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Technical Specification

**Methods for Testing and Specification (MTS);
Internet Protocol Testing (IPT);
IPv6 Mobility;
Conformance Test Suite Structure and
Test Purposes (TSS&TP)**



Reference

DTS/MTS-IPT-015-IPv6-MobTSS_TP

Keywords

IP, IPv6, mobility, testing, TSS&TP

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Methods for Testing and Specification (MTS).

1 Scope

The purpose of the present document is to provide Test Suite Structure and Test Purposes (TSS&TP) for conformance tests of the mobility IPv6 protocol based on the requirements defined in the IPv6 requirements catalogue (TS 102 559 [2]) and written according to the guidelines of TS 102 351 [1], ISO/IEC 9646-2 [4] and ETS 300 406 [5].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

- [1] ETSI TS 102 351: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".
- [2] ETSI TS 102 559: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Mobility; Requirements Catalogue".
- [3] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
- [4] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite specification".
- [5] ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [6] IETF RFC 3775: "Mobility Support in IPv6".
- [7] IETF RFC 4068: "Fast Handovers for Mobile IPv6".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

abstract test case: Refer to ISO/IEC 9646-1 [3].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [3].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [3].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [3].

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|------|---------------------------------|
| ATS | Abstract Test Suite |
| IETF | Internet Engineering Task Force |
| IPv6 | Internet Protocol version 6 |
| IUT | Implementation Under Test |
| RC | Requirements Catalogue |
| RQ | Requirement |
| TP | Test Purpose |
| TSS | Test Suite Structure |

4 Test Suite Structure (TSS)

Test Purposes have been written for IPv6 mobile nodes, correspondent nodes and home agents according to the Requirements (RQ) of the Requirements Catalogue (RC) in TS 102 559 [2]. Test Purposes have been written for behaviours requested with "MUST" or "SHOULD", optional behaviour described with "MAY" or similar wording indicating an option has not been turned into Test Purposes.

The Test Purposes have been divided into two groups:

Group 1: IPv6 Mobility - RFC 3775 [6]

Group 2: IPv6 Mobility - RFC 4068 [7]

The sub-grouping of these two group follows the structure of the RC.

Group 1 RFC 3775 [6]

Group 1.1 Overview of Mobile IPv6 Security

Group 1.1.1 Return Routability Procedure

Group 1.1.2 Authorizing Binding Management Messages

Group 1.1.3 Updating Node Keys and Nonces

Group 1.2 New IPv6 Protocol, Message Types, and Destination Option

Group 1.2.1 Home Address option

Group 1.3 Modifications to IPv6 Neighbor Discovery

Group 1.3.1 Modified Router Advertisement Message Format

Group 1.3.2 New Advertisement Interval Option Format

Group 1.3.3 New Home Agent Information Option Format

Group 1.4 Correspondent_Node Operation

Group 1.4.1 Processing Mobility Headers

Group 1.4.2 Packet Processing

Group 1.4.2.1 Receiving Packets with Home Address Option

Group 1.4.3 Sending Binding Error Messages

Group 1.4.4 Return Routability Procedure

Group 1.4.4.1 Receiving Home Test Init Messages

Group 1.4.4.2 Receiving care-of test Init Messages

Group 1.4.5 Processing Bindings

Group 1.4.5.1 Receiving binding updates

Group 1.4.5.2 Requests to Delete a Binding

Group 1.4.5.3 Sending Binding Acknowledgements

Group 1.4.5.4 Sending Binding Refresh Requests

Group 1.5 Home Agent Operation

Group 1.5.1 Processing Bindings

Group 1.5.1.1 Primary Care-of Address Registration

Group 1.5.1.2 Primary Care-of Address De-Registration

Group 1.5.2 Packet Processing

Group 1.5.2.1 Intercepting Packets for a Mobile Node

Group 1.5.2.2 Processing Intercepted Packets

Group 1.5.2.3 Multicast Membership Control

Group 1.5.2.4 Handling Reverse Tunneled Packets

Group 1.5.3 Dynamic Home Agent Address Discovery

Group 1.5.3.1 Receiving Router Advertisement messages

Group 1.5.4 Sending Prefix Information to the Mobile Node

Group 1.5.4.1 Scheduling Prefix Deliveries

Group 1.6 Mobile Node Operation

Group 1.6.1 Packet Processing

Group 1.6.1.1 Sending Packets While Away From Home

Group 1.6.1.2 Interaction With Outbound IPsec Processing

Group 1.6.1.3 Receiving Packets While Away From Home

Group 1.6.1.4 Routing Multicast Packets

Group 1.6.1.5 Receiving Binding Error Messages

Group 1.6.2 Home Agent and Prefix Management

Group 1.6.2.1 Dynamic Home Agent Address Discovery

Group 1.6.2.2 Sending Mobile Prefix Solicitations

Group 1.6.2.3 Receiving Mobile Prefix Advertisements

Group 1.6.3 Movement

Group 1.6.3.1 Using Multiple Care-of Addresses

Group 1.6.3.2 Returning Home

Group 1.6.4 Return Routability Procedure

Group 1.6.4.1 Receiving Test Messages

Group 1.6.5 Processing Bindings

Group 1.6.5.1 Sending binding updates To The Home Agent

Group 1.6.5.2 Receiving Binding Acknowledgements

Group 1.6.5.3 Receiving Binding Refresh Requests

Group 2 RFC 4068 [7]

Group 2.1 Protocol Operation of Network-initiated Handover

Group 2.2 Protocol Details

Group 2.3 Miscellaneous

Group 2.3.1 Handover Capability Exchange

Group 2.3.2 Fast or Erroneous Movement

Annex A (normative): Test Purposes (TP)

The Test Purposes have been written in the formal notation TPlan as described in annex A of TS 102 351 [1]. This original textual output file ASCII file (MOB.tplan) is contained in archive TS_102595v010101p0.zip which accompanies the present document. The raw text file has been converted to a table format in this annex to allow better readability.

The two formats shall be considered equivalent. In the event that there appears to be syntactical or semantic differences between the two then the textual TPlan representation takes precedence over the table format in this annex.

A.1 IPv6 Mobility - RFC 3775

A.1.1 Overview of mobile IPv6 security

A.1.1.1 Return routability procedure

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1048_01 | | |
| Summary: | Test of Return Routability Procedure at mobile node | | |
| References: | RQ_001_1048, RQ_001_1049, RQ_001_1047, RQ_001_1053, RQ_001_1054, RQ_001_1709, RQ_001_1711, RQ_001_1712 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1048_01 |
| <pre> with { IUT away_from_home IUT 'assigned a care-of address' IUT ready to start Return_Routability_Procedure } ensure that { when { IUT is requested to start Return_Routability_Procedure } then { IUT sends Home_Test_Init to Home_Agent in tunneled_mode containing source_address set to home_address and containing destination_address set to Correspondent_Node_address and containing home_init_cookie and IUT sends Care_of_Test_Init to Correspondent_Node containing source_address set to care_of_address and containing destination_address set to Correspondent_Node_address and containing care_of_init_cookie } } </pre> | | | |

| Test Purpose | | |
|---|--|----------------------------------|
| Identifier: | TP_MOB_1050_01 | |
| Summary: | Test of Return Routability Procedure at correspondent node | |
| References: | RQ_001_1050, RQ_001_1051, RQ_001_1056, RQ_001_1057, RQ_001_1058, RQ_001_1059, RQ_001_1046, RQ_001_1033, RQ_001_1034, RQ_001_1035 | |
| IUT Role:: | Correspondent_Node | Test Case: TC_MOB_1050_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Home_Test_Init from Home_Agent containing source_address set to home_address and containing destination_address set to Correspondent_Node_address and containing home_init_cookie and IUT receives Care_of_Test_Init from Mobile_Node containing source_address set to care_of_address and containing destination_address set to Correspondent_Node_address and containing care_of_init_cookie } then { IUT sends Home_Test to Home_Agent containing source_address set to Correspondent_Node_address and containing destination_address set to home_address and containing home_init_cookie and containing home_keygen_token set to 'First (64, HMAC_SHA1 (Kcn, (home address nonce 0)))' and containing home_nonce_index and IUT sends Care_of_Test to Mobile_Node containing source_address set to Correspondent_Node_address and containing destination_address set to care_of_address and containing care_of_init_cookie and containing care_of_keygen_token set to 'First (64, HMAC_SHA1 (Kcn, (care-of address nonce 1)))' and containing care_of_nonce_index } } </pre> | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1052_01 | | |
| Summary: | Test of answers of Return Routability Procedure at mobile node | | |
| References: | RQ_001_1052, RQ_001_1061, RQ_001_2014, RQ_001_2034 | | |
| IUT Role:: | Mobile_Node | Test Case: | TC_MOB_1052_01 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and IUT having sent Care_of_Test_Init } ensure that { when { IUT receives home_test from Home_Agent in tunneled_mode containing source_address set to Correspondent_Node_address and containing destination_address set to home_address and containing ESP_header and containing home_init_cookie and containing home_keygen_token and containing home_nonce_index and IUT receives Care_of_Test_Init from Correspondent_Node containing source_address set to Correspondent_Node_address and containing destination_address set to care_of_address and containing care_of_init_cookie and containing Care_of_keygen_token and containing care_of_nonce_index } then { IUT sends Binding_Update to Correspondent_Node } } </pre> | | | |

A.1.1.2 Authorizing binding management messages

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1063_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1063, RQ_001_1064, RQ_001_1744, RQ_001_1745, RQ_001_1750, RQ_001_1751, RQ_001_1754, RQ_001_1759 | | |
| IUT Role:: | Mobile_Node | Test Case: | TC_MOB_1063_01 |
| <pre> with { IUT away_from_home and IUT completed Return_Routability_Procedure } ensure that { when { IUT is requested to send a Binding_Update } then { IUT sends Binding_Update to Correspondent_Node containing source_address set to care_of_address and containing destination_address set to Correspondent_Node_address and containing a sequence_number and containing (nonce_indices_option containing home_nonce_index and containing care_of_nonce_index) and containing binding_authorization_data_option set to 'First (96, HMAC_SHA1 (Kbn, (care-of address correspondent BU)))' } } </pre> | | | |

