

5.2 Operations

5.2.3 MN

This section describes the operation in Mobile IPv6 and functional classifications of the function on MN from the viewpoint of the classifications given in section 2.3.

Notes

- "I-D section" gives the corresponding section number in the Mobile IPv6 Internet Draft referred to in section 2.2.
- "I-D section title" gives the section heading in the Mobile IPv6 Internet Draft referred to in section 2.2.
- In the column "Test Priority," "A1" indicates Rank A and Priority 1, "A2" indicates Rank-A and Priority 2, and "B" indicates Rank-B and Priority 2.
- In the column "Function Category," "1" is Normal and "2" is Abnormal.
- In the column "Version 2.0," "x" indicates that the function is to be supported.
- "Reason for Classification" gives the reason for the function's classification. A reason is given when Test Priority is "A2," "B," or "C."

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
								HA	CN		Supported	Test No.	
1	11.1	Conceptual Data Structures	Information which Mobile Node holds	Each mobile node MUST maintain a Binding Update List.	MUST	A	->	A1	A2	1	X	HA : MN-0-0-1-001 CN : MN-0-0-2-001	CN:Return Routability
2			Binding Update List	The IP address of the node to which a Binding Update was sent.	(do)	A	->	A1	A2	1	X	HA : MN-0-0-1-001 CN : MN-0-0-2-001	CN:Return Routability
3				The home address for which that Binding Update was sent.	(do)	A	->	A1	A2	1	X	HA : MN-0-0-1-001 CN : MN-0-0-2-001	CN:Return Routability
4				The care-of address sent in that Binding Update. This value is necessary for the mobile node to determine if it has sent a Binding Update giving its new care-of address to this destination after changing its care-of address.	(do)	A	->	A1	A2	1	X	HA : MN-0-0-1-001 CN : MN-0-0-2-001	CN:Return Routability
5				The initial value of the Lifetime field sent in that Binding Update.	(do)	A	->	A1	A2	1	X	HA : MN-0-0-1-001 CN : MN-0-0-2-001	CN:Return Routability
6				The remaining lifetime of that binding. This lifetime is initialized from the Lifetime value sent in the Binding Update and is decremented until it reaches zero, at which time this entry MUST be deleted from the Binding Update List.	MUST	A	->	A1	A2	1	HA:X	HA:MN-2-1-2-1-004	CN:Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
								HA	CN		Supported	Test No.	
											CN:X	MN-4-1-1-2-005	
7				The maximum value of the Sequence Number field sent in previous Binding Updates to this destination. The Sequence Number field is 16 bits long, and all comparisons between Sequence Number values MUST be performed modulo 2**16 (see Section 9.5.1).	MUST	A	->	A1	A2	1	X	HA : MN-2-1-2-1-001 CN : MN-3-1-2-2-001	CN:Return Routability
8				The time at which a Binding Update was last sent to this destination, as needed to implement the rate limiting restriction for sending Binding Updates.	(do)	A	->	A1	A2	1	HA : X CN :	HA: MN-2-1-1-1-013	CN:Return Routability
9				The state of any retransmissions needed for this Binding Update. This state includes the time remaining until the next retransmission attempt for the Binding Update, and the current state of the exponential back-off mechanism for retransmissions.	(do)	A	->	A1	A2	2	HA : X CN :	HA: MN-2-1-1-1-013	CN:Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
							->	HA	CN		Supported	Test No.	
10				A flag specifying whether or not future Binding Updates should be sent to this destination. The mobile node sets this flag in the Binding Update List entry when it receives an ICMP Parameter Problem, Code 1, error message in response to a return routability message or Binding Update sent to that destination, as described in Section 11.3.4.	(do)	A	->	A1	A2	2	X	HA: MN-6-2-2-1-001 CN: MN-4-2-2-2-002 MN-4-2-2-2-005 MN-4-2-2-2-007	CN:Return Routability
11			Binding Update List for CN	The time at which a Home Test Init or Care-of Test Init message was last sent to this destination, as needed to implement the rate limiting restriction for the return routability procedure.	(do)	A		A2		1	X	MN-2-1-1-2-010 MN-2-1-2-2-010	Return Routability
12				The state of any retransmissions needed for this return routability procedure. This state includes the time remaining until the next retransmission attempt and the current state of the exponential back-off mechanism for retransmissions.	(do)	A		A2		1	X	MN-2-1-1-2-010 MN-2-1-2-2-010	Return Routability
13				Cookie values used the Home Test Init and Care-of Test Init messages.	(do)	A		A2		1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability
14				Home and care-of keygen tokens received from the correspondent node.	(do)	A		A2		1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
							HA	CN			Supported	Test No.	
15				Home and care-of nonce indices received from the correspondent node.	(do)	A	A2			1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability
16				The time at which each of the tokens and nonces was received from this correspondent node, as needed to implement reuse while moving.	(do)	A	A2			1			Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority
							HA	CN		Supported	Test No.	
1	11.2	Processing Mobility Headers	Processing Mobility Headers	All IPv6 mobile nodes MUST observe the rules described in Section 9.2 when processing Mobility Headers.	MUST	-	-			-		
2	9.2	Processing Mobility Headers	Mobility Header processing MUST observe the following rules:	The checksum must be verified as per Section 6.1. Otherwise, the node MUST silently discard the message.	MUST	A	A1			2	X	MN-6-2-1-1-004 MN-4-2-1-2-007
3				The MH Type field MUST have a known value (Section 6.1.1). Otherwise, the node MUST discard the message and issue a Binding Error message as described in Section 9.3.3, with Status field set to 2 (unrecognized MH Type value).	MUST	A	A1			1	X	MN-2-2-1-1-001 MN-2-1-3-2-001 MN-2-1-4-2-001 MN-3-2-1-2-001 MN-3-3-1-2-001 MN-3-4-1-2-001
4					MUST	A	A1			2	X	MN-6-2-1-1-003 MN-4-2-1-2-010

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
5				The Payload Proto field MUST be IPPROTO_NONE (59 decimal). Otherwise, the node MUST discard the message and SHOULD send ICMP Parameter Problem, Code 0, directly to the Source Address of the packet as specified in RFC 2463 [14]. Thus no Binding Cache information is used in sending the ICMP message. The Pointer field in the ICMP message SHOULD point at the Payload Proto field.	MUST	A	A1			1	X	MN-2-2-1-1-001 MN-2-1-3-2-001 MN-2-1-4-2-001 MN-3-2-1-2-001 MN-3-3-1-2-001 MN-3-4-1-2-001	
6					MUST	A	A1			2	X	MN-6-2-1-1-001 MN-4-2-1-2-005	
7					SHOULD	A	A1			2	X	MN-6-2-1-1-001 MN-4-2-1-2-005	
8					SHOULD	A	A1			2	X	MN-6-2-1-1-001 MN-4-2-1-2-005	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
9				o The Header Len field in the Mobility Header MUST NOT be less than the length specified for this particular type of message in Section 6.1.	MUST NOT	A	A1			1	X	MN-2-2-1-1-001 MN-2-1-3-2-001 MN-2-1-4-2-001 MN-3-2-1-2-001 MN-3-3-1-2-001 MN-3-4-1-2-001	
10				Otherwise, the node MUST discard the message and SHOULD send ICMP Parameter Problem, Code 0, directly to the Source Address of the packet as specified in RFC 2463 [14]. (The Binding Cache information is again not used.) The Pointer field in the ICMP message SHOULD point at the Header Len field.	MUST	A	A1			2	X	MN-6-2-1-1-002 MN-4-2-1-2-006	
11					SHOULD	A	A1			2	X	MN-6-2-1-1-002 MN-4-2-1-2-006	
12					SHOULD	A	A1			2	X	MN-6-2-1-1-002 MN-4-2-1-2-006	

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							HA	CN		Supported	Test No.		
1	11.3.1	Sending Packets While Away from Home	While a mobile node is away from home, it continues to use its home address, as well as also using one or more care-of addresses. When sending a packet while away from home, a mobile node MAY choose among these in selecting the address that it will use as the source of the packet, as follows:	Protocols layered over IP will generally treat the mobile node's home address as its IP address for most packets. For packets sent that are part of transport-level connections established while the mobile node was at home, the mobile node MUST use its home address.	MUST	A	A2			1			Function that uses upper or lower layer information
2				Likewise, for packets sent that are part of transport-level connections that the mobile node may still be using after moving to a new location, the mobile node SHOULD use its home address in this way. If a binding	SHOULD	A	A2			1			Function that uses upper or lower layer information
3					SHOULD	A	A2			1	X	MN-4-1-1-2-001	route optimization

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
4				exists, the mobile node SHOULD send the packets directly to the correspondent node. Otherwise, if a binding does not exist, the mobile node MUST use reverse tunneling.	MUST	A	A1			1	X	MN-4-1-1-2-002	
5				The mobile node MAY choose to directly use one of its care-of addresses as the source of the packet, thus not requiring the use of a Home Address option in the packet. This is particularly useful for short-term communication that may easily be retried if it fails. Using the mobile node's care-of address as the source for such queries will generally have a lower overhead than using the mobile node's home address, since no extra options need be used in either the query or its reply. Such packets can be routed normally, directly between their source and destination without relying on Mobile IPv6. If application running on the mobile node has no particular knowledge that the communication being sent fits within this general type of communication, however, the mobile node should not use its care-of address as the source of the packet in this way.	MAY	A	A2			1			Function that uses upper or lower layer information

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
6				o While not at its home link, the mobile node MUST NOT use the home address destination option when communicating with link-local or site-local peers, if the scope of the home address is larger than the scope of the peer's address.	MUST NOT	A	A1/A2			1	X	MN-4-1-2-2-006	Link-local : A1 Site-local : A2

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							HA	CN		Supported	Test No.		
7				Similarly, the mobile node MUST NOT use the Home Address destination option for IPv6 Neighbor Discovery [12] packets.	MUST NOT	A	A1			1	X	MN-4-1-1-2-006	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority
							HA	CN		Supported	Test No.	
8			Message transmission in home link	For packets sent by a mobile node while it is at home, no special Mobile IPv6 processing is required. Likewise, if the mobile node uses any address other than any of its home addresses as the source of a packet sent while away from home no special Mobile IPv6 processing is required. In either case, the packet is simply addressed and transmitted in the same way as any normal IPv6 packet.	(do)	A	A1		1	X	MN-4-1-1-2-005	

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							HA	CN		Supported	Test No.		
9			Route Optimization	<p>This manner of delivering packets does not require going through the home network, and typically will enable faster and more reliable transmission.</p> <p>The mobile node needs to ensure that there exists a Binding Cache entry for its home address so that the correspondent node can process the packet (Section 9.3.1 specifies the rules for Home Address Destination Option Processing at a correspondent node). The mobile node SHOULD examine its Binding Update List for an entry which fulfills the following conditions:</p>	SHOULD	A	A2			1	X	MN-4-1-1-2-002	route optimization

