

2. Scope of the Mobile IPv6 Conformance Test version 2.0 and the test function it provides

2.1 Reference Network Architecture

Figure 2-1 shows the network architecture covered by Mobile IPv6 Conformance Test version 2.0.

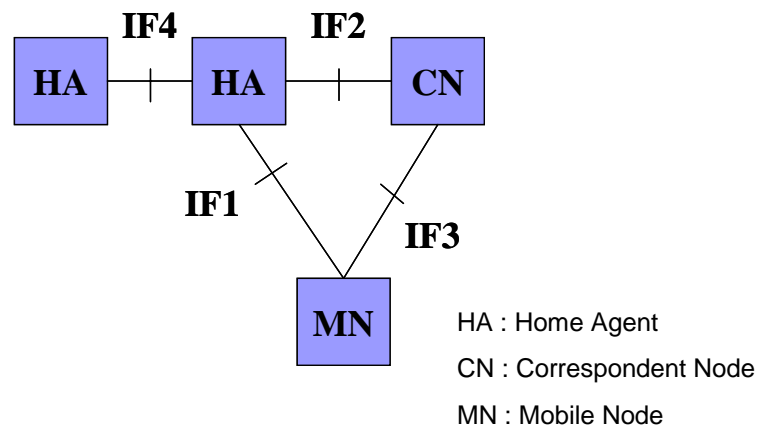


Figure 2-1 Reference Network Architecture

Mobile IPv6 Conformance Test only covers Mobile IPv6 specifications. Testing of generic IPv6 functions is beyond the scope of this test; however, some of the generic IPv6 functions are necessary to Mobile IPv6 functions and are thus supported in this test.

2.2 Related standards

This document covers the functions specified in the following IETF Internet-Drafts.

- (1) draft-ietf-mobileip-ipv6-24.txt
- (2) draft-ietf-mobileip-mipv6-ha-ipsec-05.txt
- (3) <http://www.iana.org/assignments/protocol-numbers>
- (4) <http://www.iana.org/assignments/ipv6-parameters>
- (5) <http://www.iana.org/assignments/icmpv6-parameters>

2.3 Classification of functions

This section describes ways to classify the Mobile IPv6 functions needed for interoperability and provided as test functions in the Mobile IPv6 Conformance Test.

2.3.1 Viewpoints of the classification

The classification of Mobile IPv6 functions is from the following viewpoints.

- (A) IETF specification
- (B) Functional Rank
- (C) Test Priority

(D) Functional Category (Normal, Abnormal)

(A) IETF specification

IETF specification refers to the classification of each of the Mobile IPv6 functions from the viewpoint of importance for implementation as indicated by usage of the keywords below in the Internet Draft.

The keywords “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” are defined in RFC 2119

(B) Functional Rank

Functional Rank refers to classification of functions according to their importance to interoperability.

This classification is also based on descriptions in the IETF Internet Draft; that is, functions with descriptions “MUST”, “SHOULD”, “MUST NOT”, and “SHOULD NOT” are basically classified as Rank-A, and functions with “MAY” are classified as either Rank B or Rank C, according to their importance to interoperability.

The Mobile IPv6 Conformance Test is intended to support the functions of Rank A and B but not those of Rank C; however, version 2.0 of the Mobile IPv6 Conformance Test only supports Rank A.

Table 2-1 shows the definition of Functional Rank and samples of the functions classified to Rank-B or Rank-C.

Table 2-1 Definitions of Functional Rank

	Definitions of Functional Rank
Rank-A	These functions are essential to interoperability and should basically be implemented
Rank-B	Implementation of these functions is optional, but they are important to interoperability: e.g.) <ul style="list-style-type: none">- Return Routability Procedure between MN and HA- Dynamic Home Agent Address Discovery- ICMP Mobile Prefix Solicitation/ ICMP Mobile Prefix Advertisement- IKE- Multicast

	<ul style="list-style-type: none"> - Usage of Alternate Care-of Address in the Binding Update to CN - Renumbering - Stateful address autoconfiguration etc
Rank-C	<p>Implementation of these functions is optional; they are not required for interoperability and are beyond the scope of the Mobile IPv6 Conformance Test:</p> <p>e.g.)</p> <ul style="list-style-type: none"> - Internal operations which do not appear in any interface procedures - Functions that use upper or lower layer information (operations which the Mobile IPv6 layer is not conscious of) - Site-local address - Multiple Care-of Addresses - Local cache replacement policy - Rate limiting of retransmission - Promiscuous mode etc.

