

## 5.1 Mobile IPv6 functions

This section describes the Mobile IPv6 functions and their classification for each type of Mobile IPv6 node from the viewpoint of the classifications given in section 2.3.

**Table 5-1 the Mobile IPv6 functions and its classifications for each Mobile IPv6 node**

No.	Type of nodes	Functional Specification	I-D Status	Functional Rank
1	IPv6 Nodes with Support for Route Optimization	The node <b>MUST</b> be able validate a Home Address option using an existing Binding Cache entry, as described in Section 9.3.1.	MUST	A
2		The node <b>MUST</b> be able to insert a type 2 routing header into packets to be sent to a mobile node, as described in Section 9.3.2.	MUST	A
3		Unless the correspondent node is also acting as a mobile node, it <b>MUST</b> ignore type 2 routing headers and drop all packets that it has received with such headers.	MUST	A
4		The node <b>SHOULD</b> be able to interpret ICMP messages as described in Section 9.3.4.	SHOULD	A
5		The node <b>MUST</b> be able to send Binding Error messages as described in Section 9.3.3.	MUST	A
6		The node <b>MUST</b> be able to process Mobility Headers as described in Section 9.2.	MUST	A
7		The node <b>MUST</b> be able to participate in a return routability procedure (Section 9.4).	MUST	A
8		The node <b>MUST</b> be able to process Binding Update messages (Section 9.5).	MUST	A
9		The node <b>MUST</b> be able to return a Binding Acknowledgement (Section 9.5.4).	MUST	A
10		The node <b>MUST</b> be able to maintain a Binding Cache of the bindings received in accepted Binding Updates, as described in Section 9.1 and Section 9.6.	MUST	A
11		The node <b>MUST</b> allow route optimization to be administratively enabled or disabled. The default <b>SHOULD</b> be enabled.	MUST/SHOULD	A
12	IPv6 Home Agents	Every home agent <b>MUST</b> be able to maintain an entry in its Binding Cache for each mobile node for which it is serving as the home agent (Section 10.1 and Section 10.3.1).	MUST	A

13	IPv6 Home Agents	Every home agent <b>MUST</b> be able to intercept packets (using proxy Neighbor Discovery [12]) addressed to a mobile node for which it is currently serving as the home agent, on that mobile node's home link, while the mobile node is away from home (Section 10.4.1).	MUST	A
14		Every home agent <b>MUST</b> be able to encapsulate [15] such intercepted packets in order to tunnel them to the primary care-of address for the mobile node indicated in its binding in the home agent's Binding Cache (Section 10.4.2).	MUST	A
15		Every home agent <b>MUST</b> support decapsulating [15] reverse tunneled packets sent to it from a mobile node's home address. Every home agent <b>MUST</b> also check that the source address in the tunneled packets corresponds to the currently registered location of the mobile node (Section 10.4.5).	MUST	A
16		The node <b>MUST</b> be able to process Mobility Headers as described in Section 10.2.	MUST	A
17		Every home agent <b>MUST</b> be able to return a Binding Acknowledgement in response to a Binding Update (Section 10.3.1).	MUST	A
18		Every home agent <b>MUST</b> maintain a separate Home Agents List for each link on which it is serving as a home agent, as described in Section 10.1 and Section 10.5.1.	MUST	A
19		Every home agent <b>MUST</b> be able to accept packets addressed to the Mobile IPv6 Home-Agents anycast address [16] for the subnet on which it is serving as a home agent, and <b>MUST</b> be able to participate in dynamic home agent address discovery (Section 10.5).	MUST	A
20		Every home agent <b>SHOULD</b> support a configuration mechanism to allow a system administrator to manually set the value to be sent by this home agent in the Home Agent Preference field of the Home Agent Information Option in Router Advertisements that it sends (Section 7.4).	SHOULD	A

21		Every home agent <b>SHOULD</b> support sending ICMP Mobile Prefix Advertisements (Section 6.8), and <b>SHOULD</b> respond to Mobile Prefix Solicitations (Section 6.7). If supported, this behavior <b>MUST</b> be configurable, so that home agents can be configured to avoid sending such Prefix Advertisements according to the needs of the network administration in the home domain.	SHOULD	A
22		Every home agent <b>MUST</b> support IPsec ESP for protection of packets belonging to the return routability procedure (Section 10.4.6).	MUST	A
23		Every home agent <b>SHOULD</b> support the multicast group membership control protocols as described in Section 10.4.3. If this support is provided, the home agent <b>MUST</b> be capable of using it to determine which multicast data packets to forward via the tunnel to the mobile node.	SHOULD	A
24	IPv6 Home Agents	Home agents <b>MAY</b> support stateful address autoconfiguration for mobile nodes as described in Section 10.4.4.	MAY	B
25	IPv6 Mobile Nodes	The node <b>MUST</b> maintain a Binding Update List (Section 11.1).	MUST	A
26		The node <b>MUST</b> support sending packets containing a Home Address option (Section 11.3.1), and follow the required IPsec interaction (Section 11.3.2).	MUST	A
27		The node <b>MUST</b> be able to perform IPv6 encapsulation and decapsulation [15].	MUST	A
28		The node <b>MUST</b> be able to process type 2 routing header as defined in Section 6.4 and Section 11.3.3.	MUST	A
29		The node <b>MUST</b> support receiving a Binding Error message (Section 11.3.6).	MUST	A
30		The node <b>MUST</b> support receiving ICMP errors (Section 11.3.5).	MUST	A
31		The node <b>MUST</b> support movement detection, care-of address formation, and returning home (Section 11.5).	MUST	A
32		The node <b>MUST</b> be able to process Mobility Headers as described in Section 11.2.	MUST	A
33		The node <b>MUST</b> support the return routability procedure (Section 11.6).	MUST	A

34	The node <b>MUST</b> be able to send Binding Updates, as specified in Section 11.7.1 and Section 11.7.2.	MUST	A
35	The node <b>MUST</b> be able to receive and process Binding Acknowledgements, as specified in Section 11.7.3.	MUST	A
36	The node <b>MUST</b> support receiving a Binding Refresh Request (Section 6.1.2), by responding with a Binding Update.	MUST	A
37	The node <b>MUST</b> support receiving Mobile Prefix Advertisements (Section 11.4.3) and reconfiguring its home address based on the prefix information contained therein.	MUST	A
38	The node <b>SHOULD</b> support use of the dynamic home agent address discovery mechanism, as described in Section 11.4.1.	SHOULD	A
39	The node <b>MUST</b> allow route optimization to be administratively enabled or disabled. The default <b>SHOULD</b> be enabled.	MUST/SHOULD	A
40	The node <b>MAY</b> support the multicast address listener part of a multicast group membership protocol as described in Section 11.3.4. If this support is provided, the mobile node <b>MUST</b> be able to receive tunneled multicast packets from the home agent.	MAY/MUST	B
41	The node <b>MAY</b> support stateful address autoconfiguration mechanisms such as DHCPv6 [28] on the interface represented by the tunnel to the home agent.	MAY	B