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							HA	CN		Supported	Test No.		
10				<p>* The Source Address field of the packet being sent is equal to the home address in the entry.</p> <p>* The Destination Address field of the packet being sent is equal to the address of the correspondent node in the entry.</p> <p>* One of the current care-of addresses of the mobile node appears as the care-of address in the entry.</p> <p>* The entry indicates that a binding has been successfully created.</p> <p>* The remaining lifetime of the binding is greater than zero.</p> <p>When these conditions are met, the mobile node knows that the correspondent node has a suitable Binding Cache entry.</p>	-	A	A2			1	X	MN-4-1-1-2-002	route optimization

Functional classification and test priority for MN

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							HA	CN			Supported	Test No.	
11				Construct the packet using the mobile node's home address as the packet's Source Address, in the same way as if the mobile node were at home. This includes the calculation of upper layer checksums using the home address as the value of the source.	(do)	A	A2			1	X	MN-4-1-1-2-002	route optimization
12				Insert a Home Address option into the packet, with the Home Address field copied from the original value of the SourceAddress field in the packet.	(do)	A	A2			1	X	MN-4-1-1-2-002	route optimization
13				Change the Source Address field in the packet's IPv6 header to one of the mobile node's care-of addresses. This will typically be the mobile node's current primary care-of address, but MUST be an address assigned to the interface on the link being used.	MUST	A	A2			1	X	MN-4-1-1-2-002	route optimization
14			reverse tunneling	The packet is sent to the home agent using IPv6 encapsulation [15].	(do)	A	A1			1	X	MN-4-1-1-2-001	

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							HA	CN			Supported	Test No.	
15				The Source Address in the tunnel packet is the primary care-of address as registered with the home agent.	(do)	A	A1			1	X	MN-4-1-1-2-001	
16				The Destination Address in the tunnel packet is the home agent's address.	(do)	A	A1			1	X	MN-4-1-1-2-001	
17	11.3.2	Interaction with Outbound IPsec Processing		Any specific implementation MAY use algorithms and data structures other than those suggested here, but its processing MUST be consistent with the effect of the operation described here and with the relevant IPsec specifications.	MAY	C	-			-			concrete operation is not specified
18					MUST	A	A2			1	X	MN-2-1-1-1-001 MN-2-1-1-2-001	In the case that No.17 function is implemented, this function is mandatory.
19				The packet is created by higher layer protocols and applications (e.g., by TCP) as if the mobile node were at home and Mobile IPv6 were not being used.	(do)	C	-			1			Function that uses upper or lower layer information
20				Determine the outgoing interface for the packet. (Note that the selection between reverse tunneling and route optimization may imply different interfaces, particularly if tunnels are considered interfaces as well.)	(do)	C	-			1			

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							HA	CN			Supported	Test No.	
21				o As part of outbound packet processing in IP, the packet is compared against the IPsec security policy database to determine what processing is required for the packet [4].	(do)	B	B			1	X	MN-2-1-1-1-001 MN-2-1-1-2-001 MN-4-1-1-2-007	IKE
22				o If IPsec processing is required, the packet is either mapped to an existing Security Association (or SA bundle), or a new SA (or SA bundle) is created for the packet, according to the procedures defined for IPsec.	(do)	B	B			1	X	MN-2-1-1-1-001 MN-2-1-1-2-001 MN-4-1-1-2-007	IKE
23				o Since the mobile node is away from home, the mobile is either using reverse tunneling or route optimization to reach the correspondent node.	(do)	A	A1/ A2			1	X	Reverse tunnleing: MN-4-1-1-2-001 Route optimization: MN-4-1-1-2-002	Reverse tunnel : A1 Route Optimization :A2

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
24			If route optimization is in use	If route optimization is in use, the mobile node inserts a Home Address destination option into the packet, replacing the Source Address in the packet's IP header with the care-of address used with this correspondent node, as described in Section 11.3.1. The Destination Options header in which the Home Address destination option is inserted MUST appear in the packet after the routing header, if present, and before the IPsec (AH [5] or ESP [6]) header, so that the Home Address destination option is processed by the destination node before the IPsec header is processed.	MUST	A	A2			1	X	MN-4-1-1-2-007	IPsec between MN and CN
25			RFC 2402 treatment of destination options is extended as follows. The AH authentication data MUST be calculated as if the following were true:	* the IPv6 source address in the IPv6 header contains the mobile node's home address,	MUST	A	A2			1			IPsec between MN and CN
26				* the Home Address field of the Home Address destination option (Section 6.3) contains the new care-of address.	MUST	A	A2			1			IPsec between MN and CN

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							HA	CN			Supported	Test No.	
27				o This allows, but does not require, the receiver of the packet containing a Home Address destination option to exchange the two fields of the incoming packet to reach the above situation, simplifying processing for all subsequent packet headers. However, such an exchange is not required, as long as the result of the authentication calculation remains the same.	(do)	B	B			1			IPsec between MN and CN
28			For the default case of using IKE [9] as the automated key management protocol, such problems can be avoided by the following requirements when communicating with its home agent:	o When the mobile node is away from home, it MUST use its care-of address as the Source Address of all packets it sends as part of the key management protocol (without use of Mobile IPv6 for these packets, as suggested in Section 11.3.1).	MUST	A	A1			1			IKE
29				o In addition, for all security associations bound to the mobile node's home address established by IKE, the mobile node MUST include an ISAKMP Identification Payload [8] in the IKE exchange, giving the mobile node's home address as the initiator of the Security Association [7].	MUST	A	A1			1			IKE
30				The Key Management Mobility Capability (K) bit in Binding Updates and Acknowledgements can be used avoid the need to rerun IKE upon movements.	(do)	A	A1			1			IKE

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							HA	CN		Supported	Test No.		
31	11.3.3	Receiving Packets While Away from Home	Effectiveness check of Tunnel packet transmitted from Home Agent(IPsec)	For packets received by the first of these methods, the mobile node MUST check that the IPv6 source address of the tunneled packet is the IP address of its home agent.	MUST	A	A1			1	X	MN-4-1-1-2-001	
				The mobile node MUST also process the received packet in the manner defined for IPv6 encapsulation [15], which will result in the encapsulated (inner) packet being processed normally by upper-layer protocols within the mobile node, as if it had been addressed (only) to the mobile node's home address.	MUST	A	A1			1	X	MN-4-1-1-2-001	
33			Effectiveness check of Direct Delivery packet	A node receiving a packet addressed to itself (i.e., one of the node's addresses is in the IPv6 destination field) follows the next header chain of headers and processes them. When it encounters a type 2 routing header during this processing it performs the following checks. If any of these checks fail the node MUST silently discard the packet.	MUST	A	A2			2	X	MN-4-1-2-2-004 MN-4-1-2-2-005	route optimization

Functional classification and test priority for MN

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							HA	CN		Supported	Test No.		
34				The length field in the routing header is exactly 2.	(do)	A	A2			1	X	MN-4-1-2-2-003	route optimization
35				The segments left field in the routing header is either 0 or 1. (Values on the wire are always 1. But implementations may process routing header so that the value may become 0 after the routing header has been processed, but before the rest of the packet is processed.)	(do)	A	A2			1	X	MN-4-1-2-2-003	route optimization

Functional classification and test priority for MN

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							HA	CN			Supported	Test No.	
36				The Home Address field in the routing header is one of the node's home addresses, if the segments left field was 1. Thus, in particular the address field is required to be a unicast routable address.	(do)	A	A2			1	X	MN-4-1-2-2-003	route optimization
37	11.3.4	Routing Multicast Packets	Joining to multicast group	One method by which a mobile node MAY join the group is via a (local) multicast router on the foreign link being visited.	MAY	B	B			1			multicast
38				The mobile node MUST use its care-of address	MUST	A2	A2			1			In the case that No.37 function is implemented, this function is mandatory.
39				The mobile node MUST NOT use the Home Address destination option when sending MLD packets [29]	MUST NOT	A2	A2			1			In the case that No.37 function is implemented, this function is mandatory.

Functional classification and test priority for MN

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							HA	CN		Supported	Test No.	
40				Alternatively, a mobile node MAY join multicast groups via a bi-directional tunnel to its home agent. The mobile node tunnels its multicast group membership control packets to its home agent, and the home agent forwards multicast packets down the tunnel	MAY	B	B			1		multicast

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							HA	CN		Supported	Test No.	
41				A mobile node MUST NOT tunnel multicast group membership control packets until (1) the mobile node has a binding in place at the home agent, and (2) the latter sends at least one such multicast group membership control packet via the tunnel. Once this condition is true, the mobile node SHOULD assume it does not change as long as the binding does not expire.	MUST NOT/SHOULD	A	A2			1		In the case that No.40 functions is implemented, this function is mandatory.
42			Multicast packet transmission by Direct Delivery	The application is aware of the care-of address and uses it as a source address for multicast traffic, just like it would use a stationary address. The mobile node MUST NOT use Home Address destination option in such traffic.	MUST NOT	A	A2			1		In the case that No.37 function is implemented, this function is mandatory.

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							HA	CN	Supported		Test No.		
43			Multicast packet transmission by way of Home Agent(bidirectional tunneling)	Because multicast routing in general depends upon the Source Address used in the IPv6 header of the multicast packet, a mobile node that tunnels a multicast packet to its home agent MUST use its home address as the IPv6 source address of the inner multicast packet.	MUST	A	A2			1			In the case that No.40 functions is implemented, this function is mandotory.
44	11.3.5	Receiving ICMP Error Messages	Receiving ICMP Parameter Problem, Code1	Any node that does not recognize the Mobility header will return an ICMP Parameter Problem, Code 1, message to the sender of the packet. If the mobile node receives such an ICMP error message in response to a return routability procedure or Binding Update, it SHOULD record in its Binding Update List that future Binding Updates SHOULD NOT be sent to this destination. Such Binding Update List entries SHOULD be removed after a period of time, in order to allow for retrying route optimization.	SHOULD	A	->	A1	A2	2	X	MN-6-2-2-1-001 MN-4-2-2-2-002 MN-4-2-2-2-005 MN-4-2-2-2-007	This function is implementaion-dependent. It does not effect on interoperability.
45					SHOULD NOT	A	->	A1	A2	2	X	MN-6-2-2-1-001 MN-4-2-2-2-002 MN-4-2-2-2-005 MN-4-2-2-2-007	This function is implementaion-dependent. It does not effect on interoperability.
46					SHOULD	A	->	A1	A2	2			This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST		Function al Category	Ver2.0		Reason of TEST Priority	
							HA	CN		Supported	Test No.		
47				New Binding Update List entries MUST NOT be created as a result of receiving ICMP error messages.	MUST NOT	A	A2			2	X	MN-6-2-2-1-001 MN-4-2-2-2-002 MN-4-2-2-2-005 MN-4-2-2-2-007	route optimization
48			Receiving ICMP Parameter Problem, Code2	Correspondent nodes who have participated in the return routability procedure MUST implement the ability to correctly process received packets containing a Home Address destination option. Therefore, correctly implemented correspondent nodes should always be able to recognize Home Address options.	MUST	A	A2			1			This function is tested as CN test.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
							->	HA	CN		Supported	Test No.	
49				If a mobile node receives an ICMP Parameter Problem, Code 2, message from some node indicating that it does not support the Home Address option, the mobile node SHOULD log the error and then discard the ICMP message.	SHOULD	A	->	A1	A2	2	X	MN-4-2-2-2-011	CN : Route optimization
50	11.3.6	Receiving Binding Error Messages		When a mobile node receives a packet containing a Binding Error message, it should first check if the mobile node has a Binding Update List entry for the source of the Binding Error message. If the mobile node does not have such an entry, it MUST ignore the message. This is necessary to prevent a waste of resources on e.g. return routability procedure due to	MUST	A	->	A1	A2	2	X	MN-3-3-1-2-007	CN : Route optimization