(C) Test Priority

Test Priority is the classification from the viewpoint of the importance of testing.

Testing of the functions classified as Priority 1 is included in the minimum test package, for the testing of functions which are essential to interoperability.

Testing of the functions classified as Priority 2 may not be needed; this depends on the application to be used. The testing of Priority 2 (Optional Test) items is selectively incorporated in the test package according to the functions to be supported by the HA/MN/CN.

The functions assigned Rank A above are basically classified as Priority 1, however; some of the Rank A functions, i.e. those which are not always implemented, should be classified as Priority 2. All functions with Rank B are classified as Priority 2.

The Mobile IPv6 Conformance Test version 2.0 supports functions with Priority 1 and some of those with Priority 2.

Table 2-2 gives the definitions of Test Priority and examples of functions thus classified

Table 2-2 Definitions of Test Priority

	Definitions of Test Priority
Priority1 (Required Test)	Testing of the functions classified as Priority 1 is included in the minimum test package, for the testing of functions that are essential to interoperability.
Priority2 (Optional Test)	<p>Testing of the functions classified as Priority 2 may not be needed; this depends on the application to be used.</p> <p>The testing of Priority 2 (Optional Test) items is selectively incorporated in the test package according to the functions to be supported by the HA/MN/CN.</p> <ul style="list-style-type: none"> - Return Routability Procedure between MN and HA - Dynamic Home Agent Address Discovery - ICMP Mobile Prefix Solicitation/ ICMP Mobile Prefix Advertisement - IKE - Multicast - Usage of Alternate Care-of Address in the Binding Update to CN - Renumbering - Stateful address autoconfiguration - Internal operations which do not appear in any interface procedures - Functions that use upper or lower layer information (operations which the Mobile IPv6 layer is not conscious of) - Site-local address - Multiple Care-of Addresses - Local cache replacement policy - Rate limiting of retransmission - Promiscuous mode <p>etc.</p>

(D) Functional Category (Normal, Abnormal)

A Functional Category is a classification of the operation of each function on the Mobile IPv6 node as “Normal” or “Abnormal”.

“Normal” means the situation on each type of Mobile IPv6 node where the specified function is executed correctly and the node performs only legal operations.

“Abnormal” means the situation on each type of Mobile IPv6 node where the specified function is not correctively executed and the node performs illegal operations.

Functions in both of these functional categories are in each of the Test Priority (Priority1 and Priority 2) categories.

The Mobile IPv6 Conformance Test version 2.0 only supports the testing of “Normal” operations as the core version of this test. The incorporation of tests for illegal operations is for further study’.

Table 2-3 gives the definitions of Functional Category.

Table 2-3 Definitions of Functional Category


	Definitions of Functional Category
Normal	The situation on each type of Mobile IPv6 node where the specified function is executed correctly and the node performs only legal operations.
Abnormal	The situation at each type of Mobile IPv6 node where the specified function is not correctively executed and the node performs illegal operations.

2.3.2 Relationships among the classifications of functions and test items

Table 2-4 shows relationships among the classifications of functions and test items and coverage by version 2.0 of the Mobile IPv6 Conformance Test.

Table 2-4 Classifications of and coverage by version 2.0 of the Mobile IPv6 Conformance Test

(A) IETF	(B) Functional Rank	(C) Test Priority	(D) Functional Category	
MUST MUST NOT	Rank-A	Priority 1 (Required Test)	Normal	Abnormal
		Priority 2 (Optional Test)	Normal	Abnormal
MAY	Rank-B	Priority 2 (Optional Test)	Normal	Abnormal
	Rank-C	Not Supported		

 supported by version 2.0 except the function shown in Table 2-1 and Table 2-2*

 not supported by version 2.0

* Note: there are a few exceptions.