A.1.1.3 Updating node keys and nonces

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1075_01 | | |
| Summary: | Test of reaction to unrecognized home nonce in binding update sent by mobile node | | |
| References: | RQ_001_1075, RQ_001_1072 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1075_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing nonce_indices_option set to an unrecognized home_nonce_index } then { IUT sends Binding_Acknowledgement to Mobile_Node containing status set to 136 expired_home_nonce_index or set to 138 expired_nonces } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1075_02 | | |
| Summary: | Test of reaction to unrecognized care-of nonce in binding update sent by mobile node | | |
| References: | RQ_001_1075, RQ_001_1072 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1075_02 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing nonce_indices_option set to unrecognized care_of_nonce_index } then { IUT sends Binding_Acknowledgement to Mobile_Node containing status set to 137 expired_care_of_nonce_index or set to 138 expired_nonces } } </pre> | | | |

A.1.2 New IPv6 protocol, message types, and destination option

A.1.2.1 Home address option

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1208_01 | | |
| Summary: | Test reaction on home address option when this option is not recognised | | |
| References: | RQ_001_1208, RQ_001_1211 | | |
| IUT Role: | Node | Test Case: | TC_MOB_1208_01 |
| <pre> with { IUT configured 'so that it does not recognise the Home Address option' } ensure that { when { IUT receives an IPv6Packet containing destination_address set to a multicast_address and containing Home_Address_option } then { IUT discards IPv6Packet and IUT sends no response } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1209_01 | | |
| Summary: | Test reaction on home address option when this option is not recognised | | |
| References: | RQ_001_1208 | | |
| IUT Role: | Node | Test Case: | TC_MOB_1209_01 |
| <pre> with { IUT configured 'so that it does not recognise Home Address option' } ensure that { when { IUT receives IPv6Packet containing destination_address not set to a multicast_address and containing Home_Address_option } then { IUT discards the IPv6Packet and IUT sends ICMP_Parameter_Problem containing code indicating 2 unrecognized_IPv6_option_encountered } } </pre> | | | |

A.1.3 Modifications to IPv6 neighbor discovery

A.1.3.1 Modified router advertisement message format

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1293_01 | | |
| Summary: | Test of modified router advertisement message format | | |
| References: | RQ_001_1293, RQ_001_1294, RQ_001_1295, RQ_001_1296, RQ_001_1297, RQ_001_1298, RQ_001_1299, RQ_001_1339 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1293_01 |
| <pre> with { IUT ready to send Router_Advertisement } ensure that { when { IUT is requested to send Router_Advertisement } then { IUT sends modified Router_Advertisement containing H_bit set to 1 home_agent and containing (modified Prefix_Information_option containing R_Bit set to 1 and containing prefix_field set to the IP_address of the Home_Agent) and containing Source_Link_Layer_Address_option } } </pre> | | | |

A.1.3.2 New advertisement interval option format

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1310_01 | | |
| Summary: | Ignore advertisement interval option format in messages other than Router Advertisement messages | | |
| References: | RQ_001_1310 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1310_01 |
| <pre> with { IUT ready to receive Router_Solicitation } ensure that { when { IUT receives Router_Solicitation containing Advertisement_Interval_option } then { IUT sends a modified Router_Advertisement and IUT ignores Advertisement_Interval_option } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1310_02 | | |
| Summary: | Ignore advertisement interval option format in messages other than Router Advertisement messages | | |
| References: | RQ_001_1310 | | |
| IUT Role: | Mobile_Node, Correspondent_Node, Home_Agent | Test Case: | TC_MOB_1310_02 |
| <pre> with { IUT ready to receive Neighbor_Solicitation } ensure that { when { IUT receives Neighbor_Solicitation containing Advertisement_Interval_option } then { IUT sends Neighbor_Advertisement and IUT ignores Advertisement_Interval_option } } </pre> | | | |

A.1.3.3 New home agent information option format

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1315_01 | | |
| Summary: | Ignore reserved field in home agent information option | | |
| References: | RQ_001_1315 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1315_01 |
| <pre> with { IUT ready to receive router_advertisement } ensure that { when { IUT receives a modified Router_Advertisement containing Home_Agent_Information_option containing a reserved_field not set to 0 } then { IUT ignores the reserved_field } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1328_01 | | |
| Summary: | Ignore home agent information option format in messages other than Router Advertisement messages | | |
| References: | RQ_001_1328 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1328_01 |
| <pre> with { IUT ready to receive router_solicitation } ensure that { when { IUT receives Router_Solicitation containing a Home_Agent_Information_option } then { IUT sends a modified Router_Advertisement and IUT ignores the Home_Agent_Information_option } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1328_02 | | |
| Summary: | Ignore home agent information option format in messages other than Router Advertisement messages | | |
| References: | RQ_001_1328 | | |
| IUT Role: | Mobile_Node, Correspondent_Node, Home_Agent | Test Case: | TC_MOB_1328_02 |
| <pre> with { IUT ready to receive Neighbor_Solicitation } ensure that { when { IUT receives Neighbor_Solicitation containing a Home_Agent_Information_option } then { IUT sends Neighbor_Advertisement and IUT ignores Home_Agent_Information_option } } </pre> | | | |

A.1.4 Correspondent_Node operation

A.1.4.1 Processing mobility headers

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1399_01 | | |
| Summary: | Ignore message with checksum error in mobility header: Home Test Init at Correspondent Node | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1399_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives home_test_init from Home_Agent containing incorrect checksum } then { IUT ignores home_test_init } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1399_02 | | |
| Summary: | Ignore message with checksum error in mobility header: care-of test Init at Correspondent Node | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1399_02 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Care_of_Test_Init from Mobile_Node containing incorrect checksum } then { IUT ignores Care_of_Test_Init } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1399_03 | | |
| Summary: | Ignore message with checksum error in mobility header: binding update at Correspondent Node | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1399_03 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing incorrect checksum } then { IUT ignores Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1399_04 | | |
| Summary: | Ignore message with checksum error in mobility header: binding update at Home Agent | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1399_04 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing incorrect checksum } then { IUT ignores Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1399_05 | | |
| Summary: | Ignore message with checksum error in mobility header: Home Test at Mobile Node | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1399_05 |
| <pre> with { IUT having sent Home_Test_Init } ensure that { when { IUT receives home_test from Home_Agent in tunneled_mode containing incorrect checksum } then { IUT ignores home_test } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1399_06 | | |
| Summary: | Ignore message with checksum error in mobility header: care-of test at Mobile Node | | |
| References: | RQ_001_1398, RQ_001_1399 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1399_06 |
| <pre> with { IUT having sent Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing incorrect checksum } then { IUT ignores Care_of_Test } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1401_01 | | |
| Summary: | Reaction to message with unknown MH type field mobility header | | |
| References: | RQ_001_1401, RQ_001_1400, RQ_001_1427 | | |
| IUT Role: | Correspondent_Node, Home_Agent, Mobile_Node | Test Case: | TC_MOB_1401_01 |
| <pre> with { IUT ready to receive Mobility_Header in an IPv6Packet } ensure that { when { IUT receives an IPv6Packet containing a Mobility_Header containing an unrecognized MH_type_field } then { IUT discards IPv6Packet and IUT sends Binding_Error containing status set to 2 unrecognized_MH_Type and containing home_address_field set to unspecified_address } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1404_01 | | |
| Summary: | Ignore Home Test Init message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1404_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Home_Test_Init from Home_Agent containing payload_proto_field not set to 59 } then { IUT ignores Home_Test_Init and optionally (IUT sends ICMP_Parameter_Problem to Home_Agent containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1404_02 | | |
| Summary: | Ignore care-of test Init message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1404_02 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Care_of_Test_Init from Mobile_Node containing payload_proto_field not set to 59 } then { IUT ignores Care_of_Test_Init and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1404_03 | | |
| Summary: | Ignore binding update message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1404_03 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing payload_proto_field not set to 59 } then { IUT ignores Binding_Update and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1404_04 | | |
| Summary: | Ignore binding update message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1404_04 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing payload_proto_field not set to 59 } then { IUT ignores Binding_Update and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1404_05 | | |
| Summary: | Ignore Home Test message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1404_05 |
| <pre> with { IUT having sent Home_Test_Init } ensure that { when { IUT receives home_test from Home_Agent in tunneled_mode containing payload_proto_field not set to 59 } then { IUT ignores home_test and optionally (IUT sends ICMP_Parameter_Problem to Home_Agent containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1404_06 | | |
| Summary: | Ignore care-of test message with payload proto other than 59 | | |
| References: | RQ_001_1404, RQ_001_1403, RQ_001_1405, RQ_001_1406 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1404_06 |
| <pre> with { IUT having sent Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing payload_proto_field not set to 59 } then { IUT ignores home_test and optionally (IUT sends ICMP_Parameter_Problem to Correspondent_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating payload_proto_field) } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1408_01 | | |
| Summary: | Ignore Home Test Init message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1408_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Home_Test_Init from Home_Agent containing header_length_field set to less than the required_length } then { IUT ignores Home_Test_Init and optionally (IUT sends ICMP_Parameter_Problem to Home_Agent containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1408_02 | | |
| Summary: | Ignore care-of test Init message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1408_02 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Care_of_Test_Init from Mobile_Node containing header_length_field set to less than the required_length } then { IUT ignores Care_of_Test_Init and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1408_03 | | |
| Summary: | Ignore binding update message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1408_03 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing header_length_field set to less than the required_length } then { IUT ignores Binding_Update and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1408_04 | | |
| Summary: | Ignore binding update message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1408_04 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing header_length_field set to less than the required_length } then { IUT ignores Binding_Update and optionally (IUT sends ICMP_Parameter_Problem to Mobile_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1408_05 | | |
| Summary: | Ignore Home Test message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1408_05 |
| <pre> with { IUT having sent Home_Test_Init } ensure that { when { IUT receives home_test from Home_Agent in tunneled_mode containing header_length_field set to less than the required_length } then { IUT ignores home_test and optionally (IUT sends ICMP_Parameter_Problem to Home_Agent containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1408_06 | | |
| Summary: | Ignore care-of test message with erroneous length field | | |
| References: | RQ_001_1408, RQ_001_1407, RQ_001_1409, RQ_001_1410 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1408_06 |
| <pre> with { IUT having sent Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing header_length_field set to less than the required_length } then { IUT ignores home_test and optionally (IUT sends ICMP_Parameter_Problem to Correspondent_Node containing code set to 0 erroneous_header_field_encountered and containing pointer indicating header_length_field) } } </pre> | | | |

