X (Link1X,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	3
	Code	0
	Payload Data	IPv6 Header ESP IPv6 Header Echo Request

8. CN1Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	RUT (Link0 or Link1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR1Y receives BA w/ RH
- (*2) PASS: MR1Y receives Echo Reply w/ RH
- (*3) PASS: RUT sends Echo Request to MR1Y(tunneled)
- (*4) PASS: CN1Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.6.6.2.2 NEMO-HA_5_5_6 - Relay ICMP error while using bi-directional tunnel. From mobile prefix

[PURPOSE]

NEMO-HA_5_5_6 - Relay ICMP error while using bi-directional tunnel. From mobile prefix

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

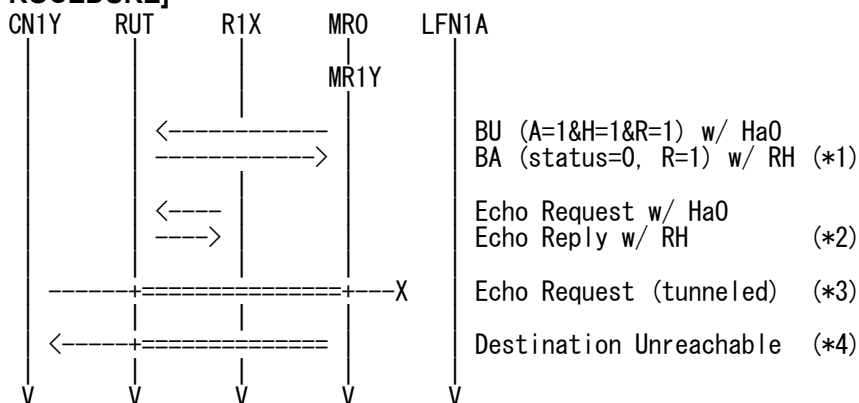
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR1Y receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. CN1Y sends Echo Request (Refer to 5.5.1)

IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

6. LFN1A receives Echo Request (tunneled) (*3) (Refer to 5.5.3)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
IPv6 Header	Source Address	CN1Y (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
ICMPv6 Header	Type	128

7. MR1Y sends Destination Unreachable (tunneled) (Refer to 5.19.2)

● HoA(from HNP)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

● HoA(from MNP)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

8. CN1Y receives Destination Unreachable (*4) (Refer to 5.19.1)

IPv6 Header	Source Address	MR0 (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	1
	Code	3
	Payload Data	IPv6 Header Echo Request

[JUDGMENT]

- (*1) PASS: MR1Y receives BA w/ RH
- (*2) PASS: MR1Y receives Echo Reply w/ RH
- (*3) PASS: LFN1A receives Echo Request (tunneled)
- (*4) PASS: CN1Y receives Destination Unreachable

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC 3775 - Mobility Support in IPv6
See Section 9.3.4.
- RFC 2473 - Generic Packet Tunneling in IPv6
See Section 8.2.

6.7 Handling Reverse Tunneled Packets

6.7.1 Valid Reverse Tunneling

6.7.1.1 Real Home Link

6.7.1.1.1 NEMO-HA_6_1_1 – Reverse tunneling

[PURPOSE]

NEMO-HA_6_1_1 – Valid Reverse Tunneling, Reverse tunneling

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

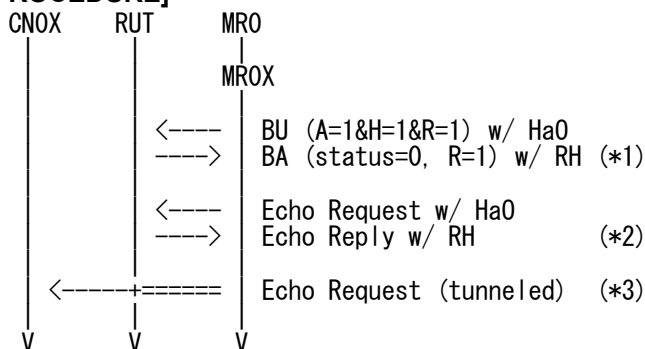
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)



ICMPv6 Header	Type	129
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5. MROX sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	MRO (Link0.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MRO (Link0.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: CNOX receives Echo Request

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6 and Section 6.4.
- RFC3775 Mobility Support in IPv6
See Section 10.4.5.

6.7.1.1.2 NEMO-HA_6_1_2 - Reverse tunneling, Update tunnel end point

[PURPOSE]

NEMO-HA_6_1_2 – Valid Reverse Tunneling, Update tunnel end point

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

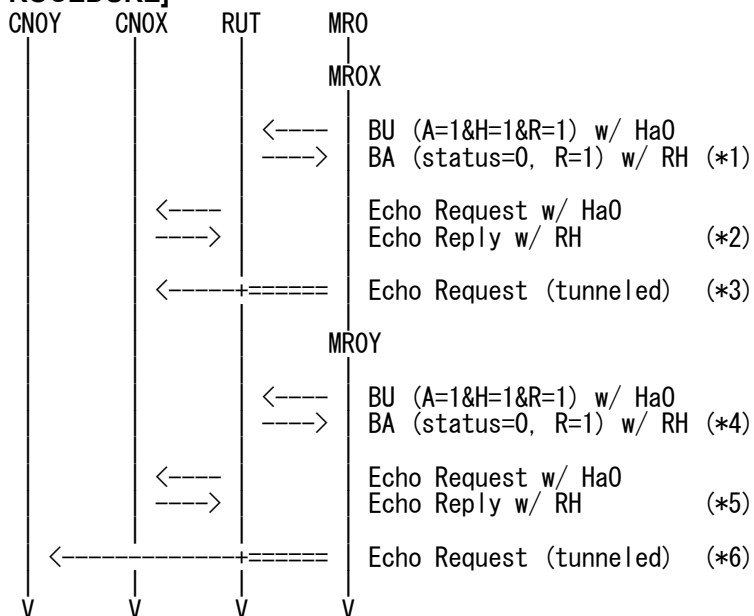
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)

ICMPv6 Header	Type	129
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5. MR0X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

11. MR0Y sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. CN0Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.1.2 Virtual Home Link

6.7.1.2.1 NEMO-HA_6_1_3 - Reverse tunneling

[PURPOSE]

NEMO-HA_6_1_3 – Valid Reverse Tunneling, Reverse tunneling

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

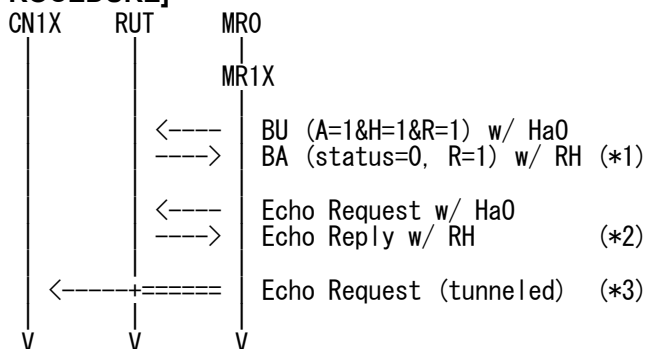
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128



6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.



6.7.1.2.2 NEMO-HA_6_1_4 – Reverse Tunneling, Update tunnel end point

[PURPOSE]

NEMO-HA_6_1_4 – Valid Reverse Tunneling, Update tunnel end point

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

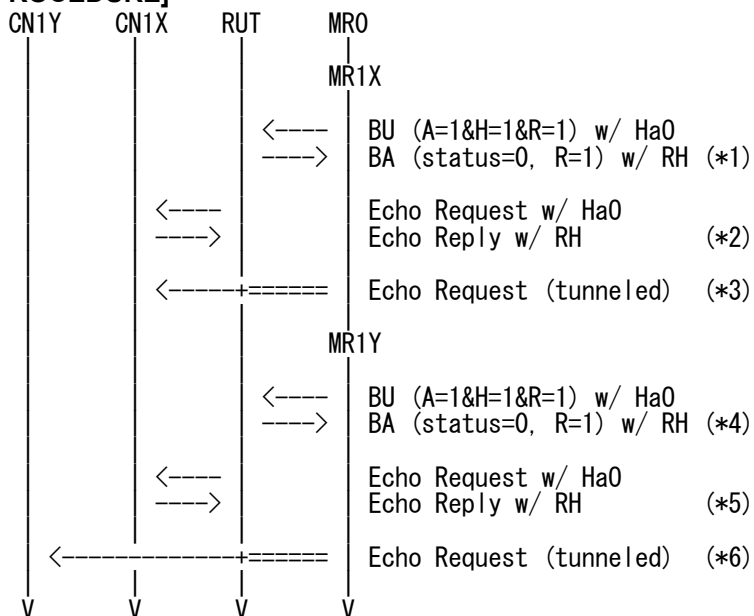
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI

ICMPv6 Header	Type	129
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5. MR1X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

● explicit mode

IPv6 Header	Source Address	MR1Y (global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	16
		Lifetime	<=105
		PadN	Length

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

11. MR1Y sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. CN1Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.2 Invalid Reverse Tunneling

6.7.2.1 Real Home Link

6.7.2.1.1 NEMO-HA_6_2_1 – Invalid outer source address

[PURPOSE]

NEMO-HA_6_2_1 - Invalid Reverse Tunneling, Invalid outer source address

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-9

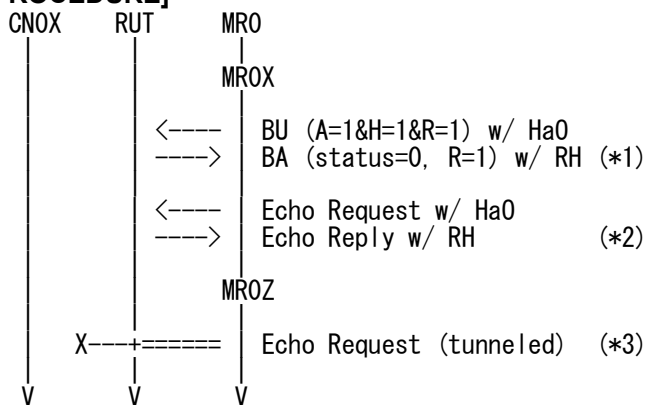
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129



5. MR0Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Z (Link0Z_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	MR0 (Link0_global)
	Destination Address	CNOX (Link0X_global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.2.2 Virtual Home Link

6.7.2.2.1 NEMO-HA_6_2_2 – Invalid outer source address

[PURPOSE]

NEMO-HA_6_2_2 - Invalid Reverse Tunneling, Invalid outer source address

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-9

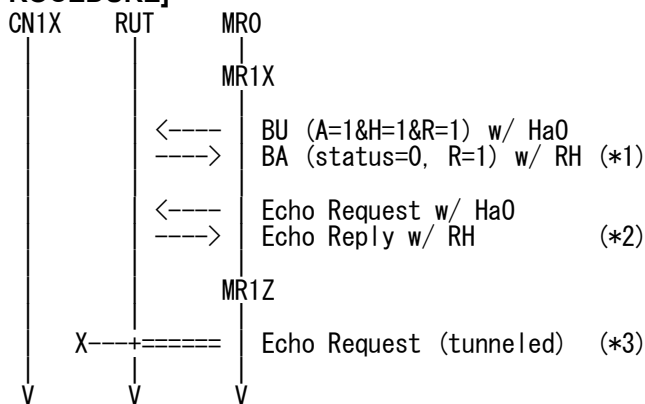
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)

Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Z (Link1Z,global)
IPv6 Header	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)



	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.3 Valid Reverse Tunneling

6.7.3.1 Real Home Link

6.7.3.1.1 NEMO-HA_6_4_1 – Echo Request to CN from MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_4_1 – Valid Reverse Tunneling, Echo Request to CN from MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

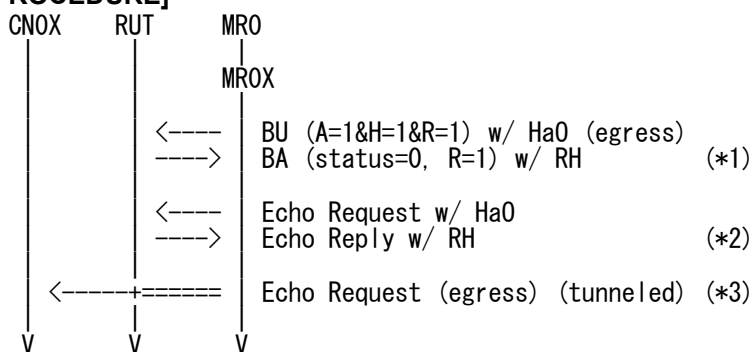
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Type	129
ICMPv6 Header	Type	129



5. MROX sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	MR0 (Link0_global)
	Destination Address	CNOX (Link0X_global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0_global)
	Destination Address	CNOX (Link0X_global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: CNOX receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.3.1.2 NEMO-HA_6_4_2 – Echo Request to CN from MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_4_2 – Valid Reverse Tunneling, Echo Request to CN from MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

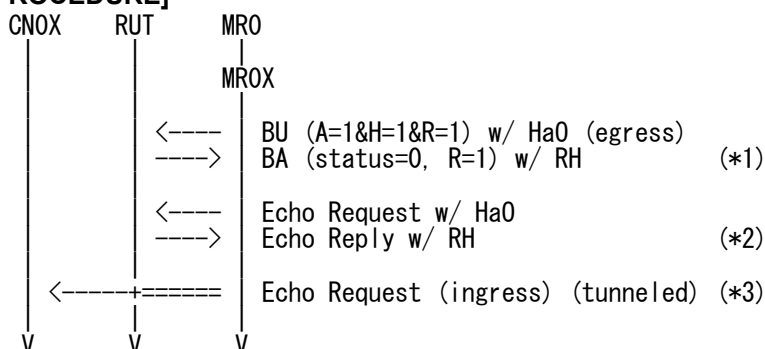
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0A, global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128



6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link0A_global)
	Destination Address	CN0X (Link0X_global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.3.2 Virtual Home Link

6.7.3.2.1 NEMO-HA_6_4_5 – Echo Request to CN from MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_4_5 – Valid Reverse Tunneling, Echo Request to CN from MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

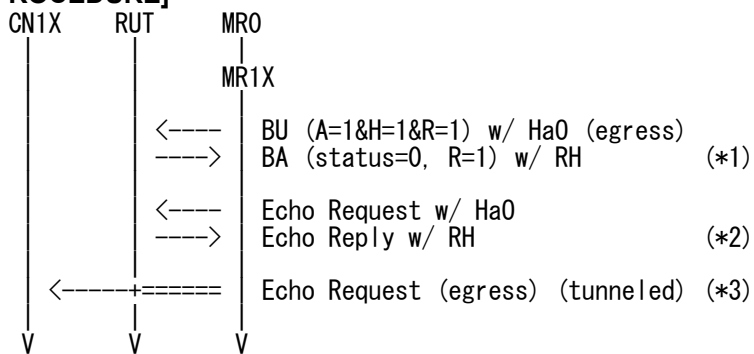
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
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	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	MR0 (Link0.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

	Source Address	MR0 (Link0.global)
IPv6 Header	Destination Address	CN1X (Link1X.global)
	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2 and Section 6.4.
- RFC3775 Mobility Support in IPv6
See Section 10.4.5.

6.7.3.2.2 NEMO-HA_6_4_6 – Echo Request to CN from MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_4_6 – Valid Reverse Tunneling, Echo Request to CN from MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-3

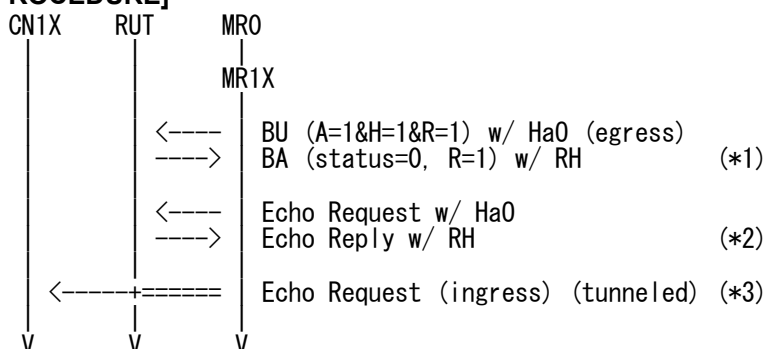
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link1A, global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128



6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	MR0 (Link1A_global)
	Destination Address	CN1X (Link1X_global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.4 Invalid Reverse Tunneling

6.7.4.1 Real Home Link

6.7.4.1.1 NEMO-HA_6_5_1 – Invalid outer source address, Echo Request to CN from MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_5_1 - Invalid Reverse Tunneling, Invalid outer source address, Echo Request to CN from MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-9

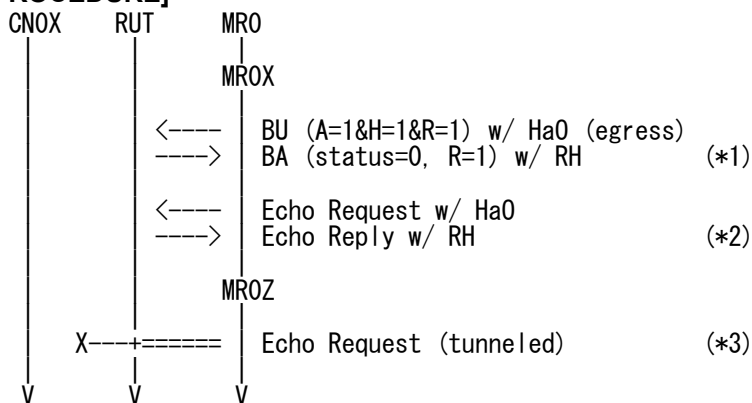
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0

	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2



	Type	2
	Segments left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

5. MR0Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Z (Link0Z_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	MR0 (Link0_global)
	Destination Address	CNOX (Link0X_global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.4 and Section 9.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.4.1.2 NEMO-HA_6_5_2 – Invalid outer source address, Echo Request to CN from MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_5_2 - Invalid Reverse Tunneling, Invalid outer source address, Echo Request to CN from MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-9

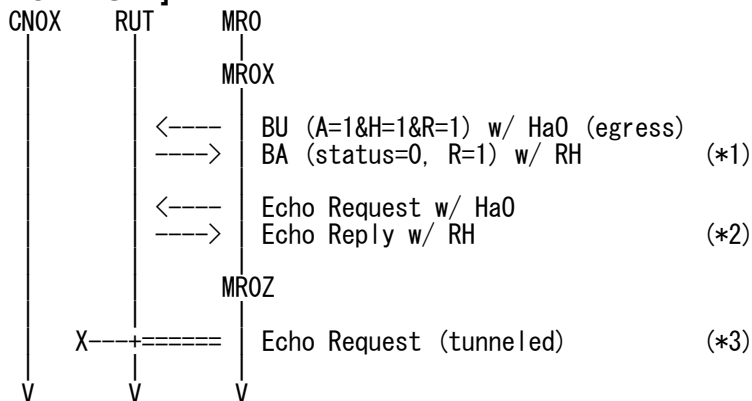
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (LinkOX.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR0Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Z (Link0Z,global)
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	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	MR0 (Link0A.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.4 and Section 9.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.4.2 Virtual Home Link

6.7.4.2.1 NEMO-HA_6_5_5 – Invalid outer source address, Echo Request to CN from MR (egress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_5_5 - Invalid Reverse Tunneling, Invalid outer source address, Echo Request to CN from MR (egress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-9

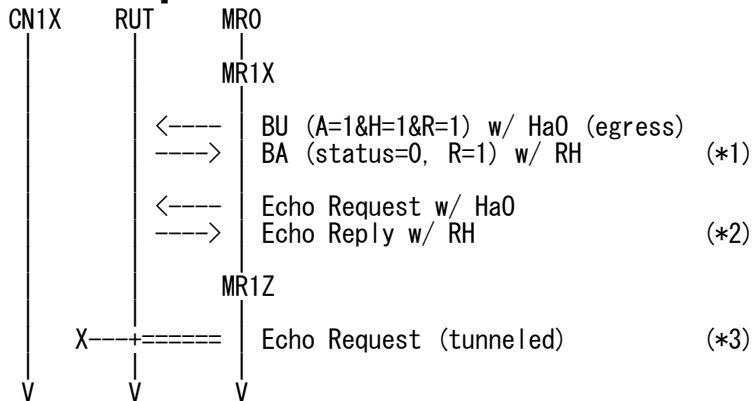
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129



5. MR1Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Z (Link1Z,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	MR0 (Link0,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.4 and Section 9.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.



6.7.4.2.2 NEMO-HA_6_5_6 – Invalid outer source address, Echo Request to CN from MR (ingress), HoA(from HNP)

[PURPOSE]

NEMO-HA_6_5_6 - Invalid Reverse Tunneling, Invalid outer source address, Echo Request to CN from MR (ingress), HoA(from HNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Home Address derived from the Home Network Prefix

[TOPOLOGY]

Refer to 2.3 Common Topology-9

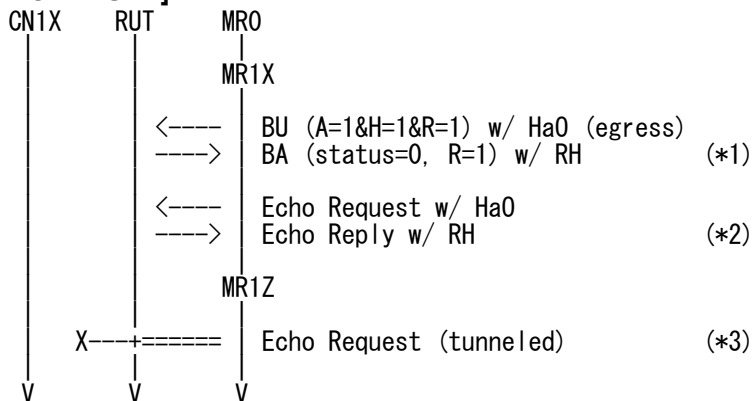
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segments left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1Z sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Z (Link1Z,global)
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	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	MR0 (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Request w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.4 and Section 9.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.5 Valid Reverse Tunneling from Mobile Network Prefix

6.7.5.1 Real Home Link

6.7.5.1.1 NEMO-HA_6_6_1 – Reverse tunneling, (Implicit)

[PURPOSE]

NEMO-HA_6_6_1 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

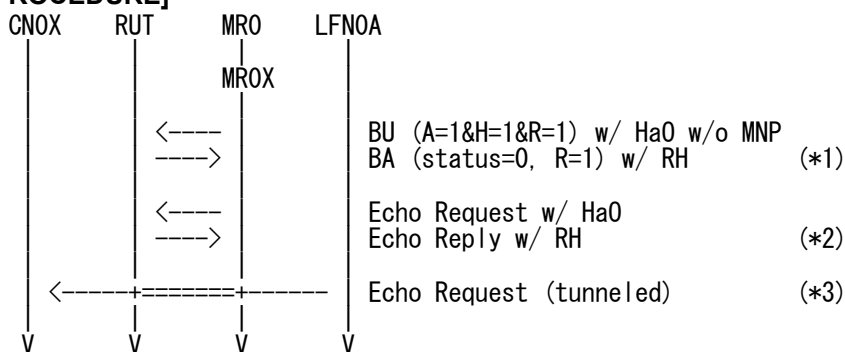
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

[JUDGMENT]



- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.1.2 NEMO-HA_6_6_2 - Update tunnel end point, (Implicit)

[PURPOSE]

NEMO-HA_6_6_2 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

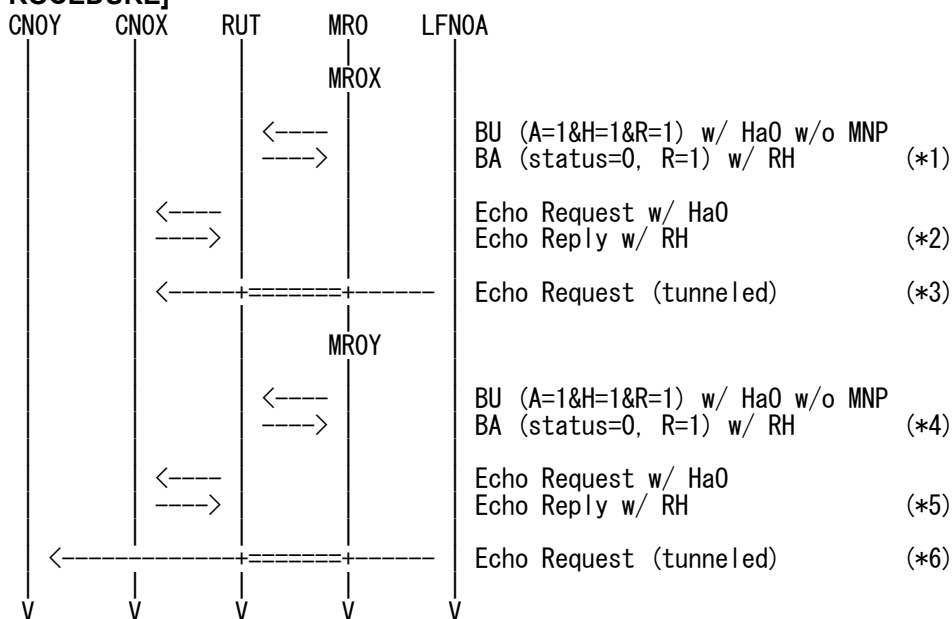
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)

ICMPv6 Header	Type	128
---------------	------	-----

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129



11. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. CN0Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.5.1.3 NEMO-HA_6_6_5 – Reverse tunneling, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_6_6_5 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Explicit, single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

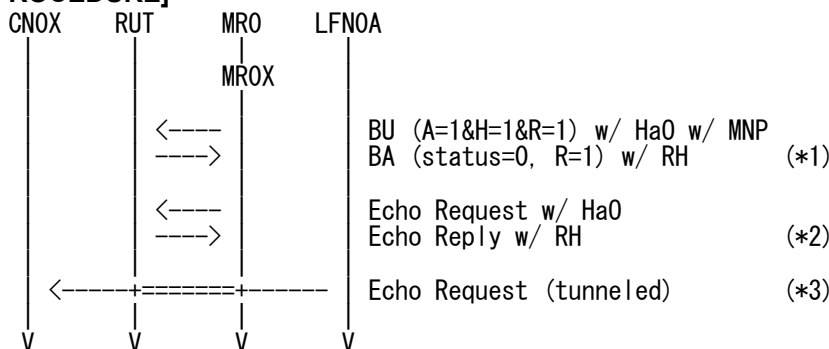
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)

Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: CNOX receives Echo Request



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.1.4 NEMO-HA_6_6_7 - Update tunnel end point, (Explicit, same single MNP)

[PURPOSE]

NEMO-HA_6_6_7 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Explicit, same single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

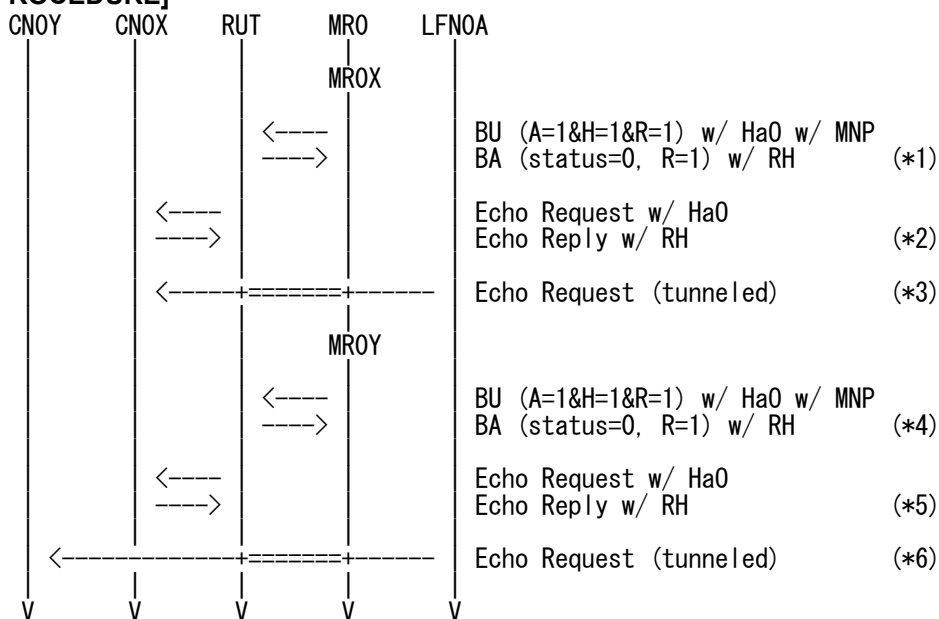
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. CN0Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.1.5 NEMO-HA_6_6_6 – Reverse tunneling, (Explicit, multiple MNP)

[PURPOSE]

NEMO-HA_6_6_6 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Explicit, multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

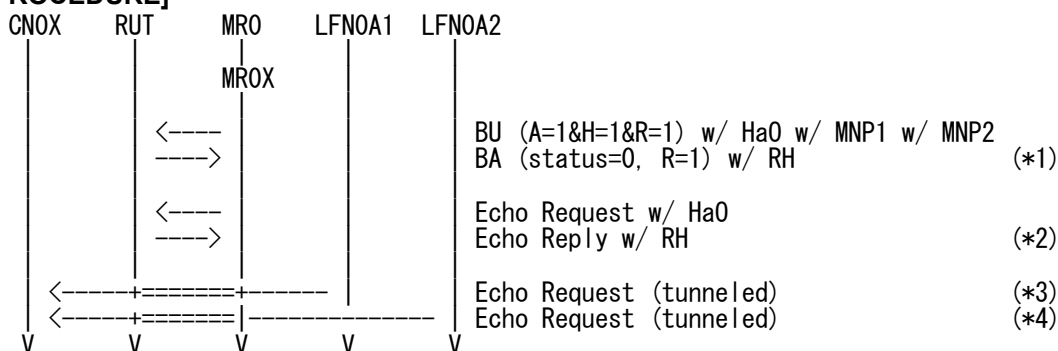
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

7. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128



8. CN0X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2(Link0A2,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: CN0X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.1.6 NEMO-HA_6_6_8 - Update tunnel end point, (Explicit, same multiple MNP)

[PURPOSE]

NEMO-HA_6_6_8 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Explicit, same multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