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
							HA	CN			Supported	Test No.	
51			if the message Status field was 1 (unknown binding for Home Address destination option), the mobile node should perform one of the following two actions:	o If the mobile node has recent upper layer progress information that indicates communications with the correspondent node are progressing, it MAY ignore the message. This can be done in order to limit the damage that spoofed Binding Error messages can cause to ongoing communications.	MAY	C	-			2			Function that uses upper or lower layer information
52				o If the mobile node has no upper layer progress information, it MUST remove the entry and route further communications through the home agent. It MAY also optionally start a return routability procedure (see Section 5.2).	MUST	A	->	A1	A2	2	X	MN-3-3-1-2-004	CN : Route optimization
53					MAY	B	B			2	X	MN-3-3-1-2-004	return routability
54			If the message Status field was 2 (unrecognized MH Type value), the mobile node should perform one of the following two actions:	o If the mobile node is not expecting an acknowledgement or response from the correspondent node, the mobile node SHOULD ignore this message.	SHOULD	A	->	A1	A2	2	X	MN-3-3-1-2-002	CN : Route optimization

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST			Function al Category	Ver2.0		Reason of TEST Priority
								HA	CN		Supported	Test No.	
55				o Otherwise, the mobile node SHOULD cease the use of any extensions to this specification. If no extensions had been used, the mobile node should cease the attempt to use route optimization.	SHOULD	A	->	A1	A2	2	X	MN-3-3-1-2-001 MN-3-3-1-2-009 MN-3-3-1-2-011	CN : Route optimization

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
1	11.4.1.	Dynamic Home Agent Address Discovery	For example, some nodes on its home link may have been reconfigured while the mobile node has been away from home, such that the router that was operating as the mobile node's home agent has been replaced by a different router serving this role.	In this case, the mobile node MAY attempt to discover the address of a suitable home agent on its home link. To do so, the mobile node sends an ICMP Home Agent Address Discovery Request message to the Mobile IPv6 Home-Agents anycast address [16] for its home subnet prefix.	MAY	B	B	1	×	MN-5-1-1-1-001 MN-5-1-1-1-005	DHAAD
2				The mobile node, upon receiving this Home Agent Address Discovery Reply message, MAY then send its home registration Binding Update to any of the unicast IP addresses listed in the Home Agent Addresses field in the Reply.	MAY	B	B	1	×	MN-5-1-1-1-005	DHAAD
3				For example, the mobile node MAY attempt its home registration to each of these addresses, in turn, until its registration is accepted. The mobile node sends a Binding Update to an address and waits for the matching	MAY	B	B	2			DHAAD

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
4				Binding Acknowledgement, moving on to the next address if there is no response. The mobile node MUST , however, wait at least InitialBindackTimeoutFirstReg seconds (see Section 13) before sending a Binding Update to the next home agent.	MUST	A	A2	2			In the case that No.3 function is implemented, this function is mandatory.
5				In trying each of the returned home agent addresses, the mobile node SHOULD try each in the order listed in the Home Agent Addresses field in the received Home Agent Address Discovery Reply message.	SHOULD	A	A2	2			In the case that No.3 function is implemented, this function is mandatory.
6			Try to other Home Agent when Binding Update procedure fails	If the mobile node has a current registration with some home agent (the Lifetime for that registration has not yet expired), then the mobile node MUST attempt any new registration first with that home agent.	MUST	A	A1	1	X	MN-2-1-2-1-001 MN-2-1-2-1-004	
7				If that registration attempt fails (e.g., times out or is rejected), the mobile node SHOULD then reattempt this registration with another home agent.	SHOULD	A	A2	2			DHAAD
8				If the mobile node knows of no other suitable home agent, then it MAY attempt the dynamic home agent address discovery mechanism described above.	MAY	B	B	2			

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
9			Retransmit a Home Agent Address Discovery Request message	If, after a mobile node transmits a Home Agent Address Discovery Request message to the Home Agents Anycast address, it does not receive a corresponding Home Agent Address Discovery Reply message within INITIAL_DHAAD_TIMEOUT (see Section 12) seconds, the mobile node MAY retransmit the same Request message to the same anycast address. This retransmission MAY be repeated up to a maximum of DHAAD_RETRIES (see Section 12) attempts. Each retransmission MUST be delayed by twice the time interval of the previous retransmission.	MAY	B	B	2			DHAAD
10					MAY	B	B	2			DHAAD
11					MUST	A	A2	2			In the case that No.9 function is implemented, this function is mandatory.
12	11.4.2.	Sending Mobile Prefix Solicitations	sends a Mobile Prefix Solicitation	When a mobile node has a home address that is about to become invalid, it SHOULD send a Mobile Prefix Solicitation to its home agent in an attempt to acquire fresh routing prefix information. The new information also enables the mobile node to participate in renumbering operations affecting the home network, as described in Section 10.6.	SHOULD	A	A2	1	X	MN-4-1-1-1-001	MPS
13				The mobile node MUST use the Home Address destination option to carry its home address.	MUST	A	A2	1	X	MN-4-1-1-1-001	MPS
14				The mobile node MUST support and SHOULD use IPsec to protect the solicitation.	MUST	A	A2	1	X	MN-4-1-1-1-001	MPS
15					SHOULD	A	A2	1	X	MN-4-1-1-1-001	MPS

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
16				The mobile node MUST set the Identifier field in the ICMP header to a random value.	MUST	A	A2	1	X	MN-4-1-1-1-001 MN-4-1-1-1-002	MPS
17				As described in Section 11.7.2, Binding Updates sent by the mobile node to other nodes MUST use a lifetime no greater than the remaining lifetime of its home registration of its primary care-of address.	MUST	A	A2	1	X	MN-3-1-2-2-001	MPS
18				The mobile node SHOULD further limit the lifetimes that it sends on any Binding Updates to be within the remaining valid lifetime (see Section 10.6.2) for the prefix in its home address.	SHOULD	A	A2	1	X	MN-3-1-2-2-001	MPS
19			Retransmit a Mobile Prefix Solicitation	When the lifetime for a changed prefix decreases, and the change would cause cached bindings at correspondent nodes in the Binding Update List to be stored past the newly shortened lifetime, the mobile node MUST issue a Binding Update to all such correspondent nodes.	MUST	A	A2	1	X	MN-3-1-2-2-001	MPS
20	11.4.3.		Adjustment at Binding Lifetime for Corespondent Node	The Source Address of the IP packet carrying the Mobile Prefix Advertisement is the same as the home agent address to which the mobile node last sent an accepted home registration Binding Update to register its primary care-of address. Otherwise, if no such registrations have been made, it	SHOULD	A	A2	2	X	MN-4-2-1-1-001	MPA

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
21				SHOULD be the mobile node's stored home agent address, if one exists. Otherwise, if the mobile node has not yet discovered its home agent's address, it MUST NOT accept Mobile Prefix Advertisements.	MUST NOT	A	A2	2	X	MN-4-1-1-1-002	MPA
22				The packet MUST have a type 2 routing header and SHOULD be protected by an IPsec header as described in Section 5.4 and Section 6.8.	MUST	A	A2	1	X	MN-4-1-1-1-002	MPA
23					SHOULD	A	A2	1	X	MN-4-2-1-1-001	MPA
24				If the ICMP Identifier value matches the ICMP Identifier value of the most recently sent Mobile Prefix Solicitation and no other advertisement has yet been received for this value, then the advertisement is considered to be solicited and will be processed further.	(do)	A	A2	1	X	MN-4-2-1-1-001	MPA
25				Any received Mobile Prefix Advertisement not meeting these tests MUST be silently discarded.	MUST	A	A2	2	X	MN-4-2-1-1-013	MPA
26				Otherwise, the advertisement is unsolicited, and MUST be silently discarded. In this case the mobile node SHOULD send a Mobile Prefix Solicitation.	MUST/S HOULD	A	A2	1	X	MN-4-1-1-1-002	MPA

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
27				For an accepted Mobile Prefix Advertisement, the mobile node MUST process Managed Address Configuration (M), Other Stateful Configuration (O), and the Prefix Information Options as if they arrived in a Router Advertisement [12] on the mobile node's home link.(This specification does not, however, describe how to acquire home addresses through stateful protocols.) Such processing may result in the mobile node configuring a new home address, although due to separation between preferred lifetime and valid lifetime, such changes should not affect most communications by the mobile node, in the same way as for nodes that are at home.	MUST	A	A2	1	X	MN-4-2-1-1-001	stateful address autoconfiguration

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
1	11.5.1.	Movement Detection	The opportunity of move detection	Generic movement detection uses Neighbor Unreachability Detection to detect when the default router is no longer bi-directionally reachable, in which case the mobile node must discover a new default router (usually on a new link). However, this detection only occurs when the mobile node has packets to send, and in the absence of frequent Router Advertisements or indications from the link-layer, the mobile node might become unaware of an L3 handover that occurred. Therefore, the mobile node should supplement this method with other information whenever it is available to the mobile node (e.g., from lower protocol layers).	(do)	C	-	-			Function that uses upper or lower layer information
2				When the mobile node detects an L3 handover, it performs Duplicate Address Detection [13] on its link-local address, selects a new default router as a consequence of Router Discovery, and then performs Prefix Discovery with that new router to form new care-of address(es) as described in Section 11.5.2. It then registers its new primary care-of address with its home agent as described in Section 11.7.1.	(do)	A	A1	1	X	MN-2-1-1-1-001 MN-2-1-2-1-001	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
3				After updating its home registration, the mobile node then updates associated mobility bindings in correspondent nodes that it is performing route optimization with as specified in Section 11.7.2.	(do)	A	A2	1	X	MN-3-1-2-2-004	route optimization
4				Due to the temporary packet flow disruption and signaling overhead involved in updating mobility bindings, the mobile node should avoid performing an L3 handover until it is strictly necessary. <u>Specifically, when the mobile node receives a Router Advertisement from a new router that contains a different set of on-link prefixes, if the mobile node detects that the currently selected default router on the old link is still bi-directionally reachable, it should generally continue to use the old router on the old link rather than switch away from it to use a new default router.</u>	(do)	A	A1	1	X	MN-3-3-1-1-002	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
5				<p>Mobile nodes can use the information in received Router Advertisements to detect L3 handovers. In doing so the mobile node needs to consider the following issues:</p> <ul style="list-style-type: none"> - There might be multiple routers on the same link, thus hearing a new router does not necessarily constitute an L3 handover. 	(do)	A	A1	1	X	MN-3-3-1-1-002	This function is implementaion-dependent. It does not effect on interoperability.
6				<p>When there are multiple routers on the same link they might advertise different prefixes. Thus even hearing a new router with a new prefix might not be a reliable indication of an L3 handover.</p>	(do)	A	A1	1	X	MN-3-3-1-1-002	This function is implementaion-dependent. It does not effect on interoperability.
7				<p>The link-local addresses of routers are not globally unique, hence after completing an L3 handover the mobile node might continue to receive Router Advertisements with the same link-local source address. This might be common if routers use the same link-local address on multiple interfaces. This issue can be avoided when routers use the Router Address (R) bit, since that provides a global address of the router.</p>	(do)	A	A1	1	X	MN-3-3-1-1-003	This function is implementaion-dependent. It does not effect on interoperability.