A.1.4.2 Packet processing

A.1.4.2.1 Receiving packets with home address option

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1411_01 | | |
| Summary: | Test reaction on home address option indicating non-unicast address | | |
| References: | RQ_001_1411 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1411_01 |
| <pre> with { IUT configured 'not recognise Home Address option' } ensure that { when { IUT receives IPv6Packet containing Home_Address_option not indicating a unicast_address } then { IUT discards IPv6Packet } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1413_01 | | |
| Summary: | Test reaction on home address option without existing binding | | |
| References: | RQ_001_1413, RQ_001_1427 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1413_01 |
| <pre> with { IUT ready to receive Home_Address_option and IUT having no Binding_Cache_entry } ensure that { when { IUT receives IPv6Packet not containing binding_update_option and containing Home_Address_option } then { IUT discards IPv6Packet and IUT sends Binding_Error containing status set to 1 unknown_binding_for_Home_Address_destination_option and containing home_address set to home_address from Home_Address_option } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1414_01 | | |
| Summary: | Test reaction on home address option without corresponding binding | | |
| References: | RQ_001_1414, RQ_001_1427 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1414_01 |
| <pre> with { IUT ready to receive Home_Address_option and IUT having 1 or more Binding_Cache_entry } ensure that { when { IUT receives IPv6Packet not containing binding_update_option and containing Home_Address_option indicating 'address for which no binding exists' } then { IUT discards IPv6Packet and IUT sends Binding_Error containing status set to 1 unknown_binding_for_Home_Address_destination_option and containing home_address set to home_address from Home_Address_option } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1415_01 | | |
| Summary: | Test reaction on home address option from source that is not a known care-of address | | |
| References: | RQ_001_1415, RQ_001_1427 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1415_01 |
| <pre> with { IUT ready to receive Home_Address_option and IUT having a registered care_of_address } ensure that { when { IUT receives IPv6Packet containing source_address not set to registered care_of_address and not containing binding_update_option and containing Home_Address_option indicating 'address for which no binding exists' } then { IUT discards IPv6Packet and IUT sends Binding_Error containing status set to 1 unknown_binding_for_Home_Address_destination_option and containing home_address set to home_address from Home_Address_option } } } </pre> | | | |

A.1.4.3 Sending binding error messages

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1426_01 | | |
| Summary: | Test reaction to message with unknown MH type field mobility header from non-unicast address | | |
| References: | RQ_001_1426 | | |
| IUT Role: | Correspondent_Node, Home_Agent, Mobile_Node | Test Case: | TC_MOB_1426_01 |
| <pre> with { IUT ready to receive a Mobility_Header } ensure that { when { IUT receives IPv6Packet containing Mobility_Header containing an unrecognized MH_type_field and containing source_address not set to a unicast_address } then { IUT sends no response 'does not send a Binding Error message' } } } </pre> | | | |

A.1.4.4 Return routability procedure

A.1.4.4.1 Receiving home test init messages

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1430_01 | | |
| Summary: | Test reaction on home test Init message with Home Address destination option | | |
| References: | RQ_001_1430 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1430_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Home_Test_Init from Home_Agent containing home_address_destination_option } then { IUT discards Home_Test_Init } } } </pre> | | | |

A.1.4.4.2 Receiving care-of test init messages

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1431_01 | | |
| Summary: | Test reaction on care-of test Init message with Home Address destination option | | |
| References: | RQ_001_1431 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1431_01 |
| <pre> with { IUT ready for Return_Routability_Procedure } ensure that { when { IUT receives Care_of_Test_Init from Mobile_Node containing home_address_destination_option } then { IUT discards Care_of_Test_Init } } </pre> | | | |

A.1.4.5 Processing bindings

A.1.4.5.1 Receiving binding updates

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1432_01 | | |
| Summary: | Test reaction on binding update message without unicast routable home address | | |
| References: | RQ_001_1432, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1432_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing Home_Address_option containing home_address not set to a unicast_routable_address } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1432_02 | | |
| Summary: | Test reaction on binding update message without unicast routable home address | | |
| References: | RQ_001_1432, RQ_001_1448, RQ_001_1478, RQ_001_1479 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1432_02 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address not set to a unicast_routable_address and not containing Home_Address_option } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1433_01 | | |
| Summary: | Test reaction on binding update message when there are no Binding Cache entries | | |
| References: | RQ_001_1433, RQ_001_1470 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1433_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having no binding_cache_entry } ensure that { when { IUT receives Binding_Update from Mobile_Node containing any sequence_number and containing the A_Bit set to 0 } then { IUT sends no response } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1433_02 | | |
| Summary: | Test reaction on binding update message when there are no Binding Cache entries | | |
| References: | RQ_001_1433, RQ_001_1470 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1433_02 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having no binding_cache_entry } ensure that { when { IUT receives Binding_Update from Mobile_Node containing any sequence_number and containing the A_Bit set to 1 } then { IUT sends Binding_Acknowledgement } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1436_01 | | |
| Summary: | Test reaction on binding update message when authentication fails | | |
| References: | RQ_001_1436, RQ_001_1437, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1436_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing the H_bit set to 0 and containing binding_authorization_data_option containing an invalid authenticator_field } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1437_01 | | |
| Summary: | Test reaction on binding update message when authentication fails | | |
| References: | RQ_001_1437, RQ_001_1438, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1437_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 0 and not containing binding_authorization_data_option } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1439_01 | | |
| Summary: | Test reaction on binding update message when authentication fails | | |
| References: | RQ_001_1439, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1439_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 0 and containing Binding_Authorization_Data_option not set to the previous Binding_Authorization_Data_option } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1440_01 | | |
| Summary: | Test reaction on binding update message when authentication fails | | |
| References: | RQ_001_1440, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1440_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 0 and containing binding_authorization_data_option not containing trailing_padding } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1441_01 | | |
| Summary: | Test reaction on binding update message with Nonce Indices option | | |
| References: | RQ_001_1441, RQ_001_1448 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1441_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 1 and containing nonce_indices_option } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1442_01 | | |
| Summary: | Test reaction on binding update message when there are Binding Cache entries | | |
| References: | RQ_001_1434, RQ_001_1442, RQ_001_1811 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1442_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the mobile_node } ensure that { when { IUT receives Binding_Update from Mobile_Node containing sequence_number less than or equal to the previous sequence_number } then { IUT sends Binding_Acknowledgement containing status set to 135 sequence_number_out_of_window and containing sequence_number indicating previous accepted sequence_number } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1443_01 | | |
| Summary: | Test reaction on binding update message when there are Binding Cache entries | | |
| References: | RQ_001_1434, RQ_001_1443, RQ_001_1444 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1443_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the home_address } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit not set to previous received H_Bit for this home_address } then { IUT sends Binding_Acknowledgement containing status set to 139 registration_type_change_disallowed } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1445_01 | | |
| Summary: | Test reaction on binding update message when nonces have expired | | |
| References: | RQ_001_1445, RQ_001_1435, RQ_001_1471, RQ_001_1474, RQ_001_1475 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1445_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the home_address } ensure that { when { IUT receives Binding_Update from Mobile_Node containing expired home_nonce_index and containing valid care_of_nonce_index } then { IUT sends Binding_Acknowledgement containing status set to 136 expired_home_nonce_index and not containing binding_authorization_data_mobility_option } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1446_01 | | |
| Summary: | Test reaction on binding update message when nonces have expired | | |
| References: | RQ_001_1446, RQ_001_1435, RQ_001_1471, RQ_001_1474, RQ_001_1475 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1446_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the home_address } ensure that { when { IUT receives Binding_Update from Mobile_Node containing a valid home_nonce_index and containing an expired care_of_nonce_index } then { IUT sends Binding_Acknowledgement containing status set to 137 expired_care_of_nonce_index and not containing binding_authorization_data_mobility_option } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1447_01 | | |
| Summary: | Test reaction on binding update message when nonces have expired | | |
| References: | RQ_001_1447, RQ_001_1435, RQ_001_1471, RQ_001_1474, RQ_001_1475 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1447_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the home_address } ensure that { when { IUT receives Binding_Update from Mobile_Node containing an expired home_nonce_index and containing an expired care_of_nonce_index } then { IUT sends Binding_Acknowledgement containing status set to 138 Expired_nonces and not containing binding_authorization_data_mobility_option } } </pre> | | | |

A.1.4.5.2 Requests to delete a binding

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1465_01 | | |
| Summary: | Test reaction on binding update message with zero lifetime | | |
| References: | RQ_001_1465, RQ_001_1466, RQ_001_1470 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1465_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having 1 or more binding_cache_entry } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 0 and containing lifetime set to 0 and containing A_Bit set to 0 } then { IUT sends no response } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1465_02 | | |
| Summary: | Test reaction on binding update message with zero lifetime | | |
| References: | RQ_001_1465, RQ_001_1466, RQ_001_1470 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1465_02 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having 1 or more binding_cache_entry } ensure that { when { IUT receives Binding_Update from Mobile_Node containing H_Bit set to 0 and containing lifetime set to 0 and containing A_Bit set to 1 } then { IUT sends Binding_Acknowledgement } } </pre> | | | |

A.1.4.5.3 Sending binding acknowledgements

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1470_01 | | |
| Summary: | Test sending of Binding Acknowledgement message to accept binding update message | | |
| References: | RQ_001_1470, RQ_001_1473, RQ_001_1476, RQ_001_1477, RQ_001_1480, RQ_001_1066, RQ_001_1067 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1470_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives a valid Binding_Update from Mobile_Node containing source_address set to a unicast_address not equal to the home_address and containing A_Bit set to 1 } then { IUT sends Binding_Acknowledgement containing destination_address set to the received source_address and containing status set to less than 128 and containing sequence_number set to sequence_number received in the Binding_Update and containing type_2_routing_header and containing binding_authorization_data_mobility_option containing authenticator_field set to 'First (96, HMAC_SHA1 (Kbm, (care-of address correspondent BA)))' } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1481_01 | | |
| Summary: | Test sending of Binding Acknowledgement message to accept binding update message from home address | | |
| References: | RQ_001_1470, RQ_001_1473, RQ_001_1476, RQ_001_1477, RQ_001_1481, RQ_001_1066, RQ_001_1067 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1481_01 |
| <pre> with { IUT having completed Return_Routability_Procedure } ensure that { when { IUT receives valid Binding_Update from Mobile_Node containing source_address set to home_address and containing A_Bit set to 1 } then { IUT sends Binding_Acknowledgement containing destination_address set to received source_address and containing status set to less than 128 and containing sequence_number set to sequence_number received in the Binding_Update and not containing type_2_routing_header and containing binding_authorization_data_mobility_option containing authenticator_field set to 'First (96, HMAC_SHA1 (Kbm, (care-of address correspondent BA)))' } } </pre> | | | |