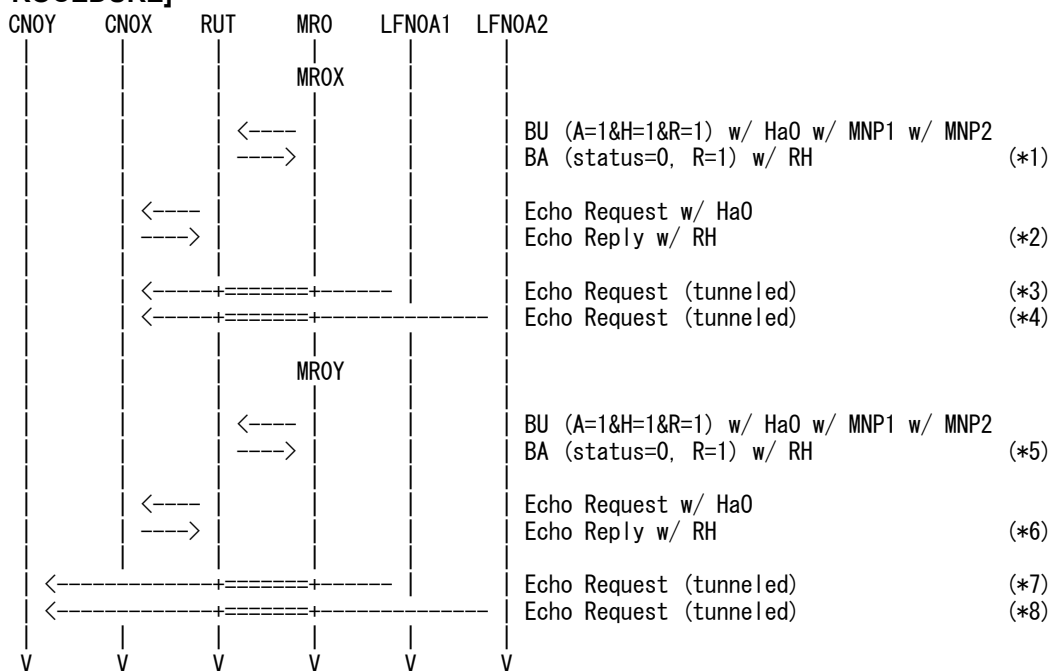
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CNOX (Link0X,global)

ICMPv6 Header	Type	128
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6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

7. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN0A2 (Link0A2.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

8. CN0X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

9. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

10. MR0Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

11. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
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	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

13. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

14. CN0Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

15. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

16. CN0Y receives Echo Request (*8) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: CN0X receives Echo Request
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: CN0Y receives Echo Request
- (*8) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.1.7 NEMO-HA_6_6_9 - Update tunnel end point & create new tunnel, (Explicit, add MNP)

[PURPOSE]

NEMO-HA_6_6_9 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point & create new tunnel, (Explicit, add MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

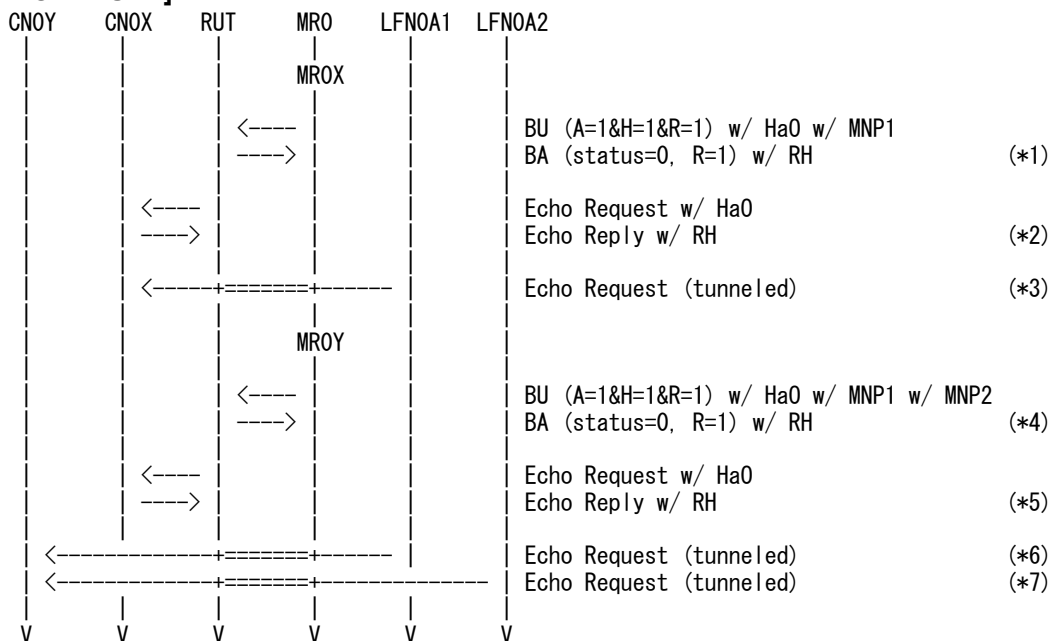
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2
PadN	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. CN0Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

13. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

14. CN0Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: CN0Y receives Echo Request
- (*7) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.1.8 NEMO-HA_6_6_10 - Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[PURPOSE]

NEMO-HA_6_6_10 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

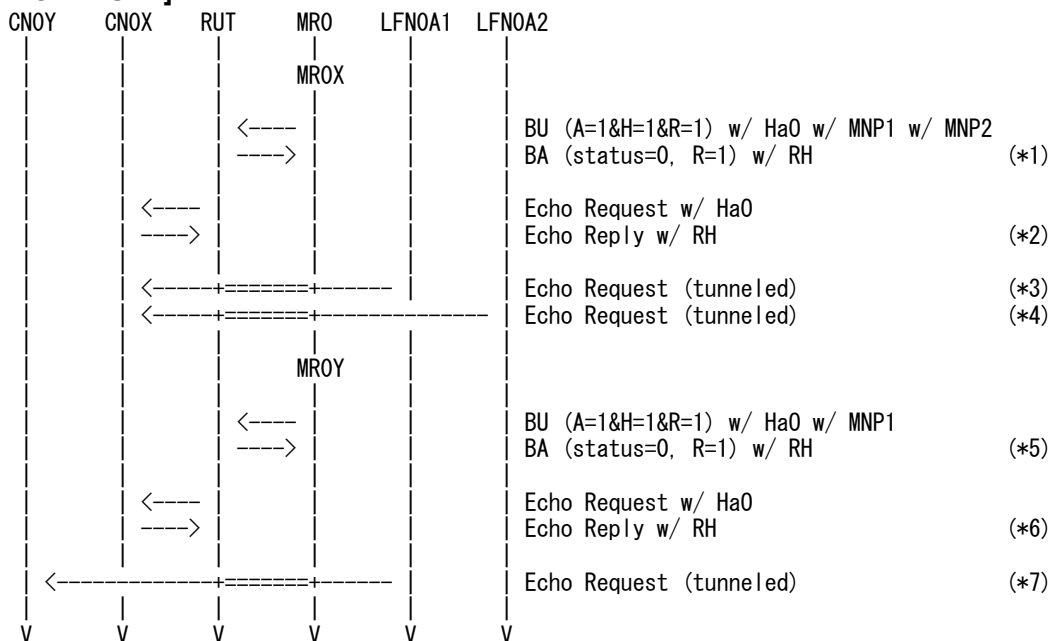
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0X (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR0X (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)

	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFNOA1 (Link0A1.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

7. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFNOA2 (Link0A2.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

8. CNOX receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFNOA2 (Link0A2.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

9. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)	
	Destination Address	RUT (Link0.global)	
Destination Option Header	Home Address	MR0 (Link0.global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2	
MNP Option	Prefix length	64	
	Prefix	MNP1 (Link0A1.prefix)	

10. MR0Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	PadN	Length

11. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)

Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

14. CN0Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: CN0X receives Echo Request
- (*5) PASS: MR0Y receives BA w/ RH
- (*6) PASS: MR0Y receives Echo Reply w/ RH
- (*7) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.1.9 NEMO-HA_6_6_11 – Create new tunnel & delete tunnel, (Explicit, different single MNP)

[PURPOSE]

NEMO-HA_6_6_11 – Valid Reverse Tunneling from Mobile Prefix, Create new tunnel & delete tunnel (Explicit, different single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

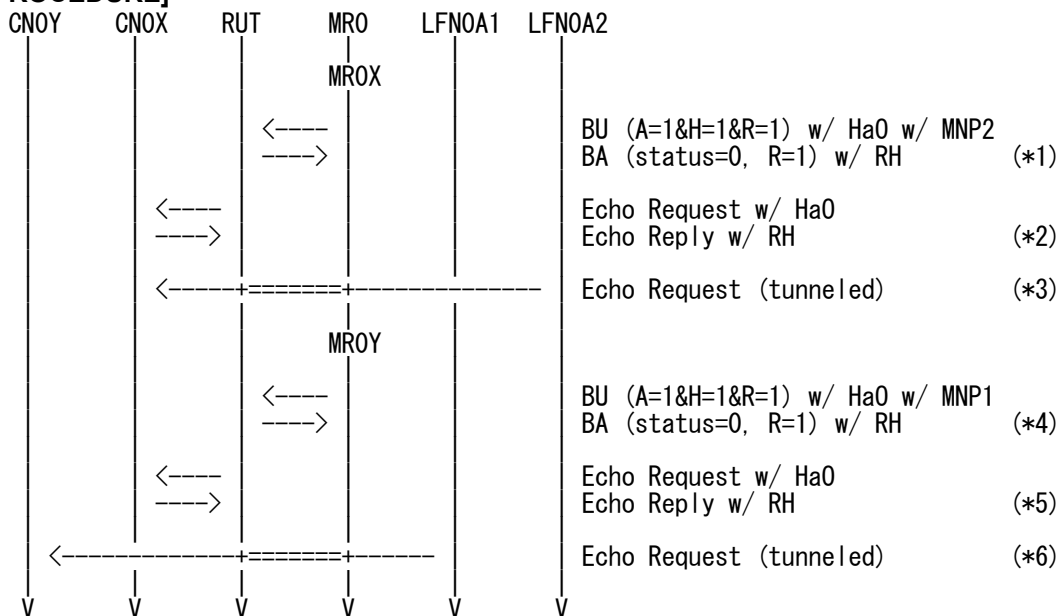
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN0A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. CN0Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A1 (Link0A1,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: CN0Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.2 Virtual Home Link

6.7.5.2.1 NEMO-HA_6_6_3 – Reverse tunneling, (Implicit)

[PURPOSE]

NEMO-HA_6_6_3 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

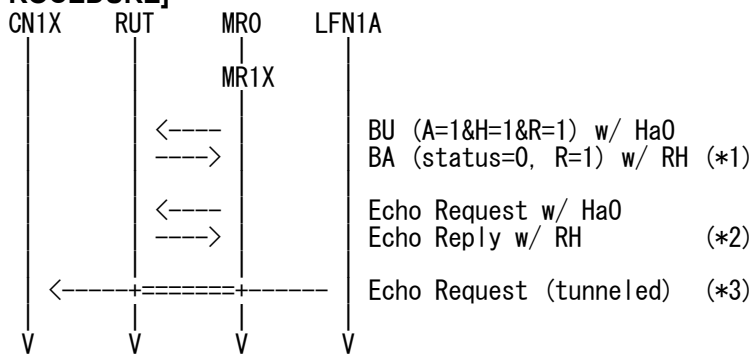
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH



(*3) PASS: CN1X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.2.2 NEMO-HA_6_6_4 - Update tunnel end point, (Implicit)

[PURPOSE]

NEMO-HA_6_6_4 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Implicit)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Implicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

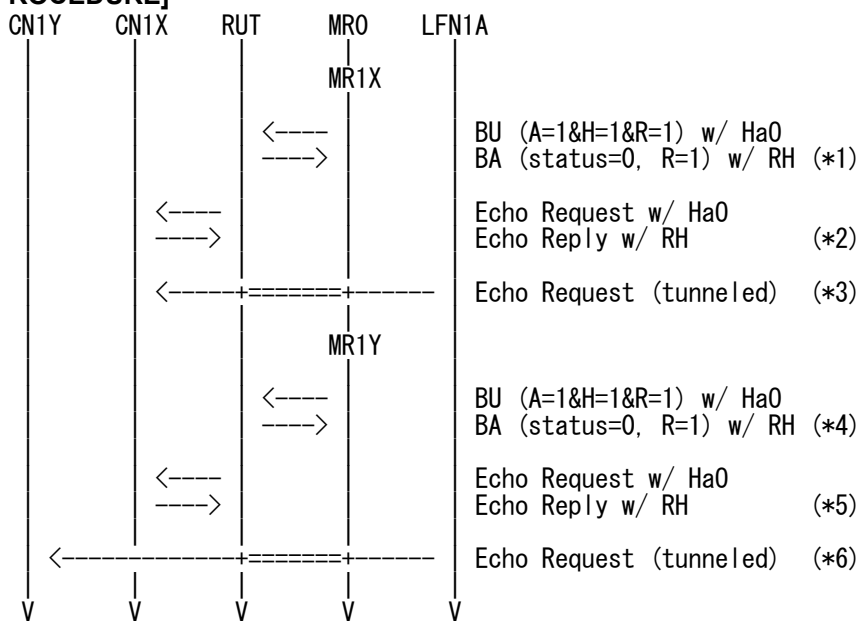
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)

ICMPv6 Header	Type	128
---------------	------	-----

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	PadN	Length

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129



11. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. CN1Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2 and Section 6.4.

RFC3775 Mobility Support in IPv6

See Section 10.4.5.

6.7.5.2.3 NEMO-HA_6_6_12 – Reverse tunneling, (Explicit, single MNP)

[PURPOSE]

NEMO-HA_6_6_12 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Explicit, single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

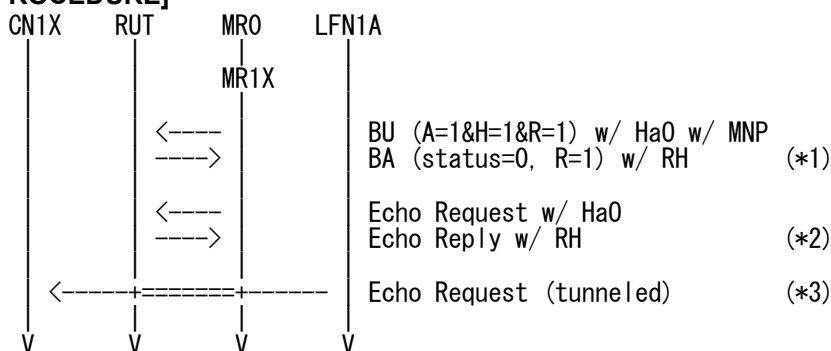
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)

Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

(*3) PASS: CN1X receives Echo Request



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.2.4 NEMO-HA_6_6_14 - Update tunnel end point, (Explicit, same single MNP)

[PURPOSE]

NEMO-HA_6_6_14 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Explicit, same single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-3

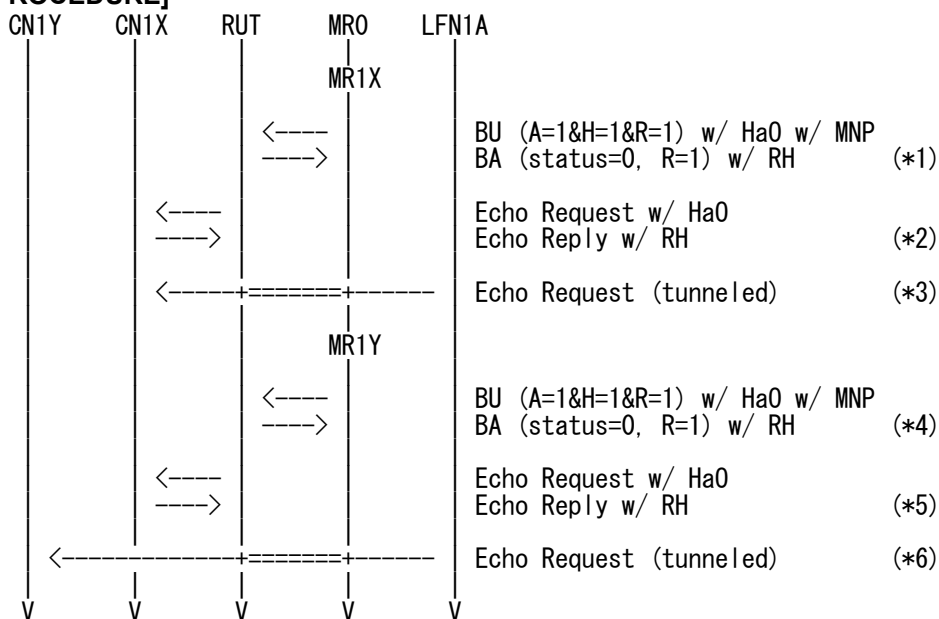
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1, SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA1_SPI	
Encapsulating Security Payload	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR1Y (Link1Y,global)
Length		2	
MNP Option	Prefix length	64	
	Prefix	MNP (Link1A,prefix)	

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	MH Type	6	
	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	16	
	Lifetime	<=105	
	Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	PadN	Length

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. CN1Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.2.5 NEMO-HA_6_6_13 – Reverse tunneling, (Explicit, multiple MNP)

[PURPOSE]

NEMO-HA_6_6_13 – Valid Reverse Tunneling from Mobile Prefix, Reverse tunneling, (Explicit, multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

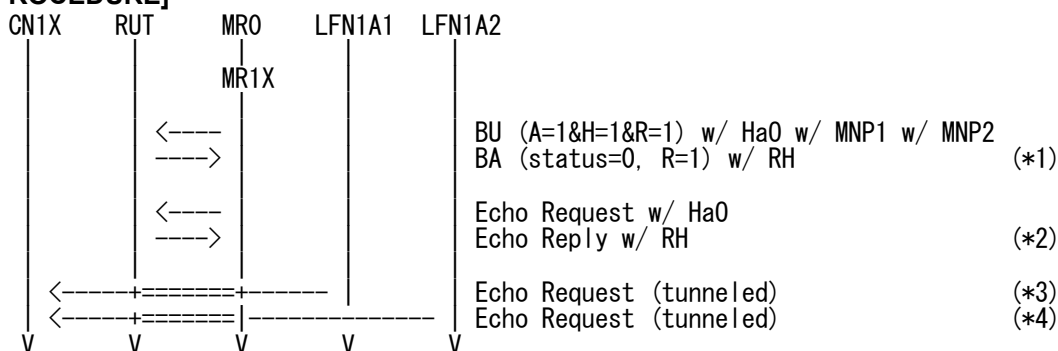
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1, prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2, prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128



8. CN1X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: CN1X receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.2.6 NEMO-HA_6_6_15 - Update tunnel end point, (Explicit, same multiple MNP)

[PURPOSE]

NEMO-HA_6_6_15 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point, (Explicit, same multiple MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

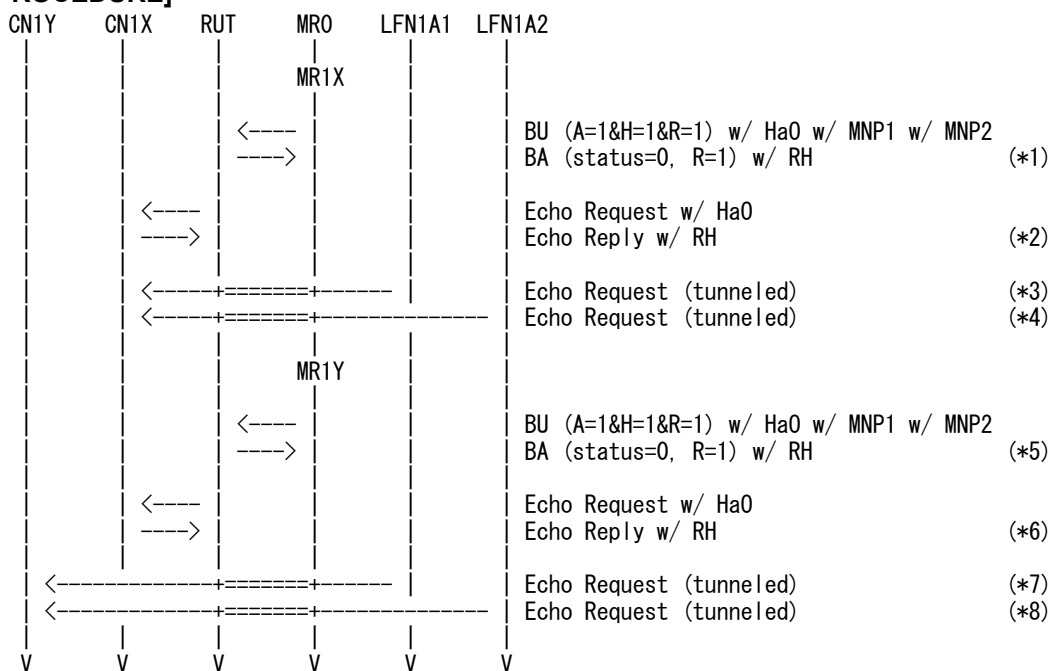
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)

ICMPv6 Header	Type	128
---------------	------	-----

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

8. CN1X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)	
	Destination Address	RUT (Link0,global)	
Destination Option Header	Home Address	MR0 (Link0,global)	
Encapsulating Security Payload	Security Parameters Index	SA1_SPI	
Mobility Header	MH Type	5	
	Sequence Number	16	
	A Flag	1	
	H Flag	1	
	L Flag	0	
	K Flag	0	
	R Flag	1	
	Lifetime	105	
	PadN	Length	0
	Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2	
MNP Option	Prefix length	64	
	Prefix	MNP1 (Link1A1.prefix)	
MNP Option	Prefix length	64	
	Prefix	MNP2 (Link1A2.prefix)	

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	PadN	Length

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
-------------	----------------	----------------------

	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

14. CN1Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

15. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

16. CN1Y receives Echo Request (*8) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: CN1X receives Echo Request
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: CN1Y receives Echo Request
- (*8) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.2.7 NEMO-HA_6_6_16 - Update tunnel end point & create new tunnel, (Explicit, add MNP)

[PURPOSE]

NEMO-HA_6_6_16 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point & create new tunnel, (Explicit, add MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

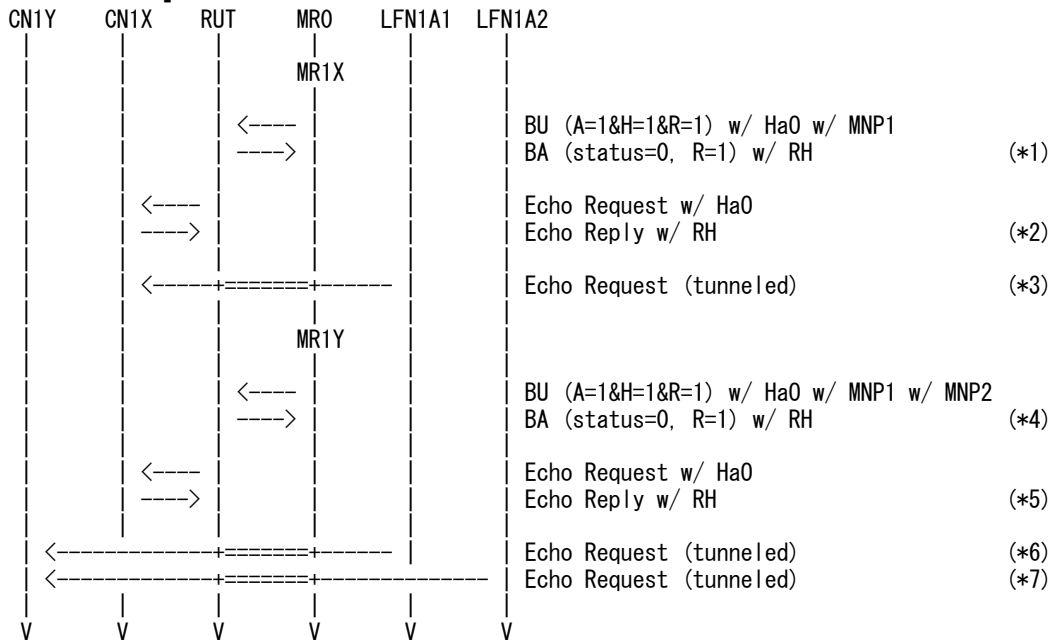
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2 SPI	
Encapsulating Security Payload	Security Parameters Index	SA2 SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	PadN	Length
Alternate CoA Option	Address	MR1Y (Link1Y,global)
	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1,prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	MH Type	6	
Mobility Header	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	16	
	Lifetime	<=105	
	Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1Y (Link1Y,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	MH Type	6	
Mobility Header	Status	0	
	K Flag	0	
	R Flag	1	
	Sequence	16	
	Lifetime	<=105	
	PadN	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. CN1Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

13. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

14. CN1Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: CN1Y receives Echo Request
- (*7) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.5.2.8 NEMO-HA_6_6_17 - Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[PURPOSE]

NEMO-HA_6_6_17 – Valid Reverse Tunneling from Mobile Prefix, Update tunnel end point & delete tunnel, (Explicit, delete MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

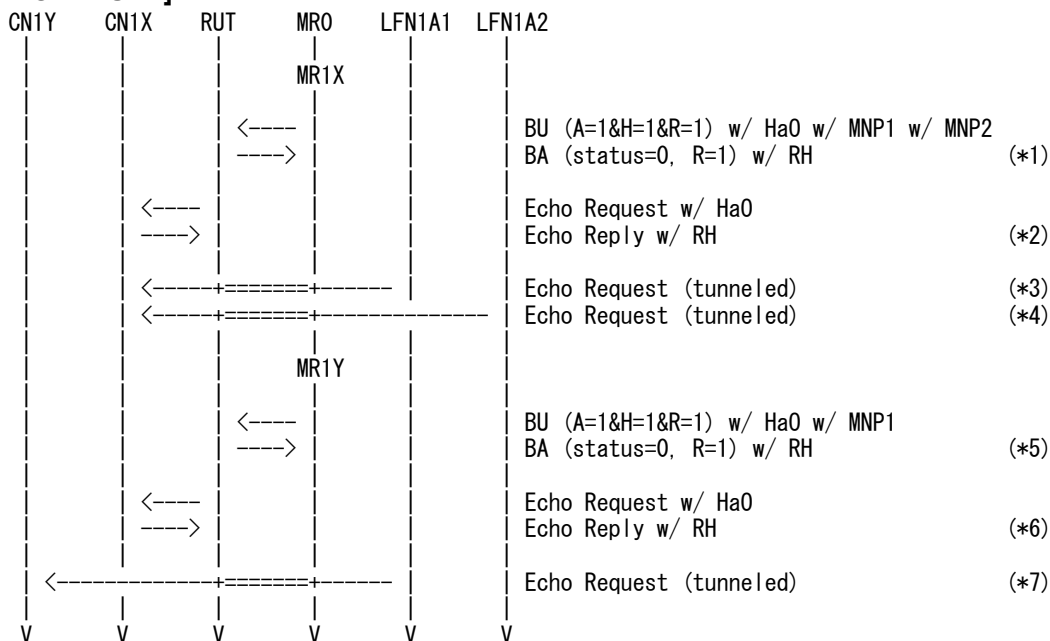
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI

Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		PadN	Length

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)

ICMPv6 Header	Destination Address	CN1X (Link1X,global)
	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

7. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

8. CN1X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

9. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1, prefix)

10. MR1Y receives BA w/ RH (*5) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

11. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)

Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

12. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

13. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

14. CN1Y receives Echo Request (*7) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: CN1X receives Echo Request
- (*5) PASS: MR1Y receives BA w/ RH
- (*6) PASS: MR1Y receives Echo Reply w/ RH
- (*7) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.5.2.9 NEMO-HA_6_6_18 – Create new tunnel & delete tunnel, (Explicit, different single MNP)

[PURPOSE]

NEMO-HA_6_6_18 – Valid Reverse Tunneling from Mobile Prefix, Create new tunnel & delete tunnel (Explicit, different single MNP)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit Mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

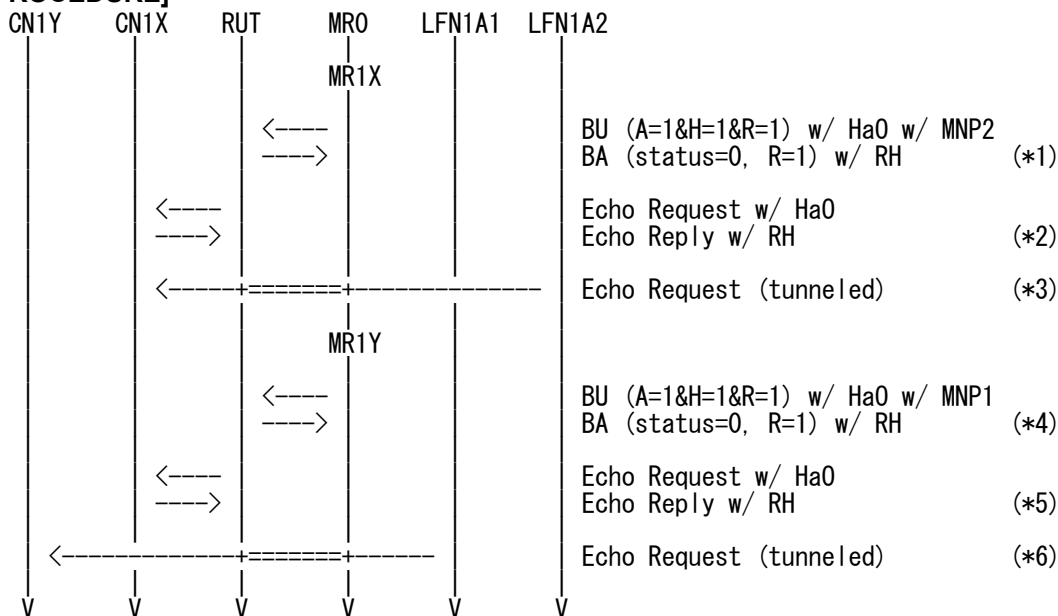
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5

	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SP1
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SP1
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SP1
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*5) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN1A1 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. CN1Y receives Echo Request (*6) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A1 (Link1A1,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: CN1Y receives Echo Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.6 Invalid Reverse Tunneling from Mobile Network Prefix