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
8				In addition, the mobile node should consider the following events as indications that an L3 handover may have occurred. Upon receiving such indications, the mobile node needs to perform Router Discovery to discover routers and prefixes on the new link, as described in Section 6.3.7 of RFC 2461 [12]. - If Router Advertisements that the mobile node receives include an Advertisement Interval option, the mobile node may use its Advertisement Interval field as an indication of the frequency with which it should expect to continue to receive future Advertisements from that router. This field specifies the minimum rate (the maximum amount of time between successive Advertisements) that the mobile node should expect. If this amount of time elapses without the mobile node receiving any Advertisement from this router, the mobile node can be sure that at least one Advertisement sent by the router has been lost. The mobile node can then implement its own policy to determine how many lost Advertisements from its current default router constitute an L3 handover indication.	(do)	B	B	1			This function is implementaion-dependent. It does not effect on interoperability.
9				Neighbor Unreachability Detection determines that the default router is no longer reachable.	(do)	B	B	1	X	MN-3-3-1-1-002	This function is implementaion-dependent. It does not effect on interoperability.

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Functional Rank	TEST Priority	Functional	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
10				<p>With some types of networks, notification that an L2 handover has occurred might be obtained from lower layer protocols or device driver software within the mobile node. While further details around handling L2 indications as movement hints is an item for further study, at the time of writing this specification the following is considered reasonable:</p> <p>An L2 handover indication may or may not imply L2 movement and L2 movement may or may not imply L3 movement; the correlations might be a function of the type of L2 but might also be a function of actual deployment of the wireless topology.</p>	(do)	C	-	-			
11				<p>Unless it is well-known that an L2 handover indication is likely to imply L3 movement, instead of immediately multicasting a router solicitation it may be better to attempt to verify whether the default router is still bi-directionally reachable. This can be accomplished by sending a unicast Neighbor Solicitation and waiting for a Neighbor Advertisement with the solicited flag set. Note that this is similar to Neighbor Unreachability detection but it does not have the same state machine, such as the STALE state.</p>	(do)	C	-	-			

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
12				If the default router does not respond to the Neighbor Solicitation it makes sense to proceed to multicasting a Router Solicitation.	(do)	B	B	1			
13	11.5.2.	Forming New Care-of Addresses	form a new primary care-of address	After detecting that it has moved from one link to another (i.e., its current default router has become unreachable and it has discovered a new default router), a mobile node SHOULD generate a new primary care-of address using normal IPv6 hanisms.	SHOULD	A	A1	1	X	MN-3-2-1-1-001	
14				A mobile node MAY form a new primary care-of address at any time, but a mobile node MUST NOT send a Binding Update about a new care-of address to its home agent more than MAX_UPDATE_RATE times within a second.	MAY	C	-	-			This function is implementaion-dependent. It does not effect on interoperability.
15					MUST NOT	A	A1	1			In the case that No.14 function is implemented, this function is mandotory.
16				In addition, a mobile node MAY form new non-primary care-of addresses even when it has not switched to a new default router. A mobile node can have only one primary care-of address at a time (which is registered with its home agent), but it MAY have an additional care-of address for any or all of the prefixes on its current link.	MAY	C	-	-			This function is implementaion-dependent. It does not effect on interoperability.
17					MAY	C	-	-			

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
18				Furthermore, since a wireless network interface may actually allow a mobile node to be reachable on more than one link at a time (i.e., within wireless transmitter range of routers on more than one separate link), a mobile node MAY have care-of addresses on more than one link at a time. The use of more than one care-of address at a time is described in Section 11.5.3.	MAY	C	-	-			Multiple Care-of Address
19				As described in Section 4, in order to form a new care-of address, a mobile node MAY use either stateless [13] or stateful (e.g., DHCPv6 I21[28]) Address Autoconfiguration. If a mobile node needs to use a source address (other than the unspecified address) in packets sent as a part of address autoconfiguration, it MUST use an IPv6 link-local address rather than its own IPv6 home address.	MAY	B	B	1	X	MN-3-2-1-1-001 Both tests are for stateless address.	Support of stateful address is optional
20					MUST	A	A1	1	X	MN-0-0-0-1-001	
21				RFC 2462 [13] specifies that in normal processing for Duplicate Address Detection, the node SHOULD delay sending the initial Neighbor Solicitation message by a random delay between 0 and MAX_RTR_SOLICITATION_DELAY. Since delaying DAD can result in	SHOULD	A	A2	1			This function is optional

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
22				significant delays in configuring a new care-of address when the Mobile Node moves to a new link, the Mobile Node preferably SHOULD NOT delay DAD when configuring a new care-of address. The Mobile Node SHOULD delay according to the mechanisms specified in RFC 2462 unless the implementation has a behavior that desynchronizes the	SHOULD	A	A2	1			This function is optional
23				steps that happen before the DAD in the case that multiple nodes experience handover at the same time. Such desynchronizing behaviors might be due to random delays in the L2 protocols or device drivers, or due to the movement detection mechanism that is used.	SHOULD	A	A2	1			This function is optional
24	11.5.3.	Using Multiple Care-of Addresses	Generation of Two or more care-of address	As described in Section 11.5.2, a mobile node MAY use more than one care-of address at a time. Particularly in the case of many wireless networks, a mobile node effectively might be reachable through multiple links at the same time (e.g., with overlapping wireless cells), on which different on-link subnet prefixes may exist.	MAY	C	-	-			Multiple Care-of Address
25				The mobile node MUST ensure that its primary care-of address always has a prefix that is considered on-link by its current default router, i.e., advertised by its current default router in a solicited Router Advertisement.	MUST	A	A1	1	X	MN-0-0-0-1-001	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
26				After selecting a new primary care-of address, the mobile node MUST send a Binding Update containing that care-of address to its home agent.	MUST	A	A1	1	X	MN-0-0-0-1-001	
27				The Binding Update MUST have the Home Registration (H) and Acknowledge (A) bits set its home agent, as described on Section 11.7.1.	MUST	A	A1	1	X	MN-2-1-1-1-001	
28			Retaining of the previous primary care-of address	To assist with smooth handovers, a mobile node SHOULD retain its previous primary care-of address as a (non-primary) care-of address, and SHOULD still accept packets at this address, even after registering its new primary care-of address with its home agent. This is reasonable, since the mobile node could only receive packets at its previous primary care-of address if it were indeed still connected to that link. If the previous primary care-of address was allocated using stateful Address Autoconfiguration [28], the mobile node may not wish to release the address immediately upon switching to a new primary care-of address.	SHOULD	A	A2	1			This function is implementaion-dependent. It does not effect on interoperability.
29					SHOULD	A	A2	1			