A.1.4.5.4 Sending binding refresh requests

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1483_01 | | |
| Summary: | Test generation of Binding Refresh Request message | | |
| References: | RQ_001_1483 | | |
| IUT Role: | Correspondent_Node | Test Case: | TC_MOB_1483_01 |
| <pre> with { IUT having completed Return_Routability_Procedure and IUT having a binding_cache_entry for the Mobile_Node IUT ready to send Binding_Refresh_Request } ensure that { when { IUT is requested to send a Binding_Refresh_Request } then { IUT sends Binding_Refresh_Request containing destination_address set to home_address of mobile_node } } </pre> | | | |

A.1.5 Home agent operation

A.1.5.1 Processing bindings

A.1.5.1.1 Primary care-of address registration

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1432_03 | | |
| Summary: | Test reaction on binding update message without unicast routable home address | | |
| References: | RQ_001_1432, RQ_001_1448 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1432_03 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing a Home_Address_option containing home_address not set to a unicast_routable_address } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1441_02 | | |
| Summary: | Test reaction on binding update message with Nonce Indices option | | |
| References: | RQ_001_1441, RQ_001_1448 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1441_02 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing H_Bit set to 1 and containing nonce_indices_option } then { IUT discards Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1442_02 | | |
| Summary: | Test reaction on binding update message when there are Binding Cache entries | | |
| References: | RQ_001_1434, RQ_001_1442, RQ_001_1811 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1442_02 |
| <pre> with { IUT having a binding_cache_entry for the Mobile_Node } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing sequence_number less than or equal to the previous sequence_number received from the Mobile_Node } then { IUT sends Binding_Acknowledgement containing status set to 135 sequence_number_out_of_window and containing sequence_number set to previous accepted sequence_number } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1493_01 | | |
| Summary: | Test reaction on binding update message when there are Binding Cache entries | | |
| References: | RQ_001_1493 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1493_01 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing Home_Address_option set to 'non on-link address' } then { IUT discards Binding_Update and optionally (IUT sends Binding_Acknowledgement containing status set to 132 not_home_subnet) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1496_01 | | |
| Summary: | Test reaction on binding update message when Home Agent functionality is not implemented | | |
| References: | RQ_001_1496 | | |
| IUT Role: | Correspondent_Node, Mobile_Node | Test Case: | TC_MOB_1496_01 |
| <pre> with { IUT ready to receive IPv6packet's' } ensure that { when { IUT receives valid Binding_Update from a Node } then { IUT sends Binding_Acknowledgement containing status set to 131 home_registration_not_supported } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1502_01 | | |
| Summary: | Test reaction on binding update message when Duplicate Address Detection fails | | |
| References: | RQ_001_1502, RQ_001_1501, RQ_001_1503 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1502_01 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to unspecified_address -- Address and containing destination_address -- Detection (DAD) set to care_of_address } when { IUT receives Neighbor_Advertisement -- DAD fails containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing status set to 134 Duplicate_Address_Detection_failed } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1510_01 | | |
| Summary: | Test reaction on binding update message when Duplicate Address Detection succeeds | | |
| References: | RQ_001_1510, RQ_001_1501, RQ_001_1511, RQ_001_1516, RQ_001_1517, RQ_001_2002, RQ_001_2013, RQ_001_2029 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1510_01 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing A_Bit set to 1 } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to an unspecified_address -- Address and containing destination_address -- Detection (DAD) set to care_of_address } when { IUT receives no Neighbor_Advertisement -- DAD succeeds containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing source_address set to address of Home_Agent and containing destination_address set to care_of_address and containing Type_2_Routing_header indicating home_address and containing ESP_header and containing status set to 0 Binding_Update_accepted and containing sequence_number set to sequence_number received in Binding_Update and containing a valid lifetime } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1510_02 | | |
| Summary: | Test reaction on binding update message when Duplicate Address Detection succeeds, A = 0 | | |
| References: | RQ_001_1510, RQ_001_1501, RQ_001_1511, RQ_001_1516, RQ_001_1517, RQ_001_2002, RQ_001_2013, RQ_001_2029 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1510_02 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing A_Bit set to 0 } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to an unspecified_address -- Address and containing destination_address -- Detection (DAD) set to care_of_address } when { IUT receives no Neighbor_Advertisement -- DAD succeeds containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing source_address set to address of Home_Agent and containing destination_address set to care_of_address and containing Type_2_Routing_header indicating home_address and containing ESP_header and containing status set to 0 Binding_Update_accepted and containing sequence_number set to sequence_number received in Binding_Update and containing a valid lifetime } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1512_01 | | |
| Summary: | Test reaction on binding update message when Duplicate Address Detection succeeds, deprecated subnet prefix | | |
| References: | RQ_001_1512, RQ_001_1510, RQ_001_1501, RQ_001_1511 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1512_01 |
| <pre> with { IUT ready to receive Binding_Update } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing A_Bit set to 1 and containing Home_Address_option indicating home_address having deprecated subnet_prefix } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to unspecified_address -- Address and containing destination_address set to care_of_address } when { IUT receives no Neighbor_Advertisement -- DAD succeeds containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing status set to 1 Accepted_but_prefix_discovery_necessary } } </pre> | | | |

| Test Purpose | |
|--|--|
| Identifier: | TP_MOB_1513_01 |
| Summary: | Test reaction on binding update message when Duplicate Address Detection succeeds, K = 1 |
| References: | RQ_001_1513, RQ_001_1501, RQ_001_1510 |
| IUT Role: | Home_Agent |
| Test Case: | TC_MOB_1513_01 |
| <pre> with { IUT ready to receive Binding_Update IUT dynamically established IPsec_security_association with Home_Agent IUT configured to 'update its endpoint in the used key management protocol to the new care-of address every time it moves' } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing A_Bit set to 1 and containing K_Bit set to 1 } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to unspecified_address -- Address and containing destination_address set to care_of_address } when { IUT receives no Neighbor_Advertisement -- DAD succeeds containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing status set to 0 Binding_Update_accepted and containing K_Bit set to 1 } } </pre> | |

| Test Purpose | |
|---|---|
| Identifier: | TP_MOB_1518_01 |
| Summary: | Test reaction on binding update message when Duplicate Address Detection succeeds, Binding Cache in nonvolatile storage |
| References: | RQ_001_1518, RQ_001_1501, RQ_001_1510 |
| IUT Role: | Home_Agent |
| Test Case: | TC_MOB_1518_01 |
| <pre> with { IUT ready to receive Binding_Update and IUT 'storing Binding Cache entries in nonvolatile storage' } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to care_of_address and containing A_Bit set to 1 } then { IUT sends Neighbor_Solicitation -- IUT starts containing source_address -- Duplicate set to unspecified_address -- Address and containing destination_address set to care_of_address } when { IUT receives no Neighbor_Advertisement -- DAD succeeds containing source_address set to care_of_address } then { IUT sends Binding_Acknowledgement containing status set to 0 Binding_Update_accepted and not containing Binding_Refresh_Advice_mobility_option } } </pre> | |

A.1.5.1.2 Primary care-of address de-registration

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1526_01 | | |
| Summary: | Test reaction on binding update message for De-Registration when no Binding Cache entry exists | | |
| References: | RQ_001_1526, RQ_001_1527, RQ_001_1535 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1526_01 |
| <pre> with { IUT ready to receive Binding_Update IUT having no binding_cache_entry for the Mobile_Node } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to home_address and containing A_Bit set to 1 and containing H_Bit set to 1 and containing lifetime set to 0 } then { IUT rejects Binding_Update and optionally (IUT sends Binding_Acknowledgement containing destination_address set to Mobile_Node link_layer_address and containing status set to 133 not_home_agent_for_this_mobile_node) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1529_01 | | |
| Summary: | Test reaction on binding update message for De-Registration | | |
| References: | RQ_001_1529, RQ_001_1527, RQ_001_1530, RQ_001_1531, RQ_001_1532, RQ_001_1533, RQ_001_2004, RQ_001_2013 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1529_01 |
| <pre> with { IUT ready to receive Binding_Update IUT having a binding_cache_entry for the Mobile_Node } ensure that { when { IUT receives Binding_Update from Mobile_Node containing source_address set to home_address and containing A_Bit set to 1 and containing H_Bit set to 1 and containing lifetime set to 0 } then { IUT sends Binding_Acknowledgement containing source_address set to address of Home_Agent and containing destination_address set to home_address and containing ESP_header and containing status set to 0 Binding_Update_accepted and containing sequence_number set to sequence_number received in Binding_Update and containing lifetime set to 0 and not containing Binding_Refresh_Advice_mobility_option } } </pre> | | | |

A.1.5.2 Packet processing

A.1.5.2.1 Intercepting packets for a mobile node

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1537_01 | | |
| Summary: | Test generation of Neighbor Advertisement message after creating binding | | |
| References: | RQ_001_1537, RQ_001_1539, RQ_001_1540, RQ_001_1541, RQ_001_1542, RQ_001_1543, RQ_001_1544 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1537_01 |
| <pre> with { IUT having a new binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT is requested to send Neighbor_Advertisement } then { IUT sends Neighbor_Advertisement containing destination_address set to multicast_address and containing target_address set to address of Mobile_Node and containing R_Bit set to 0 and containing S_Flag set to 0 and containing O_Flag set to 1 and containing Target_Link_layer_Address_option set to link_layer_address of Home_Agent } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1538_01 | | |
| Summary: | Test generation of Neighbor Advertisement message after creating binding | | |
| References: | RQ_001_1538, RQ_001_1539, RQ_001_1540, RQ_001_1541, RQ_001_1542, RQ_001_1543, RQ_001_1544 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1538_01 |
| <pre> with { IUT having new binding_Cache_entry for a specific Mobile_Node '(L bit was set)' } ensure that { when { IUT is requested to send Neighbor_Advertisement } then { IUT sends Neighbor_Advertisement containing destination_address set to multicast_address and containing target_address set to link_local_address of Mobile_Node and containing R_Bit set to 0 and containing S_Flag set to 0 and containing O_Flag set to 1 and containing Target_Link_layer_Address_option set to link_layer_address of Home_Agent } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1547_01 | | |
| Summary: | Test reaction to Neighbor Solicitation message | | |
| References: | RQ_001_1547, RQ_001_1548, RQ_001_1549 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1547_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives Neighbor_Solicitation containing target_address set to address of Mobile_Node } then { IUT sends Neighbor_Advertisement containing target_address set to address of Mobile_Node and containing R_Bit set to 0 and containing Target_Link_layer_Address_option indicating link_layer_address of Home_Agent } } </pre> | | | |