6.7.6.1 Real Home Link

6.7.6.1.1 NEMO-HA_6_7_1 – Invalid inner source address (not belong to Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_1 – Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (not belong to Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

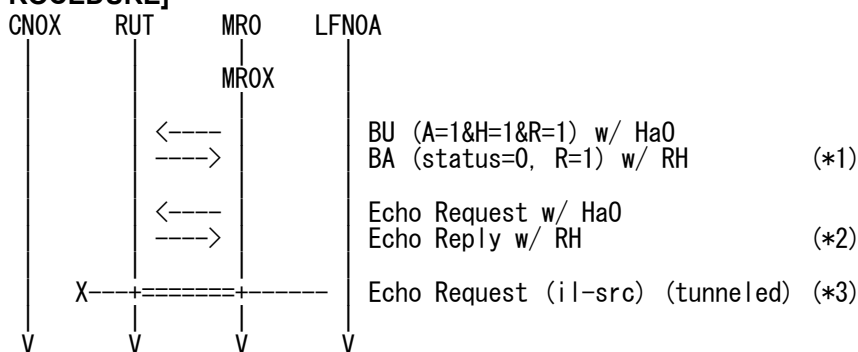
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Type	129
ICMPv6 Header	Type	129



5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Not belong to Link0A, global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.6.1.2 NEMO-HA_6_7_3 – Invalid outer source address (CoA after De-Registration)

[PURPOSE]

NEMO-HA_6_7_3 - Invalid Reverse Tunneling from Mobile Prefix, Invalid outer source address (CoA after De-Registration)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-3

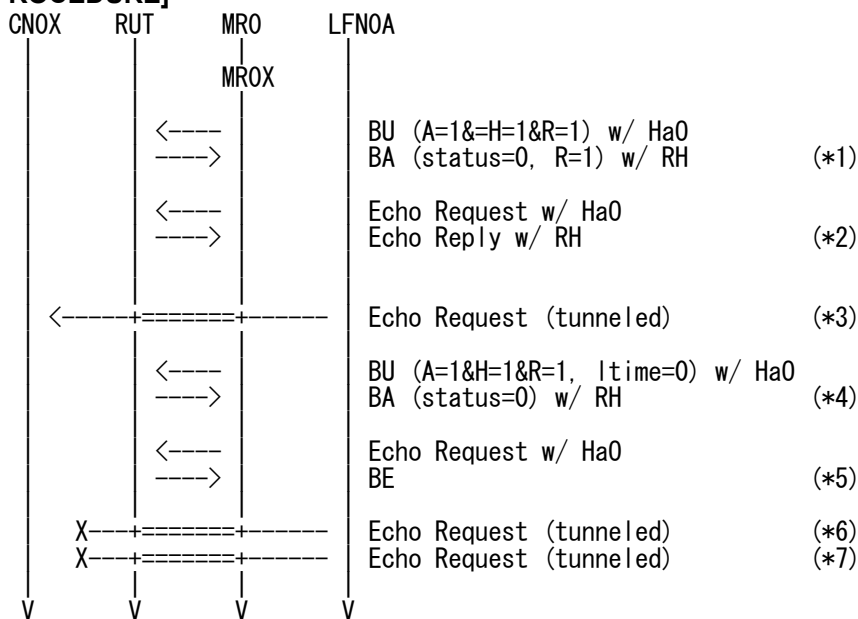
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
	PadN	Length

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CNOX receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

7. MROX sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

8. MROX receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	Length	2

9. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

10. MROX receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0,global)

11. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

12. no response (*6)



13. LFN0A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0X receives BA w/ RH
- (*5) PASS: MR0X receives BE
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.6.1.3 NEMO-HA_6_7_5 – Invalid inner source address (delete Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_5 – Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (delete Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

Explicit mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

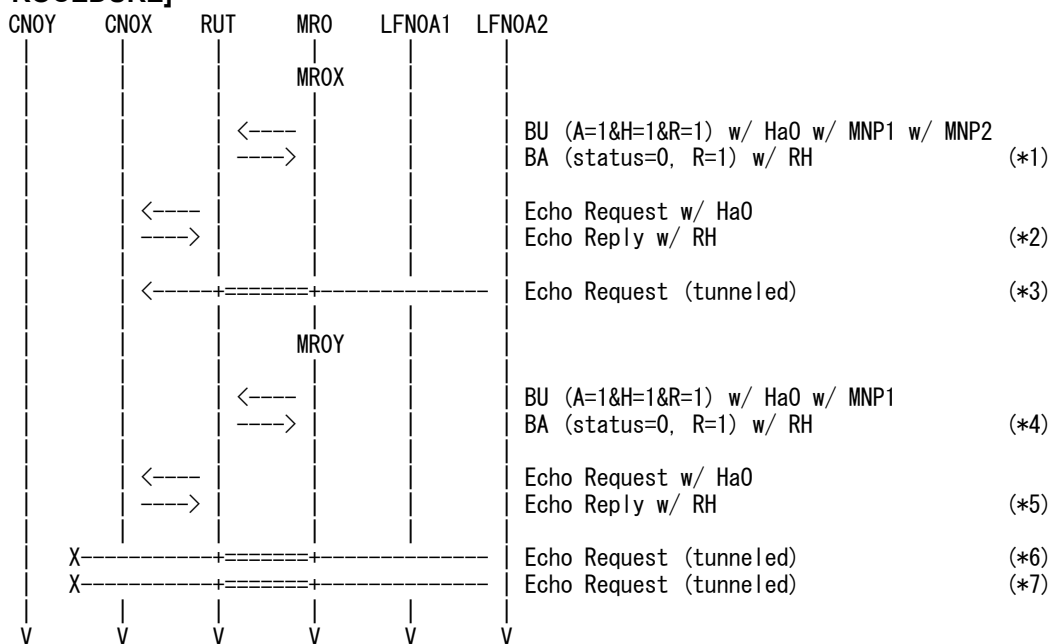
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2.global)
	Destination Address	CN0X (Link0X.global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0Y (Link0Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link0A1.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<= 105
	Interval	<= 105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<= 105
	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR0Y (Link0Y_global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

11. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	LFN0A2 (Link0A2_global)
	Destination Address	CN0Y (Link0Y_global)
ICMPv6 Header	Type	128

12. no response (*6)

13. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	LFN0A2 (Link0A2_global)
	Destination Address	CN0Y (Link0Y_global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.6.1.4 NEMO-HA_6_7_6 – Invalid inner source address (update Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_6 – Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (update Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link
Explicit mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

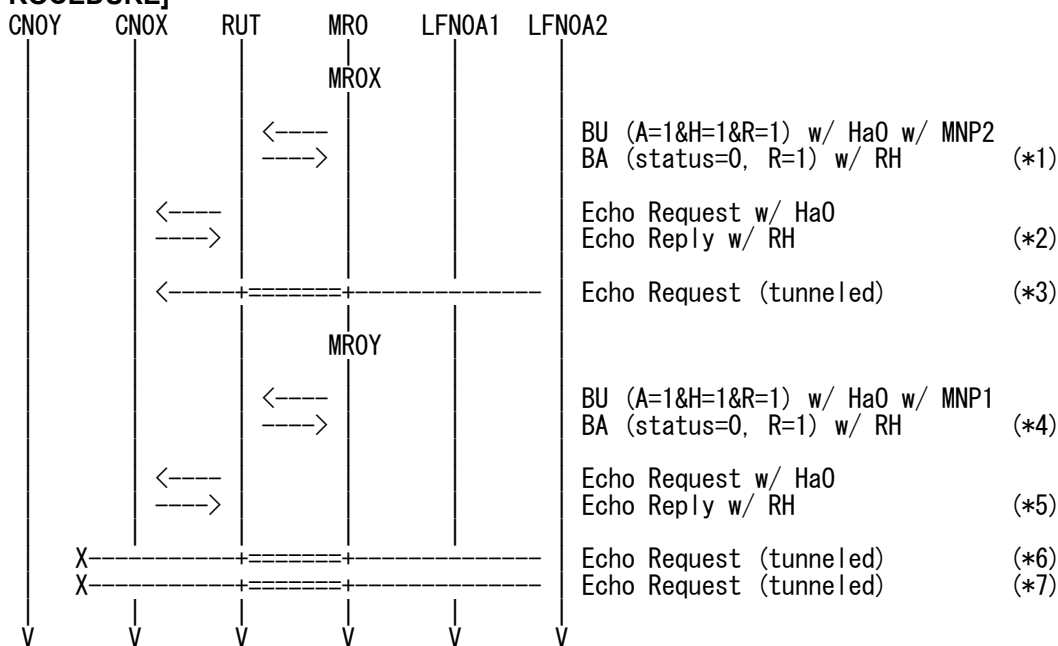
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link0A2,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0A2 (Link0A2.global)
	Destination Address	CNOX (Link0X.global)
ICMPv6 Header	Type	128

7. MR0Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA1_SPI
Encapsulating Security Payload	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	Length	0
PadN	Address	MR0Y (Link0Y.global)
Alternate CoA Option	Length	2
	Prefix length	64
MNP Option	Prefix	MNP1 (Link0A1.prefix)

8. MR0Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR0Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0Y (Link0Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Type	128

10. MR0Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0Y (Link0Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Type	129

● Advanced function “fine-grain”



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0Y (Link0Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

12. no response (*6)

13. LFN0A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR0Y (Link0Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A2 (Link0A2,global)
	Destination Address	CN0Y (Link0Y,global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request
- (*4) PASS: MR0Y receives BA w/ RH
- (*5) PASS: MR0Y receives Echo Reply w/ RH
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.6.2 Virtual Home Link

6.7.6.21 NEMO-HA_6_7_2- Invalid inner source address (not belong to Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_2- Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (not belong to Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-3

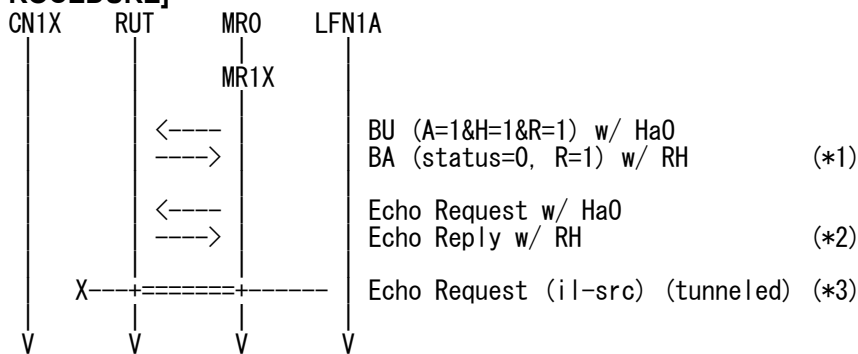
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
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	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Not belong to Link1A, global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. no response (*3)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

(*3) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 6.2, Section 6.4 and Section 9.



6.7.6.2.2 NEMO-HA_6_7_4 – Invalid outer source address (CoA after De-Registration)

[PURPOSE]

NEMO-HA_6_7_4 - Invalid Reverse Tunneling from Mobile Prefix, Invalid outer source address (CoA after De-Registration)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.1 Common Topology-3

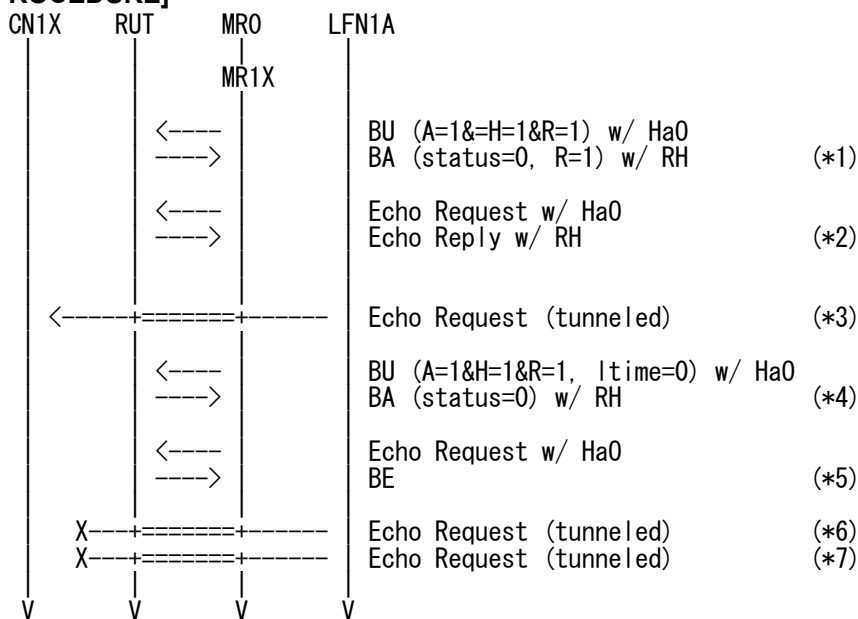
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0

	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
	PadN	Length

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2

	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

7. MR1X sends BU w/ HaO w/o MNP (Refer to 5.12.1)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

8. MR1X receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	16
	Lifetime	0
PadN	Length	2

9. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1X receives BE (*5) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

11. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

12. no response (*6)



13. LFN1A sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1X receives BA w/ RH
- (*5) PASS: MR1X receives BE
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3775 Mobility Support in IPv6

See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.6.2.3 NEMO-HA_6_7_7 – Invalid inner source address (delete Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_7 – Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (delete Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

Explicit mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

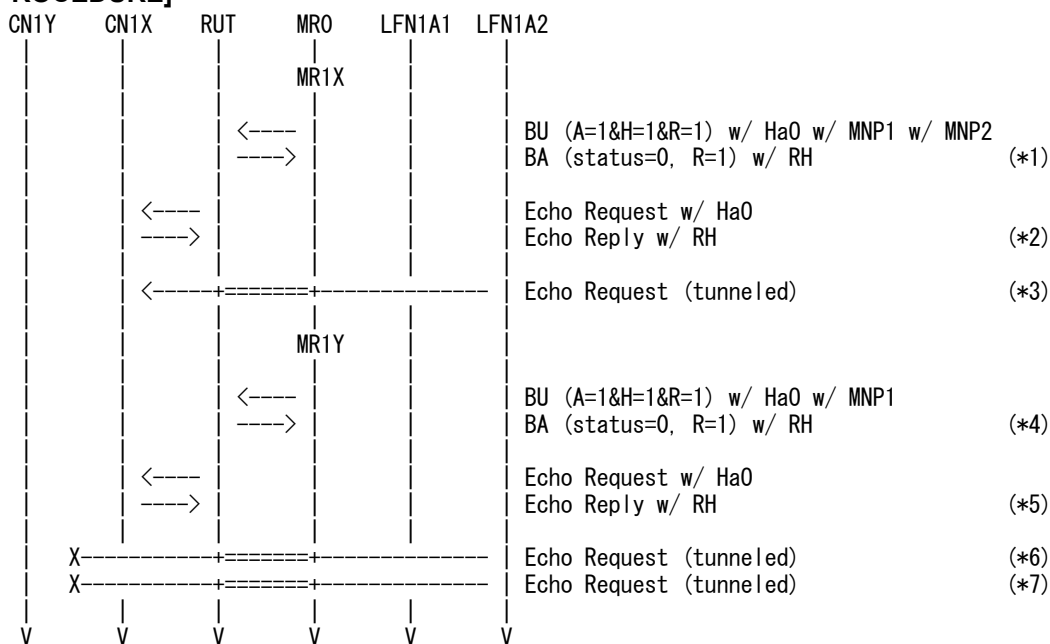
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2.prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

10. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR1Y (Link1Y_global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

11. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	LFN1A2 (Link1A2_global)
	Destination Address	CN1Y (Link1Y_global)
ICMPv6 Header	Type	128

12. no response (*6)

13. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	LFN1A2 (Link1A2_global)
	Destination Address	CN1Y (Link1Y_global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 6.2, Section 6.4 and Section 9.

6.7.6.2.4 NEMO-HA_6_7_8 – Invalid inner source address (update Mobile network prefix)

[PURPOSE]

NEMO-HA_6_7_8 – Invalid Reverse Tunneling from Mobile Prefix, Invalid inner source address (update Mobile network prefix)

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link
Explicit mode

[TOPOLOGY]

Refer to 2.3 Common Topology-10

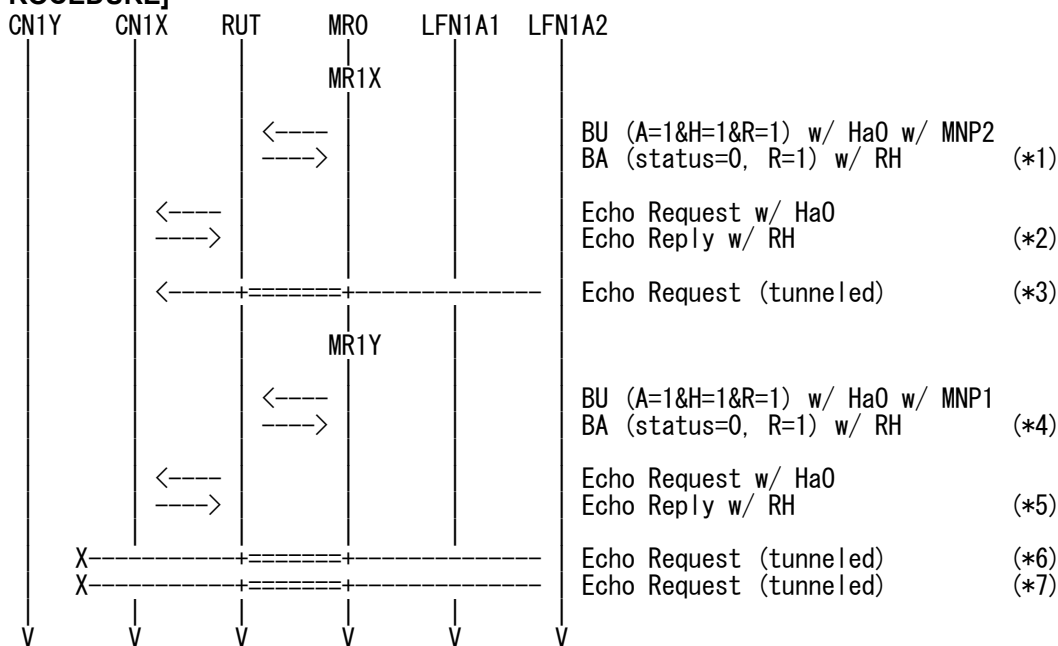
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP2 (Link1A2,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1A2 (Link1A2.global)
	Destination Address	CN1X (Link1X.global)
ICMPv6 Header	Type	128

7. MR1Y sends BU w/ HaO (Refer to 5.12.1)

● explicit mode

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA1_SPI
Encapsulating Security Payload		
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1Y (Link1Y.global)
	Length	2
MNP Option	Prefix length	64
	Prefix	MNP1 (Link1A1.prefix)

8. MR1Y receives BA w/ RH (*4) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Length	2

9. MR1Y sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1Y (Link1Y.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
	Type	128

10. MR1Y receives Echo Reply w/ RH (*6) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1Y (Link1Y.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1Y (Link1Y,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

11. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

12. no response (*6)

13. LFN1A2 sends Echo Request (tunneled) (Refer to 5.5.3)

IPv6 Header	Source Address	MR1Y (Link1Y,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A2 (Link1A2,global)
	Destination Address	CN1Y (Link1Y,global)
ICMPv6 Header	Type	128

14. no response (*7)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request
- (*4) PASS: MR1Y receives BA w/ RH
- (*5) PASS: MR1Y receives Echo Reply w/ RH
- (*6) PASS: no response
- (*7) PASS: no response

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
 See Section 6, Section 6.2, Section 6.4 and Section 9.



6.8 Protecting Return Routability Packets

N/A

6.9 Dynamic Home Agent Address Discovery

6.9.1 Receiving Home Agent Address Discovery Request

6.9.1.1 Real Home Link

6.9.1.1.1 NEMO-HA_7_1_1 - Dynamic home agent address discovery (R=ON)

[PURPOSE]

NEMO-HA_7_1_1 - Dynamic home agent address discovery (R=ON)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

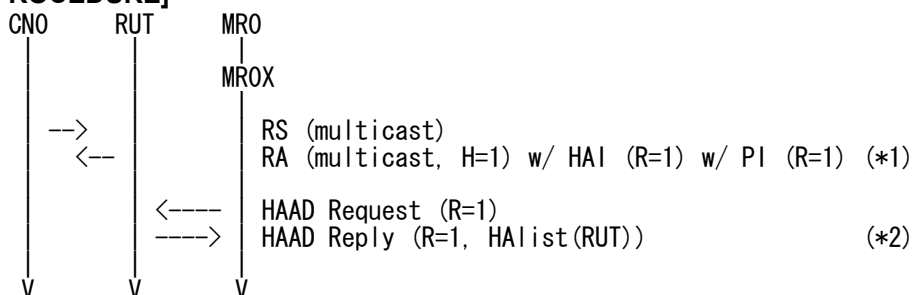
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10



Prefix Information Option	Home Agent Lifetime	Any
	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

4. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.1 and Section 7.2.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.1.1.2 NEMO-HA_7_1_3 - Dynamic home agent address discovery (R=ON, non-zero reserved field)

[PURPOSE]

NEMO-HA_7_1_3 - Dynamic home agent address discovery (R=ON, non-zero reserved field)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

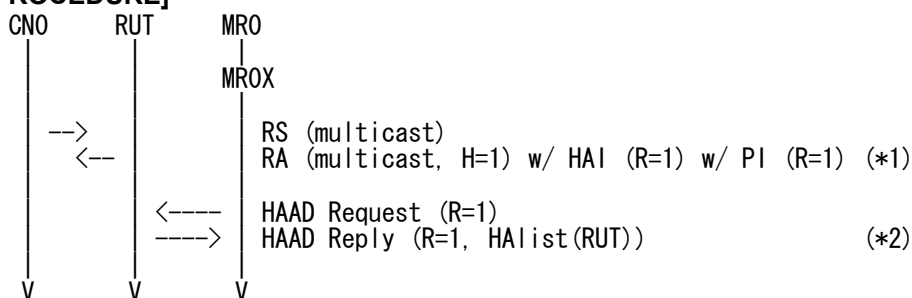
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.2)

IPv6 Header	Source Address	RUT (Link0, link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
Home Agent Information option	R Flag	1
	preference	10
Prefix Information Option	R Flag	1
	Prefix	RUT (Link0, global)

3. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	Home Agents anycast address (Link0, anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1
	Reserved	1



4. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0.global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.1 and Section 7.2.

RFC3775 Mobility Support in IPv6

See Section 6.5.



6.9.1.1.1 NEMO-HA_7_1_5 - Dynamic home agent address discovery (R=OFF)

[PURPOSE]

NEMO-HA_7_1_5 - Dynamic home agent address discovery (R=OFF)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

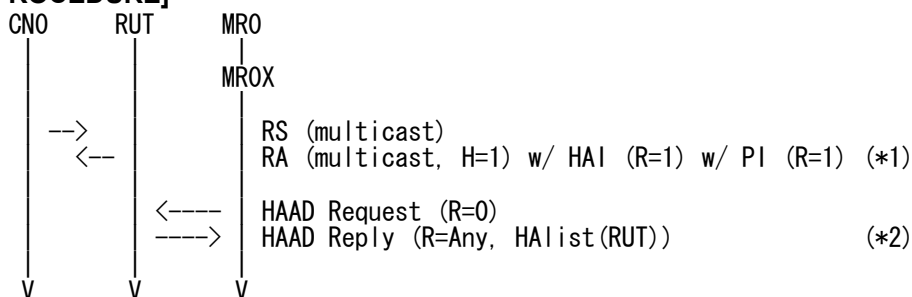
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0.global)

3. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any



	R Flag	0
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4. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0.global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.1 and Section 7.2.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

6.9.1.2 Virtual Home Link

6.9.1.2.1 NEMO-HA_7_1_2 - Dynamic home agent address discovery (R=ON)

[PURPOSE]

NEMO-HA_7_1_2 - Dynamic home agent address discovery (R=ON)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Virtual Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

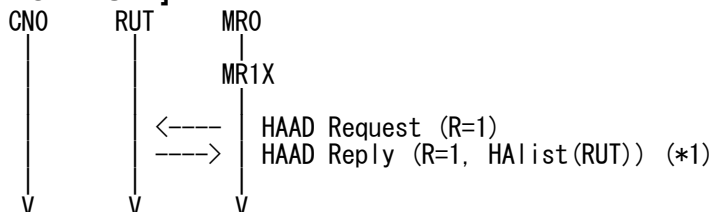
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

2. MR1X receives HAAD Reply (*1) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol



See Section 6, Section 7.1 and Section 7.2.
RFC3775 Mobility Support in IPv6
See Section 10.5.1.



6.9.1.2.2 NEMO-HA_7_1_4 - Dynamic home agent address discovery (R=ON, non-zero reserved field)

[PURPOSE]

NEMO-HA_7_1_4 - Dynamic home agent address discovery (R=ON, non-zero reserved field)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

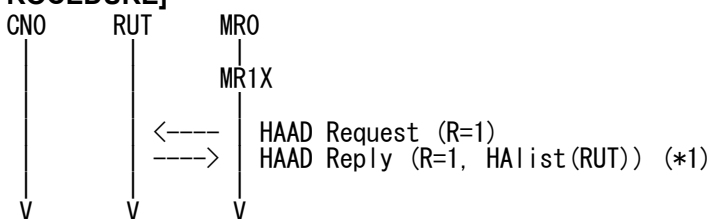
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1
	Reserved	1

2. MR1X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol



See Section 6, Section 7.1 and Section 7.2.
RFC3775 Mobility Support in IPv6
See Section 6.5.

6.9.1.2.1 NEMO-HA_7_1_6 - Dynamic home agent address discovery (R=OFF)

[PURPOSE]

NEMO-HA_7_1_6 - Dynamic home agent address discovery (R=OFF)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Virtual Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

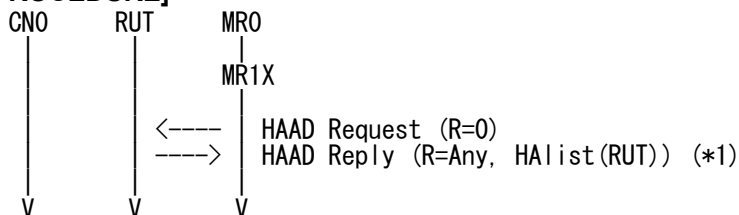
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	Home Agents_anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

2. MR1X receives HAAD Reply (*1) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: MR1X receives HAAD Reply (R=Any, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.1 and Section 7.2.

RFC3775 Mobility Support in IPv6



See Section 10.5.1.