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
30				Whenever a mobile node determines that it is no longer reachable through a given link, it SHOULD invalidate all care-of addresses associated with address prefixes that it discovered from routers on prefixes advertised by the (possibly new)current default router.	SHOULD	A	A1	1	X	MN-3-3-1-1-004	
31	11.5.4.	Returning Home	The opportunity of move detection (returning home)	A mobile node detects that it has returned to its home link through the movement detection algorithm in use (Section 11.5.1), when the mobile node detects that its home subnet prefix is again on-link. The mobile node SHOULD then send a Binding Update to its home agent, to instruct its home agent to no longer intercept or tunnel packets for it.	SHOULD	A	A1	1	X	MN-2-1-3-1-001	
32			Transmission of Binding Update at returning home	In this home registration, the mobile node MUST set the Acknowledge (A) and Home Registration (H) bits, set the Lifetime field to zero, and set the care-of address for the binding to the mobile node's own home address.	MUST	A	A1	1	X	MN-2-1-3-1-001	
33				The mobile node MUST use its home address as the source address in the Binding Update.	MUST	A	A1	1	X	MN-2-1-3-1-001	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
34				When sending this Binding Update to its home agent, the mobile node must be careful in how it uses Neighbor Solicitation [12] (if needed) to learn the home agent's link-layer address, since the home agent will be currently configured to intercept packets to the mobile node's home address using Duplicate Address Detection (DAD). In particular, the mobile node is unable to use its home address as the Source Address in the Neighbor Solicitation until the home agent stops defending the home address.	(do)	A	A1	1	X	MN-0-0-0-1-001	
35				Neighbor Solicitation by the mobile node for the home agent's address will normally not be necessary, since the mobile node has already learned the home agent's link-layer address from a Source Link-Layer Address option in a Router Advertisement. However, if there are multiple home agents it may still be necessary to send a solicitation.	MUST	A	A2	1	X	MN-3-4-1-1-001	Multiple Homa Agent support is optional.
36				In this special case of the mobile node returning home, the mobile node MUST multicast the packet, and in addition set the Source Address of this Neighbor Solicitation to the unspecified	MUST	A	A2	1	X	MN-3-4-1-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
37				address (0:0:0:0:0:0:0:0). The target of the Neighbor Solicitation MUST be set to the mobile node's home address. The destination IP address MUST be set to the Solicited-Node multicast address [3]. The home agent will send a multicast Neighbor Advertisement back to the mobile node with the Solicited flag (S) set to zero. In any case, the mobile node SHOULD record the information from the Source Link-Layer Address option or from the advertisement, and set the state of the Neighbor Cache entry for the home agent to REACHABLE.	MUST	A	A2	1	X	MN-3-4-1-1-001	
38					SHOULD	A	A2	1	X	MN-3-4-1-1-001	
39			Transmission of Binding Update at returning home	The mobile node then sends its Binding Update to the home agent's link-layer address, instructing its home agent to no longer serve as a home agent for it. By processing this Binding Update, the home agent will cease defending the mobile node's home address for Duplicate Address Detection and will no longer respond to Neighbor Solicitations for the mobile node's home address. The mobile node is then the only node on the link receiving packets at the mobile node's home address. In addition, when returning home prior to	MUST NOT	A	A1	1	X	MN-3-4-1-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
40				the expiration of a current binding for its home address, and configuring its home address on its network interface on its home link, the mobile node MUST NOT perform Duplicate Address Detection on its own home address, in order to avoid confusion or conflict with its home agent's use of the same address. This rule also applies to the derived link-local address of the mobile node, if the Link Local Address Compatibility (L) bit was set when the binding was created. If the mobile node returns home after the bindings for all of its care-of addresses have expired, the mobile node SHOULD perform DAD.	SHOULD	A	A1	2	X	MN-3-4-1-1-002	
41				After the Mobile Node sends the Binding Update, it MUST be prepared to reply to Neighbor Solicitations for its home address. Such replies MUST be sent using a unicast Neighbor Advertisement to the sender's link-layer address. It is necessary to reply, since sending the Binding	MUST	A	A1	1	X	MN-3-4-1-1-001	
42				Acknowledgement from the home agent may require performing Neighbor Discovery, and the mobile node may not be able to distinguish Neighbor Solicitations coming from the home agent from other Neighbor Solicitations. Note that a race	MUST	A	A1	1	X	MN-3-4-1-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
43			Transmission of Neighbor Advertisement after reception of Binding Acknowledgement	After receiving the Binding Acknowledgement for its Binding Update to its home agent, the mobile node MUST multicast onto the home link (to the all-nodes multicast address) a Neighbor Advertisement [12], to advertise the mobile node's own link-layer address for its own home address. The Target Address in this Neighbor Advertisement MUST be set to the mobile node's home address, and the Advertisement MUST include a Target Link-layer Address option specifying the mobile node's link-layer address. The mobile node MUST multicast such a Neighbor Advertisement for each of its home addresses, as defined by the current on-link prefixes, including its link-local address and site-local address.	MUST	A	A1	1	X	MN-3-4-1-1-001	
44					MUST	A	A1	1	X	MN-3-4-1-1-001	
45					MUST	A	A1	1	X	MN-3-4-1-1-001	
46				The Solicited Flag (S) in these Advertisements MUST NOT be set, since they were not solicited by any Neighbor Solicitation. The Override Flag (O) in these Advertisements MUST be set, indicating that the Advertisements SHOULD override any existing Neighbor Cache entries at any node receiving them.	MUST NOT	A	A1	1	X	MN-3-4-1-1-001	
47					MUST	A	A1	1	X	MN-3-4-1-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
48					SHOULD	A	A1	1	X	MN-3-4-1-1-001	
49				Since multicasting on the local link (such as Ethernet) is typically not guaranteed to be reliable, the mobile node MAY retransmit these Neighbor Advertisements [12] up to MAX_NEIGHBOR_ADVERTISEMENT times to increase their reliability. It is still possible that some nodes on the home link will not receive any of these Neighbor Advertisements, but these nodes will eventually be able to recover through use of Neighbor Unreachability Detection [12].	MAY	C	-	-			IPv6 core function which is not modified to achieve Mobile IPv6 function

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority	
									Supported	Test No.		
1	11.6.1	Sending Home and Care-of Test Init Message		A mobile node that initiates a return routability procedure MUST send (in parallel) a Home Test Init message and a Care-of Test Init messages.	MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-2-2-001	Return Routability	
2				However, if the mobile node has recently received (see Section 5.2.7) one or both home or care-of keygen tokens, and associated nonce indices for the desired addresses, it MAY reuse them.	MAY	B	B	1			Return Routability Procedure between MN and HA	
3				A Home Test Init message MUST be created as described in Section 6.1.3.	MUST	A	A2	1	X	MN-2-1-1-2-001	Return Routability	
4				A Care-of Test Init message MUST be created as described in Section 6.1.4.	MUST	A	A2	1	X	MN-2-1-2-2-001	Return Routability	
5				When sending a Home Test Init or Care-of Test Init message the mobile node MUST record in its Binding Update List the following fields from the messages:	o The IP address of the node to which the message was sent.	MUST	A	A2	1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability
6					o The home address of the mobile node. This value will appear in the Source Address field of the Home Test Init message. When sending the Care-of Test Init message, this address does not appear in the message, but represents the home address for which the binding is desired.	MUST	A	A2	1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
7				o The time at which each of these messages was sent.	MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-2-2-001	Return Routability
8				o The cookies used in the messages.	MUST	A	A2	1	X	MN-2-1-3-2-001 MN-2-1-4-2-001	Return Routability
9				Note that a single Care-of Test Init message may be sufficient even when there are multiple home addresses. In this case the mobile node MAY record the same information in multiple Binding Update List entries.	MAY	B	B	1			Multiple Home Addresses
10	11.6.2	Receiving Return Routability Messages	Upon receiving a packet carrying a Home Test message, a mobile node MUST validate the packet according to the following tests	o The Source Address of the packet belongs to a correspondent node for which the mobile node has a Binding Update List entry with a state indicating that return routability procedure is in progress. Note that there may be multiple such entries.	MUST	A	A2	1	X	MN-2-1-3-2-001	Return Routability
11				o The Binding Update List indicates that no home keygen token has been received yet.	MUST	A	A2	1	X	MN-2-1-3-2-001	Return Routability
12				o The Destination Address of the packet has the home address of the mobile node, and the packet has been received in a tunnel from the home agent.	MUST	A	A2	1	X	MN-2-1-3-2-001	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
13				o The Home Init Cookie field in the message matches the value stored in the Binding Update List.	MUST	A	A2	1	X	MN-2-1-3-2-001	Return Routability
14				Any Home Test message not satisfying all of these tests MUST be silently ignored. Otherwise, the mobile node MUST record the Home Nonce Index and home keygen token in the Binding Update List. If the Binding Update List entry does not have a care-of keygen token, the mobile node SHOULD continue waiting for the Care-of Test message.	MUST	A	A2	2	X	MN-2-1-3-2-003 MN-2-1-3-2-004 MN-2-1-3-2-008 MN-2-1-3-2-011 MN-2-1-3-2-012	Return Routability
15					MUST	A	A2	1	X	MN-2-1-3-2-001	Return Routability
16					SHOULD	A	A2	1	X	MN-2-1-2-2-010	Return Routability
17			Upon receiving a packet carrying a Care-of Test message, a mobile node MUST validate the packet according to the following tests:		o The Source Address of the packet belongs to a correspondent node for which the mobile node has a Binding Update List entry with a state indicating that return routability procedure is in progress. Note that there may be multiple such entries.	MUST	A	A2	1	X	MN-2-1-4-2-001
18				o The Binding Update List indicates that no care-of keygen token has been received yet.	MUST	A	A2	1	X	MN-2-1-4-2-001	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
19				o The Destination Address of the packet is the current care-of address of the mobile node.	MUST	A	A2	1	X	MN-2-1-4-2-001	Return Routability
20				o The Care-of Init Cookie field in the message matches the value stored in the Binding Update List.	MUST	A	A2	1	X	MN-2-1-4-2-001	Return Routability
21				Any Care-of Test message not satisfying all of these tests MUST be silently ignored. Otherwise, the mobile node MUST record the Care-of Nonce Index and care-of keygen token in the Binding Update List. If the Binding Update List entry does not have a home keygen token, the mobile node SHOULD continue waiting for the Home Test message.	MUST	A	A2	2	X	MN-2-1-4-2-003 MN-2-1-4-2-004 MN-2-1-4-2-007 MN-2-1-4-2-010 MN-2-1-4-2-011	Return Routability
22					MUST	A	A2	1	X	MN-2-1-4-2-001	Return Routability
23					SHOULD	A	A2	1	X	MN-2-1-1-2-010	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
24				If after receiving either the Home Test or the Care-of Test message and performing the above actions, the Binding Update List entry has both the home and the care-of keygen tokens, the return routability procedure is complete. The mobile node SHOULD then proceed with sending a Binding Update as described in Section 11.7.2.	SHOULD	A	A2	1	X	MN-2-1-4-2-001	Return Routability
25				Correspondent nodes from the time before this specification was published may not support the Mobility Header protocol. These nodes will respond to Home Test Init and Care-of Test Init messages with an ICMP Parameter Problem code 1. The mobile node SHOULD take such messages as an indication that the correspondent node cannot provide route optimization, and revert back to the use of bidirectionaltunneling.	SHOULD	A	A2	2	X	MN-4-2-2-2-002 MN-4-2-2-2-005	Return Routability
26	11.6.3	Protecting Return Routability Packets		The mobile node MUST support the protection of Home Test and Home Test Init messages as described in Section 10.4.6.	MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	Return Routability
27				The mobile node support the protection of Care-of Test and Care-of Test Init messages	(do)	C	-	-			IPv6 core function which is not modified to achieve Mobile IPv6 function

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	TEST Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
28				When IPsec is used to protect return routability signaling or payload packets, the mobile node MUST set the source address it uses for the outgoing tunnel packets to the current primary care-of address. The mobile node starts to use a new primary care-of address immediately after sending a Binding Update to the home agent to register this new address.	MUST	A	A2	1	X	MN-2-1-1-2-001	Return Routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
1	11.7.1	Sending Binding Updates to the Home Agent	Registration of the primary care-of address	After deciding to change its primary care-of address as described in Sections 11.5.1 and 11.5.2, a mobile node MUST register this care-of address with its home agent in order to make this its primary care-of address.	MUST	A	A1			1	X	MN-2-1-1-1-001	
2			Updating of the primary care-of address	Also, if the mobile node wants the services of the home agent beyond the current registration period, the mobile node SHOULD send a new Binding Update to it well before the expiration of this period, even if it is not changing its primary care-of address.	SHOULD	A	A1			1	X	MN-2-1-2-1-004	
3			Generating of the Binding Update packet	o The Home Registration (H) bit MUST be set in the Binding Update.	MUST	A	A1			1	X	MN-2-1-1-1-001	
4				o The Acknowledge (A) bit MUST be set in the Binding Update.	MUST	A	A1			1	X	MN-2-1-1-1-001	
5				o The packet MUST contain a Home Address destination option, giving the mobile node's home address for the binding.	MUST	A	A1			1	X	MN-2-1-1-1-001	
6				o The care-of address for the binding MUST be used as the Source Address in the packet's IPv6 header, unless an Alternate Care-of Address mobility option is included in the Binding Update.	MUST	A	A1			1	X	MN-2-1-1-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
7				This option(Alternate Care-of Address) MUST be included in all home registrations, as the ESP protocol will not be able to protect care-of addresses in the IPv6 header. (Mobile IPv6 implementations that know they are using IPsec AH to protect a particular message might avoid this option. For brevity the usage of AH is not discussed in this document.)	MUST	A	A1			1	X	MN-2-1-1-1-001	
8				o If the mobile node's link-local address has the same interface identifier as the home address for which it is supplying a new care-of address, then the mobile node SHOULD set the Link-Local Address Compatibility (L) bit.	SHOULD	A	A2			1	X	MN-2-1-1-1-002	this function depends on how to generate Home Address
9				o If the home address was generated using RFC 3041 [18], then the link local address is unlikely to have a compatible interface identifier. In this case, the mobile node MUST clear the Link-Local Address Compatibility (L) bit.	MUST	A	A2			1	X	MN-2-1-1-1-002	this function depends on how to generate Home Address
10				o If the IPsec security associations between the mobile node and the home agent have been established dynamically, and the mobile node has the capability to update its endpoint in	SHOULD	A	A2			1			IKE