A.1.5.2.2 Processing intercepted packets

| Test Purpose | | | |
|---|---------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_1551_01 | | |
| Summary: | Test tunneling of intercepted packets | | |
| References: | RQ_001_1551, RQ_001_1550 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1551_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives an IPv6Packet containing destination_address set to address of Mobile_Node } then { IUT sends an IPv6Packet in tunneled_mode to Mobile_Node containing source_address set to address of Home_Agent and containing destination_address set to primary_care_of_address of Mobile_Node } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1552_01 | | |
| Summary: | Test discard of packets to Mobile_Node link local address | | |
| References: | RQ_001_1552, RQ_001_1553 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1552_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives an IPv6Packet containing destination_address set to link_local_address of Mobile_Node } then { IUT discards IPv6Packet and optionally (IUT sends ICMP_Destination_Unreachable containing code set to 3 address_unreachable and containing destination_address set to source_address of received IPv6Packet) } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1555_01 | | |
| Summary: | Test discard of multicast packets with link local scope | | |
| References: | RQ_001_1555, RQ_001_1556 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1555_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'having obtained Mobile_Node multicast group membership' } ensure that { when { IUT receives an IPv6Packet containing destination_address set to link_local_multicast_address } then { IUT discards the IPv6Packet } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1557_01 | | |
| Summary: | Test tunneling of intercepted multicast packets with global scope | | |
| References: | RQ_001_1557 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1557_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'having obtained Mobile_Node multicast group membership' } ensure that { when { IUT receives an IPv6Packet containing destination_address set to global_multicast_address 'to which Mobile_Node is subscribed' } then { IUT sends IPv6Packet in tunneled_mode to Mobile_Node containing source_address set to address of Home_Agent and containing destination_address set to primary_care_of_address of Mobile_Node } } </pre> | | | |

A.1.5.2.3 Multicast membership control

| Test Purpose | | | |
|---|--------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_1562_01 | | |
| Summary: | Test generation of MLD Query message | | |
| References: | RQ_001_1562 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1562_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'able to perform Multicast Membership Control' } ensure that { when { IUT is requested to send MLD_Query } then { IUT sends MLD_Query in tunneled_mode to Mobile_Node } } </pre> | | | |

A.1.5.2.4 Handling reverse tunneled packets

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1568_01 | | |
| Summary: | Test reverse tunneling of packets from Mobile_Node | | |
| References: | RQ_001_1568, RQ_001_1569, RQ_001_1570 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1568_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives an IPv6Packet in tunneled_mode from Mobile_Node containing source_address set to primary_care_of_address of Mobile_Node and not containing an ESP_header } then { IUT sends IPv6Packet not in tunneled_mode or IUT discards the IPv6Packet } } </pre> | | | |

A.1.5.3 Dynamic home agent address discovery

A.1.5.3.1 Receiving router advertisement messages

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1576_01 | | |
| Summary: | Test of home agent list administration, no entry created | | |
| References: | RQ_001_1576, RQ_001_1588 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1576_01 |
| <pre> with { IUT having Home_Agents_list_entry for a specific Home_Agent } ensure that { when { IUT receives Router_Advertisement from Home_Agent containing H_Bit set to 0 and IUT receives ICMP_Home_Agent_Address_Discovery_Request from Mobile_Node containing destination_address set to anycast_address of Home_Agent } then { IUT sends ICMP_Home_Agent_Address_Discovery_Reply containing source_address set to global_unicast_address of Home_Agent and containing Home_Agent_Addresses not set to address of Home_Agent that sent Router_Advertisement or IUT sends no response } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1582_01 | | |
| Summary: | Test of home agent list administration, no entry created | | |
| References: | RQ_001_1582, RQ_001_1588 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1582_01 |
| <pre> with { IUT having Home_Agents_list_entry for a specific Home_Agent } ensure that { when { IUT receives Router_Advertisement from Home_Agent containing H_Bit set to 1 and containing router_lifetime set to 0 and IUT receives ICMP_Home_Agent_Address_Discovery_Request from Mobile_Node containing destination_address set to anycast_address of Home_Agent } then { IUT sends ICMP_Home_Agent_Address_Discovery_Reply containing source_address set to global_unicast_address of Home_Agent and containing Home_Agent_Addresses not set to address of Home_Agent that sent Router_Advertisement or IUT sends no response } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1588_01 | | |
| Summary: | Test of home agent list administration, entry created | | |
| References: | RQ_001_1588 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1588_01 |
| <pre> with { IUT having Home_Agents_list_entry for a specific Home_Agent } ensure that { when { IUT receives valid Router_Advertisement from Home_Agent containing H_Bit set to 1 and IUT receives ICMP_Home_Agent_Address_Discovery_Request from Mobile_Node containing destination_address set to anycast_address of Home_Agent } then { IUT sends ICMP_Home_Agent_Address_Discovery_Request containing source_address set to global_unicast_address of Home_Agent or IUT sends no response } } </pre> | | | |

A.1.5.4 Sending prefix information to the mobile node

A.1.5.4.1 Scheduling prefix deliveries

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1591_01 | | |
| Summary: | Test generation of unsolicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1591, RQ_001_1595, RQ_001_1812, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1591_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT ready to send Mobile_Prefix_Advertisement } -- a change of the state of the flags for the prefix of the Mobile_Node -- home address occurred or a prefix matching the Mobile_Node home -- registration is added or its information changed or the preferred -- lifetime is reconfigured. To be discussed, if this can be triggered! ensure that { when { IUT is requested to send Mobile_Prefix_Advertisement } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node containing source_address set to address of Home_Agent and containing destination_address set to home_address of Mobile_Node and containing type_2_routing_header indicating home_address of Mobile_Node } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1594_01 | | |
| Summary: | Test generation of solicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1594, RQ_001_1813, RQ_001_1606, RQ_001_2016, RQ_001_2029, RQ_001_2030 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1594_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives Mobile_Prefix_Solicitation from Mobile_Node containing home_address_destination_option indicating home_address of Mobile_Node and containing ESP_header } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node containing source_address set to address of Home_Agent and containing destination_address set to home_address of Mobile_Node and containing type_2_routing_header indicating home_address of Mobile_Node } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1595_01 | | |
| Summary: | Test sending of Mobile Prefix Advertisement message after MaxMobPfxAdvInterval | | |
| References: | RQ_001_1595, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1595_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT is requested to send Mobile_Prefix_Advertisement after MaxMobPfxAdvInterval expires } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node containing source_address set to address of Home_Agent and containing destination_address set to home_address of Mobile_Node and containing type_2_routing_header indicating home_address of Mobile_Node } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1601_01 | | |
| Summary: | Test repetition of sending of Mobile Prefix Advertisement message | | |
| References: | RQ_001_1601, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1601_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT having sent Mobile_Prefix_Advertisement to this specific Mobile_Node } ensure that { when { IUT not receives Mobile_Prefix_Solicitation from Mobile_Node } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node after PREFIX_ADV_TIMEOUT } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1601_02 | | |
| Summary: | Test repetition of sending of Mobile Prefix Advertisement message | | |
| References: | RQ_001_1601, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1601_02 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'having repeated Mobile Prefix Advertisement to this specific Mobile_Node once' } ensure that { when { IUT receives no Mobile_Prefix_Solicitation from Mobile_Node } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node after 2 times PREFIX_ADV_TIMEOUT } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1601_03 | | |
| Summary: | Test repetition of sending of Mobile Prefix Advertisement message | | |
| References: | RQ_001_1601, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1601_03 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'having repeated Mobile Prefix Advertisement to this specific Mobile_Node twice' } ensure that { when { IUT receives no Mobile_Prefix_Solicitation from Mobile_Node } then { IUT sends Mobile_Prefix_Advertisement to Mobile_Node after 4 times PREFIX_ADV_TIMEOUT } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1602_01 | | |
| Summary: | Test stop of sending of Mobile Prefix Advertisement message after binding expires | | |
| References: | RQ_001_1601, RQ_001_1606 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1602_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node and IUT 'having repeated Mobile Prefix Advertisement to this specific Mobile_Node once' } ensure that { when { IUT receives no Mobile_Prefix_Solicitation from Mobile_Node and binding of Mobile_Node expires before 2 times PREFIX_ADV_TIMEOUT } then { IUT sends no Mobile_Prefix_Advertisement to Mobile_Node} } </pre> | | | |

A.1.6 Mobile node operation

A.1.6.1 Packet processing

A.1.6.1.1 Sending packets while away from home

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1615_01 | | |
| Summary: | Test generation of IPv6 packets when no binding to Correspondent_Node exists | | |
| References: | RQ_001_1615, RQ_001_1819 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1615_01 |
| <pre> with { IUT away_from_home and IUT having a binding to Home_Agent and IUT having no binding with specific Correspondent_Node and IUT not configured to support Route_Optimization } ensure that { when { IUT is requested to send an IPv6Packet to Correspondent_Node } then { IUT sends IPv6Packet in tunneled_mode containing source_address set to the primary_care_of_address of the Mobile_Node and containing destination_address set to the address of the Home_Agent and containing an inner_IPv6Packet containing source_address set to home_address of Mobile_Node and containing destination_address set to Correspondent_Node_address } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1820_01 | | |
| Summary: | Test processing of reverse tunneled IPv6 packets | | |
| References: | RQ_001_1820 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1820_01 |
| <pre> with { IUT having a binding to Mobile_Node } ensure that { when { IUT receives IPv6Packet in tunneled_mode from Mobile_Node containing source_address set to the primary_care_of_address of the Mobile_Node and containing destination_address set to address of Home_Agent and containing an inner_IPv6Packet containing source_address set to home_address of Mobile_Node and containing destination_address set to Correspondent_Node_address } then { IUT sends IPv6Packet to Correspondent_Node containing source_address set to home_address of Mobile_Node and containing destination_address set to Correspondent_Node_address } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1619_01 | | |
| Summary: | Test generation of IPv6 packets when binding to Correspondent_Node exists | | |
| References: | RQ_001_1619, RQ_001_1614, RQ_001_1622 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1619_01 |
| <pre> with { IUT away_from_home and IUT having a binding to Home_Agent and IUT having a binding to specific Correspondent_Node } ensure that { when { IUT is requested to send an IPv6Packet to Correspondent_Node } then { IUT sends IPv6Packet to Correspondent_Node containing source_address set to care_of_address and containing Home_Address_option indicating home_address } } </pre> | | | |