6.9.2 Receiving Router Advertisement Messages

6.9.2.1 Real Home Link

6.9.2.1.1 NEMO-HA_7_2_1 - Receiving RA w/ Home Agent Information Option (preference=0)

[PURPOSE]

NEMO-HA_7_2_1 - Receiving RA w/ Home Agent Information Option (preference=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

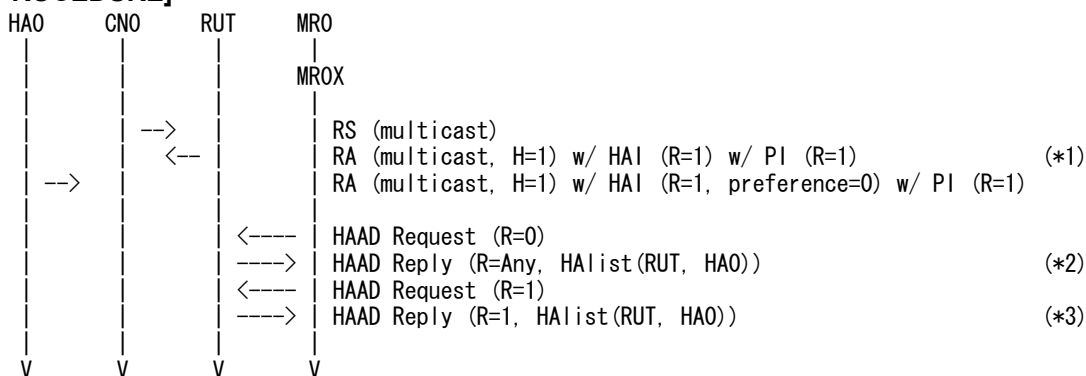
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1

	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MROX receives HAAD Reply (R=Any, HAlist=RUT HA0)

(*3) PASS: MROX receives HAAD Reply (R=1, HAlist=RUT HA0)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.2.1.2 NEMO-HA_7_2_9 - Receiving RA w/o Home Agent Information Option (preference=0, R=0)

[PURPOSE]

NEMO-HA_7_2_9 - Receiving RA w/o Home Agent Information Option (preference=0, R=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

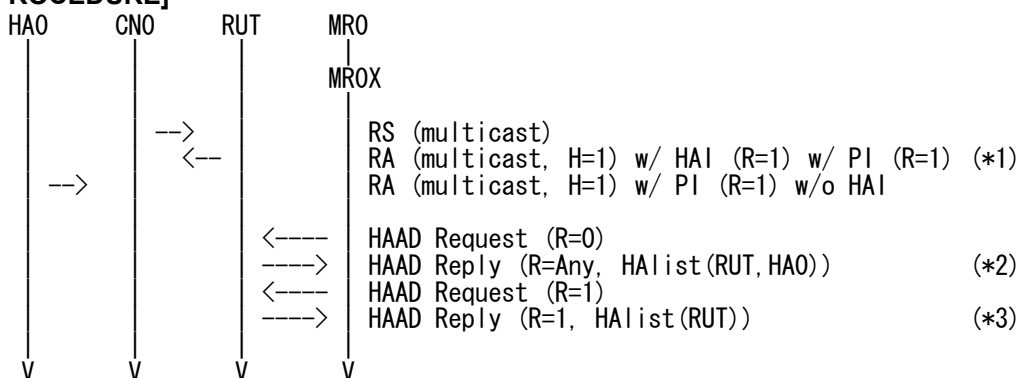
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA0)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.3.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.2.1.3 NEMO-HA_7_2_2 - Receiving RA w/ Home Agent Information Option (preference=0xffff)

[PURPOSE]

NEMO-HA_7_2_2 - Receiving RA w/ Home Agent Information Option (preference=0xffff)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

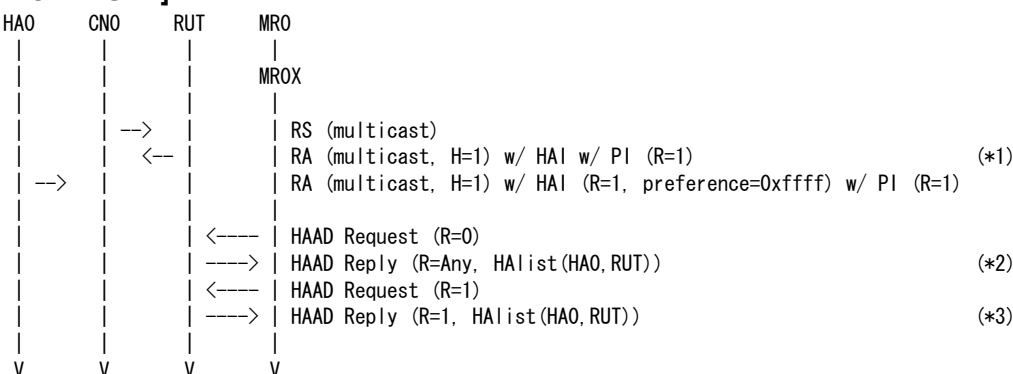
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
	Prefix Information Option	Type
Prefix Information Option	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.1 and Section 7.2.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

8. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

9. RUT sends RA (*4) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

10. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	0
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

13. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

14. MR0X receives HAAD Reply (*6) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA0 RUT)
- (*4) PASS: RUT sends RA to multicast
- (*5) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT)
- (*6) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.2.1.5 NEMO-HA_7_3_2 - Receiving RA w/o Home Agent Information Option (lifetime=0)

[PURPOSE]

NEMO-HA_7_3_2 - Receiving RA w/o Home Agent Information Option (lifetime=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

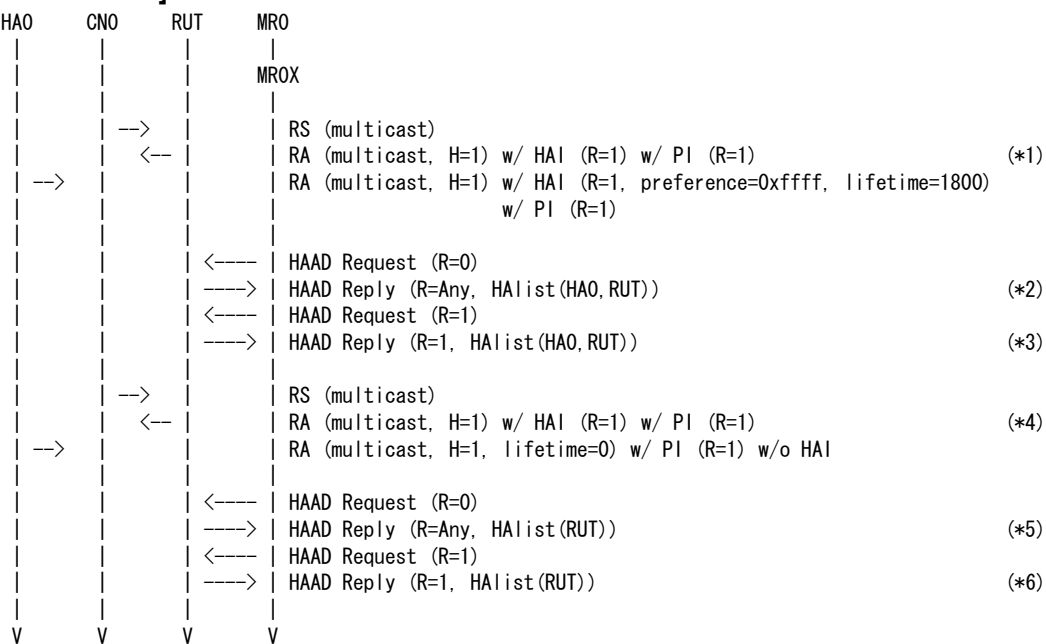
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

8. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

9. RUT sends RA (*4) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

10. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	0
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0.global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0.anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0.global)

13. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0.anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

14. MR0X receives HAAD Reply (*6) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0.global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)
- (*4) PASS: RUT sends RA to multicast
- (*5) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT)
- (*6) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

8. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

9. RUT sends RA (*4) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

10. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	0
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0.global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0.global)

13. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

14. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0.global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA0 RUT)
- (*4) PASS: RUT sends RA to multicast
- (*5) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT)
- (*6) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

6.9.2.1.7 NEMO-HA_7_4_2 – NEMO-Receiving RA (R=0)

[PURPOSE]

NEMO-HA_7_4_2 - Receiving RA (R=0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

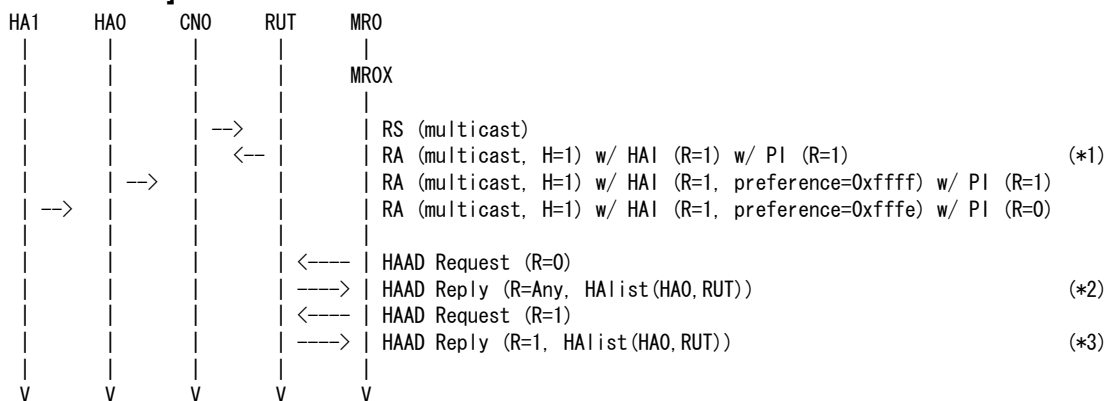
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0.global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0.global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	0
	Valid Lifetime	2592000
	Prefix	HA1 (Link0.global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0.global)
	Address	HA0 (Link0.global)
	Address	RUT (Link0.global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0.global)
	Address	HA0 (Link0.global)
	Address	RUT (Link0.global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6



See Section 10.5.1.



6.9.2.1.8 NEMO-HA_7_2_10 - Lifetime expired w/ Home Agent Information Option

[PURPOSE]

NEMO-HA_7_2_10 - Lifetime expired w/ Home Agent Information Option

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

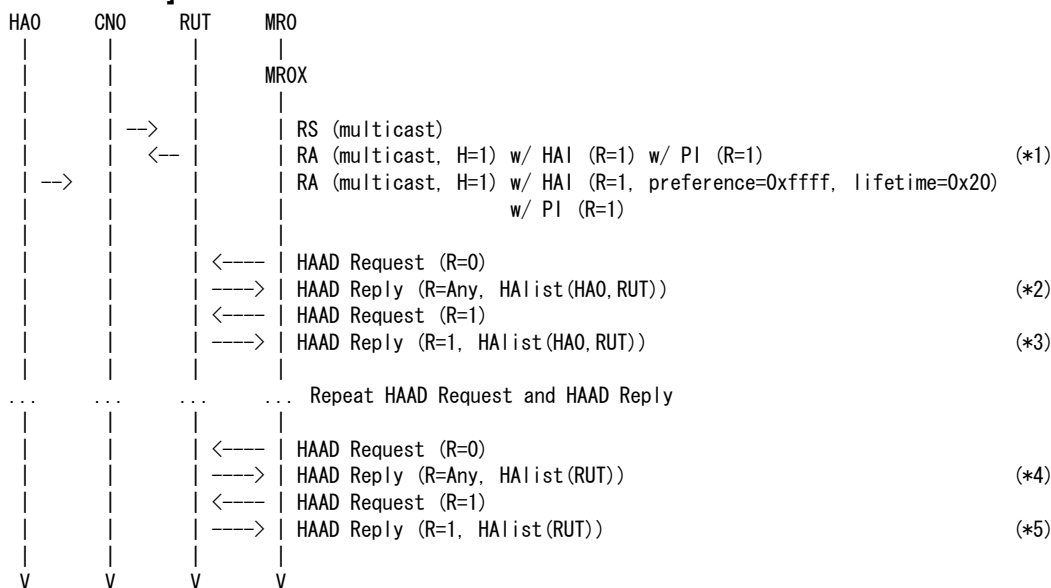
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8

	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HAO sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	0x20
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

8. Repeat Step 4,5,6 and 7 every second until the lifetime of the home agents list entry expires.

9. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

10. MROX receives HAAD Reply (*4) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

11. MROX sends HAAD Request (Refer to 5.15.1)



IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

10. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.2.1.9 NEMO-HA_7_2_11 - Lifetime expired w/o Home Agent Information Option

[PURPOSE]

NEMO-HA_7_2_11 - Lifetime expired w/o Home Agent Information Option

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

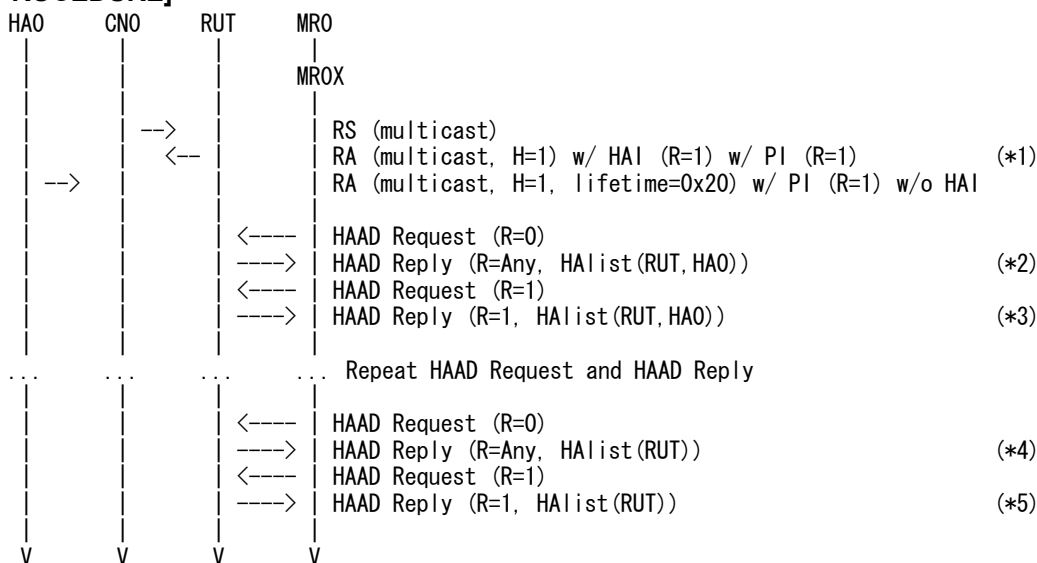
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10

Prefix Information Option	Home Agent Lifetime	Any
	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	0x20
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

8. Repeat Step 4,5,6 and 7 every second until the lifetime of the home agents list entry expires.

9. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

10. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

11. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1



12. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0.global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT HA0)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

6.9.2.1.10 NEMO-HA_7_2_12 - Update Home Agent Preference

[PURPOSE]

NEMO-HA_7_2_12 - Update Home Agent Preference

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

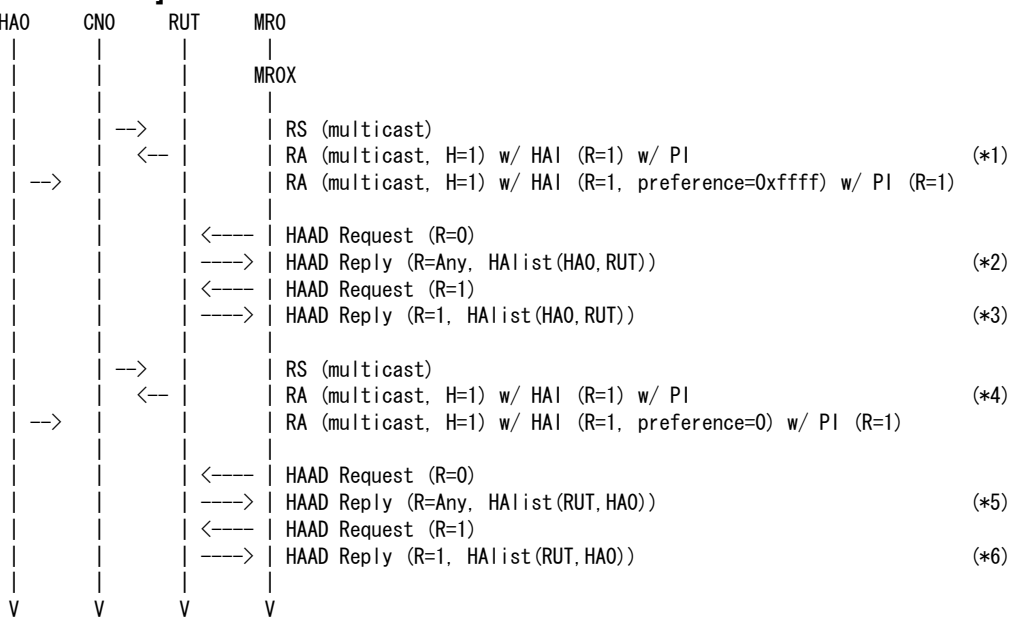
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

8. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

9. RUT sends RA (*3) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	X
	Prefix	RUT (Link0,global)

10. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

13. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

14. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA0 RUT)
- (*4) PASS: RUT sends RA to multicast
- (*5) PASS: MR0X receives HAAD Reply (R=Any, HAList= RUT HA0)
- (*6) PASS: MR0X receives HAAD Reply (R=1, HAList= RUT HA0)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

1. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (*4)(Refer to 5.2.2)

IPv6 Header	Hoplimit	255
	Source Address	RUT (Link0, link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H Flag	1
Home Agent Information option	R Flag	1
	Preference	10
Prefix Information Option	R Flag	1
	Prefix	RUT (Link0, global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0, link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	0x20
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0, global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	Home Agents anycast address (Link0, anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0, global)
	Destination Address	MROX (Link0X, global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0, global)
	Address	RUT (Link0, global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	Home Agents anycast address (Link0, anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (*6)(Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0, global)
	Destination Address	MROX (Link0X, global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0, global)
	Address	RUT (Link0, global)

8. Repeat Step 4, 5, 6 and 7 every second for 16 seconds.

9. Repeat Step 4, 5, 6 and 7 every second until the lifetime of the home agents list entry expires.

10. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X, global)
	Destination Address	Home Agents anycast address (Link0, anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

11. MR0X receives HAAD Reply (*7) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

12. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1
	Address	

13. MR0X receives HAAD Reply (*8) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)
- (*4) PASS: RUT sends RA to multicast
- (*5) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0 RUT)
- (*6) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0 RUT)
- (*7) PASS: MR0X receives HAAD Reply (R=Any, HAlist=RUT)
- (*8) PASS: MR0X receives HAAD Reply (R=1, HAlist=RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.2.1.12 NEMO-HA_7_2_15 - HA has more than one global IP address

[PURPOSE]

NEMO-HA_7_2_15 - HA has more than one global IP address

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.6 Common Topology-6

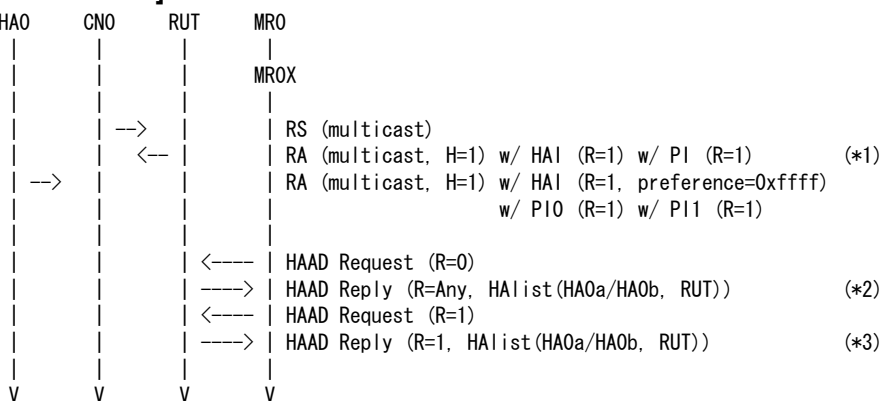
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0.global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (ink-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0(a) (Link0,global)
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0(b) (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0(a) (Link0,global)
	Address	HA0(b) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	RUT (Link0,global)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0(b) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	RUT (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0(a) (Link0,global)
	Address	HA0(b) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	RUT (Link0,global)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0(b) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	HA0(a) (Link0,global)
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MROX receives HAAD Reply (R=Any, HAlist=HA0a/HA0b RUT)

(*3) PASS: MROX receives HAAD Reply (R=1, HAlist=HA0a/HA0b RUT)



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

6.9.2.1.13 NEMO-HA_7_2_3 - Receiving RA messages (preference: RUT > HA0 > HA1)

[PURPOSE]

NEMO-HA_7_2_3 - Receiving RA messages (preference: RUT > HA0 > HA1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

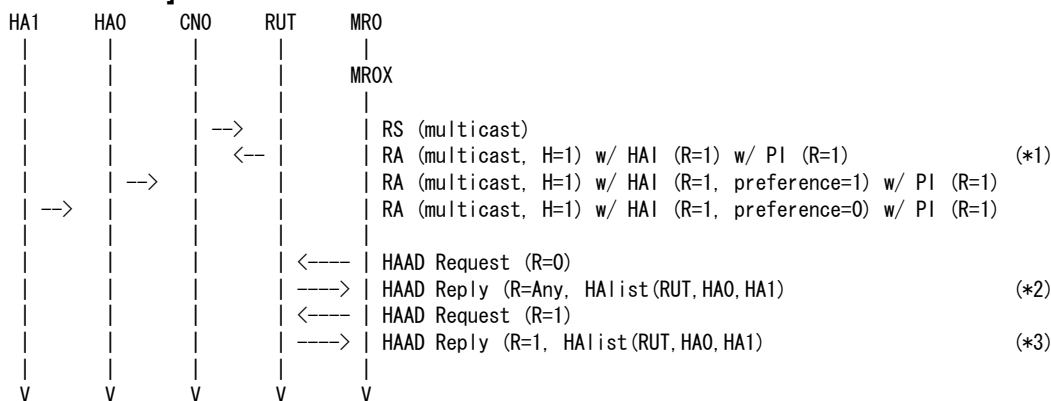
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)
	Address	HA1 (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)
	Address	HA1 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA0 HA1)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA0 HA1)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)
	Address	HA0 (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)
	Address	HA0 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1 HA0)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA1 HA0)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

6.9.2.1.15 NEMO-HA_7_2_5 - Receiving RA messages (preference: HA0 > RUT > HA1)

[PURPOSE]

NEMO-HA_7_2_5 - Receiving RA messages (preference: HA0 > RUT > HA1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

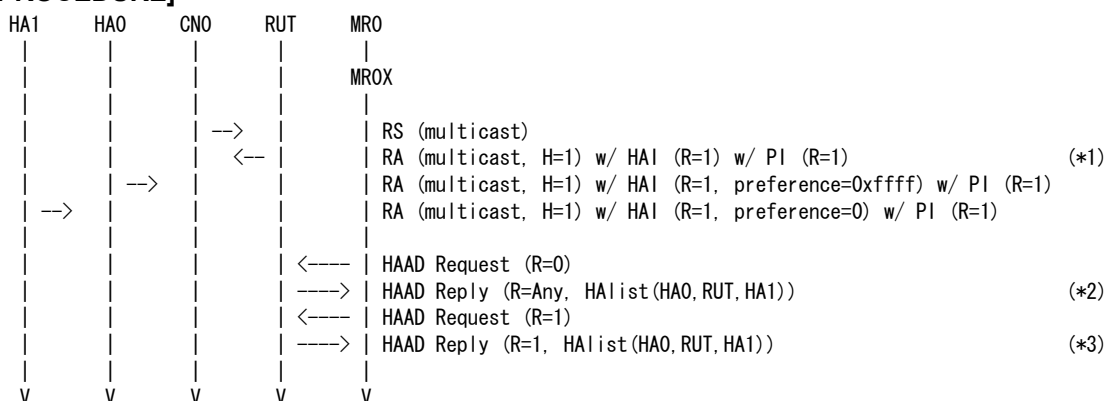
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA0 RUT HA1)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA0 RUT HA1)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

6.9.2.1.16 NEMO-HA_7_2_6 - Receiving RA messages (preference: HA1 > RUT > HA0)

[PURPOSE]

NEMO-HA_7_2_6 - Receiving RA messages (preference: HA1 > RUT > HA0)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

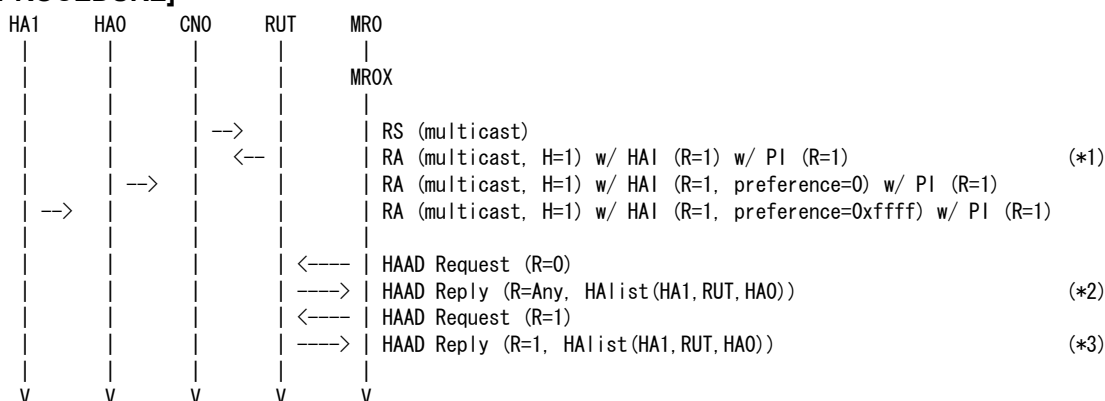
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA1 (Link0,global)
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA1 (Link0,global)
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA1 RUT HA0)

(*3) PASS: MR0X receives HAAD Reply (R=a, HAList=HA1 RUT HA0)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

6.9.2.1.17 NEMO-HA_7_2_7 - Receiving RA messages (preference: HA0 > HA1 > RUT)

[PURPOSE]

NEMO-HA_7_2_7 - Receiving RA messages (preference: HA0 > HA1 > RUT)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

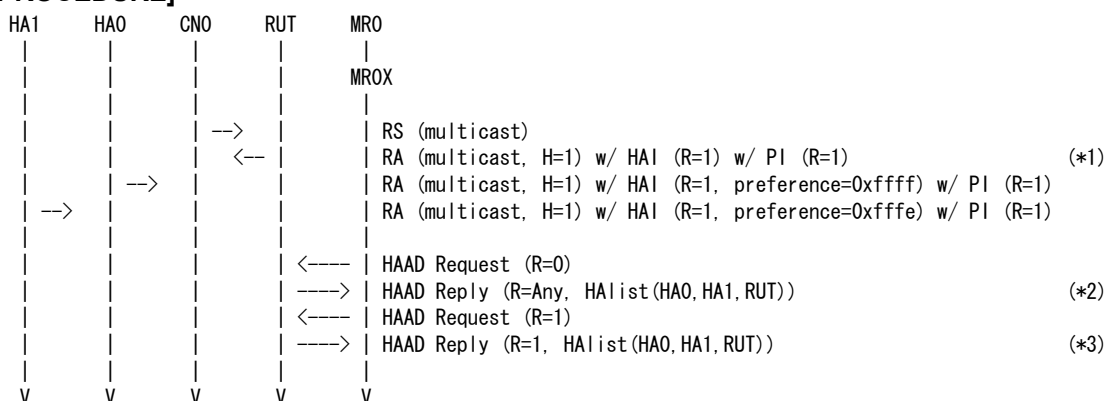
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0,global)
	Address	HA1 (Link0,global)
	Address	RUT (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0,global)
	Address	HA1 (Link0,global)
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA0 HA1 RUT)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA0 HA1 RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

6.9.2.1.18 NEMO-HA_7_2_8 - Receiving RA messages (preference: HA1 > HA0 > RUT)

[PURPOSE]

NEMO-HA_7_2_8 - Receiving RA messages (preference: HA1 > HA0 > RUT)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

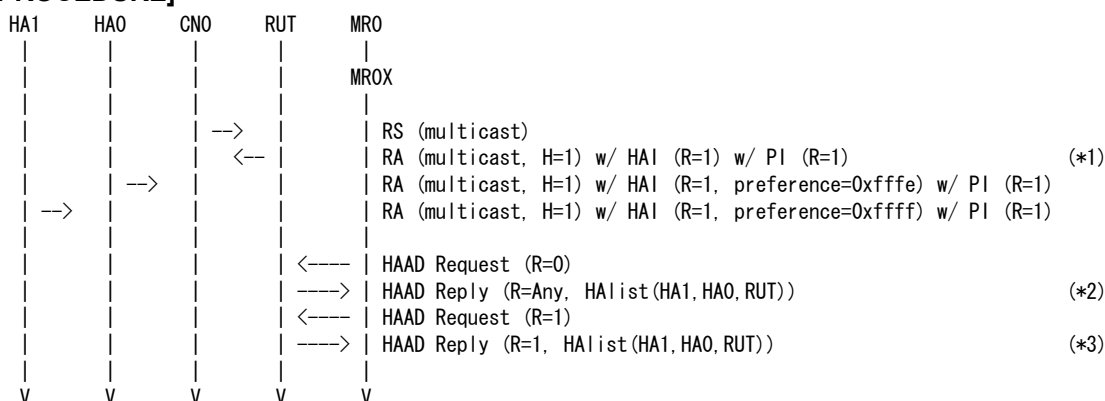
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

5. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA1 (Link0,global)
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

7. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA1 (Link0,global)
	Address	HA0 (Link0,global)
	Address	RUT (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=HA1 HA0 RUT)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAList=HA1 HA0 RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.



RFC3775 Mobility Support in IPv6
See Section 10.5.1.

6.9.2.1.19 NEMO-HA_7_2_14 - Equal preference (preference: HA0 = HA1 > RUT)

[PURPOSE]

NEMO-HA_7_2_14 - Equal preference (preference: HA0 = HA1 > RUT)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.5 Common Topology-5

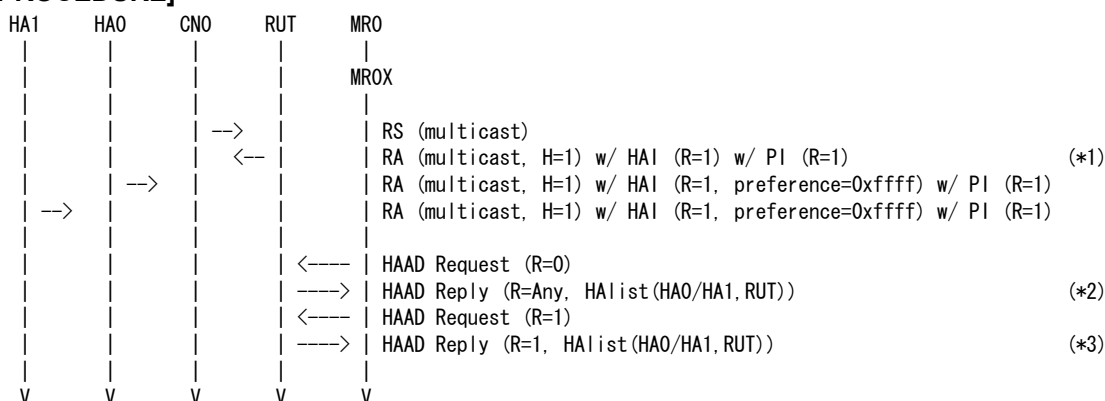
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0.global)

4. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0.global)

5. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	Home Agents anycast address (Link0.anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA0 (Link0.global)
	Address	HA1 (Link0.global)
	Address	RUT (Link0.global)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HA1 (Link0.global)
	Address	HA0 (Link0.global)
	Address	RUT (Link0.global)

7. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	Home Agents anycast address (Link0.anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

8. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA0 (Link0.global)
	Address	HA1 (Link0.global)
	Address	RUT (Link0.global)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HA1 (Link0.global)



	Address	HA0 (Link0.global)
	Address	RUT (Link0.global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=HA0/HA1 RUT)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=HA0/HA1 RUT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.