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
11				the used key management protocol to the new care-of address every time it moves, the mobile node SHOULD set the Key Management Mobility Capability (K) bit in the Binding Update. Otherwise, the mobile node MUST clear the bit.	MUST	A	A2			1	X	MN-2-1-1-1-004	IKE
12			A setup of a Lifetime field value	The value specified in the Lifetime field SHOULD be less than or equal to the remaining valid lifetime of the home address and the care-of address specified for the binding.	SHOULD	A	A1			1	X	MN-2-1-1-1-006 MN-2-1-1-1-007	
13				Mobile nodes that use dynamic home agent address discovery should be careful with long lifetimes. If the mobile node loses the knowledge of its binding with a specific home agent, registering a new binding with another home agent may be impossible as the previous home agent is still defending the existing binding. Therefore, mobile nodes that use home agent address discovery SHOULD ensure information about their bindings is not lost, de-register before losing this information, or use small lifetimes.	SHOULD	A	A2			1			This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
14			Retransmission of the Binding Update packet	As described in Section 6.1.8, the mobile node SHOULD retransmit this Binding Update to its home agent until it receives a matching Binding Acknowledgement.	SHOULD	A	A2			2	X	MN-2-1-1-1-011	retransmission of Binding Update
15				Once reaching a retransmission timeout period of MAX_BINDACK_TIMEOUT, the mobile node SHOULD restart the process of delivering the Binding Update, but trying instead the next home agent returned during dynamic home agent address discovery (see Section 114.1).	SHOULD	A	A2			2	X	MN-2-1-1-1-013	retransmission of Binding Update
16				If there is only one home agent in the Home Agents List, the mobile node instead SHOULD continue to periodically retransmit the Binding Update at this rate until acknowledged (or until it begins attempting to register a different primary care-of address).	SHOULD	A	A2			2	X	MN-2-1-1-1-013	retransmission of Binding Update
17			Security between the Mobile Node and the Home Agent	Each Binding Update MUST be authenticated as coming from the right mobile node, as defined in Section 5.1.	MUST	A	A1			1	X	MN-2-1-1-1-001	
18		Sending Binding Updates to the Home Agent	Using the Home Address on Binding Update packet	The mobile node MUST use its home address -- either in the Home Address destination option or in the Source Address field of the IPv6 header -- in Binding Updates sent to the home agent.	MUST	A	A1			1	X	MN-2-1-1-1-001 MN-2-1-3-1-001	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
19			Processing to a Binding Update List entry	When sending a Binding Update to its home agent, the mobile node MUST also create or update the corresponding Binding Update List entry, as specified in Section 11.7.2.	MUST	A	A1			1	X	MN-2-1-1-1-001 MN-2-1-2-1-001	
20			A setup of a Sequence Number value	If the sending mobile node has no knowledge of the right Sequence Number value, it may start at any value. If the home agent rejects the value, it sends back a Binding Acknowledgement with status code 135, and the last accepted sequence number in the Sequence Number field of the Binding Acknowledgement. The mobile node MUST store this information and use the next Sequence Number value for the next Binding Update it sends.	MUST	A	A1			1	X	MN-2-1-1-1-001 MN-2-1-2-1-001 MN-2-2-1-1-010	
21			Processing in the case of having two or more Home Address	If the mobile node has additional home addresses, then the mobile node SHOULD send an additional packet containing a Binding Update to its home agent to register the care-of address for each such other home address.	SHOULD	A	A2			1			Multipule Home Addresses
22				If some time elapses during which the mobile node has no binding at the home agent, it might be possible for another node to autoconfigure the mobile node's home address. Therefore, the mobile node MUST treat creation of a new binding with the home agent using an existing home address the same as creation of a new home address.	MUST	A	A1			1	X	MN-2-1-1-1-008	

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
23				In the unlikely event that the mobile node's home address is autoconfigured as the IPv6 address of another network node on the home network, the home agent will reply to the mobile node's subsequent Binding Update with a Binding Acknowledgement containing a Status of 134 (Duplicate Address Detection failed). In this case, the mobile node MUST NOT attempt to re-use the same home address.	MUST NOT	A	A1			2	X	MN-2-2-1-1-009	
24				It SHOULD continue to register care-of addresses for its other home addresses, if any.	SHOULD	A	A2			2			Multipule HoA
25				(Mechanisms outlined in Appendix B.5 may in the future allow mobile nodes to acquire new home addresses to replace the one for which Status 134 was received.)	(do)	B	B			2			stateful address autoconfiguration
26	11.7.2	Corresponde nt Binding Procedure		After the mobile node has sent a Binding Update to its home agent to register a new primary care-of address (as described in Section 11.7.1), the mobile node SHOULD initiate a correspondent registration for each node that already appears in the mobile node's Binding Update List. The initiated procedures can be used to either update or delete binding information in the correspondent node.	SHOULD	A	A2			1	X	MN-3-1-2-2-004	return routability

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
								HA	CN		supported	Test No.	
27				For nodes that do not appear in the mobile node's Binding Update List, the mobile node MAY initiate a correspondent registration at any time after sending the Binding Update to its home agent. Considerations regarding when (and if) to initiate the procedure depend on the specific movement and traffic patterns of the mobile node and are outside the scope of this document.	MAY	C	-			-			This function is implementaion-dependent. It does not effect on interoperability.
28				In addition, the mobile node MAY initiate the procedure in response to receiving a packet that meets all of the following tests: <ul style="list-style-type: none"> o The packet was tunneled using IPv6 encapsulation. o The Destination Address in the tunnel (outer) IPv6 header is equal to any of the mobile node's care-of addresses. o The Destination Address in the original (inner) IPv6 header is equal to one of the mobile node's home addresses. o The Source Address in the tunnel (outer) IPv6 header differs from the Source Address in the original (inner) IPv6 header. o The packet does not contain a Home Test, Home Test Init, Care-of Test, or Care-of Test Init message. 	MAY	B	B			1	X	MN-2-1-1-2-001	This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
29				If a mobile node has multiple home addresses, it becomes important to select the right home address to use in the correspondent registration. The used home address MUST be the Destination Address of the original (inner) packet.	MUST	A	A2			1			In the case that No.28 function is implemented, this function is mandatory.
30				The peer address used in the procedure MUST be determined as follows: <ul style="list-style-type: none"> o If a Home Address destination option is present in the original (inner) packet, the address from this option is used. o Otherwise, the Source Address in the original (inner) IPv6 header of the packet is used. 	MUST	A	A2			1	X	MN-2-1-1-2-001 MN-2-1-1-2-002	In the case that No.28 function is implemented, this function is mandatory.
31				A mobile node MAY also choose to keep its topological location private from certain correspondent nodes, and thus need not initiate the correspondent registration.	MAY	B	B			1			This function is implementaion-dependent. It does not effect on interoperability.
32				Upon successfully completing the return routability procedure, and after receiving a successful Binding Acknowledgement from the Home Agent, a Binding Update MAY be sent to the correspondent node.	MAY	B	B			1	X	MN-3-1-1-2-001 MN-3-1-2-2-004	This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
33				In any Binding Update sent by a mobile node, the care-of address (either the Source Address in the packet's IPv6 header or the Care-of Address in the Alternate Care-of Address mobility option of the Binding Update) MUST be set to one of the care-of addresses currently in use by the mobile node or to the mobile node's home address.	MUST	A	A1			1	X	MN-3-1-1-2-004	
34				A mobile node MAY set the care-of address differently for sending Binding Updates to different correspondent nodes.	MAY	C	-			-			Multipule CoA
35				A mobile node MAY also send a Binding Update to such a correspondent node to instruct it to delete any existing binding for the mobile node from its Binding Cache, as described in Section 6.1.7.	MAY	B	B			1			This function is implementaion-dependent. It does not effect on interoperability.
36		Binding Update message		<u>The deletion of a binding can be indicated by setting the Lifetime field to 0 or by setting the care-of address equal to the home address.</u>	(do)	B	B			1			This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
37			A setup of the Lifetime field value of a Binding Update message	If the care-of address is not set to the mobile node's home address, the Binding Update requests the correspondent node to create or update an entry for the mobile node in the correspondent node's Binding Cache. This is done in order to record a care-of address for use in sending future packets to the mobile node. In this case, the value specified in the Lifetime field sent in the Binding Update SHOULD be less than or equal to the remaining lifetime of the home registration and the care-of address specified for the binding.	SHOULD	A	A2			1	X	MN-3-1-1-2-001	Return Routability
38				The care-of address given in the Binding Update MAY differ from the mobile node's primary care-of address.	MAY	C	-			-			This function is implementaion-dependent. It does not effect on interoperability.
39			Deletion of the Binding Cache entry of the Correspondent Node	If the Binding Update is sent to request the correspondent node to delete any existing Binding Cache entry that it has for the mobile node, the care-of address is set to the mobile node's home address and the Lifetime field set to zero. In this case, generation of the binding management key depends exclusively on the home keygen token (Section 5.2.5). The care-of nonce index SHOULD be set to zero in this case.	SHOULD	A	A2			1			In the case that No.38 function is implemented, this function is mandotory.