A.1.6.1.2 Interaction with outbound ipsec processing

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1625_01 | | |
| Summary: | Test generation of IPv6 packets with outbound IPsec processing | | |
| References: | RQ_001_1625, RQ_001_1626, RQ_001_1627 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1625_01 |
| <pre> with { IUT away_from_home and IUT 'using route optimisation' and IUT having a binding to specific Correspondent_Node and IUT 'is communicating with' Correspondent_Node 'using IPsec in transport mode' } ensure that { when { IUT is requested to send an IPv6Packet to Correspondent_Node } then { IUT sends IPv6Packet to Home_Agent containing Destination_Options_Header after the Routing_Header and before the IPsec_Header and containing home_address_destination_option and containing IPsec_header containing 'correctly coded Authentication Data' } } </pre> | | | |

A.1.6.1.3 Receiving packets while away from home

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1631_01 | | |
| Summary: | Test processing of reverse tunneled IPv6 packets | | |
| References: | RQ_001_1631, RQ_001_1632 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1631_01 |
| <pre> with { IUT away_from_home and IUT having a binding to Home_Agent and IUT having no binding to specific Correspondent_Node } ensure that { when { IUT receives IPv6Packet in tunneled_mode from Home_Agent containing source_address set to address of Home_Agent and containing destination_address set to address of Mobile_Node and containing an inner_IPv6Packet containing source_address set to Correspondent_Node_address and containing destination_address set to address of Mobile_Node } then { IUT 'decapsulates and processes' inner_IPv6Packet } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1633_01 | | |
| Summary: | Test processing of IPv6 packets received via route optimisation | | |
| References: | RQ_001_1633 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1633_01 |
| <pre> with { IUT away_from_home and IUT having binding to specific Correspondent_Node } ensure that { when { IUT receives IPv6Packet from Correspondent_Node containing source_address set to home_address of Correspondent_Node and containing destination_address set to care_of_address of Mobile_Node and containing type_2_routing_header containing length_field set to 2 and containing segments_left_field set to 1 and containing home_address_field set to unicast_home_address of Mobile_Node } then { IUT 'processes' IPv6Packet } } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1633_02 | | |
| Summary: | Test processing of IPv6 packets received via route optimisation | | |
| References: | RQ_001_1633 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1633_02 |
| <pre> with { IUT away_from_home and IUT having a binding to a specific Correspondent_Node } ensure that { when { IUT receives IPv6Packet from Correspondent_Node containing source_address set to home_address of Correspondent_Node and containing destination_address set to care_of_address of Mobile_Node and containing type_2_routing_header containing length_field not set to 2 and containing segments_left_field set to 1 and containing home_address_field set to unicast_home_address of Mobile_Node } then { IUT discards IPv6Packet } } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1633_03 | | |
| Summary: | Test processing of IPv6 packets received via route optimisation | | |
| References: | RQ_001_1633 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1633_03 |
| <pre> with { IUT away_from_home and IUT having a binding to a specific Correspondent_Node } ensure that { when { IUT receives IPv6Packet from Correspondent_Node containing source_address set to home_address of Correspondent_Node and containing destination_address set to care_of_address of Mobile_Node and containing type_2_routing_header containing length_field set to 2 and containing segments_left_field not set to 1 and containing home_address_field set to unicast_home_address of Mobile_Node } then { IUT discards IPv6Packet } } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1633_04 | | |
| Summary: | Test processing of IPv6 packets received via route optimisation | | |
| References: | RQ_001_1633 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1633_04 |
| <pre> with { IUT away_from_home and IUT having a binding to a specific Correspondent_Node } ensure that { when { IUT receives IPv6Packet from Correspondent_Node containing source_address set to home_address of Correspondent_Node and containing destination_address set to care_of_address of Mobile_Node and containing type_2_routing_header containing length_field set to 2 and containing segments_left_field set to 1 and containing home_address_field not set to unicast_home_address of Mobile_Node } then { IUT discards IPv6Packet } } </pre> | | | |

A.1.6.1.4 Routing multicast packets

| Test Purpose | | | |
|--|---------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_1634_01 | | |
| Summary: | Test generation of MLD Report message | | |
| References: | RQ_001_1634, RQ_001_1635 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1634_01 |
| <pre> with { IUT 'ready to join multicast group on visited link' } ensure that { when { IUT is requested to send MLD_Report } then { IUT sends MLD_Report containing source_address set to care_of_address and not containing home_address_destination_option } } </pre> | | | |

| Test Purpose | | | |
|---|---------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_1636_01 | | |
| Summary: | Test generation of MLD Report message | | |
| References: | RQ_001_1636 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1636_01 |
| <pre> with { IUT having a binding to Home_Agent and IUT 'listening to a specific multicast address' } ensure that { when { IUT receives MLD_Query in tunneled_mode from Home_Agent containing multicast_address set to 'listened-to' address and containing Maximum_Response_Delay set to 0 } then { IUT sends MLD_Report in tunneled_mode to Home_Agent } } </pre> | | | |

| Test Purpose | | | |
|---|--------------------------------------|------------|----------------|
| Identifier: | TP_MOB_1638_01 | | |
| Summary: | Test generation of multicast packets | | |
| References: | RQ_001_1638 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1638_01 |
| <pre> with { IUT 'ready to send packets to multicast group on visited link' } ensure that { when { IUT is requested to send an IPv6Packet to a multicast_group } then { IUT sends IPv6Packet containing source_address set to care_of_address and not containing home_address_destination_option } } </pre> | | | |

| Test Purpose | | | |
|---|--------------------------------------|------------|----------------|
| Identifier: | TP_MOB_1639_01 | | |
| Summary: | Test generation of multicast packets | | |
| References: | RQ_001_1639 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1639_01 |
| <pre> with { IUT having a binding to Home_Agent and IUT 'ready to send packets to multicast group via Home_Agent' } ensure that { when { IUT is requested to send an IPv6Packet in tunneled_mode to a multicast_group } then { IUT sends IPv6Packet to Home_Agent containing an inner_IPv6Packet containing source_address set to home_address } } </pre> | | | |

A.1.6.1.5 Receiving binding error messages

| Test Purpose | | | |
|---|--|------------|----------------|
| Identifier: | TP_MOB_1645_01 | | |
| Summary: | Test reaction on Binding Error message | | |
| References: | RQ_001_1645 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1645_01 |
| <pre> with { IUT away_from_home and IUT having no binding to a specific Correspondent_Node } ensure that { when { IUT receives Binding_Error from Correspondent_Node } then { IUT discards Binding_Error } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1648_01 | | |
| Summary: | Test reaction on Binding Error message | | |
| References: | RQ_001_1648, RQ_001_1649 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1648_01 |
| <pre> with { IUT away_from_home and IUT having a binding to a specific Correspondent_Node and IUT 'having no upper layer progress information on packet exchange with Correspondent_Node' } ensure that { when { IUT receives Binding_Error from Correspondent_Node containing status set to 1 unknown_binding_for_Home_Address_destination_option } then { IUT stops packet_exchange to Correspondent_Node and optionally (IUT starts Return_Routability_procedure) } } </pre> | | | |

A.1.6.2 Home agent and prefix management

A.1.6.2.1 Dynamic home agent address discovery

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1655_01 | | |
| Summary: | Test generation of binding update message to register new care-of address | | |
| References: | RQ_001_1655 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1655_01 |
| <pre> with { IUT having a binding to a specific Home_Agent } ensure that { when { IUT is requested to send Binding_Update 'to register new care-of address' } then { IUT sends Binding_Update containing destination_address set to address of Home_Agent } } </pre> | | | |

A.1.6.2.2 Sending mobile prefix solicitations

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1661_01 | | |
| Summary: | Test generation of Mobile Prefix Solicitations message | | |
| References: | RQ_001_1661, RQ_001_1662, RQ_001_1665 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1661_01 |
| <pre> with { IUT having a binding with a specific Home_Agent and IUT ready to send Mobile_Prefix_Solicitation } ensure that { when { IUT is requested to send Mobile_Prefix_Solicitation } then { IUT sends Mobile_Prefix_Solicitation to Home_Agent containing home_address_destination_option indicating home_address of Mobile_Node and containing identifier set to a random_value } } </pre> | | | |

A.1.6.2.3 Receiving mobile prefix advertisements

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1669_01 | | |
| Summary: | Test reaction to unsolicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1669, RQ_001_1672, RQ_001_1677, RQ_001_2016 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1669_01 |
| <pre> with { IUT having a binding to a specific Home_Agent } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and containing type_2_routing_header and containing ESP_header } then { IUT accepts Mobile_Prefix_Advertisement } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1670_01 | | |
| Summary: | Test reaction to unsolicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1670, RQ_001_1672, RQ_001_1677 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1670_01 |
| <pre> with { IUT having no binding to a specific Home_Agent and IUT having stored home_address of specific Home_Agent } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and containing type_2_routing_header } then { IUT accepts Mobile_Prefix_Advertisement } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1671_01 | | |
| Summary: | Test reaction to unsolicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1671 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1671_01 |
| <pre> with { IUT having no binding to a specific Home_Agent and IUT not having stored home_address of specific Home_Agent } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and containing type_2_routing_header } then { IUT discards Mobile_Prefix_Advertisement } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1672_01 | | |
| Summary: | Test reaction to unsolicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1672 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1672_01 |
| <pre> with { IUT having a binding to a specific Home_Agent } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and not containing type_2_routing_header } then { IUT discards Mobile_Prefix_Advertisement } } </pre> | | | |

| Test Purpose | | | |
|---|--|------------|----------------|
| Identifier: | TP_MOB_1674_01 | | |
| Summary: | Test reaction to solicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1674 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1674_01 |
| <pre> with { IUT having a binding to a specific Home_Agent and IUT sent Mobile_Prefix_Solicitation } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and containing type_2_routing_header and containing identifier set to identifier in sent Mobile_Prefix_Solicitation } then { IUT accepts Mobile_Prefix_Advertisement } } </pre> | | | |

| Test Purpose | | | |
|---|--|------------|----------------|
| Identifier: | TP_MOB_1674_02 | | |
| Summary: | Test reaction to solicited Mobile Prefix Advertisement message | | |
| References: | RQ_001_1674 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1674_02 |
| <pre> with { IUT having a binding to a specific Home_Agent and IUT having sent Mobile_Prefix_Solicitation } ensure that { when { IUT receives Mobile_Prefix_Advertisement from Home_Agent containing source_address set to address of Home_Agent and containing type_2_routing_header and containing identifier set to identifier in sent Mobile_Prefix_Solicitation } then { IUT discards Mobile_Prefix_Advertisement } } </pre> | | | |