6.9.2.1.20 NEMO-HA_7_5_1 - Fit within minimum IPv6 MTU

[PURPOSE]

NEMO-HA_7_5_1 - Fit within minimum IPv6 MTU

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.7 Common Topology-7

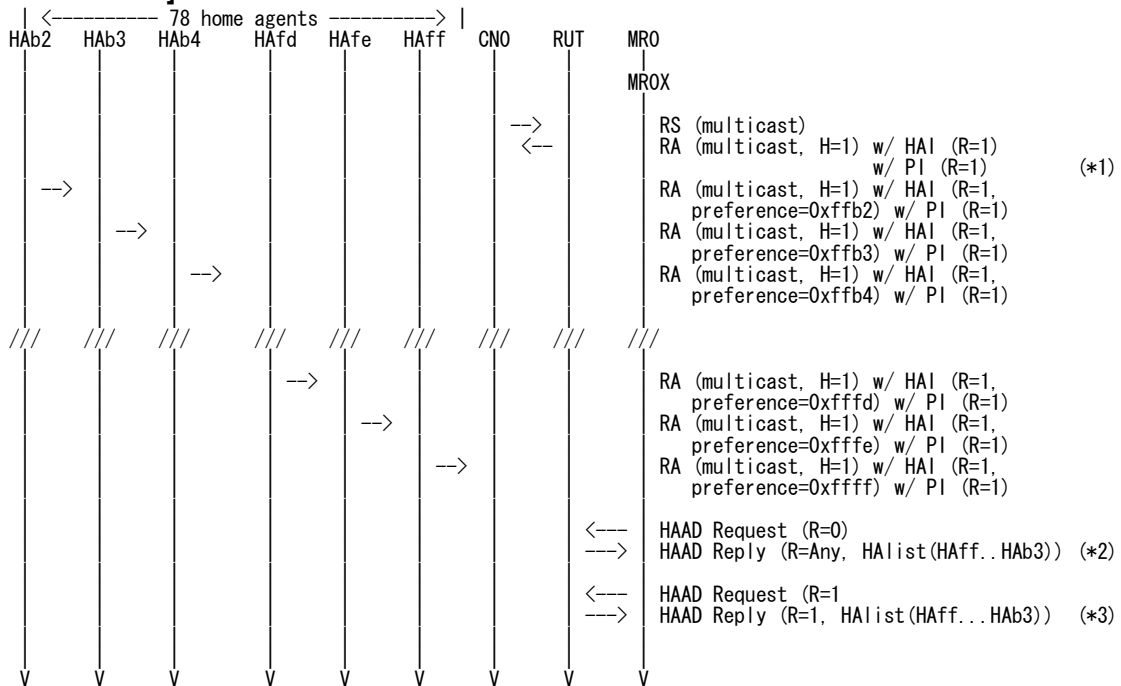
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
-------------	----------------	------------------------

ICMPv6 Header	Destination Address	All-nodes multicast address
	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	X
	Prefix	RUT (Link0,global)

3. 78 home agents (HAb2 - HAff) send RA (Refer to 5.2.1)

IPv6 Header	Source Address	HAb2 - HAff (Link0,link-local)
ICMPv6 Header	Destination Address	All-nodes multicast address
	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0xffb2 - 0xffff
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HAb2 - HAff (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (contains 77 home agents) (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	HAff (Link0,global)
	Address	HAfe (Link0,global)
	Address	Hafd (Link0,global)
	...	
	Address	HAb5 (Link0,global)
	Address	HAb4 (Link0,global)
	Address	HAb3 (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (contains 77 home agents) (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	HAff (Link0,global)
	Address	HAfe (Link0,global)
	Address	Hafd (Link0,global)
	...	
	Address	HAb5 (Link0,global)
	Address	HAb4 (Link0,global)
	Address	HAb3 (Link0,global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives HAAD Reply (R=Any, HAlist=contains 77 home agents)

(*3) PASS: MR0X receives HAAD Reply (R=1, HAlist=contains 77 home agents)

[REFERENCES]



RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6 and Section 7.4.

RFC3775 Mobility Support in IPv6

See Section 10.5.1.



6.9.3 Receiving Router Advertisement Messages

6.9.3.1 Real Home Link

6.9.3.1.1 NEMO-HA_7_6_1 - Receiving RA w/ Home Agent Information Option (H=0&R=1)

[PURPOSE]

NEMO-HA_7_6_1 - Receiving RA w/ Home Agent Information Option (H=0&R=1)

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.4 Common Topology-4

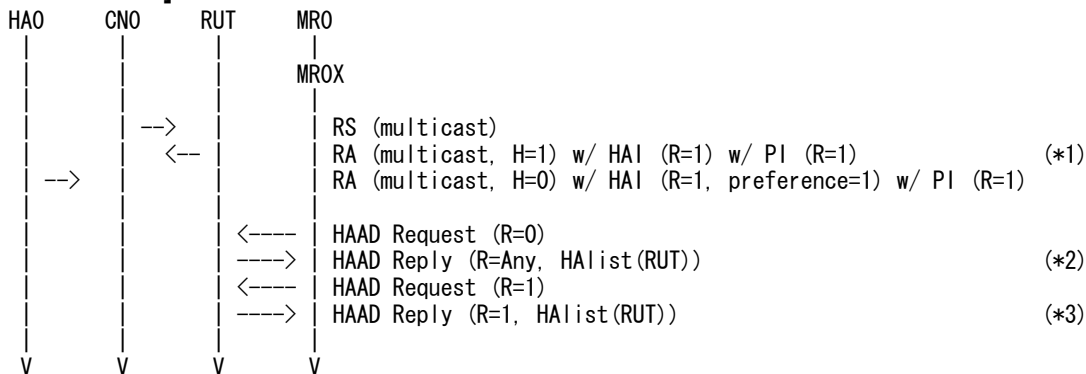
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3



	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	0
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 7.2 and Section 7.3.
- RFC3775 Mobility Support in IPv6
See Section 7.1.

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	0
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	0
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

8. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	0
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

9. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

10. MR0X receives HAAD Reply (*4) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1
	R Flag	1

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6, Section 7.2 and Section 7.3.
- RFC3775 Mobility Support in IPv6
See Section 7.1.

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	0
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	0
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

4. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MR0X receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

6. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MR0X receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header]	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

8. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

9. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

10. MR0X receives HAAD Reply (*4) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA1)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.2 and Section 7.3.

RFC3775 Mobility Support in IPv6

See Section 7.1.

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	0
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

8. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	0
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA0 (Link0,global)

9. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

10. MR0X receives HAAD Reply (*4) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)
	Address	HA0 (Link0,global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1
	R Flag	1

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA0 (Link0,global)
	Address	HA0 (Link0,global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1 HA0)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA0)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.2 and Section 7.3.

RFC3775 Mobility Support in IPv6

See Section 7.1.

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. HA1 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA1 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	1
	Home Agent Lifetime	1800
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	2592000
	Prefix	HA1 (Link0,global)

4. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

5. MROX receives HAAD Reply (*2) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

6. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

7. MROX receives HAAD Reply (*3) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)
	Address	HA1 (Link0,global)

8. HA0 sends RA (Refer to 5.2.1)

IPv6 Header	Source Address	HA0 (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	1800
	Home Agent Information Option	Type
Home Agent Information Option	R Flag	0
	Home Agent Preference	0
	Home Agent Lifetime	1800
	Prefix Information Option	Type
Prefix Length		64
R Flag		1
Valid Lifetime		2592000
Prefix		HA0 (Link0,global)

9. MROX sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any

	R Flag	0
--	--------	---

10. MR0X receives HAAD Reply (*4) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0.global)
	Address	HA1 (Link0.global)
	Address	HA0 (Link0.global)

11. MR0X sends HAAD Request (Refer to 5.15.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	Home Agents anycast address (Link0,anycast)
Mobility Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

12. MR0X receives HAAD Reply (*5) (Refer to 5.16.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0.global)
	Address	HA1 (Link0.global)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1)
- (*3) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA1)
- (*4) PASS: MR0X receives HAAD Reply (R=Any, HAList=RUT HA1 HA0)
- (*5) PASS: MR0X receives HAAD Reply (R=1, HAList=RUT HA1)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6, Section 7.2 and Section 7.3.

RFC3775 Mobility Support in IPv6

See Section 7.1.

6.10 Mobile Prefix Discovery

6.10.1 Receiving Mobile Prefix Solicitation

6.10.1.1 Real Home Link

6.10.1.1.1 NEMO-HA_8_1_1 - Receiving valid Mobile Prefix Solicitation

[PURPOSE]

NEMO-HA_8_1_1 - Receiving valid Mobile Prefix Solicitation

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

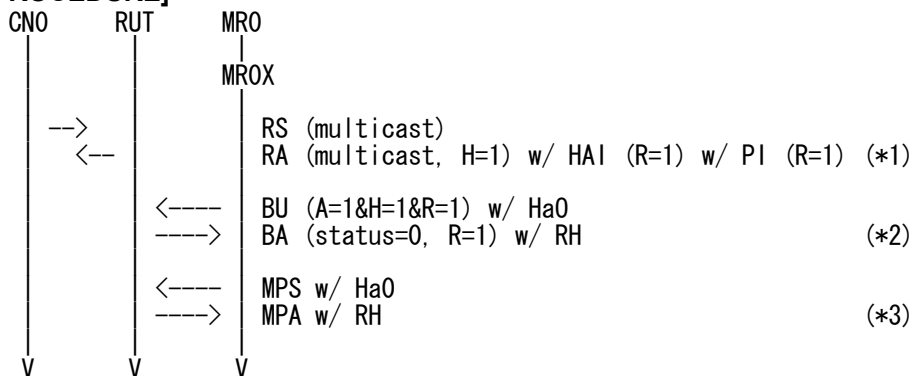
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CN0 sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134

	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
Lifetime		<=105	
Binding Refresh Advice Option	Interval	<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
Lifetime		<=105	
PadN	Length	2	

5. MROX sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

6. MROX receives MPA w/ RH (*3) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	1
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	RUT (Link0.global)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	RUT (Link0.global)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	prefix (Link0)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives MPA w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.6.2 and Section 10.6.3.



6.10.1.1.2 NEMO-HA_8_1_15 - Receiving suspicious Mobile Prefix Solicitation non-zero reserved field

[PURPOSE]

NEMO-HA_8_1_15 - Receiving suspicious Mobile Prefix Solicitation non-zero reserved field

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

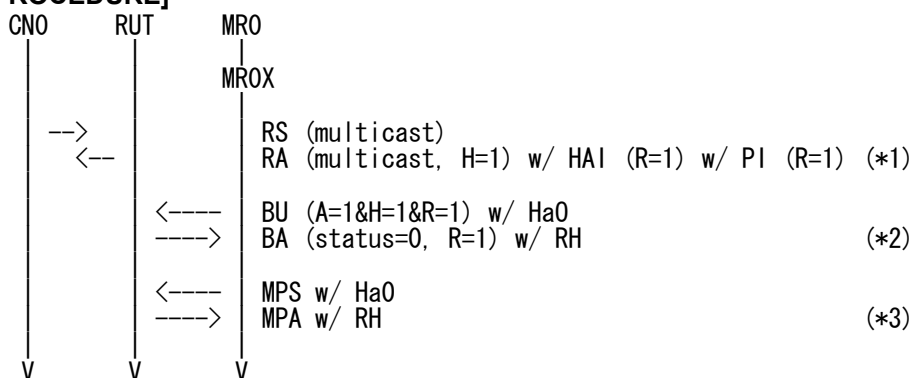
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0,global)

3. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

5. MROX sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any
	Reserved	1

6. MROX receives MPA w/ RH (*3) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0

Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	1
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	RUT (Link0,global)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	RUT (Link0,global)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	prefix (Link0)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives MPA w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 6.7, Section 10.6.2 and Section 10.6.3.

6.10.1.1.3 NEMO-HA_8_1_7 - Comparison of binding lifetime and prefix lifetime in Mobile Prefix Advertisement

[PURPOSE]

NEMO-HA_8_1_7 - Comparison of binding lifetime and prefix lifetime in Mobile Prefix Advertisement

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

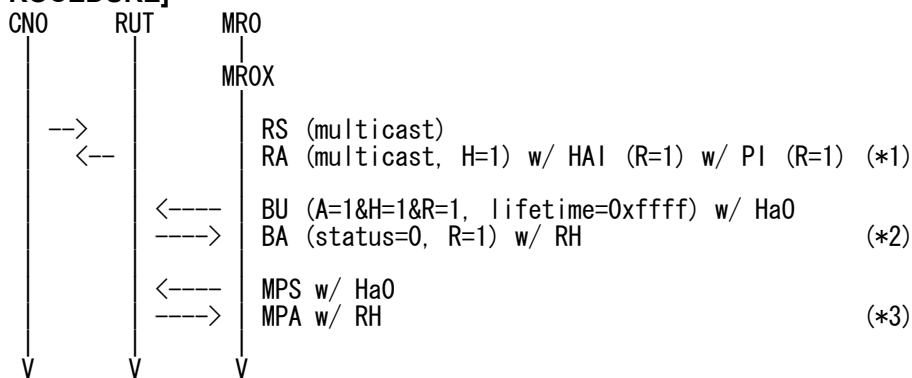
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0.link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3
	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0.global)

3. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

4. MROX receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	X (<=0xffff)
Binding Refresh Advice Option	Interval	<=0xffff

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	X (<=0xffff)
PadN	Length	2

5. MROX sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

6. MROX receives MPA w/ RH (*3) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0

Prefix Information option	O flag	0
	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	1
	Valid Lifetime	Any (>=X)
	Preferred Lifetime	Any (>=X)
prefix	RUT (Link0.global)	

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>=X)
	Preferred Lifetime	Any (>=X)
	prefix	RUT (Link0.global)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>=X)
	Preferred Lifetime	Any (>=X)
	Prefix	prefix (Link0)

[JUDGMENT]

- (*1) PASS: RUT sends RA to multicast
- (*2) PASS: MR0X receives BA w/ RH
- (*3) PASS: MR0X receives MPA w/ RH

[REFERENCES]

- RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 6.
- RFC3775 Mobility Support in IPv6
See Section 10.6.2, Section 10.6.3 and Section 10.6.4.

6.10.1.2 Virtual Home Link

6.10.1.2.1 NEMO-HA_8_1_2 - Receiving valid Mobile Prefix Solicitation

[PURPOSE]

NEMO-HA_8_1_2 - Receiving valid Mobile Prefix Solicitation

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

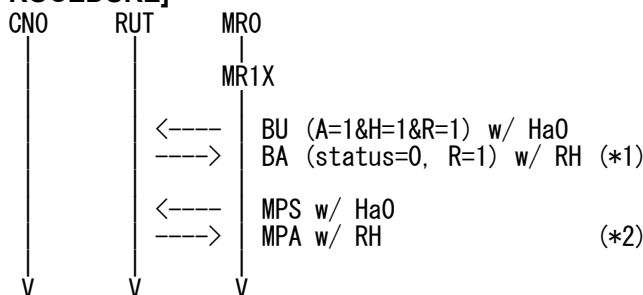
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SP1
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

4. MR1X receives MPA w/ RH (*2) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6 SPI	
Encapsulating Security Payload	Type	147	
	Code	0	
	Identifier	(=MPS)	
	M flag	0	
	O flag	0	
	Prefix Information option	Type	3
		Prefix Length	64
L flag		1	
A flag		1	
R flag		1	
Valid Lifetime		Any (>0)	
Preferred Lifetime		Any (>0)	
Prefix		RUT (Link0,global)	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6 SPI	
Encapsulating Security Payload	Type	147	
	Code	0	
	Identifier	(=MPS)	
	M flag	0	
	O flag	0	
	Prefix Information option	Type	3
		Prefix Length	64
L flag		1	
A flag		1	
R flag		0	
Valid Lifetime		Any (>0)	
Preferred Lifetime		Any (>0)	
Prefix		RUT (Link0,global)	



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix Length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	prefix (Link0)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives MPA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.6.2 and Section 10.6.3.

6.10.1.2.2 NEMO-HA_8_1_16 - Receiving suspicious Mobile Prefix Solicitation non-zero reserved field

[PURPOSE]

NEMO-HA_8_1_16 - Receiving suspicious Mobile Prefix Solicitation non-zero reserved field

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

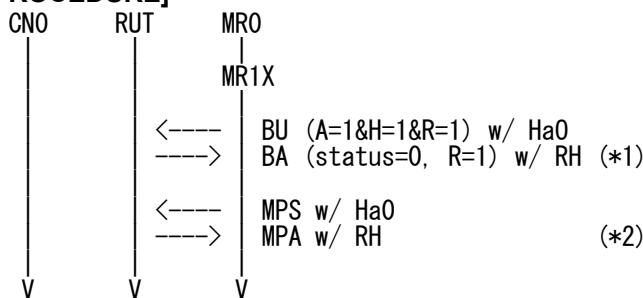
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Interval		<=105	

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
Length		2	

3. MR1X sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any
	Reserved	1

4. MR1X receives MPA w/ RH (*2) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6_SPI	
Encapsulating Security Payload	Security Parameters Index	SA6_SPI	
	Mobility Header	Type	147
		Code	0
		Identifier	(=MPS)
		M flag	0
		O flag	0
		Prefix Information option	Type
Prefix Length			64
L flag	1		
A flag	1		
R flag	1		
Valid Lifetime	Any (>0)		
Preferred Lifetime	Any (>0)		
Prefix	RUT (Link0,global)		

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6_SPI	
Encapsulating Security Payload	Security Parameters Index	SA6_SPI	
	Mobility Header	Type	147
		Code	0
		Identifier	(=MPS)
		M flag	0
		O flag	0
		Prefix Information option	Type
Prefix Length			64
L flag	1		
A flag	1		
R flag	0		
Valid Lifetime	Any (>0)		
Preferred Lifetime	Any (>0)		
Prefix	RUT (Link0,global)		



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>0)
	Preferred Lifetime	Any (>0)
	Prefix	prefix (Link0)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives MPA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 6.7, Section 10.6.2 and Section 10.6.3.

6.10.1.2.3 NEMO-HA_8_1_8 - Comparison of binding lifetime and prefix lifetime in Mobile Prefix Advertisement

[PURPOSE]

NEMO-HA_8_1_8 - Comparison of binding lifetime and prefix lifetime in Mobile Prefix Advertisement

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

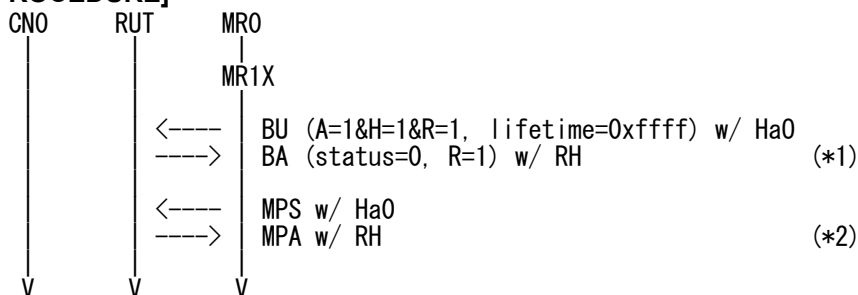
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0xffff
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*2) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	X (<=0xffff)
	Interval	<=0xffff

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	X (<=0xffff)
	Length	2

3. MR1X sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

4. MR1X receives MPA w/ RH (*2) (Refer to 5.18.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6 SPI	
Encapsulating Security Payload	Type	147	
	Code	0	
	Identifier	(=MPS)	
	M flag	0	
	O flag	0	
	Prefix Information option	Type	3
		Prefix Length	64
L flag		1	
A flag		1	
R flag		1	
Valid Lifetime		Any (>=X)	
Preferred Lifetime		Any (>=X)	
Prefix	RUT (Link0,global)		

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MR1X (Link1X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA6 SPI	
Encapsulating Security Payload	Type	147	
	Code	0	
	Identifier	(=MPS)	
	M flag	0	
	O flag	0	
	Prefix Information option	Prefix length	64
		L flag	1
A flag		1	
R flag		0	
Valid Lifetime		Any (>=X)	
Preferred Lifetime		Any (>=X)	
Prefix		RUT (Link0,global)	



IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
Mobility Header	Type	147
	Code	0
	Identifier	(=MPS)
	M flag	0
	O flag	0
Prefix Information option	Type	3
	Prefix length	64
	L flag	1
	A flag	1
	R flag	0
	Valid Lifetime	Any (>=X)
	Preferred Lifetime	Any (>=X)
	Prefix	prefix (Link0)

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives MPA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 10.6.2, See Section 10.6.3 and See Section 10.6.4.



6.10.2 Receiving Invalid Mobile Prefix Solicitation

6.10.2.1 Real Home Link

6.10.2.1.1 NEMO-HA_8_1_3 - Receiving Mobile Prefix Solicitation without mobile network prefix registration

[PURPOSE]

NEMO-HA_8_1_3 - Receiving Mobile Prefix Solicitation without mobile network prefix registration

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

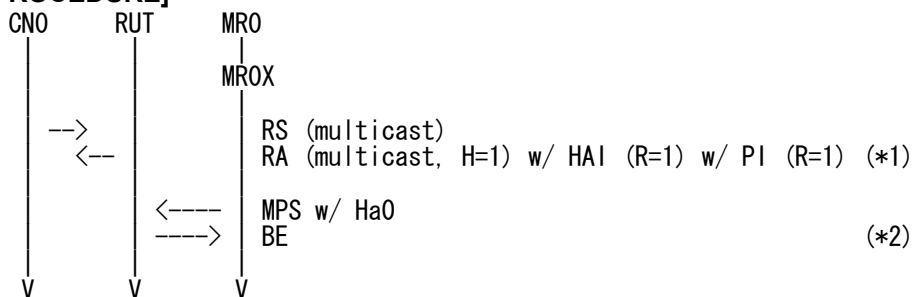
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. CNO sends RS (Refer to 5.1.1)

IPv6 Header	Source Address	Unspecified address
	Destination Address	All-routers multicast address
ICMPv6 Header	Type	133

2. RUT sends RA (*1) (Refer to 5.2.1)

IPv6 Header	Source Address	RUT (Link0,link-local)
	Destination Address	All-nodes multicast address
ICMPv6 Header	Type	134
	H flag	1
	Router Lifetime	Any
Home Agent Information Option	Type	8
	R Flag	1
	Home Agent Preference	10
	Home Agent Lifetime	Any
Prefix Information Option	Type	3



	Prefix Length	64
	R Flag	1
	Valid Lifetime	Any
	Prefix	RUT (Link0.global)

3. MR0X sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

4. MR0X receives BE (*2) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: RUT sends RA to multicast

(*2) PASS: MR0X receives BE

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.3.1.

6.10.2.2 Virtual Home Link

6.10.2.2.1 NEMO-HA_8_1_4 - Receiving Mobile Prefix Solicitation without mobile network prefix registration

[PURPOSE]

NEMO-HA_8_1_4 - Receiving Mobile Prefix Solicitation without mobile network prefix registration

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.2 Common Topology-2

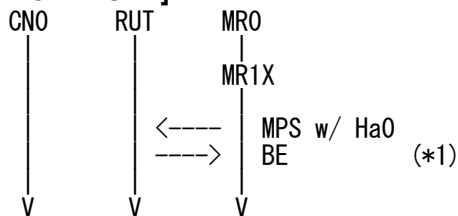
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends MPS w/ HaO (Refer to 5.17.1)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
Mobility Header	Type	146
	Code	0
	Identifier	Any

2. MR1X receives BE (*1) (Refer to 5.14.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
Mobility Header	MH Type	7
	Status	1
	Home Address	MR0 (Link0.global)

[JUDGMENT]

(*1) PASS: MR1X receives BE



[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 6.

RFC3775 Mobility Support in IPv6

See Section 9.3.1.

6.11 Nested Mobility

6.11.1 Processing packet of other tunnel

6.11.1.1 Real Home Link

6.11.1.1.1 NEMO-HA_9_1_1 – HoTI packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_1 – Nested Mobility (different HA) – HoTI packet forwarding to LFN(CN) under MR and HoT packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

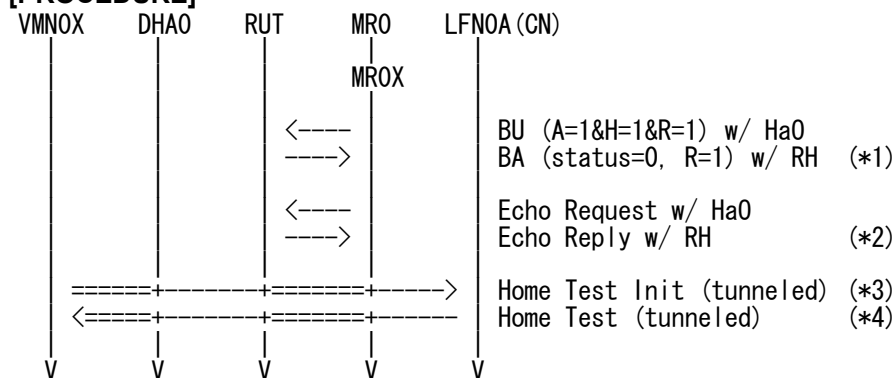
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1

	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA	Address	MROX (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Interval	<=105
Binding Refresh Advice Option		Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)	
	Destination Address	MROX (Link0X,global)	
Type2 Routing Header	Length	2	
	Type	2	
	Segment left	1	
	Home Address	MR0 (Link0,global)	
	Security Parameters Index	SA2_SPI	
Encapsulating Security Payload	Security Parameters Index	SA2_SPI	
	Mobility Header	MH Type	6
		Status	0
		K Flag	0
		R Flag	1
		Sequence	15
		Lifetime	<=105
		Length	2
PadN		Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)



Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0_global)
ICMPv6 Header	Type	129

5. DHA0(VMN0) sends Home Test Init (Refer to 5.8.1)

IPv6 Header	Source Address	VMN0 (Link0Y_global)
	Destination Address	LFN0A (Link0A_global)
Mobility Header	Type	1

6. MR0X receives payload packet (Home Test Init) (*3) (Refer to 5.8.2)

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR0X (Link0X_global)
IPv6 Header	Source Address	VMN0 (Link0Y_global)
	Destination Address	LFN0A (Link0A_global)
Mobility Header	Type	1

7. MR0X sends payload packet (Home Test) (Refer to 5.10.2)

IPv6 Header	Source Address	MR0X (Link0X_global)
	Destination Address	RUT (Link0_global)
IPv6 Header	Source Address	LFN0A (Link0A_global)
	Destination Address	VMN0 (Link0Y_global)
Mobility Header	Type	3

8. DHA0(VMN0) receives Home Test (*4) (Refer to 5.10.1)

IPv6 Header	Source Address	LFN0A (Link0A_global)
	Destination Address	VMN0 (Link0Y_global)
Mobility Header	Type	3

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives payload packet (Home Test Init)
- (*4) PASS: DHA0(VMN0) receives Home Test

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.2 NEMO-HA_9_1_2 – CoTI packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_2 – Nested Mobility (different HA) – CoTI packet forwarding to LFN(CN) under MR and CoT packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

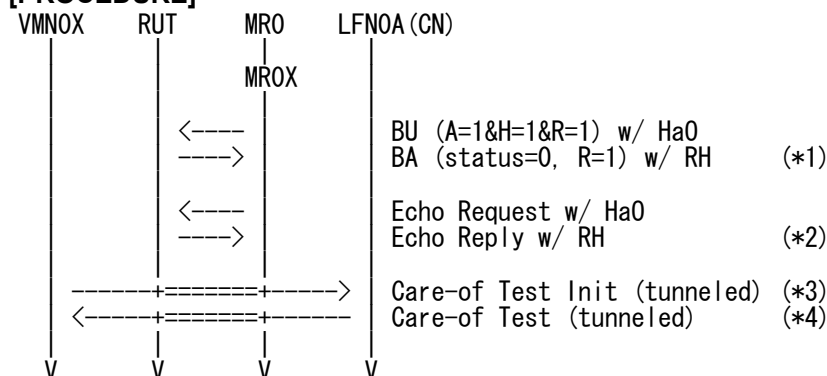
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. VMN0X sends Care-of Test Init (Refer to 5.9.1)

IPv6 Header	Source Address	VMN0X (Link0X,global)
	Destination Address	LFN0A (Link0A,global)
Mobility Header	Type	2



6. MROX receives payload packet (Care-of Test Init) (*3) (Refer to 5.9.2)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	VMNOX (Link0X.global)
	Destination Address	LFNOA (Link0A.global)
Mobility Header	Type	2

7. MROX sends payload packet (Care-of Test) (Refer to 5.11.2)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFNOA (Link0A.global)
	Destination Address	VMNOX (Link0X.global)
Mobility Header	Type	4

8. VMNOX receives Care-of Test (*4) (Refer to 5.11.1)

IPv6 Header	Source Address	LFNOA (Link0A.global)
	Destination Address	VMNOX (Link0X.global)
Mobility Header	Type	4

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives payload packet (Care-of Test Init)
- (*4) PASS: VMNOX receives Care-of Test

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.3 NEMO-HA_9_1_3 – BU packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_3 – Nested Mobility (different HA) – BU packet forwarding to LFN(CN) under MR and BA packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

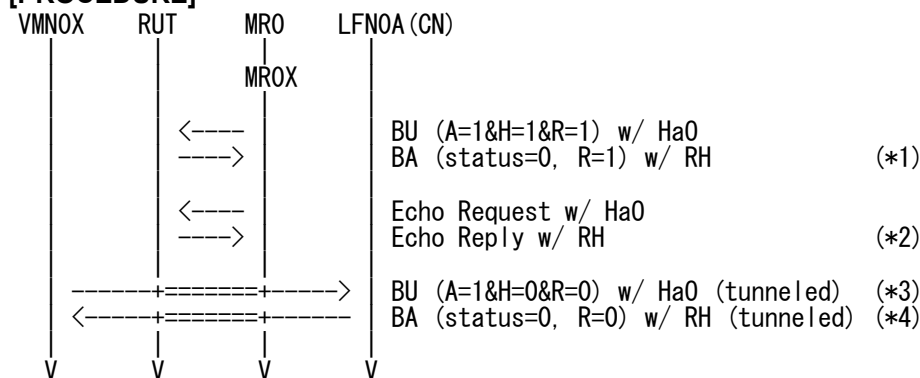
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. VMN0X sends Binding Update to CN (Refer to 5.12.3)

IPv6 Header	Source Address	VMN0X (Link0X,global)
	Destination Address	LFN0A (Link0A,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	5

6. MR0X receives payload packet (Binding Update) (*3) (Refer to 5.12.6)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	VMN0X (Link0X.global)
	Destination Address	LFN0A (Link0A.global)
Destination Option Header	Home Address	VMN0 (Link0Y.global)
Mobility Header	Type	5

7. MR0X sends payload packet (Binding Acknowledgement) (Refer to 5.13.6)

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN0A (Link0A.global)
	Destination Address	VMN0X (Link0X.global)
Type2 Routing Header	Home Address	VMN0 (Link0Y.global)
Mobility Header	Type	6

8. VMN0X receives Binding Acknowledgement (*4) (Refer to 5.13.3)

IPv6 Header	Source Address	LFN0A (Link0A.global)
	Destination Address	VMN0X (Link0X.global)
Type2 Routing Header	Home Address	VMN0 (Link0Y.global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: MR0X receives payload packet (BU)
- (*4) PASS: VMN0X receives BA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.1.1.4 NEMO-HA_9_1_4 – BRR packet forwarding from LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_4 – Nested Mobility (different HA) – BRR packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

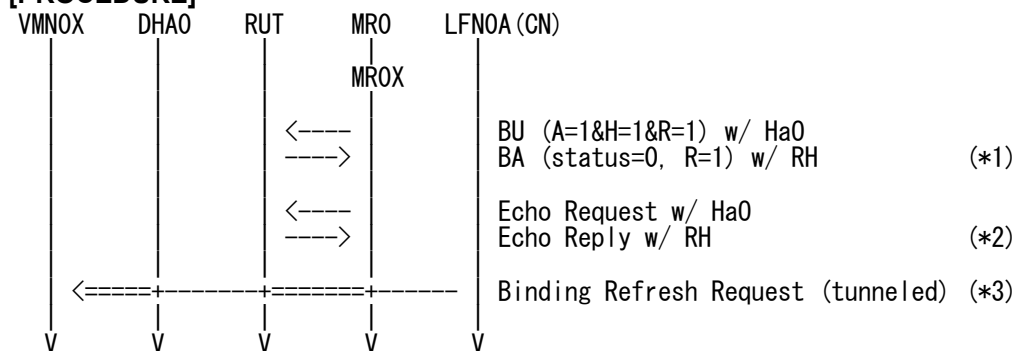
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1

	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MROX sends payload packet (Binding Refresh Request) (Refer to 5.7.2)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0A (Link0A,global)
	Destination Address	VMN0 (Link0Y,global)
Mobility Header	Type	0



6. DHA0(VMN0) receives Binding Refresh Request (*3) (Refer to 5.7.1)

IPv6 Header	Source Address	LFN0A (Link0A.global)
	Destination Address	VMN0 (Link0Y.global)
Mobility Header	Type	0

[JUDGMENT]

(*1) PASS: MR0X receives BA w/ RH

(*2) PASS: MR0X receives Echo Reply w/ RH

(*3) PASS: DHA0(VMN0) receives Binding Refresh Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 1.