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
40			A setup of a care-of address	In keeping with the Binding Update creation rules below, the care-of address MUST be set to the home address if the mobile node is at home, or to the current care-of address if it is away from home.	MUST	A	A2			1	X	MN-3-1-1-2-004	In the case that No.38 function is implemented, this function is mandatory.
41				<u>If the mobile node wants to ensure that its new care-of address has been entered into a correspondent node's Binding Cache, the mobile node needs to request an acknowledgement by setting the Acknowledge (A) bit in the Binding Update.</u>	(do)	B	B			1	X	MN-3-1-1-2-003	This function is implementaion-dependent. It does not effect on interoperability.
42			Binding Update creation	o The current care-of address of the mobile node MUST be sent either in the Source Address of the IPv6 header or in the Alternate Care-of Address mobility option.	MUST	A	A2			1	X	MN-3-1-1-2-004	return routability
43				o The Destination Address of the IPv6 header MUST contain the address of the correspondent node.	MUST	A	A2			1	X	MN-3-1-1-2-001	return routability
44				<u>o The Mobility Header is constructed according to rules in Section 6.1.7 and Section 5.2.6, including the Binding Authorization Data (calculated as defined in Section 6.2.7) and possibly the Nonce Indices mobility options.</u>	(do)	A	A2			1	X	MN-3-1-1-2-001	return routability related to 6.1.7 and 5.2.6

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
45				o The home address of the mobile node MUST be added to the packet in a Home Address destination option, unless the Source Address is the home address.	MUST	A	A2			1	X	MN-3-1-1-2-001	return routability
46				Each Binding Update MUST have a Sequence Number greater than the Sequence Number value sent in the previous Binding Update to the same destination address (if any).	MUST	A	A2			1	X	MN-3-1-2-2-001	return routability
47				<u>The sequence numbers are compared modulo 2**16, as described in Section 9.5.1.</u>	(do)	A	A2			1	X	MN-3-1-2-2-001	return routability
48				If the sending mobile node has no Binding Update List entry, the Sequence Number SHOULD start at a random value.	SHOULD	A	A2			1			This function is implementaion-dependent. It does not effect on interoperability.
49				The mobile node MUST NOT use the same Sequence Number in two different Binding Updates to the same correspondent node, even if the Binding Updates provide different care-of addresses.	MUST NOT	A	A2			1			Multi CoA

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority		Function al	Ver2.0		Reason of TEST Priority
							HA	CN		supported	Test No.	
50	11.7.3	Receiving Binding Acknowledgements	Upon receiving a packet carrying a Binding Acknowledgement, a mobile node MUST validate the packet according to the following tests:	<u>o The packet meets the authentication requirements for Binding Acknowledgements, defined in Sections 6.1.8 and 5. That is, if the Binding Update was sent to the home agent, underlying IPsec protection is used.</u>	(do)	A	A1		1	X	MN-3-2-1-1-001	
51				If the Binding Update was sent to the correspondent node, the authenticator field Binding Authorization Data mobility option MUST be present and have a valid value.	MUST	A	A2		1	X	MN-2-1-1-1-001 MN-3-1-1-2-001	IPSec between MN and CN
52				<u>o The Binding Authorization Data mobility option, if present, MUST be the last option and MUST NOT have trailing padding.</u>	MUST MUST NOT	A	A2		1	X	MN-3-2-1-2-001	return routability
53				<u>o The Sequence Number field matches the Sequence Number sent by the mobile node to this destination address in an outstanding Binding Update.</u>	(do)	A	->	A1 A2	1	X	HA: MN-2-2-1-1-001 CN: MN-3-2-1-2-001	CN:return routability

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							->	HA	CN		supported	Test No.	
54				Any Binding Acknowledgement not satisfying all of these tests MUST be silently ignored.	MUST	A	->	A1	A2	2	X	MN-2-2-1-1-007 MN-3-2-1-2-014	CN:return routability
55				When a mobile node receives a packet carrying a valid Binding Acknowledgement, the mobile node MUST examine the Status field as follows:	MUST	-				-			
56			The check of the Status field value of an effective Binding Acknowledgement message	If the Status field indicates that the Binding Update was accepted (the Status field is less than 128), then the mobile node MUST update the corresponding entry in its Binding Update List to indicate that the Binding Update has been acknowledged; the mobile node MUST then stop retransmitting the Binding Update.	MUST	A	->	A1	A2	1	X	HA: MN-2-2-1-1-001 MN-2-2-1-1-002 MN-2-2-1-1-033 CN: MN-3-2-1-1-001	CN:return routability
					MUST	A				1	X		
57			A re-setup of the Lifetime value of a Binding Update List entry	In addition, if the value specified in the Lifetime field in the Binding Acknowledgement is less than the Lifetime value sent in the Binding Update being acknowledged, then the mobile node MUST subtract the difference between these two Lifetime values from the remaining lifetime for the binding as maintained in the corresponding Binding Update List entry (with a minimum value for the Binding Update List entry lifetime of 0).	MUST	A	->	A1	A2	1	X	HA:MN-2-2-1-1-020 CN:MN-3-2-1-2-017	CN:return routability

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							->	HA	CN		supported	Test No.	
58			Transmission of periodical Binding Update	Mobile nodes SHOULD send a new Binding Update well before the expiration of this period in order to extend the lifetime	SHOULD	A	->	A1	A2	1	X	MN-2-1-2-1-004	CN:return routability
59				o Additionally, if the Status field value is 1 (Accepted but prefix discovery necessary), the mobile node SHOULD send a Mobile Prefix Solicitation message to update its information about the available prefixes.	SHOULD	A	->	A2	A2	2	X	MN-2-2-1-1-002	MPS
60				If the Status field indicates that the Binding Update was rejected (the Status field is greater than or equal to 128), then the mobile node can take steps to correct the cause of the error and retransmit the Binding Update (with a new Sequence Number value), subject to the rate limiting restriction specified in Section 11.8. If this is not done, or it fails, then the mobile node SHOULD record in its Binding Update List that future Binding Updates SHOULD NOT be sent to this destination.	SHOULD	A	->	A1	A2	2	X	MN-2-2-1-1-003 MN-2-2-1-1-037	CN:return routability
61					SHOULD NOT	A	->	A1	A2	2	X	MN-2-2-1-1-003 MN-2-2-1-1-037	CN:return routability
62			Processing of a Binding Refresh Advice mobility option	The treatment of a Binding Refresh Advice mobility option within the Binding Acknowledgement depends on the where the acknowledgement came from. This option MUST be ignored if the acknowledgement came from a correspondent node.	MUST	A		A2		1	X	MN-3-2-1-2-023	CN:return routability

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
63				If it came from the home agent, the mobile node uses Refresh Interval field in the option as a suggestion that it SHOULD attempt to refresh its home registration at the indicated shorter interval.	SHOULD	A	A1			1	X	MN-2-2-1-1-026	
64				If the acknowledgement came from the home agent, the mobile node examines the value of the Key Management Mobility Capability (K) bit. If this bit is not set, the mobile node SHOULD discard key management protocol connections, if any, to the home agent. The mobile node MAY also initiate a new key management connection.	SHOULD	A	A2			1			IKE
					MAY	B	B			1			
65				If this bit is set, the mobile node SHOULD move its own endpoint in the key management protocol connections to the home agent, if any. The mobile node's new endpoint should be the new care-of address. For an IKE phase 1 connection, this means packets sent to this address with the original ISAKMP cookies are accepted.	SHOULD	A	A2			1			IKE

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
66				When a mobile node receives a packet containing a Binding Refresh Request message , <u>the mobile node has a Binding Update List entry for the source of the Binding Refresh Request, and the mobile node wants to retain its binding cache entry at the correspondent node, then the mobile node should start a return routability procedure.</u> If the mobile node wants to have its binding cache entry removed it can either ignore the Binding Refresh Request and wait for the binding to time out, or it can at any time delete its binding from a correspondent node with an explicit binding update with zero lifetime and the care-of address set to the home address. If the mobile node does not know if it needs the binding cache entry, it can make the decision in an implementation dependent manner, such as based on available resources.	(do)	A	A2			1	X	MN-3-4-1-2-001	Binding Refresh Request

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority		Function al	Ver2.0		Reason of TEST Priority
							HA	CN		supported	Test No.	
67	11.7.4	Receiving Binding Refresh Requests		When a mobile node receives a packet containing a Binding Refresh Request message , the mobile node has a Binding Update List entry for the source of the Binding Refresh Request, and the mobile node wants to retain its binding cache entry at the correspondent node, then the mobile node should start a return routability procedure. <u>If the mobile node wants to have its binding cache entry removed it can either ignore the Binding Refresh Request</u> and wait for the binding to time out, or it can at any time delete its binding from a correspondent node with an explicit binding update with zero lifetime and the care-of address set to the home address. If the mobile node does not know if it needs the binding cache entry, it can make the decision in an implementation dependent manner, such as based on available resources.	(do)	A	A2		1			This function is implementaion-dependent. It does not effect on interoperability.

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority		Function al	Ver2.0		Reason of TEST Priority	
							HA	CN		supported	Test No.		
68				When a mobile node receives a packet containing a Binding Refresh Request message , the mobile node has a Binding Update List entry for the source of the Binding Refresh Request, and the mobile node wants to retain its binding cache entry at the correspondent node, then the mobile node should start a return routability procedure. If the mobile node wants to have its binding cache entry removed it can either ignore the Binding Refresh Request and <u>wait for the binding to time out, or it can at any time delete its binding from a correspondent node with an explicit binding update with zero lifetime and the care-of address set to the home address. If the mobile node does not know if it needs the binding cache entry, it can make the decision in an implementation dependent manner, such as based on available resources.</u>	(do)	A	A2			1			This function is implementaion-dependent. It does not effect on interoperability.
69				Note that the mobile node should be careful to not respond to Binding Refresh Requests for addresses not in the Binding Update List to avoid being subjected to a denial of service attack.	(do)	A	A2			2	X	MN-3-4-1-2-005	Binding Refresh Request

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST Priority			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
70				If the return routability procedure completes successfully, a Binding Update message SHOULD be sent as described in Section 11.7.2.	SHOULD	A	A2			1	X	MN-3-4-1-2-001	return routability
71				The Lifetime field in this Binding Update SHOULD be set to a new lifetime, extending any current lifetime remaining from a previous Binding Update sent to this node (as indicated in any existing Binding Update List entry for this node),	SHOULD	A	A2			1	X	MN-3-4-1-2-001	return routability
72				and lifetime SHOULD again be less than or equal to the remaining lifetime of the home registration and the care-of address specified for the binding.	SHOULD	A	A2			1	X	MN-3-4-1-2-001	return routability
73				When sending this Binding Update, the mobile node MUST update its Binding Update List in the same way as for any other Binding Update sent by the mobile node.	MUST	A	A2			1	X	MN-3-4-1-2-001	return routability

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST			Function al	Ver2.0		Reason of TEST Priority
							->	HA	CN		supported	Test No.	
6				The retransmissions by the mobile node MUST use an exponential back-off process, in which the timeout period is doubled upon each retransmission until either the node receives a response or the timeout period reaches the value MAX_BINDACK_TIMEOUT.	MUST	A	->	A1	A2	2	X	MN-4-1-1-1-004 MN-2-1-1-1-013 MN-2-1-1-2-010 MN-2-1-2-2-010	rate limiting of retransmission