A.1.6.3 Movement

A.1.6.3.1 Using multiple care-of addresses

| Test Purpose | | | |
|---|--|------------|----------------|
| Identifier: | TP_MOB_1690_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1690, RQ_001_1689, RQ_001_1691, RQ_001_1727 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1690_01 |
| <pre> with { IUT away_from_home and IUT having new primary_care_of_address } ensure that { when { IUT is requested to send Binding_Update } then { IUT sends Binding_Update to Home_Agent containing source_address set to new primary_care_of_address and containing H_Bit set to 1 and containing A_Bit set to 1 } } </pre> | | | |

A.1.6.3.2 Returning home

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1695_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1695, RQ_001_1696, RQ_001_2003, RQ_001_2013 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1695_01 |
| <pre> with { IUT 'detects home subnet prefix is on-link' and IUT ready to send Binding_Update 'on returning home' } ensure that { when { IUT is requested to send Binding_Update } then { IUT sends Binding_Update to Home_Agent containing source_address set to home_address and containing destination_address set to address of Home_Agent and containing ESP_header and containing H_Bit set to 1 and containing A_Bit set to 1 and containing lifetime set to 0 } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1698_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1698, RQ_001_1697 | | |
| IUT Role: | Home_Agent | Test Case: | TC_MOB_1698_01 |
| <pre> with { IUT having a binding_cache_entry for a specific Mobile_Node } ensure that { when { IUT receives Neighbor_Solicitation from Mobile_Node containing source_address set to unspecified_address and containing destination_address set to multicast_address of Mobile_Node and containing target_address set to home_address of Mobile_Node } then { IUT sends Neighbor_Advertisement to Mobile_Node containing destination_address set to multicast_address and containing S_Flag set to 0 } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1702_01 | | |
| Summary: | Test reaction on Neighbor Solicitation after coming home | | |
| References: | RQ_001_1702, RQ_001_1703 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1702_01 |
| <pre> with { IUT 'having detected home subnet prefix is on-link' and IUT having sent Binding_Update 'on returning home' } ensure that { when { IUT receives Neighbor_Solicitation } then { IUT sends Neighbor_Advertisement containing destination_address set to unicast_link_layer_address } } </pre> | | | |

| Test Purpose | | |
|--|--|----------------------------------|
| Identifier: | TP_MOB_1704_01 | |
| Summary: | Test of Neighbor Advertisement after coming home | |
| References: | RQ_001_1704, RQ_001_1705, RQ_001_1706 | |
| IUT Role: | Mobile_Node | Test Case: TC_MOB_1704_01 |
| <pre> with { IUT 'having detected home subnet prefix is on-link' and IUT having sent Binding_Update 'on returning home' } ensure that { when { IUT receives Binding_Acknowledgement } then { IUT sends 1 Neighbor_Advertisement for each home_address containing destination_address set to all_nodes_multicast_address and containing target_address set to home_address of Mobile_Node and containing Target_Link_layer_Address_option indicating link_layer_address of Mobile_Node and containing S_Flag set to 0 and containing O_Flag set to 1 } } </pre> | | |

A.1.6.4 Return routability procedure

A.1.6.4.1 Receiving test messages

| Test Purpose | | |
|---|--|----------------------------------|
| Identifier: | TP_MOB_1716_01 | |
| Summary: | Test reaction on invalid Home Test message | |
| References: | RQ_001_1716, RQ_001_1715 | |
| IUT Role: | Mobile_Node | Test Case: TC_MOB_1716_01 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives home_test in tunneled_mode from Home_Agent containing source_address set to 'address with which no Return Routability Procedure is in progress' } then { IUT discards home_test } } </pre> | | |

| Test Purpose | | |
|---|--|----------------------------------|
| Identifier: | TP_MOB_1716_02 | |
| Summary: | Test reaction on invalid Home Test message | |
| References: | RQ_001_1716, RQ_001_1715 | |
| IUT Role: | Mobile_Node | Test Case: TC_MOB_1716_02 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives home_test in tunneled_mode from Home_Agent containing destination_address not set to home_address } then { IUT discards home_test } } </pre> | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1716_03 | | |
| Summary: | Test reaction on invalid Home Test message | | |
| References: | RQ_001_1716, RQ_001_1715 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1716_03 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives home_test not in tunneled_mode from Home_Agent } then { IUT discards home_test } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_1716_04 | | |
| Summary: | Test reaction on invalid Home Test message | | |
| References: | RQ_001_1716, RQ_001_1715 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1716_04 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives home_test in tunneled_mode from Home_Agent containing invalid home_init_cookie } then { IUT discards home_test } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1720_01 | | |
| Summary: | Test reaction on invalid care-of test message | | |
| References: | RQ_001_1720, RQ_001_1719 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1720_01 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing source_address set to 'address with which no Return Routability Procedure is in progress' } then { IUT discards Care_of_Test } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1720_02 | | |
| Summary: | Test reaction on invalid care-of test message | | |
| References: | RQ_001_1720, RQ_001_1719 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1720_02 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing destination_address not set to care_of_address } then { IUT discards Care_of_Test } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_1720_03 | | |
| Summary: | Test reaction on invalid care-of test message | | |
| References: | RQ_001_1720, RQ_001_1719 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1720_03 |
| <pre> with { IUT away_from_home and IUT having sent Home_Test_Init and Care_of_Test_Init } ensure that { when { IUT receives Care_of_Test from Correspondent_Node containing invalid care_of_init_cookie } then { IUT discards Care_of_Test } } </pre> | | | |

A.1.6.5 Processing bindings

A.1.6.5.1 Sending binding updates to the home agent

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_1730_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1730, RQ_001_1736, RQ_001_2001, RQ_001_2013, RQ_001_2028 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1730_01 |
| <pre> with { IUT away_from_home and IUT 'ready to register or refresh Care-of address' } ensure that { when { IUT is requested to send Binding_Update } then { IUT sends Binding_Update containing source_address set to care_of_address and containing destination_address set to address of Home_Agent and containing home_address_destination_option indicating home_address of Mobile_Node and containing ESP_header and containing lifetime not set to 0 and containing H_Bit set to 1 and containing A_Bit set to 1 and containing alternate_Care_of_Address_mobility_option to Home_Agent } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1739_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1739, RQ_001_1760 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1739_01 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update 'messages to register or refresh Care-of address' } ensure that { when { IUT receives Binding_Acknowledgement containing status set to 135 Sequence_number_out_of_window and containing sequence_number set to the previous accepted sequence_number } then { IUT sends more than 1 Binding_Update to Home_Agent containing sequence_number set to 1 plus the sequence_number from the received Binding_Acknowledgement } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1742_01 | | |
| Summary: | Test of binding update sent by mobile node | | |
| References: | RQ_001_1742, RQ_001_1770 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1742_01 |
| <pre> with { IUT away_from_home and IUT sent Binding_Update 'messages to register or refresh Care-of address' } ensure that { when { IUT receives Binding_Acknowledgement containing status set to 134 Duplicate_Address_Detection_failed } then { IUT 'does not send the same binding update message again' } } </pre> | | | |

A.1.6.5.2 Receiving binding acknowledgements

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1764_01 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1764, RQ_001_1763 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1764_01 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update to Home_Agent } ensure that { when { IUT receives Binding_Acknowledgement from Home_Agent containing unrecognized sequence_number } then { IUT discards Binding_Acknowledgement } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1764_02 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1764, RQ_001_1763 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1764_02 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update to Correspondent_Node } ensure that { when { IUT receives Binding_Acknowledgement from Correspondent_Node containing unrecognized sequence_number } then { IUT discards Binding_Acknowledgement } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1764_03 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1764, RQ_001_1763 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1764_03 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update to Correspondent_Node } ensure that { when { IUT receives Binding_Acknowledgement from Correspondent_Node not containing binding_authorization_data_mobility_option } then { IUT discards Binding_Acknowledgement } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1765_01 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1765, RQ_001_1766 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1765_01 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update with A_Bit set to 1 to Home_Agent } ensure that { when { IUT receives Binding_Acknowledgement from Home_Agent containing status set to 0 Binding_Update_accepted } then { IUT accepts Binding_Acknowledgement and IUT 'does not send the same binding update message again' } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1765_02 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1765, RQ_001_1766 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1765_02 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update with A_Bit set to 1 to Correspondent_Node } ensure that { when { IUT receives Binding_Acknowledgement from Correspondent_Node containing status set to 0 Binding_Update_accepted } then { IUT accepts Binding_Acknowledgement and IUT 'does not not send the same binding update message again' } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1769_01 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1769, RQ_001_1765 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1769_01 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update to Home_Agent } ensure that { when { IUT receives Binding_Acknowledgement from Home_Agent containing status set to 1 Accepted_but_prefix_discovery_necessary } then { IUT accepts Binding_Acknowledgement and optionally (IUT sends Mobile_Prefix_Solicitation) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_1769_02 | | |
| Summary: | Test reaction on Binding Acknowledgement | | |
| References: | RQ_001_1769, RQ_001_1765 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1769_02 |
| <pre> with { IUT away_from_home and IUT having sent Binding_Update to Correspondent_Node } ensure that { when { IUT receives Binding_Acknowledgement from Correspondent_Node containing status set to 1 Accepted_but_prefix_discovery_necessary } then { IUT accepts Binding_Acknowledgement and optionally (IUT sends Mobile_Prefix_Solicitation) } } </pre> | | | |

A.1.6.5.3 Receiving binding refresh requests

| Test Purpose | | | |
|--|----------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_1776_02 | | |
| Summary: | Test reaction on Binding Refresh | | |
| References: | RQ_001_1776 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_1776_02 |
| <pre> with { IUT away_from_home and IUT having a binding to a specific Correspondent_Node } ensure that { when { IUT receives Binding_Refresh_request from Correspondent_Node } then { IUT accepts Binding_Refresh_request and optionally (IUT starts Return_Routability_Procedure) } } </pre> | | | |

A.2 IPv6 Mobility - RFC 4068

A.2.1 Protocol operation of network-initiated handover

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_3018_01 | | |
| Summary: | Test reaction on unsolicited Proxy Router Advertisement | | |
| References: | RQ_001_3018, RQ_001_3019, RQ_001_3164, RQ_001_3167 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3018_01 |
| <pre> with { IUT away_from_home and IUT ready for handover to New_Access_Router } ensure that { when { IUT receives Proxy_Router_Advertisement containing New_Access_Point_link_local_address_option set to link_layer_address of New_Access_Router and containing code set to 1 message_sent_unsolicited } then { IUT sends Fast_Binding_Update containing destination_address set to address of Previous_Access_Router and containing Home_Address_option and containing alternate_Care_of_Address_mobility_option } } </pre> | | | |