6.11.1.1.5 NEMO-HA_9_1_5 – HAAD Request packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_5 – Nested Mobility (different HA) – HAAD Request packet forwarding from VMN under MR and HAAD Reply packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

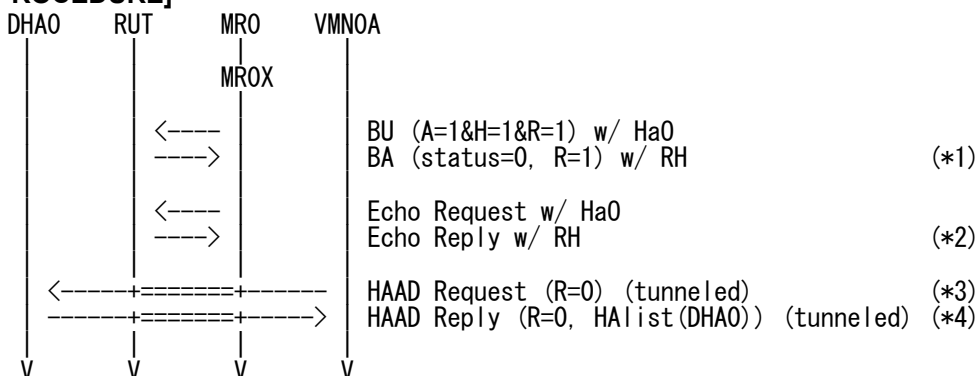
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (HAAD Request) (Refer to 5.15.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMNDA (Link0A,global)
	Destination Address	Home Agents anycast address (Link0Y,anycast)
ICMPv6 Header	Type	144



6. DHA0 receives HAAD Request (*3) (Refer to 5.15.1)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	Home Agents anycast address (Link0Y,anycast)
ICMPv6 Header	Type	144

7. DHA0 sends HAAD Reply (Refer to 5.16.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
ICMPv6 Header	Type	145

8. MR0X receives payload packet (HAAD Reply) (*4) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
ICMPv6 Header	Type	145

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives HAAD Request
- (*4) PASS: MR0X receives payload packet (HAAD Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.6 NEMO-HA_9_1_6 – BU packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_6 – Nested Mobility (different HA) – BU packet forwarding from VMN under MR and BA packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

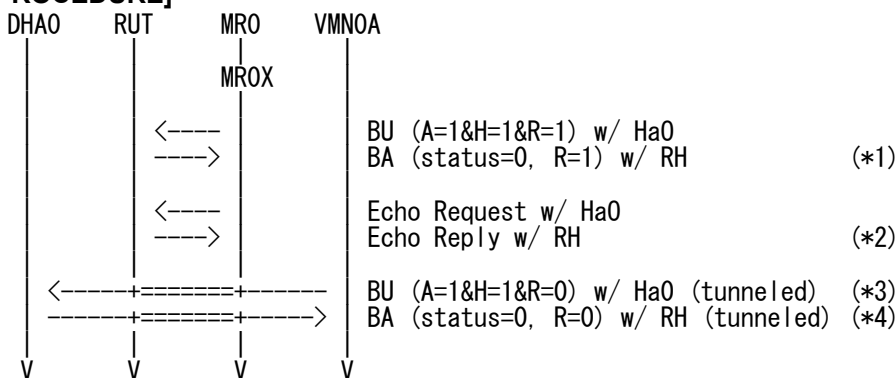
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (BU) (Refer to 5.12.5)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	5

6. DHA0 receives BU w/ Ha0 (*3) (Refer to 5.12.1)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	5

7. DHA0 sends BA w/ RH (Refer to 5.13.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	6

8. MR0X receives payload packet (BA) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives BU w/ Ha0
- (*4) PASS: MR0X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.7 NEMO-HA_9_1_7 – MPS packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_7 – Nested Mobility (different HA) – MPS packet forwarding from VMN under MR and MPA packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

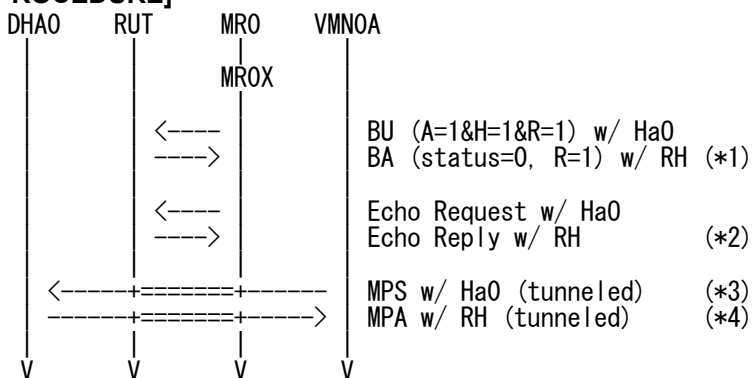
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (MPS) (Refer to 5.17.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	146



6. DHA0 receives MPS w/ HaO (*3) (Refer to 5.17.1)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	146

7. DHA0 sends MPA w/ RH (Refer to 5.18.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	147

8. MR0X receives payload packet (MPA) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	147

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives MPS w/ HaO
- (*4) PASS: MR0X receives payload packet (MPA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.8 NEMO-HA_9_1_8 – Echo Request packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_8 – Nested Mobility (different HA) – Echo Request packet forwarding from VMN under MR and Echo Reply packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

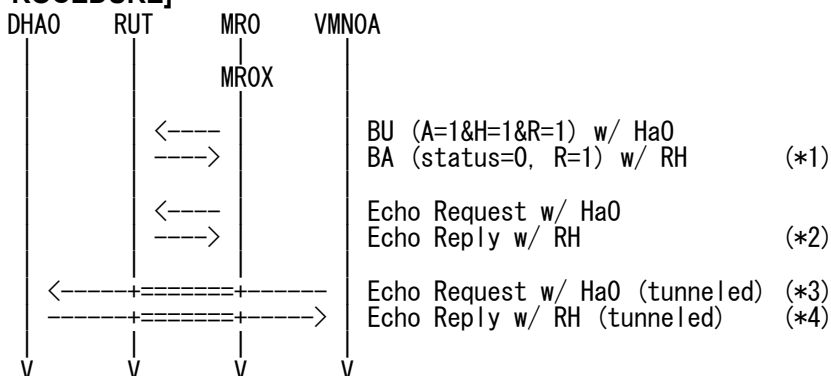
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129

5. MR0X sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	128

6. DHA0 receives Echo Request w/ HaO (*3) (Refer to 5.5.1)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	128

7. DHA0 sends Echo Reply w/ RH (Refer to 5.6.2)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	129

8. MROX receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MROX receives BA w/ RH
- (*2) PASS: MROX receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives Echo Request w/ HaO
- (*4) PASS: MROX receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.9 NEMO-HA_9_1_9 – HoTI packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_9 – Nested Mobility (different HA) – HoTI packet forwarding from VMN under MR and HoT packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

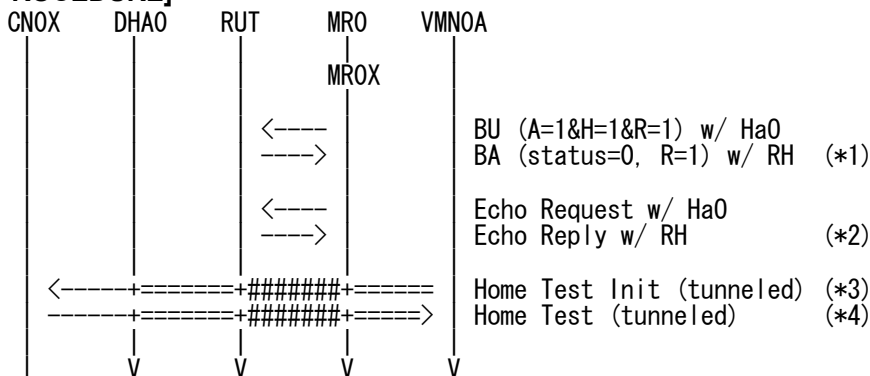
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (Home Test Init (tunneled)) (Refer to 5.8.3)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
IPv6 Header	Source Address	VMN0 (Link0Y,global)
	Destination Address	CN0X (Link0X,global)
Mobility Header	Type	1



6. DHA0 receives Home Test Init (tunneled) (*3) (Refer to 5.8.2)

IPv6 Header	Source Address	VMN0A (Link0A_global)
	Destination Address	DHA0 (Link0Y_global)
IPv6 Header	Source Address	VMN0 (Link0Y_global)
	Destination Address	CN0X (Link0X_global)
Mobility Header	Type	1

7. DHA0 sends Home Test (tunneled) (Refer to 5.10.2)

IPv6 Header	Source Address	DHA0 (Link0Y_global)
	Destination Address	VMN0A (Link0A_global)
IPv6 Header	Source Address	CN0X (Link0X_global)
	Destination Address	VMN0 (Link0Y_global)
Mobility Header	Type	3

8. MR0X receives payload packet (Home Test (tunneled)) (*4) (Refer to 5.10.3)

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR0X (Link0X_global)
IPv6 Header	Source Address	DHA0 (Link0Y_global)
	Destination Address	VMN0A (Link0A_global)
IPv6 Header	Source Address	CN0X (Link0X_global)
	Destination Address	VMN0 (Link0Y_global)
Mobility Header	Type	3

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives HoTI (tunneled)
- (*4) PASS: MR0X receives payload packet (HoT (tunneled))

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.10 NEMO-HA_9_1_10 – CoTI packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_10 – Nested Mobility (different HA) – CoTI packet forwarding from VMN under MR and CoT packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

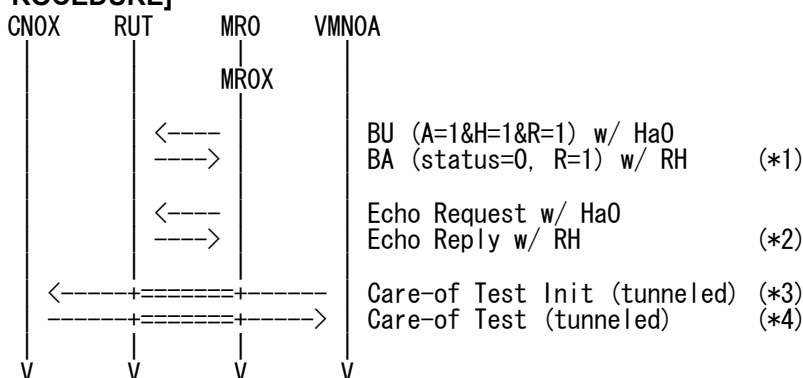
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (Care-of Test Init) (Refer to 5.9.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
Mobility Header	Type	2



6. CN0X receives Care-of Test Init (*3) (Refer to 5.9.1)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
Mobility Header	Type	2

7. CN0X sends Care-of Test (Refer to 5.11.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Mobility Header	Type	4

8. MR0X receives payload packet (Care-of Test) (*4) (Refer to 5.11.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Mobility Header	Type	4

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives CoTI
- (*4) PASS: MR0X receives payload packet (CoT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.11 NEMO-HA_9_1_11 – BU packet forwarding to CN from VMN under MR

[PURPOSE]

NEMO-HA_9_1_11 – Nested Mobility (different HA) – BU packet forwarding to CN from VMN under MR and BA packet forwarding to VMN under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

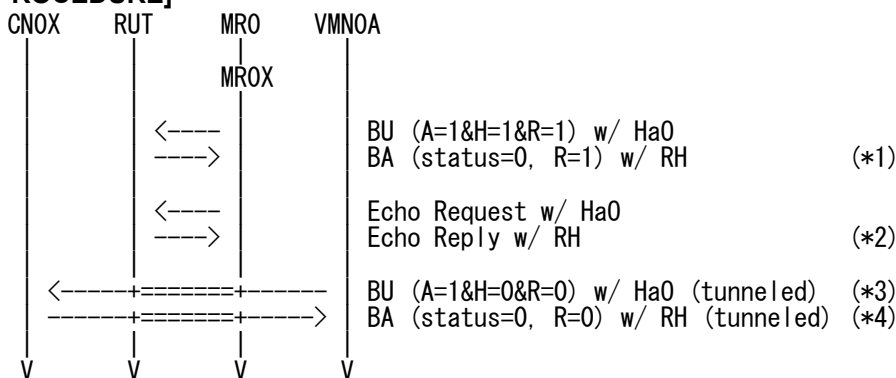
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (Binding Update) (Refer to 5.12.6)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	5



6. CN0X receives Binding Update w/ HaO (*3) (Refer to 5.12.3)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	5

7. CN0X sends Binding Acknowledgement w/ RH (Refer to 5.13.3)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	6

8. MR0X receives payload packet (BA) (*4) (Refer to 5.13.6)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives BU w/ HaO
- (*4) PASS: MR0X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.12 NEMO-HA_9_1_12 – ECHO Request packet forwarding to CN from VMN under MR

[PURPOSE]

NEMO-HA_9_1_12 – Nested Mobility (different HA) – ECHO Request packet forwarding to CN from VMN under MR and ECHO Reply packet forwarding to VMN under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

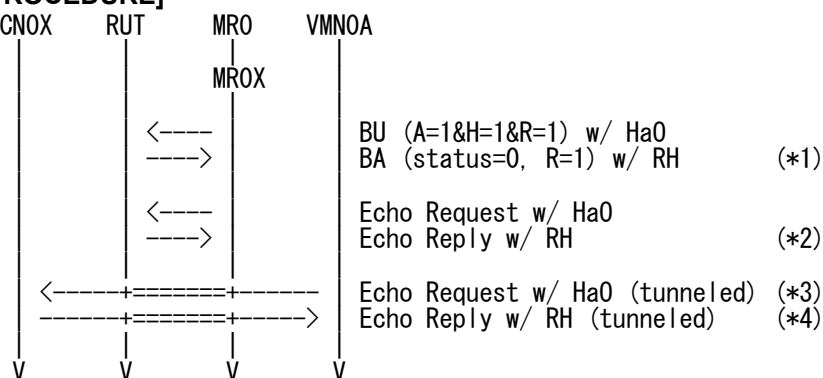
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MROX receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MROX (Link0X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105	
		Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MROX (Link0X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105	
		PadN	Length	2

3. MROX sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MROX receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. MROX sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CNOX (Link0X,global)



Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	128

6. CN0X receives Echo Request w/ HaO (*3) (Refer to 5.5.2)

IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	CN0X (Link0X,global)
Destination Option Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	5

7. CN0X sends Echo Reply w/ RH (Refer to 5.6.2)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	129

8. MR0X receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	VMN0A (Link0A,global)
Type2 Routing Header	Home Address	VMN0 (Link0Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: CN0X receives Echo Request w/ HaO
- (*4) PASS: MR0X receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.13 NEMO-HA_9_1_13 – HAAD Request packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_13 – Nested Mobility (different HA) – HAAD Request packet forwarding from VMR under MR and HAAD Reply packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

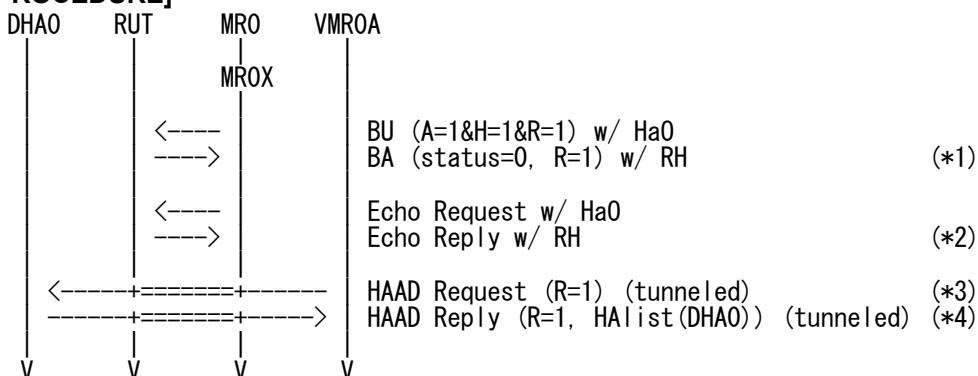
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (HAAD Request) (Refer to 5.15.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	Home Agents anycast address (Link0Y,anycast)
ICMPv6 Header	Type	144



6. DHA0 receives HAAD Request (*3) (Refer to 5.15.1)

IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	Home Agents anycast address (Link0Y,anycast)
ICMPv6 Header	Type	144

7. DHA0 sends HAAD Reply (Refer to 5.16.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
ICMPv6 Header	Type	145

8. MR0X receives payload packet (HAAD Reply) (*4) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
ICMPv6 Header	Type	145

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives HAAD Request
- (*4) PASS: MR0X receives payload packet (HAAD Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.14 NEMO-HA_9_1_14 – BU packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_14 – Nested Mobility (different HA) – BU packet forwarding from VMR under MR and BA packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

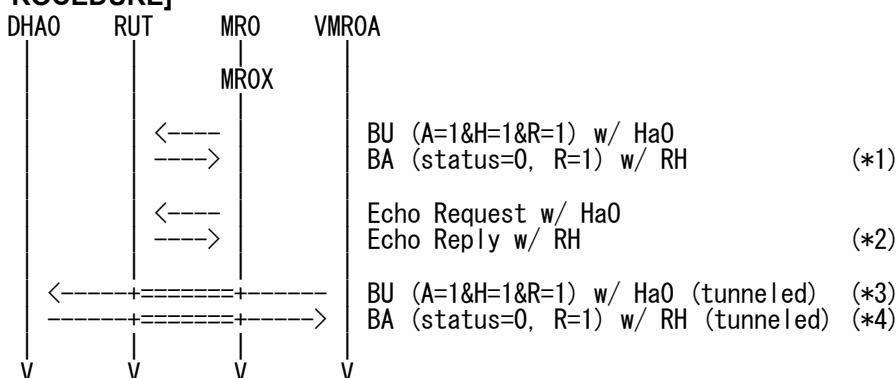
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (BU) (Refer to 5.12.5)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Mobility Header	Type	5



6. DHA0 receives BU w/ Ha0 (*3) (Refer to 5.12.1)

IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Mobility Header	Type	5

7. DHA0 sends BA w/ RH (Refer to 5.13.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Mobility Header	Type	6

8. MR0X receives payload packet (BA) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives BU w/ Ha0
- (*4) PASS: MR0X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.15 NEMO-HA_9_1_15 – MPS packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_15 – Nested Mobility (different HA) – MPS packet forwarding from VMR under MR and MPA packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

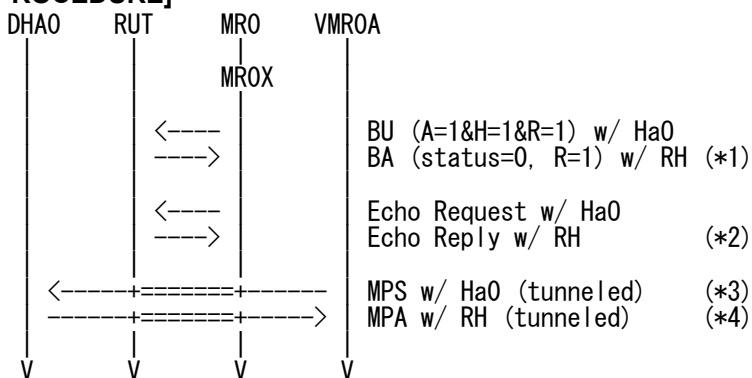
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Binding Refresh Advice Option	Interval

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	PadN	Length

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

5. MR0X sends payload packet (MPS) (Refer to 5.17.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	146



6. DHA0 receives MPS w/ HaO (*3) (Refer to 5.17.1)

IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	146

7. DHA0 sends MPA w/ RH (Refer to 5.18.1)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	147

8. MR0X receives payload packet (MPA) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	147

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives MPS w/ HaO
- (*4) PASS: MR0X receives payload packet (MPA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.1.16 NEMO-HA_9_1_16 – Echo Request packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_16 – Nested Mobility (different HA) – Echo Request packet forwarding from VMR under MR and Echo Reply packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

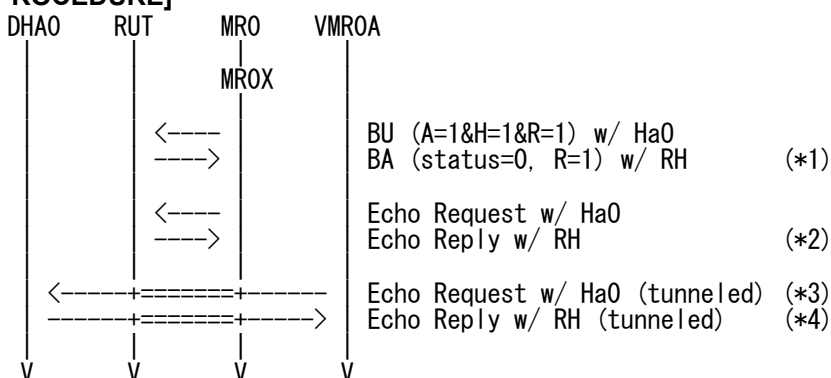
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR0X sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	128



6. DHA0 receives Echo Request w/ HaO (*3) (Refer to 5.5.2)

IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	DHA0 (Link0Y,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	128

7. DHA0 sends Echo Reply w/ RH (Refer to 5.6.2)

IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	129

8. MR0X receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	DHA0 (Link0Y,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: DHA0 receives Echo Request w/ HaO
- (*4) PASS: MR0X receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2 Virtual Home Link

6.11.1.2.1 NEMO-HA_9_1_17 – HoTI packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_17 – Nested Mobility (different HA) – HoTI packet forwarding to LFN(CN) under MR and HoT packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

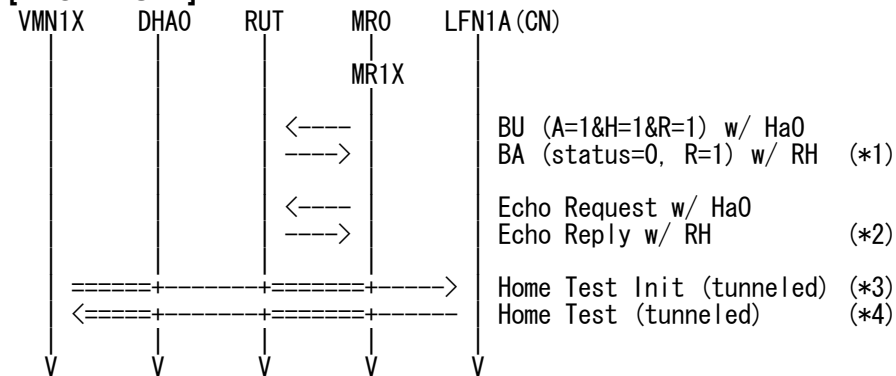
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
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Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
Destination Option Header	Destination Address	RUT (Link0,global)
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Type	129
ICMPv6 Header	Type	129

5. DHA1 (VMN1) sends Home Test Init (Refer to 5.8.1)

IPv6 Header	Source Address	VMN1 (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)



Mobility Header	Type	1
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6. MR1X receives payload packet (Home Test Init) (*3) (Refer to 5.8.2)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	VMN1 (Link1Y.global)
	Destination Address	LFN1A (Link1A.global)
Mobility Header	Type	1

7. MR1X sends payload packet (Home Test) (Refer to 5.10.2)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	VMN1 (Link1Y.global)
Mobility Header	Type	3

8. DHA1(VMN1) receives Home Test (*4) (Refer to 5.10.1)

IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	VMN1 (Link1Y.global)
Mobility Header	Type	3

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives payload packet (Home Test Init)
- (*4) PASS: DHA1(VMN1) receives Home Test

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.2 NEMO-HA_9_1_18 – CoTI packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_18 – Nested Mobility (different HA) – CoTI packet forwarding to LFN(CN) under MR and CoT packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

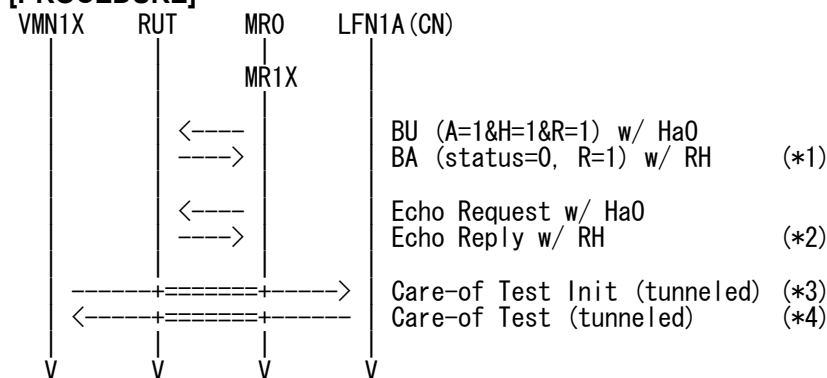
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. VMN1X sends Care-of Test Init (Refer to 5.9.1)

IPv6 Header	Source Address	VMN1X (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
Mobility Header	Type	2



6. MR1X receives payload packet (Care-of Test Init) (*3) (Refer to 5.9.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	VMN1X (Link1Y,global)
	Destination Address	LFN1A (Link1A,global)
Mobility Header	Type	2

7. MR1X sends payload packet (Care-of Test) (Refer to 5.11.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	VMN1X (Link1Y,global)
Mobility Header	Type	4

8. VMN1X receives Care-of Test (*4) (Refer to 5.11.1)

IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	VMN1X (Link1Y,global)
Mobility Header	Type	4

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives payload packet (Care-of Test Init)
- (*4) PASS: VMN1X receives Care-of Test

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.3 NEMO-HA_9_1_19 – BU packet forwarding to LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_19 – Nested Mobility (different HA) – BU packet forwarding to LFN(CN) under MR and BA packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

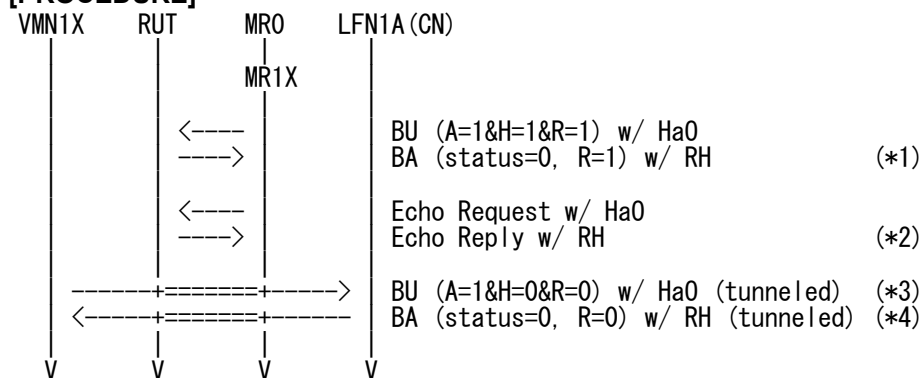
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. VMN1X sends Binding Update to CN (Refer to 5.12.3)

IPv6 Header	Source Address	VMN1X (Link1X,global)
	Destination Address	LFN1A (Link1A,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	5

6. MR1X receives payload packet (Binding Update) (*3) (Refer to 5.12.6)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	VMN1X (Link1X.global)
	Destination Address	LFN1A (Link1A.global)
Destination Option Header	Home Address	VMN1 (Link1Y.global)
Mobility Header	Type	5

7. MR1X sends payload packet (Binding Acknowledgement) (Refer to 5.13.6)

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	VMN1X (Link1X.global)
Type2 Routing Header	Home Address	VMN1 (Link1Y.global)
Mobility Header	Type	6

8. VMN1X receives Binding Acknowledgement (*4) (Refer to 5.13.3)

IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	VMN1X (Link1X.global)
Type2 Routing Header	Home Address	VMN1 (Link1Y.global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: MR1X receives payload packet (BU)
- (*4) PASS: VMN1X receives BA w/ RH

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.4 NEMO-HA_9_1_20 – BRR packet forwarding from LFN(CN) under MR

[PURPOSE]

NEMO-HA_9_1_20 – Nested Mobility (different HA) – BRR packet forwarding from LFN(CN) under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

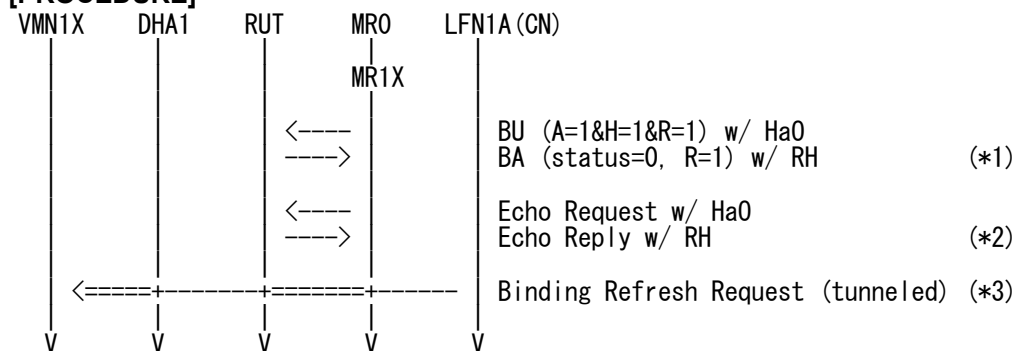
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1

	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (Binding Refresh Request) (Refer to 5.7.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1A (Link1A,global)
	Destination Address	VMN1 (Link1Y,global)
Mobility Header	Type	0



6. DHA1(VMN1) receives Binding Refresh Request (*3) (Refer to 5.7.1)

IPv6 Header	Source Address	LFN1A (Link1A.global)
	Destination Address	VMN1 (Link1Y.global)
Mobility Header	Type	0

[JUDGMENT]

(*1) PASS: MR1X receives BA w/ RH

(*2) PASS: MR1X receives Echo Reply w/ RH

(*3) PASS: DHA1(VMN1) receives Binding Refresh Request

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 1.