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D status	functiona l rank	TEST			Function al	Ver2.0		Reason of TEST Priority
							HA	CN			supported	Test No.	
7				The mobile node MAY continue to send these messages at this slower rate indefinitely.	MAY	C	-			-			rate limiting of retransmission
8				The mobile node SHOULD start a separate back-off process for different message types, different home addresses and different care-of addresses.	SHOULD	A	A2			2			rate limiting of retransmission
10			Rate Limiting	The mobile node MUST NOT send Mobility Header messages of a particular type to a particular correspondent node more than MAX_UPDATE_RATE times within a second.	MUST NOT	A	A2			2			rate limiting of retransmission
11			Change in sequence number	Retransmitted Binding Updates MUST use a Sequence Number value greater than that used for the previous transmission of this Binding Update.	MUST	A	->	A1	A2	2	X	MN-2-1-1-1-013 MN-3-1-2-2-004	rate limiting of retransmission
12			Change in Home Init Cookie/Care-of Init Cookie	Retransmitted Home Test Init and Care-of Test Init messages MUST use new cookie values.	MUST	A	A2			2	X	MN-2-1-1-2-010 MN-2-1-2-2-010	rate limiting of retransmission

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
1	4.1	Mandatory Support	The following requirements apply to both home agents and mobile nodes:	Manual configuration of IPsec security associations MUST be supported.The configuration of the keys is expected to take placeout-of-band, for instance at the time the mobile node is configured to use its home agent.	MUST	A	A1	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001	
2				Automatic key management with IKE [5] MAY be supported. Only IKEv1 is discussed in this document. Other automatic key management mechanisms exist and will appear beyond IKEv1, but this document does not address the issues related to them.	MAY	B	B	1			IKE
3				ESP encapsulation of Binding Updates and Acknowledgements between the mobile node and home agent MUST be supported and MUST be used.	MUST	A	A1	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001	
4					MUST	A	A1	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001	
5				ESP encapsulation of the Home Test Init and Home Test messages tunneled between the mobile node and home agent MUST be supported and SHOULD be used.	MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	Return Routability
6					SHOULD	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	Return Routability

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
7				ESP encapsulation of the ICMPv6 messages related to prefix discovery MUST be supported and SHOULD be used.	MUST	A	A2	1	X	MN-4-1-1-1-001 MN-4-2-1-1-001	
8					SHOULD	A	A2	1	X	MN-4-1-1-1-001 MN-4-2-1-1-001	
9				ESP encapsulation of the payload packets tunneled between the mobile node and home agent MAY be supported and used.	MAY	B	B	1	X	MN-4-1-1-2-001	IPsec protectoin of the payload packets tunneled between the mobile node and home agent
10				If multicast group membership control protocols or stateful address autoconfiguration protocols are supported, payload data protection MUST be supported for those protocols.	MUST	A	A2	1			Multicast
11	4.2	Policy Requirements	The following requirements apply to both home agents and mobile nodes:	As required in the base specification [8], when a packet destined to the receiving node is matched against IPsec security policy or selectors of a security association, an address appearing in a Home Address destination option is considered as the source address of the packet.	(do)	A	A1/A2	1	X	MN-2-1-1-1-001 MN-4-1-1-1-001	BU : A1 MPS : A2

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
12				Similarly, a home address within a Type 2 Routing header destined to the receiving node is considered as the destination address of the packet, when a packet is matched against IPsec security policy or selectors of a security association.	(do)	A	A1/A2	1	X	MN-2-2-1-1-001 MN-4-2-1-1-001	BA : A1 MPA : A2
13				Similar implementation considers apply to the Routing header processing as was described above for the Home Address destination option.	(do)	A	A1/A2	1	X	MN-2-2-1-1-001 MN-4-2-1-1-001	BA : A1 MPA : A2
14				When IPsec is used to protect return routability signaling or payload packets, this protection MUST only be applied to the return routability packets entering the IPv6 encapsulated tunnel interface between the mobile node and the home agent. This can be achieved, for instance, by defining the security policy database entries specifically for the tunnel interface. That is, the policy entries are not generally applied on all traffic on the physical interface(s) of the nodes, but rather only on traffic that enters this tunnel.	MUST	A	A2	1	X	MN-2-1-1-2-001	Return Routability IPsec Protection of the payload packets tunneled between MN and HA

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
15				The authentication of mobile nodes MAY be based either on machine or user credentials. Note that multi-user operating systems typically allow all users of a node to use any of the IP addresses assigned to the node. This limits the capability of the home agent to restrict the use of a home address to a particular user in such environment. Where user credentials are applied in a multi-user environment, the configuration should authorize all users of the node to control all home addresses assigned to the node.	MAY	B	B	1			Machine / user credentials
16				When the mobile node returns home and de-registers with the Home Agent, the tunnel between the home agent and the mobile node's care-of address is torn down. The security policy entries, which were used for protecting tunneled traffic between the mobile node and the home agent MUST be made inactive (for instance, by removing them and installing them back later through an API). The corresponding security associations could be kept as they are or deleted depending on how they were created. If the security associations were created dynamically using IKE, they are automatically deleted when they expire. If the security associations were created through manual	MUST	A	A1	1	X	MN-1-1-2-1-001	
17					MUST	A	A1	1	X	MN-1-1-2-1-001	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
18				configuration, they MUST be retained and used later when the mobile node moves away from home again. The security associations protecting Binding Updates and Acknowledgements, and prefix discovery SHOULD NOT be deleted as they do not depend on care-of addresses and can be used again.	SHOULD NOT	A	A1/A2	1	X	MN-1-1-2-1-001	BU/BA : A1 MPS/MPA : A2
19			The following rules apply to mobile nodes:	The mobile node MUST use the Home Address destination option in Binding Updates and Mobile Prefix Solicitations, sent to the home agent from a care-of address.	MUST	A	A1/A2	1	X	MN-2-1-1-1-001 MN-4-1-1-1-001	BU : A1 MPS : A2
20	4.3	IPsec Protocol Processing	The following requirements apply to both home agents and mobile nodes:	When securing Binding Updates, Binding Acknowledgements, and prefix discovery, both the mobile nodes and the home agents MUST support and SHOULD use the Encapsulating Security Payload (ESP) [4] header in transport mode and MUST use a non-null payload authentication algorithm to provide data origin authentication, connectionless integrity and optional anti-replay protection.	MUST	A	A1/A2	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001 MN-4-1-1-1-001 MN-4-2-1-1-001	BU/BA : A1 MPS/MPA : A2
21					SHOULD	A	A1/A2	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001 MN-4-1-1-1-001 MN-4-2-1-1-001	BU/BA : A1 MPS/MPA : A2

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
22					MUST	A	A1/A2	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001 MN-4-1-1-1-001 MN-4-2-1-1-001	BU/BA : A1 MPS/MPA : A2
23				Tunnel mode IPsec ESP MUST be supported and SHOULD be used for the protection of packets belonging to the return routability procedure. A non-null encryption transform and a non-null authentication algorithm MUST be applied.	MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	HoTI/HoT
24					SHOULD	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	HoTI/HoT
25					MUST	A	A2	1	X	MN-2-1-1-2-001 MN-2-1-3-2-001	HoTI/HoT

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
26			The following rules apply to mobile nodes:	When ESP is used to protect Binding Updates, there is no protection for the care-of address which appears in the IPv6 header outside the area protected by ESP. It is important for the home agent to verify that the care-of address has not been tampered with. As a result, the attacker would have redirected the mobile node's traffic to another address. In order to prevent this, Mobile IPv6 implementations MUST use the Alternate Care-of Address mobility option in Binding Updates sent by mobile nodes while away from home. The exception to this is when the mobile node returns home and sends a Binding Update to the home agent in order to de-register. In this case no Alternate Care-of Address option is needed, as described in Section 3.1.	MUST	A	A1	1	X	MN-2-1-1-1-001	

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
27				When IPsec is used to protect return routability signaling or payload packets, the mobile node MUST set the source address it uses for the outgoing tunnel packets to the current primary care-of address. The mobile node starts to use a new primary care-of address immediately after sending a Binding Update to the home agent to register this new address. Similarly, it starts to use the new address as the required destination address of tunneled packets received from the home agent.	MUST	A	A2/B	1	X	MN-2-1-1-2-001 MN-4-1-1-2-001	HoTI : A2 payload packets : B
28	4.4	Dynamic Keying	The following requirements apply to both home agents and mobile nodes:	If anti-replay protection is required, dynamic keying MUST be used. IPsec can provide anti-replay protection only if dynamic keying is used (which may not always be the case). IPsec also does not guarantee correct ordering of packets, only that they have not been replayed. Because of this, sequence numbers within the Mobile IPv6 messages are used to ensure correct ordering. However, if the 16 bit Mobile IPv6 sequence number space is cycled through, or the home agent reboots and loses its state regarding the sequence numbers, replay and reordering attacks become possible. The use of dynamic keying, IPsec anti-replay protection, and the Mobile IPv6 sequence numbers can together prevent such attacks.	MUST	A	A2	1			IKE

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No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
29				If IKE version 1 is used with preshared secrets in main mode, it determines the shared secret to use from the IP address of the peer. With Mobile IPv6, however, this may be a care-of address and does not indicate which mobile node attempts to contact the home agent. Therefore, if preshared secret authentication is used in IKEv1 between the mobile node and the home agent then aggressive mode MUST be used. Note also that care needs to be taken with phase 1 identity selection. Where the ID_IPV6_ADDR Identity Payloads is used, unambiguous mapping of identities to keys is not possible. (The next version of IKE may not have these limitations.)	MUST	A	A2	1			IKE
30			The following rules apply to mobile nodes:	In addition to the rules above, if dynamic keying is used, the key management protocol MUST use the care-of address as the source address in the protocol exchanges with the mobile node's home agent.	MUST	A	A2	1			IKE
31				However, the IPsec security associations with the mobile node's home agent use home addresses. That is, the IPsec security associations MUST be requested from the key management protocol using the home address of the mobile node as the client identity.	MUST	A	A2	1			IKE

Functional classification and test priority for MN

No.	I-D Section	I-D Section title	Item	Functional Specification	I-D Status	Function al Rank	Test Priority	Function al	Ver2.0		Reason of TEST Priority
									Supported	Test No.	
32				The security associations for protecting Binding Updates and Acknowledgements are requested for the Mobility header protocol in transport mode and for specific IP addresses as endpoints. No other selectors are used. Similarly, the security associations for protecting prefix discovery are requested for the ICMPv6 protocol and the specific IP addresses, again without other selectors. Security associations for payload and return routability protection are requested for a specific tunnel interface and either the payload protocol or the Mobility header protocol, in tunnel mode. In this case one requested endpoint is an IP address and the other one is a wildcard, and there are no other selectors.	(do)	A/B	A1/A2/B	1	X	MN-2-1-1-1-001 MN-2-2-1-1-001 MN-4-1-1-1-001 MN-4-2-1-1-001 MN-2-1-1-2-001 MN-2-1-3-2-001 MN-4-1-1-2-001	BU/BA : A1 MPS/MPA, HoTI/HoT : A2 IPsec Protection of the payload packets tunneled between MN and HA : B
33				If the mobile node has used IKE version 1 to establish security associations with its home agent, it should follow the procedures discussed in Section 11.7.1 and 11.7.3 of the base specification [8] to determine whether the IKE endpoints can be moved or if IKE phase 1 has to be re-established.	(do)	A	A2	1			IKE