6.11.1.2.5 NEMO-HA_9_1_21 – HAAD Request packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_21 – Nested Mobility (different HA) – HAAD Request packet forwarding from VMN under MR and HAAD Reply packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

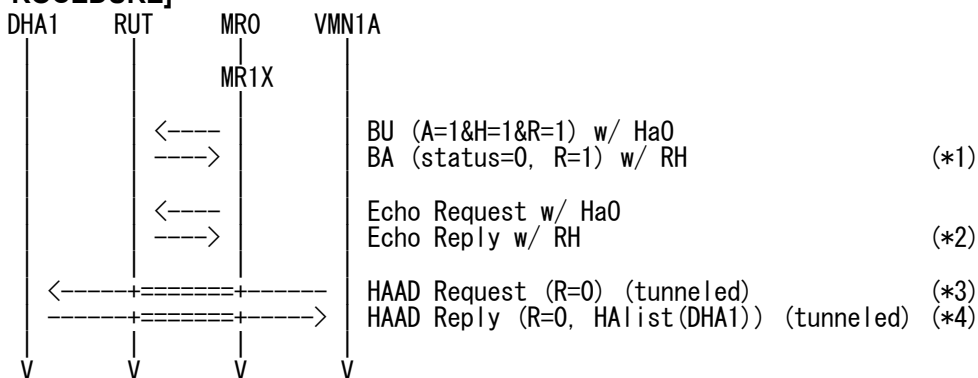
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (HAAD Request) (Refer to 5.15.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	Home Agents anycast address (Link1Y,anycast)
ICMPv6 Header	Type	144



6. DHA1 receives HAAD Request (*3) (Refer to 5.15.1)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	Home Agents anycast address (Link1Y,anycast)
ICMPv6 Header	Type	144

7. DHA1 sends HAAD Reply (Refer to 5.16.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
ICMPv6 Header	Type	145

8. MR1X receives payload packet (HAAD Reply) (*4) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
ICMPv6 Header	Type	145

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives HAAD Request
- (*4) PASS: MR1X receives payload packet (HAAD Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.6 NEMO-HA_9_1_22 – BU packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_22 – Nested Mobility (different HA) – BU packet forwarding from VMN under MR and BA packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

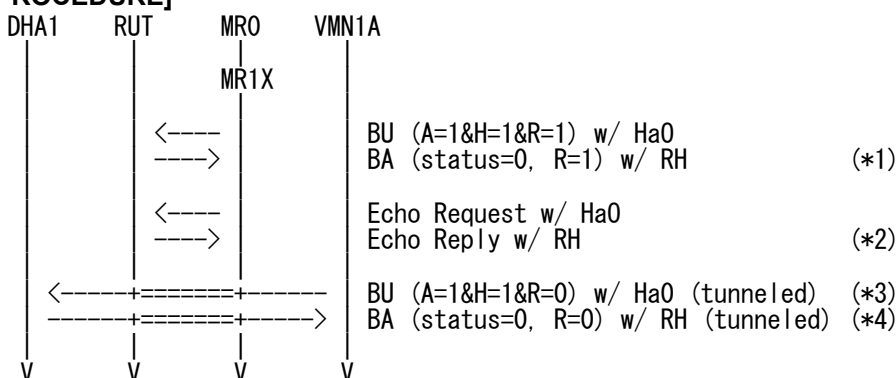
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (BU) (Refer to 5.12.5)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	5

6. DHA1 receives BU w/ Ha0 (*3) (Refer to 5.12.1)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	5

7. DHA1 sends BA w/ RH (Refer to 5.13.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	6

8. MR1X receives payload packet (BA) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1(Link1Y,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives BU w/ HaO
- (*4) PASS: MR1X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.7 NEMO-HA_9_1_23 – MPS packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_23 – Nested Mobility (different HA) – MPS packet forwarding from VMN under MR and MPA packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

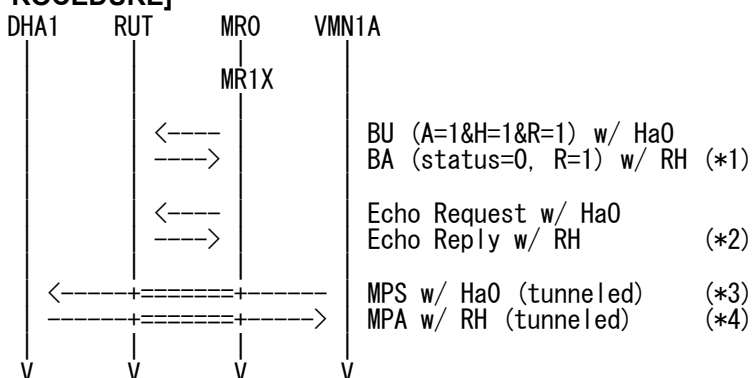
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. MR1X sends payload packet (MPS) (Refer to 5.17.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	146



6. DHA1 receives MPS w/ HaO (*3) (Refer to 5.17.1)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	146

7. DHA1 sends MPA w/ RH (Refer to 5.18.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	147

8. MR1X receives payload packet (MPA) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	147

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives MPS w/ HaO
- (*4) PASS: MR1X receives payload packet (MPA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.8 NEMO-HA_9_1_24 – Echo Request packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_24 – Nested Mobility (different HA) – Echo Request packet forwarding from VMN under MR and Echo Reply packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

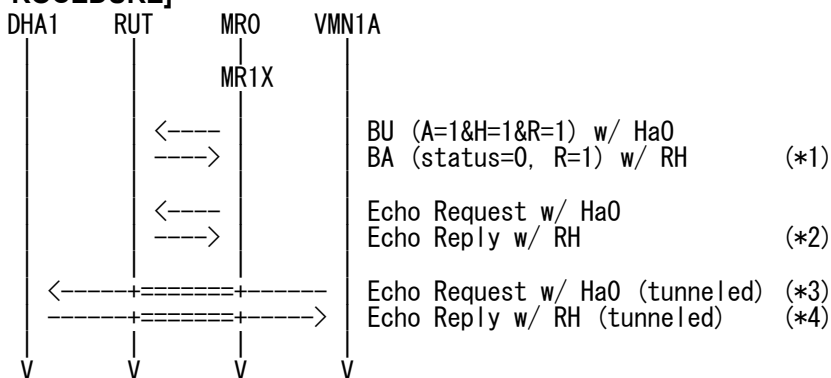
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	128

6. DHA1 receives Echo Request w/ HaO (*3) (Refer to 5.5.2)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	128

7. DHA1 sends Echo Reply w/ RH (Refer to 5.6.2)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	129

8. MR1X receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives Echo Request w/ HaO
- (*4) PASS: MR1X receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.9 NEMO-HA_9_1_25 – HoTI packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_25 – Nested Mobility (different HA) – HoTI packet forwarding from VMN under MR and HoT packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

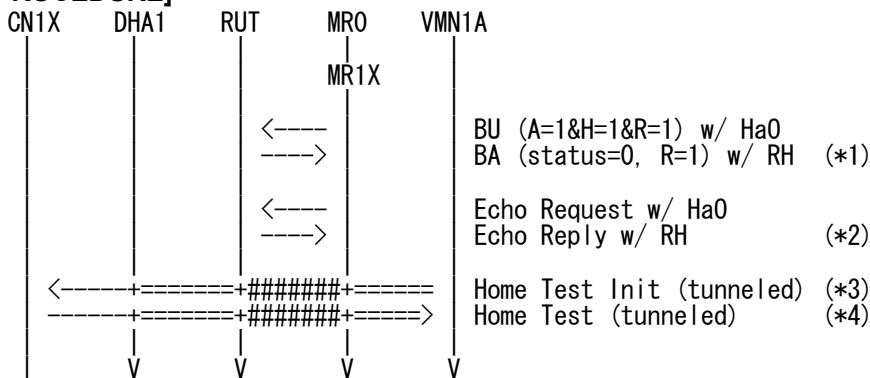
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (Home Test Init (tunneled)) (Refer to 5.8.3)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
IPv6 Header	Source Address	VMN1 (Link1Y,global)
	Destination Address	CN1X (Link1X,global)
Mobility Header	Type	1



6. DHA1 receives Home Test Init (tunneled) (*3) (Refer to 5.8.2)

IPv6 Header	Source Address	VMN1A (Link1A_global)
	Destination Address	DHA1 (Link1Y_global)
IPv6 Header	Source Address	VMN1 (Link1Y_global)
	Destination Address	CN1X (Link1X_global)
Mobility Header	Type	1

7. DHA1 sends Home Test (tunneled) (Refer to 5.10.2)

IPv6 Header	Source Address	DHA1 (Link1Y_global)
	Destination Address	VMR1A (Link1A_global)
IPv6 Header	Source Address	CN1X (Link1X_global)
	Destination Address	VMN1 (Link1Y_global)
Mobility Header	Type	3

8. MR1X receives payload packet (Home Test (tunneled)) (*4) (Refer to 5.10.3)

IPv6 Header	Source Address	RUT (Link0_global)
	Destination Address	MR1X (Link1X_global)
IPv6 Header	Source Address	DHA1 (Link1Y_global)
	Destination Address	VMR1A (Link1A_global)
Encapsulating Security Payload	Security Parameters Index	SA4 SPI
IPv6 Header	Source Address	CN1X (Link1X_global)
	Destination Address	VMN1 (Link1Y_global)
Mobility Header	Type	3

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives HoTI (tunneled)
- (*4) PASS: MR1X receives payload packet (HoT (tunneled))

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.10 NEMO-HA_9_1_26 – CoTI packet forwarding from VMN under MR

[PURPOSE]

NEMO-HA_9_1_26 – Nested Mobility (different HA) – CoTI packet forwarding from VMN under MR and CoT packet forwarding to VMN under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

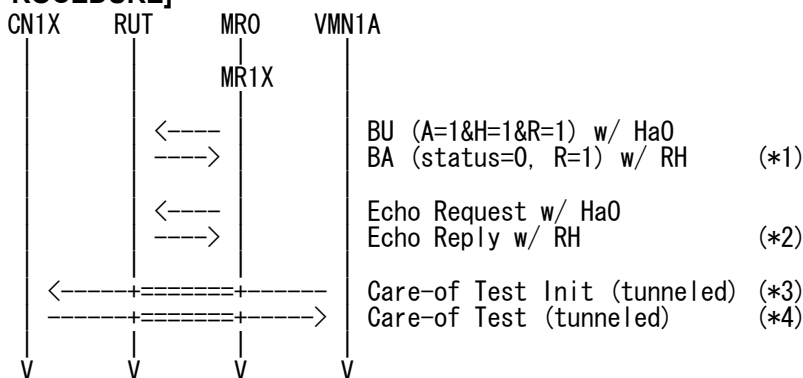
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (Care-of Test Init) (Refer to 5.9.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
Mobility Header	Type	2



6. CN1X receives Care-of Test Init (*3) (Refer to 5.9.1)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
Mobility Header	Type	2

7. CN1X sends Care-of Test (Refer to 5.11.1)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Mobility Header	Type	4

8. MR1X receives payload packet (Care-of Test) (*4) (Refer to 5.11.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Mobility Header	Type	4

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives CoTI
- (*4) PASS: MR1X receives payload packet (CoT)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.11 NEMO-HA_9_1_27 – BU packet forwarding to CN from VMN under MR

[PURPOSE]

NEMO-HA_9_1_27 – Nested Mobility (different HA) – BU packet forwarding to CN from VMN under MR and BA packet forwarding to VMN under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

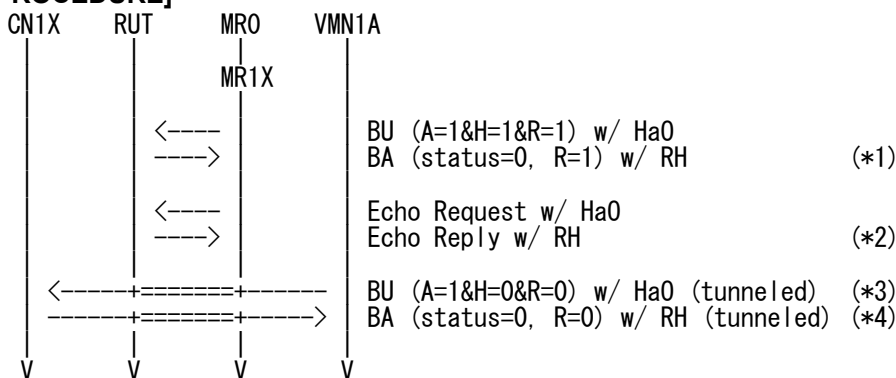
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (Binding Update) (Refer to 5.12.6)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	5



6. CN1X receives Binding Update w/ HaO (*3) (Refer to 5.12.3)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	5

7. CN1X sends Binding Acknowledgement w/ RH (Refer to 5.13.3)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	6

8. MR1X receives payload packet (BA) (*4) (Refer to 5.13.6)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives BU w/ HaO
- (*4) PASS: MR1X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.12 NEMO-HA_9_1_28 – ECHO Request packet forwarding to CN from VMN under MR

[PURPOSE]

NEMO-HA_9_1_28 – Nested Mobility (different HA) – ECHO Request packet forwarding to CN from VMN under MR and ECHO Reply packet forwarding to VMN under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

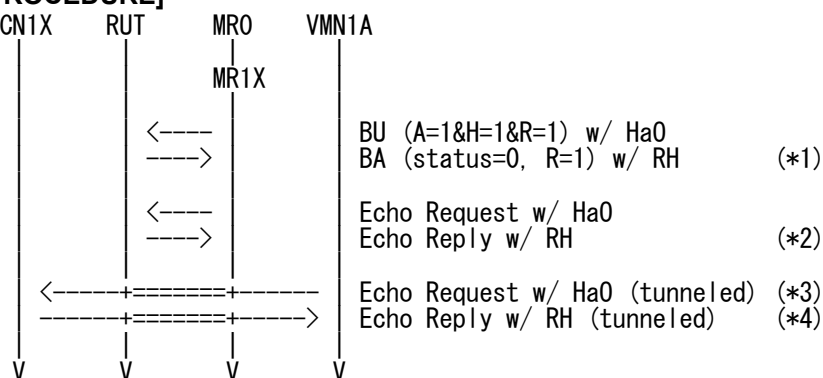
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)

Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MR1X (Link1X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105	
		Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)		
	Destination Address	MR1X (Link1X,global)		
Type2 Routing Header	Length	2		
	Type	2		
	Segment left	1		
	Home Address	MR0 (Link0,global)		
	Security Parameters Index	SA2 SPI		
Encapsulating Security Payload	Mobility Header	MH Type	6	
		Status	0	
		K Flag	0	
		R Flag	1	
		Sequence	15	
		Lifetime	<=105	
		PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

5. MR1X sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)



Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	128

6. CN1X receives Echo Request w/ HaO (*3) (Refer to 5.5.2)

IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	CN1X (Link1X,global)
Destination Option Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	5

7. CN1X sends Echo Reply RH (Refer to 5.6.2)

IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	129

8. MR1X receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	CN1X (Link1X,global)
	Destination Address	VMN1A (Link1A,global)
Type2 Routing Header	Home Address	VMN1 (Link1Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: CN1X receives Echo Request w/ HaO
- (*4) PASS: MR1X receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.13 NEMO-HA_9_1_29 – HAAD Request packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_29 – Nested Mobility (different HA) – HAAD Request packet forwarding from VMR under MR and HAAD Reply packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

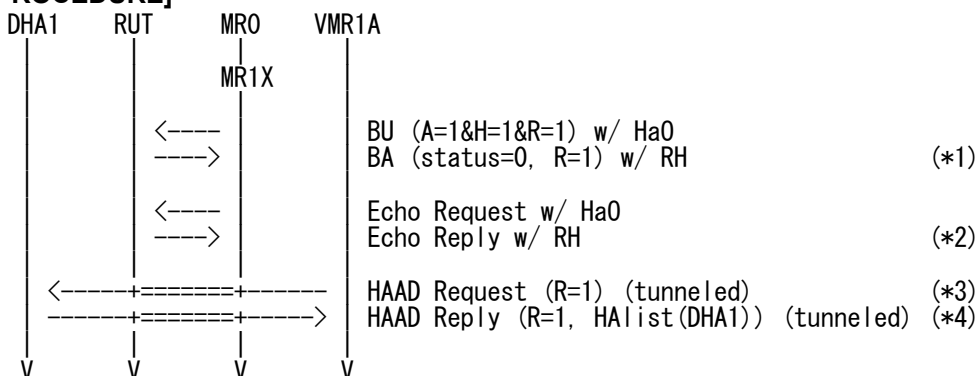
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (HAAD Request) (Refer to 5.15.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	Home Agents anycast address (Link1Y,anycast)
ICMPv6 Header	Type	144



6. DHA1 receives HAAD Request (*3) (Refer to 5.15.1)

IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	Home Agents anycast address (Link1Y,anycast)
ICMPv6 Header	Type	144

7. DHA1 sends HAAD Reply (Refer to 5.16.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
ICMPv6 Header	Type	145

8. MR1X receives payload packet (HAAD Reply) (*4) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
ICMPv6 Header	Type	145

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives HAAD Request
- (*4) PASS: MR1X receives payload packet (HAAD Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.14 NEMO-HA_9_1_30 – BU packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_30 – Nested Mobility (different HA) – BU packet forwarding from VMR under MR and BA packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

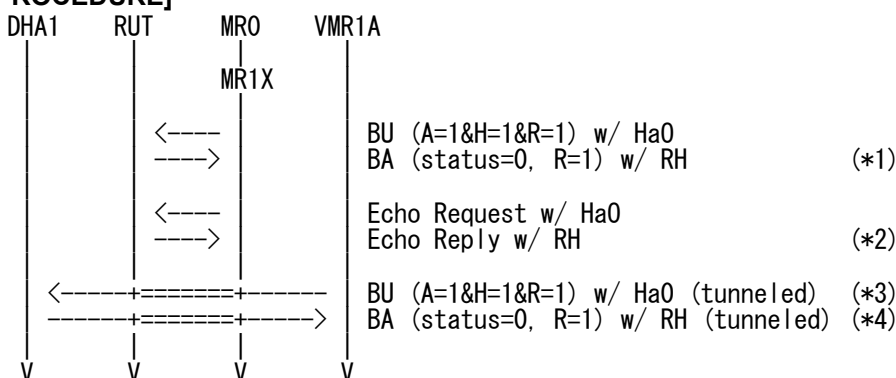
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (BU) (Refer to 5.12.5)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
Mobility Header	Type	5

6. DHA1 receives BU w/ Ha0 (*3) (Refer to 5.12.1)

IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
Mobility Header	Type	5

7. DHA1 sends BA w/ RH (Refer to 5.13.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
Mobility Header	Type	6

8. MR1X receives payload packet (BA) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
Mobility Header	Type	6

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives BU w/ HaO
- (*4) PASS: MR1X receives payload packet (BA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.15 NEMO-HA_9_1_31 – MPS packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_31 – Nested Mobility (different HA) – MPS packet forwarding from VMR under MR and MPA packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

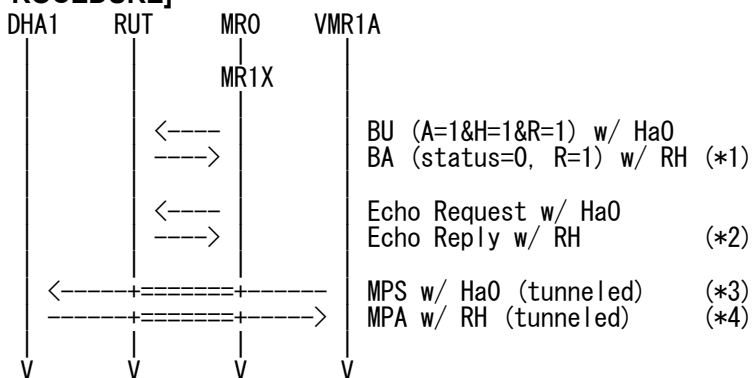
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. MR1X sends payload packet (MPS) (Refer to 5.17.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	146



6. DHA1 receives MPS w/ HaO (*3) (Refer to 5.17.1)

IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	146

7. DHA1 sends MPA w/ RH (Refer to 5.18.1)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	147

8. MR1X receives payload packet (MPA) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	147

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives MPS w/ HaO
- (*4) PASS: MR1X receives payload packet (MPA)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.1.2.16 NEMO-HA_9_1_32 – Echo Request packet forwarding from VMR under MR

[PURPOSE]

NEMO-HA_9_1_32 – Nested Mobility (different HA) – Echo Request packet forwarding from VMR under MR and Echo Reply packet forwarding to VMR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-12

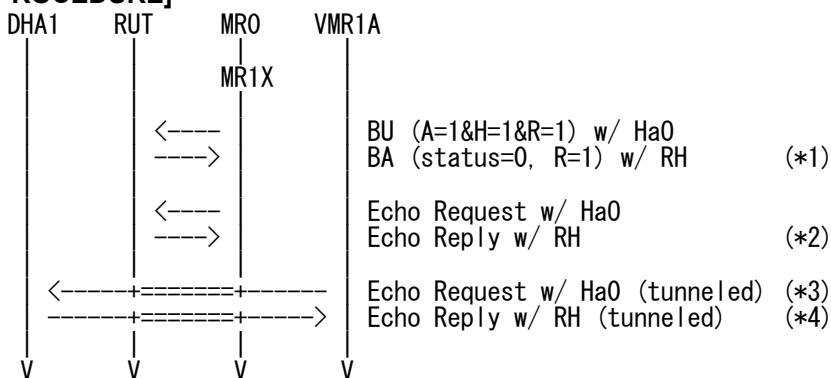
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15

	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Encapsulating Security Payload	Security Parameters Index
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	ICMPv6 Header	Type

5. MR1X sends payload packet (Echo Request) (Refer to 5.5.4)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	128



6. DHA1 receives Echo Request w/ HaO (*3) (Refer to 5.5.2)

IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	DHA1 (Link1Y,global)
Destination Option Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	128

7. DHA1 sends Echo Reply w/ RH (Refer to 5.6.2)

IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	129

8. MR1X receives payload packet (Echo Reply) (*4) (Refer to 5.6.4)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	DHA1 (Link1Y,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR1 (Link1Y,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: DHA1 receives Echo Request w/ HaO
- (*4) PASS: MR1X receives payload packet (Echo Reply)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2 Processing packet of multiple tunnel

6.11.2.1 Real Home Link

6.11.2.1.1 NEMO-HA_9_2_1 – HAAD Request packet forwarding from MN under MR

[PURPOSE]

NEMO-HA_9_2_1 – Nested Mobility (same HA) – HAAD Request packet forwarding from MN under MR and HAAD Reply packet forwarding to MN under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

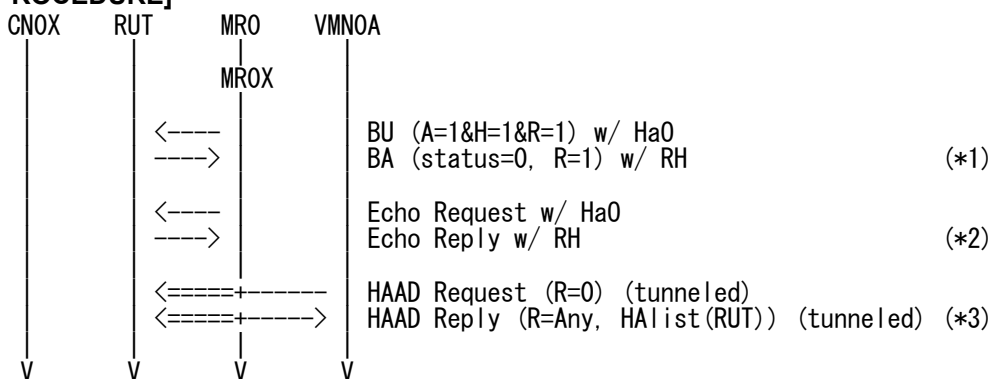
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

● implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (LinkO.global)
Destination Option Header	Home Address	MRO (LinkO.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0

Alternate CoA Option	Address	MR0X (Link0X,global)
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- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129



5. VMN0A sends HAAD Request (tunneled) (Refer to 5.15.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN0A (Link0A,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
ICMPv6 Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. VMN0A receives HAAD Reply (tunneled) (*3) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMN0A (Link0A,global)
ICMPv6 Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMN0A receives HAAD Reply (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.2.1.9 NEMO-HA_9_2_9 – HAAD Request packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_9 – Nested Mobility (same HA) – HAAD Request packet forwarding from MR under MR and HAAD Reply packet forwarding to MR under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

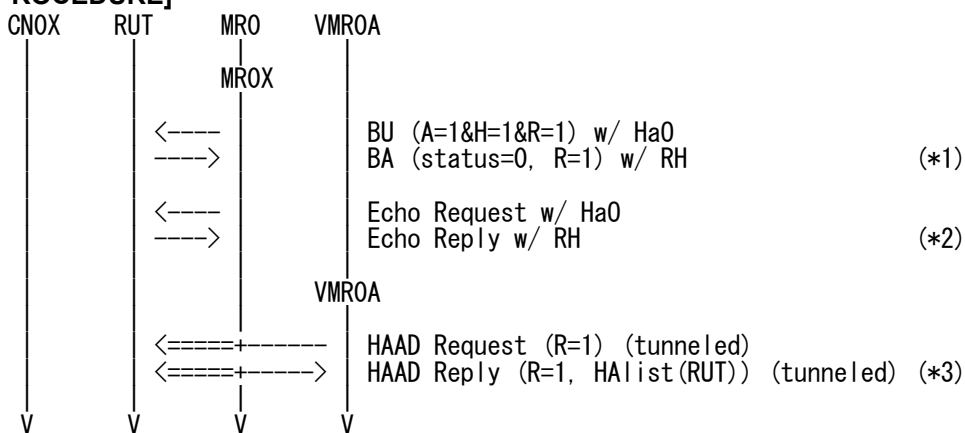
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. VMR0A sends HAAD Request (tunneled) (Refer to 5.15.2)

IPv6 Header	Source Address	MR0X (Link0X,global)
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IPv6 Header	Destination Address	RUT (Link0,global)
	Source Address	VMR0A (Link0A,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
ICMPv6 Header	Type	144
	Code	0
	Identifier	Any
	R Flag	1

6. VMR0A receives HAAD Reply (tunneled) (*3) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
ICMPv6 Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives HAAD Reply (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.1.3 NEMO-HA_9_2_10 – BU packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_10 – Nested Mobility (same HA) – BU packet forwarding from MR under MR and BA packet forwarding to MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

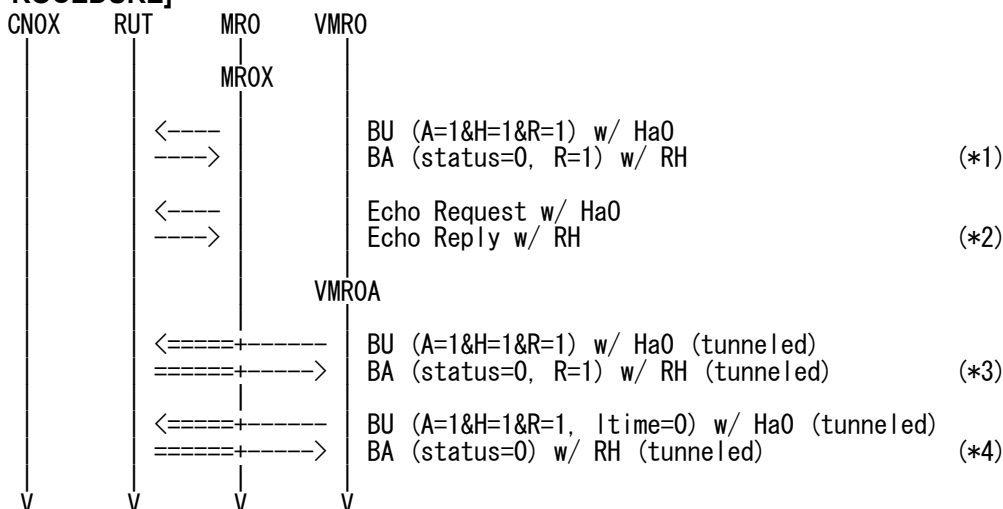
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0B.prefix)

6. VMR0A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	17
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)

8. VMR0A receives Binding Acknowledgement (tunneled) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)



IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	17
	Lifetime	0
PadN	Lifetime	0
	Length	2

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives BA w/ RH (tunneled)
- (*4) PASS: VMR0A receives BA w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.2.1.4 NEMO-HA_9_2_11 – Echo Request forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_11 – Nested Mobility (same HA) – Echo Request packet forwarding from MR under MR and Echo Reply packet forwarding to MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

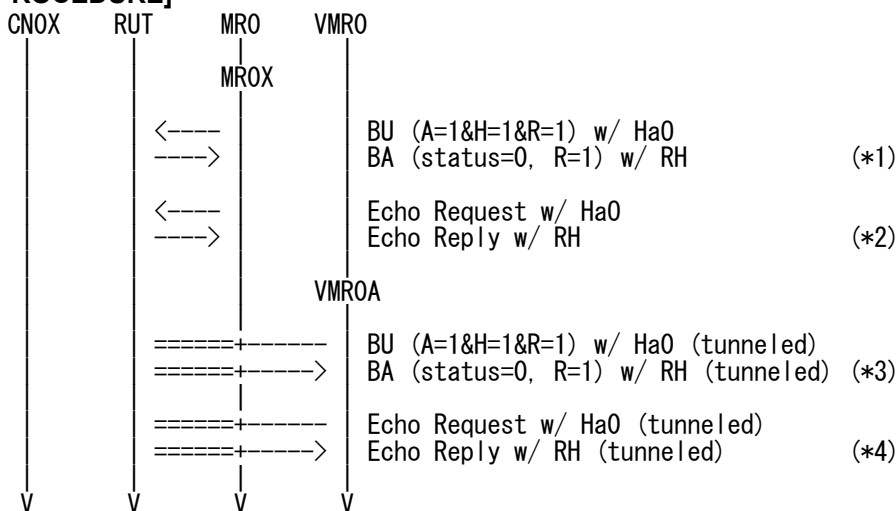
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0B.prefix)

6. VMR0A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR0A sends Echo Request (tunneled) (Refer to 5.5.4)

● Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
ICMPv6 Header	Type	128



8. VMR0A receives Echo Reply w/ RH (tunneled) (*4) (Refer to 5.6.4)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives BA w/ RH (tunneled)
- (*4) PASS: VMR0A receives Echo Reply w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.2.1.5 NEMO-HA_9_2_12 – MPS packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_12 – Nested Mobility (same HA) – MPS packet forwarding from MR under MR and MPA packet forwarding to MR under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Real Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

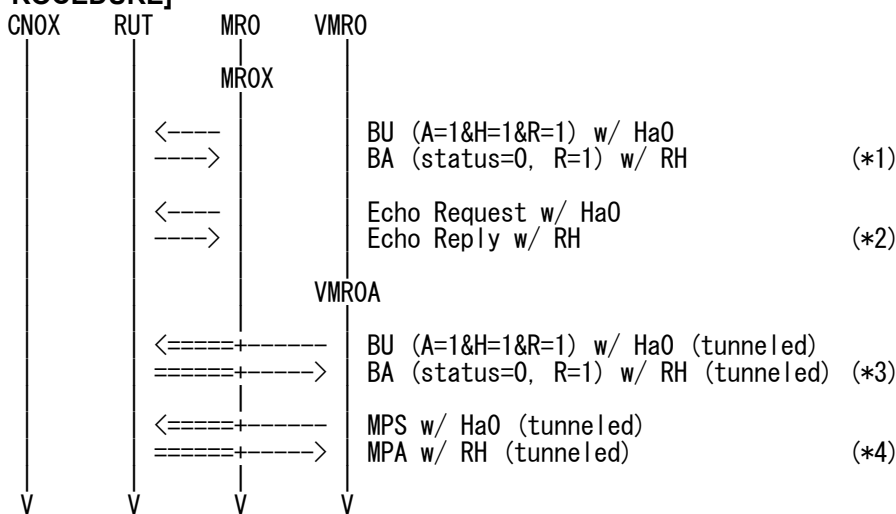
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR0X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A.prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR0X (Link0X.global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0.global)
ICMPv6 Header	Type	129

5. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A,global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0B,prefix)

6. VMR0A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR0A sends MPS (tunneled) (Refer to 5.17.2)

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	146

8. VMR0A receives MPA (tunneled) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MROX (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	147



[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives BA w/ RH (tunneled)
- (*4) PASS: VMR0A receives MPA w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.1.6 NEMO-HA_9_2_13 – Echo Request forwarding from LFN under MR under MR

[PURPOSE]

NEMO-HA_9_2_13 – Nested Mobility (same HA) – Echo Request packet forwarding from LFN under MR under MR and Echo Reply packet forwarding to LFN under MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

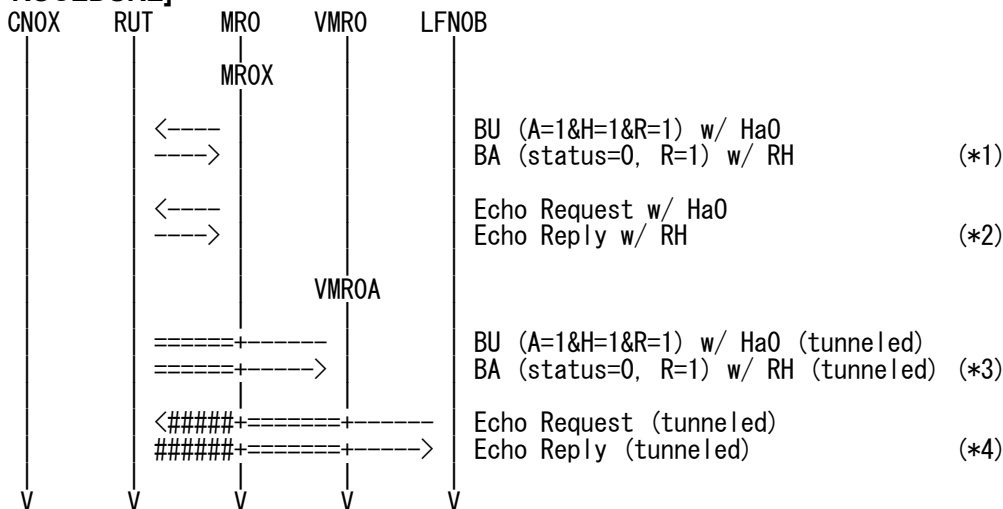
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MROX (Link0X,global)

- explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2 SPI
Encapsulating Security Payload	Security Parameters Index	SA2 SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5 SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
Encapsulating Security Payload	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6 SPI
ICMPv6 Header	Type	129

5. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)

● explicit mode

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A.global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0B.prefix)

6. VMR0A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. LFN0B sends Echo Request (tunneled tunneled) (Refer to 5.5.5)

IPv6 Header	Source Address	MROX (Link0X.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	VMR0A (Link0A.global)
	Destination Address	RUT (Link0.global)
IPv6 Header	Source Address	LFN0B (Link0B.global)
	Destination Address	RUT (Link0.global)
ICMPv6 Header	Type	128

8. LFN0B receives Echo Reply (tunneled tunneled) (*4) (Refer to 5.6.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MROX (Link0X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR0A (Link0A.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	LFN0B (Link0B.global)
ICMPv6 Header	Type	129

[JUDGMENT]



- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives BA w/ RH (tunneled)
- (*4) PASS: LFN0B receives Echo Reply (tunneled tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.1.7 NEMO-HA_9_2_14 – Echo Request forwarding to CN from LFN under MR under MR

[PURPOSE]

NEMO-HA_9_2_14 – Nested Mobility (same HA) – Echo Request packet forwarding to CN from LFN under MR under MR and Echo Reply packet forwarding to LFN under MR under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Real Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

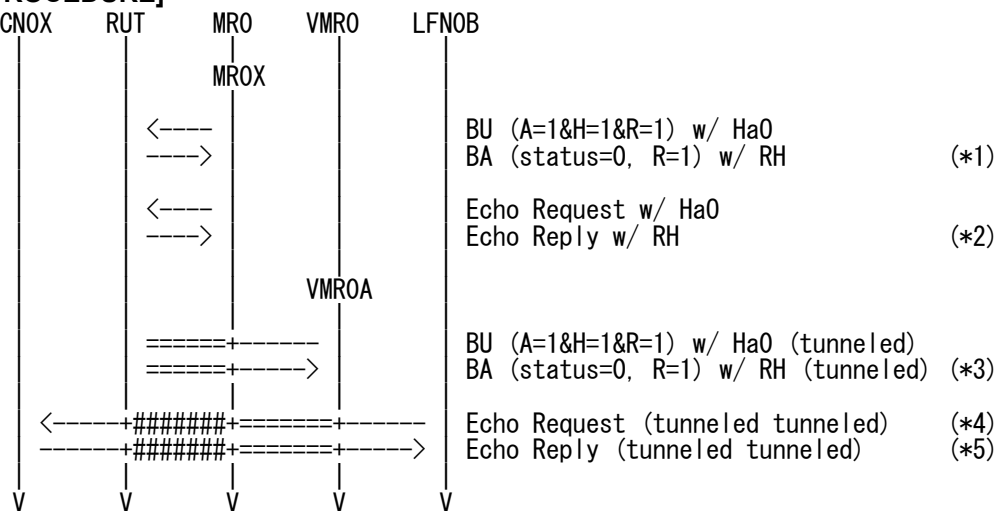
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MROX sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MROX (LinkOX.global)
	Destination Address	RUT (LinkO.global)
Destination Option Header	Home Address	MRO (LinkO.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA	Address	MR0X (Link0X,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR0X (Link0X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0A,prefix)

2. MR0X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR0X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR0X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)

ICMPv6 Header	Type	129
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5. VMR0A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A,global)

● explicit mode

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR0A (Link0A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link0B,prefix)

6. VMR0A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. LFN0B sends Echo Request (tunneled tunneled) (Refer to 5.5.5)

IPv6 Header	Source Address	MR0X (Link0X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR0A (Link0A,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN0B (Link0B,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128

8. CNOX receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN0B (Link0B,global)
	Destination Address	CNOX (Link0X,global)
ICMPv6 Header	Type	128



9. CN0X sends Echo Reply (Refer to 5.6.1)

IPv6 Header	Source Address	CN0X (Link0X,global)
	Destination Address	LFN0B (Link0B,global)
ICMPv6 Header	Type	129

10. LFN0B receives Echo Reply (tunneled tunneled) (*5) (Refer to 5.6.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR0X (Link0X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR0A (Link0A,global)
IPv6 Header	Source Address	CN0X (Link0,global)
	Destination Address	LFN0B (Link0B,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR0X receives BA w/ RH
- (*2) PASS: MR0X receives Echo Reply w/ RH
- (*3) PASS: VMR0A receives BA w/ RH (tunneled)
- (*4) PASS: LFN0B receives Echo Reply (tunneled tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol

See Section 1.

6.11.2.2 Virtual Home Link

6.11.2.2.1 NEMO-HA_9_2_15 – HAAD Request packet forwarding from MN under MR

[PURPOSE]

NEMO-HA_9_2_15 – Nested Mobility (same HA) – HAAD Request packet forwarding from MN under MR and HAAD Reply packet forwarding to MN under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Virtual Home Link

Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

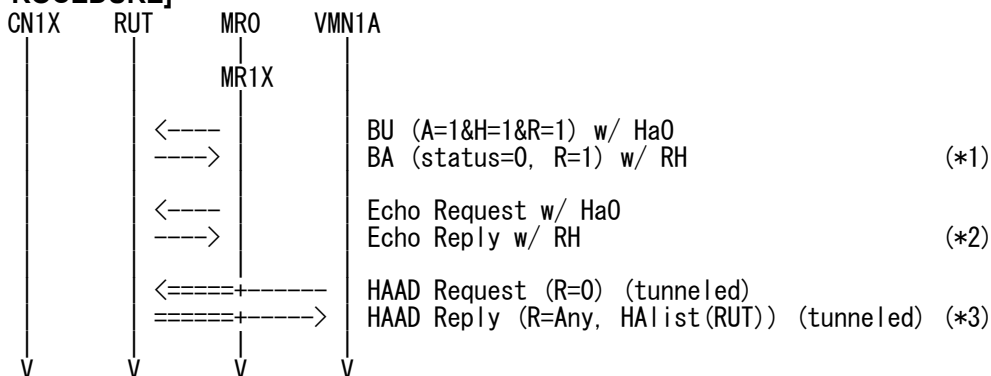
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MRO (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Lifetime	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129



5. VMN1A sends HAAD Request (tunneled) (Refer to 5.15.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMN1A (Link1A,global)
	Destination Address	Home Agents anycast address (Link0,anycast)
ICMPv6 Header	Type	144
	Code	0
	Identifier	Any
	R Flag	0

6. VMN1A receives HAAD Reply (tunneled) (*3) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMN1A (Link1A,global)
ICMPv6 Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	Any
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMN1A receives HAAD Reply (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.2.2.2 NEMO-HA_9_2_23 – HAAD Request packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_23 – Nested Mobility (same HA) – HAAD Request packet forwarding from MR under MR and HAAD Reply packet forwarding to MR under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(DHAAD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Dynamic Home Agent Address Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

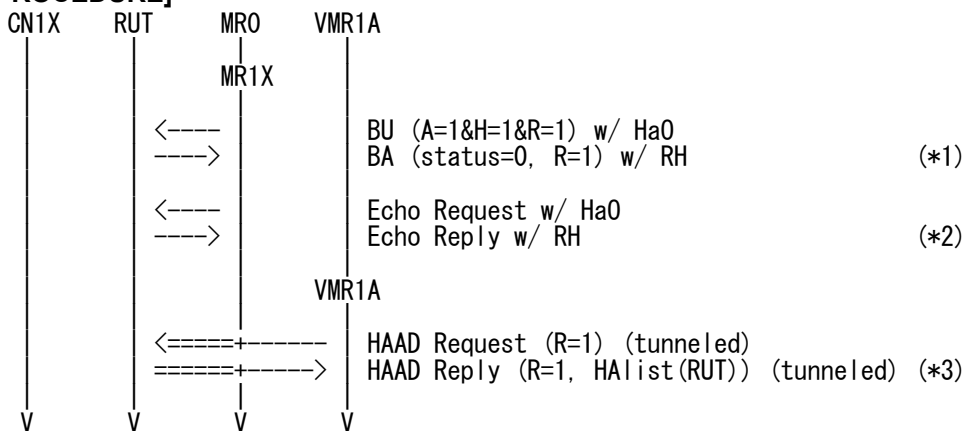
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X.global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
PadN	Length	105
	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. VMR1A sends HAAD Request (tunneled) (Refer to 5.15.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
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IPv6 Header	Destination Address	RUT (Link0,global)
	Source Address	VMR1A (Link1A,global)
ICMPv6 Header	Destination Address	Home Agents anycast address (Link0,anycast)
	Type	144
	Code	0
	Identifier	Any
	R Flag	1

6. VMR1A receives HAAD Reply (tunneled) (*3) (Refer to 5.16.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
ICMPv6 Header	Type	145
	Code	0
	Identifier	(=HAAD Request)
	R Flag	1
	Address	RUT (Link0,global)

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives HAAD Reply (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.2.3 NEMO-HA_9_2_24 – BU packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_24 – Nested Mobility (same HA) – BU packet forwarding from MR under MR and BA packet forwarding to MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

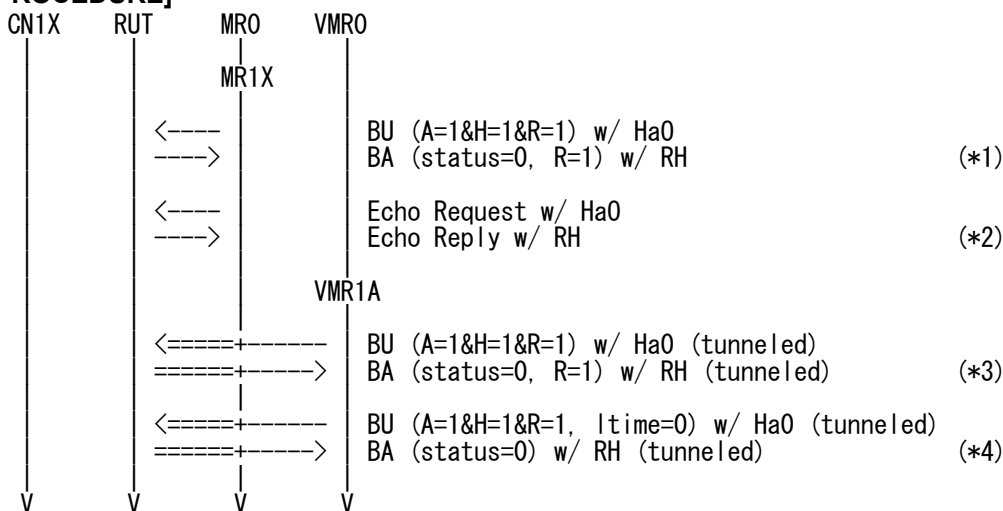
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1B,prefix)

6. VMR1A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	17
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	0
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

8. VMR1A receives Binding Acknowledgement (tunneled) (*4) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)



IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR1A (Link1A.global)
Type2 Routing Header	Home Address	VMR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	Any
	Sequence	17
PadN	Lifetime	0
	Length	2

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives BA w/ RH (tunneled)
- (*4) PASS: VMR1A receives BA w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.2.4 NEMO-HA_9_2_25 – Echo Request forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_25 – Nested Mobility (same HA) – Echo Request packet forwarding from MR under MR and Echo Reply packet forwarding to MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

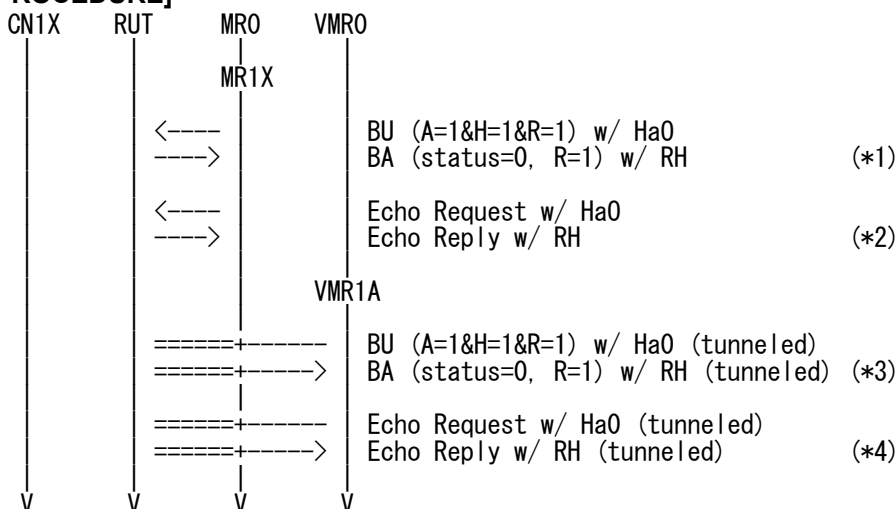
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1B,prefix)

6. VMR1A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR1A sends Echo Request w/ HaO (tunneled) (Refer to 5.5.4)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	128



8. VMR1A receives Echo Reply w/ RH (tunneled) (*4) (Refer to 5.6.4)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives BA w/ RH (tunneled)
- (*4) PASS: VMR1A receives Echo Reply w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



6.11.2.2.5 NEMO-HA_9_2_26 – MPS packet forwarding from MR under MR

[PURPOSE]

NEMO-HA_9_2_26 – Nested Mobility (same HA) – MPS packet forwarding from MR under MR and MPA packet forwarding to MR under MR

[CATEGORY]

ROUTER: ADVANCED FUNCTION(MPD)

[REQUIREMENT OF TEST]

Virtual Home Link
Function of Mobile Prefix Discovery

[TOPOLOGY]

Refer to 2.3 Common Topology-11

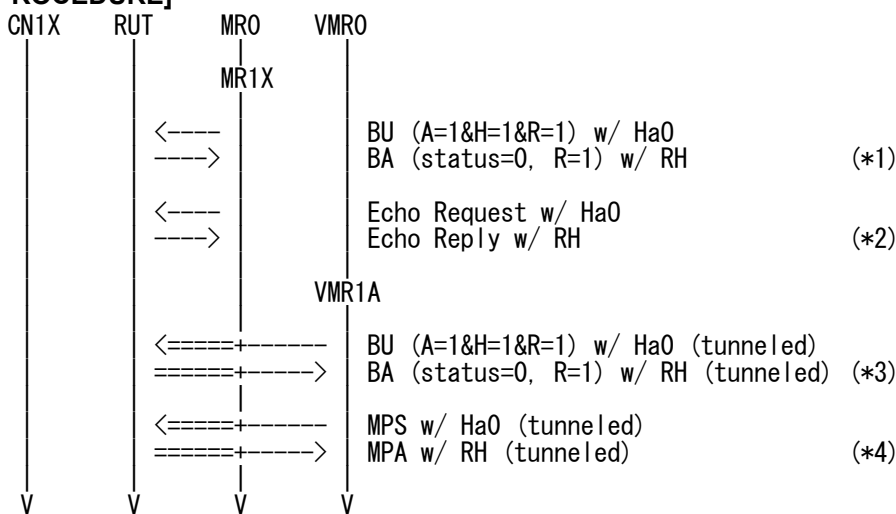
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA1_SPI
Encapsulating Security Payload	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
	Alternate CoA Option	Address

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	129

5. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	Length	0
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
	Length	0
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1B,prefix)

6. VMR1A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. VMR1A sends MPS (tunneled) (Refer to 5.17.2)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	146

8. VMR1A receives MPA (tunneled) (*4) (Refer to 5.18.2)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	147



[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives BA w/ RH (tunneled)
- (*4) PASS: VMR1A receives MPA w/ RH (tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.2.6 NEMO-HA_9_2_27 – Echo Request forwarding from LFN under MR under MR

[PURPOSE]

NEMO-HA_9_2_27 – Nested Mobility (same HA) – Echo Request packet forwarding from LFN under MR under MR and Echo Reply packet forwarding to LFN under MR under MR

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

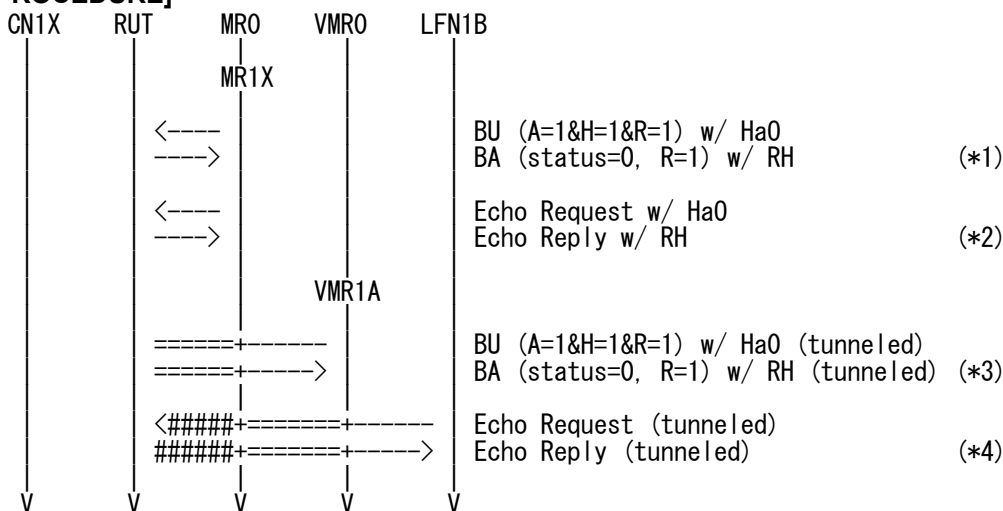
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MRO (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1 SP1
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

- explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2
PadN	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

- Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

- Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

- Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

- Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

5. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1B,prefix)

6. VMR1A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. LFN1B sends Echo Request (tunneled tunneled) (Refer to 5.5.6)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1B (Link1B,global)
	Destination Address	RUT (Link0,global)
ICMPv6 Header	Type	128

8. LFN1B receives Echo Reply (tunneled tunneled) (*4) (Refer to 5.6.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	LFN1B (Link1B,global)
ICMPv6 Header	Type	129

[JUDGMENT]



- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives BA w/ RH (tunneled)
- (*4) PASS: LFN1B receives Echo Reply (tunneled tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.

6.11.2.2.7 NEMO-HA_9_2_28 – Echo Request forwarding to CN from LFN under MR under MR

[PURPOSE]

NEMO-HA_9_2_28 – Nested Mobility (same HA) – Echo Request packet forwarding to CN from LFN under MR under MR and Echo Reply packet forwarding to LFN under MR under MR from CN

[CATEGORY]

ROUTER: BASIC FUNCTION

[REQUIREMENT OF TEST]

Virtual Home Link

[TOPOLOGY]

Refer to 2.3 Common Topology-11

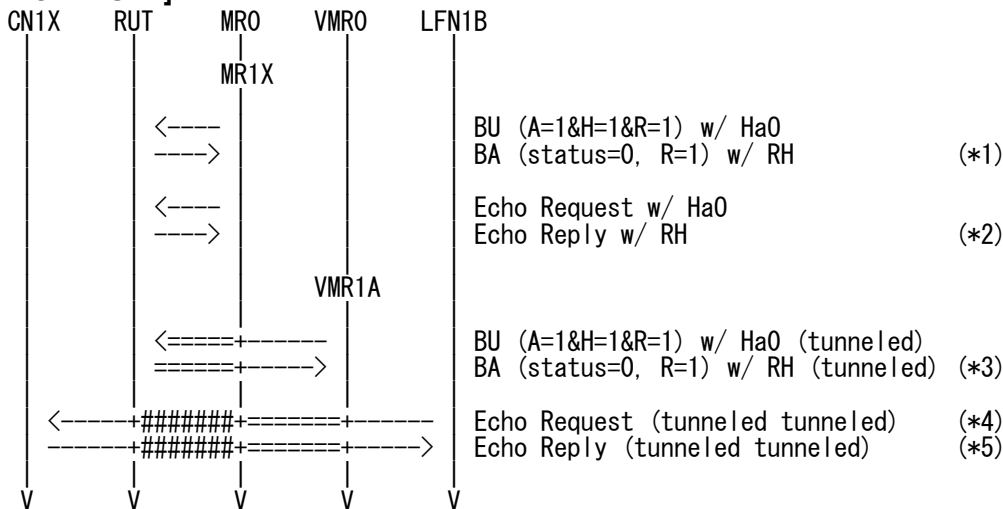
[TEST SETUP]

Refer to 3.1 Common Setup-1

[INITIALIZATION]

Refer to 4.1 Common Initialization-1

[PROCEDURE]



1. MR1X sends BU w/ HaO (Refer to 5.12.1)

- implicit mode

IPv6 Header	Source Address	MR1X (Link1X.global)
	Destination Address	RUT (Link0.global)
Destination Option Header	Home Address	MR0 (Link0.global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105

PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	15
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	MR1X (Link1X,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1A,prefix)

2. MR1X receives BA w/ RH (*1) (Refer to 5.13.1)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA2_SPI
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	15
	Lifetime	<=105
	Length	2

3. MR1X sends Echo Request w/ HaO (Refer to 5.5.2)

● Basic

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA5_SPI
ICMPv6 Header	Type	128

● Advanced function “fine-grain”

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	MR0 (Link0,global)
ICMPv6 Header	Type	128

4. MR1X receives Echo Reply w/ RH (*2) (Refer to 5.6.2)

● Basic

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI
Encapsulating Security Payload	Security Parameters Index	SA6_SPI
ICMPv6 Header	Type	129

● Advanced function “fine-grain”

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
Type2 Routing Header	Length	2
	Type	2
	Segment left	1
	Home Address	MR0 (Link0,global)
	Security Parameters Index	SA6_SPI

ICMPv6 Header	Type	129
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5. VMR1A sends Binding Update (tunneled) (Refer to 5.12.5)

● implicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)

● explicit mode

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
Destination Option Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA1_SPI
Mobility Header	MH Type	5
	Sequence Number	16
	A Flag	1
	H Flag	1
	L Flag	0
	K Flag	0
	R Flag	1
	Lifetime	105
PadN	Length	0
Alternate CoA Option	Address	VMR1A (Link1A,global)
PadN	Length	2
MNP Option	Prefix length	64
	Prefix	MNP (Link1B,prefix)

6. VMR1A receives Binding Acknowledgement (tunneled) (*3) (Refer to 5.13.5)

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
Binding Refresh Advice Option	Interval	<=105

IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	MR1X (Link1X,global)
IPv6 Header	Source Address	RUT (Link0,global)
	Destination Address	VMR1A (Link1A,global)
Type2 Routing Header	Home Address	VMR0 (Link0,global)
Encapsulating Security Payload	Security Parameters Index	SA2_SPI
Mobility Header	MH Type	6
	Status	0
	K Flag	0
	R Flag	1
	Sequence	16
	Lifetime	<=105
PadN	Length	2

7. LFN1B sends Echo Request (tunneled tunneled) (Refer to 5.5.5)

IPv6 Header	Source Address	MR1X (Link1X,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	VMR1A (Link1A,global)
	Destination Address	RUT (Link0,global)
IPv6 Header	Source Address	LFN1B (Link1B,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

8. CN1X receives Echo Request (*4) (Refer to 5.5.1)

IPv6 Header	Source Address	LFN1B (Link1B,global)
	Destination Address	CN1X (Link1X,global)
ICMPv6 Header	Type	128

9. CN1X sends Echo Reply (Refer to 5.6.1)



IPv6 Header	Source Address	CN1X (Link1X.global)
	Destination Address	LFN1B (Link1B.global)
ICMPv6 Header	Type	129

10. LFN1B receives Echo Reply (tunneled tunneled) (*5) (Refer to 5.6.5)

IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	MR1X (Link1X.global)
IPv6 Header	Source Address	RUT (Link0.global)
	Destination Address	VMR1A (Link1A.global)
IPv6 Header	Source Address	CN1X (Link0.global)
	Destination Address	LFN1B (Link1B.global)
ICMPv6 Header	Type	129

[JUDGMENT]

- (*1) PASS: MR1X receives BA w/ RH
- (*2) PASS: MR1X receives Echo Reply w/ RH
- (*3) PASS: VMR1A receives BA w/ RH (tunneled)
- (*4) PASS: LFN1B receives Echo Reply (tunneled tunneled)

[REFERENCES]

RFC3963 Network Mobility (NEMO) Basic Support Protocol
See Section 1.



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