A.2.2 Protocol details

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3021_01 | | |
| Summary: | Test generation of Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3021, RQ_001_3079 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3021_01 |
| <pre> with { IUT away_from_home and IUT 'able to recognize nearby access points' } ensure that { when { IUT is requested to send Router_Solicitation_for_Proxy_Advertisement } then { IUT sends Router_Solicitation_for_Proxy_Advertisement containing New_Access_Point_link_local_address_option } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3022_01 | | |
| Summary: | Test reaction on Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3022, RQ_001_3102, RQ_001_3103 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3022_01 |
| <pre> with { IUT established as Previous_Access_Router and IUT 'having no entry corresponding to new endpoint' } ensure that { when { IUT receives Router_Solicitation_for_Proxy_Advertisement containing an unknown New_Access_Point_link_local_address_option } then { IUT sends Proxy_Router_Advertisement containing code set to 2 no_new_router_information_present and containing (New_Access_Point_link_local_address_option containing option_code set to 6 'No prefix information available for the access point identified by the LLA') } } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_3024_01 | | |
| Summary: | Test reaction on Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3024, RQ_001_3102, RQ_001_3103 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3024_01 |
| <pre> with { IUT established as Previous_Access_Router } ensure that { when { IUT receives Router_Solicitation_for_Proxy_Advertisement containing New_Access_Point_link_local_address_option indicating 'an endpoint on the same interface'} then { IUT sends Proxy_Router_Advertisement containing code set to 2 no_new_router_information_present and containing (New_Access_Point_link_local_address_option containing option_code set to 5 'The access point identified by the LLA belongs to to the current interface of the router') } } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3025_01 | | |
| Summary: | Test reaction on Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3025, RQ_001_3102, RQ_001_3103, RQ_001_3105, RQ_001_3106, RQ_001_3107 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3025_01 |
| <pre> with { IUT established as Previous_Access_Router } ensure that { when { IUT receives Router_Solicitation_for_Proxy_Advertisement containing New_Access_Point_link_local_address_option indicating 'endpoint on different interface'} then { IUT sends Proxy_Router_Advertisement containing code set to 1 and containing (New_Access_Point_link_local_address_option containing option_code set to 1 'Link-Layer Address of the New Access Point' and containing link_layer_address of new Router and containing IP_address of new Router and containing Prefix_Information_Option of new Router) } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_3025_02 | | |
| Summary: | Test reaction on Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3025 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3025_02 |
| <pre> with { IUT established as Previous_Access_Router } ensure that { when { IUT receives Router_Solicitation_for_Proxy_Advertisement containing New_Access_Point_link_local_address_option indicating 'endpoint that does not support fast handover'} then { IUT sends Proxy_Router_Advertisement containing code set to 3 } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3029_01 | | |
| Summary: | Test generation of Fast binding update | | |
| References: | RQ_001_3029, RQ_001_3164 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3029_01 |
| <pre> with { IUT 'having successfully completed exchange of RtSolPr and PrRtAdv' and IUT 'aware of the existence of an NAR' and IUT connected on Previous_Access_Router_link } ensure that { when { IUT is requested to send Fast_Binding_Update } then { IUT sends Fast_Binding_Update on Previous_Access_Router_link containing destination_address set to address of Previous_Access_Router and containing Home_Address_option and containing alternate_Care_of_Address_mobility_option indicating the new Care_of_address } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3030_01 | | |
| Summary: | Test generation of Fast binding update | | |
| References: | RQ_001_3030, RQ_001_3041, RQ_001_3167, RQ_001_3184 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3030_01 |
| <pre> with { IUT 'having successfully completed exchange of RtSolPr and PrRtAdv' and IUT connected on New_Access_Router_link } ensure that { when { IUT is requested to send Fast_Binding_Update } then { IUT sends Fast_Neighbor_Advertisement on New_Access_Router_link containing destination_address set to address of New_Access_Router and containing Mobility_Header_Link_Layer_Address_Option and containing (inner_Fast_Binding_Update containing destination_address set to address of Previous_Access_Router and containing Home_Address_option) } } </pre> | | | |

| Test Purpose | | | |
|--|---------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_3030_02 | | |
| Summary: | Test tunneling of Fast binding update | | |
| References: | RQ_001_3030 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3030_02 |
| <pre> with { IUT established as New_Access_Router of Mobile_Node } ensure that { when { IUT receives Fast_Neighbor_Advertisement from Mobile_Node containing (inner_Fast_Binding_Update containing destination_address set to address of Previous_Access_Router) } then { IUT sends Fast_Binding_Update to Previous_Access_Router containing destination_address set to address of Previous_Access_Router } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_3031_01 | | |
| Summary: | Test reaction to Fast binding update | | |
| References: | RQ_001_3031, RQ_001_3054, RQ_001_3132, RQ_001_3117, RQ_001_3129 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3031_01 |
| <pre> with { IUT established as Previous_Access_Router of Mobile_Node and IUT 'having successfully completed exchange of RtSolPr and PrRtAdv' } ensure that { when { IUT receives Fast_Binding_Update from Mobile_Node containing source_address set to previous Care_of_address and containing alternate_Care_of_Address_mobility_option indicating a new Care_of_address } then { IUT sends Handover_Initiate to New_Access_Router containing Authentication_Header and containing link_layer_address_of_Mobile_Node_option indicating link_layer_address_of_Mobile_Node and containing code set to 0 and containing new_Care_of_Address_option indicating received new Care_of_address } } </pre> | | | |

| Test Purpose | | |
|--|---|----------------------------------|
| Identifier: | TP_MOB_3031_02 | |
| Summary: | Test reaction to Fast binding update | |
| References: | RQ_001_3031, RQ_001_3133, RQ_001_3117, RQ_001_3124, RQ_001_3129 | |
| IUT Role: | Router | Test Case: TC_MOB_3031_02 |
| <pre> with { IUT established as Previous_Access_Router of Mobile_Node and IUT 'having successfully completed exchange of RtSolPr and PrRtAdv' } ensure that { when { IUT receives Fast_Binding_Update from Mobile_Node containing source_address not set to previous Care_of_address } then { IUT sends Handover_Initiate to New_Access_Router containing Authentication_Header and containing link_layer_address_of_Mobile_Node_option indicating link_layer_address_of_Mobile_Node and containing code set to 1 and containing S_flag set to 0 } } </pre> | | |

| Test Purpose | | |
|---|---|----------------------------------|
| Identifier: | TP_MOB_3035_01 | |
| Summary: | Test reaction to Handover Initiate | |
| References: | RQ_001_3035, RQ_001_3135, RQ_001_3139, RQ_001_3148, RQ_001_3150 | |
| IUT Role: | Router | Test Case: TC_MOB_3035_01 |
| <pre> with { IUT established as New_Access_Router of Mobile_Node } ensure that { when { IUT receives Handover_Initiate from Previous_Access_Router containing code set to 0 and containing S_flag set to 1 } then { IUT sends Handover_Acknowledge to Previous_Access_Router containing Authentication_Header and containing new_Care_of_Address_option indicating new_Care_of_Address } } </pre> | | |

| Test Purpose | | |
|--|--|----------------------------------|
| Identifier: | TP_MOB_3035_02 | |
| Summary: | Test reaction to Handover Initiate | |
| References: | RQ_001_3035, RQ_001_3135, RQ_001_3139, RQ_001_3150 | |
| IUT Role: | Router | Test Case: TC_MOB_3035_02 |
| <pre> with { IUT established as New_Access_Router of Mobile_Node and IUT 'having tunneled Fast binding update to PAR' } ensure that { when { IUT receives Handover_Initiate from Previous_Access_Router containing code set to 1 } then { IUT sends Handover_Acknowledge to Previous_Access_Router containing Authentication_Header } } </pre> | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3036_01 | | |
| Summary: | Test reaction to Handover Acknowledge | | |
| References: | RQ_001_3036, RQ_001_3031, RQ_001_3056, RQ_001_3179 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3036_01 |
| <pre> with { IUT established as Previous_Access_Router of Mobile_Node and IUT having received Fast_Binding_Update from Mobile_Node and IUT having sent Handover_Initiate to New_Access_Router } ensure that { when { IUT receives Handover_Acknowledge from New_Access_Router containing code set to 3 'Handover Accepted, NCoA assigned' } then { IUT sends Fast_Binding_Acknowledgement to Mobile_Node containing status set to 1 'Fast binding update accepted but NCoA is invalid' and containing alternate_Care_of_Address } } </pre> | | | |

| Test Purpose | | | |
|--|---------------------------------------|-------------------|----------------|
| Identifier: | TP_MOB_3036_02 | | |
| Summary: | Test reaction to Handover Acknowledge | | |
| References: | RQ_001_3036, RQ_001_3031 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3036_02 |
| <pre> with { IUT established as Previous_Access_Router of Mobile_Node and IUT having received Fast_Binding_Update from Mobile_Node and IUT having sent Handover_Initiate to New_Access_Router } ensure that { when { IUT receives Handover_Acknowledge from New_Access_Router containing code indicating 0 'Handover Accepted, NCoA valid' } then { IUT sends Fast_Binding_Acknowledgement to Mobile_Node containing status set to 0 'Fast binding update accepted' } } </pre> | | | |

| Test Purpose | | | |
|--|---|-------------------|----------------|
| Identifier: | TP_MOB_3037_01 | | |
| Summary: | Test reaction to Fast Binding Acknowledgement | | |
| References: | RQ_001_3037, RQ_001_3040, RQ_001_3184 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3037_01 |
| <pre> with { IUT away_from_home IUT having sent Fast_Binding_Update } ensure that { when { IUT receives Fast_Binding_Acknowledgement containing status set to 1 'Fast binding update accepted but NCoA is invalid' and containing alternate_Care_of_address } then { IUT accepts Fast_Binding_Acknowledgement and optionally (IUT sends Fast_Neighbor_Advertisement containing destination_address set to address of New_Access_Router and containing Mobility_Header_Link_Layer_Address_Option) } } </pre> | | | |

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_3039_01 | | |
| Summary: | Test repetition of sending of Fast binding update | | |
| References: | RQ_001_3039 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3039_01 |
| <pre> with { IUT away_from_home IUT having sent Fast_Binding_Update } ensure that { when { IUT receives no Fast_Binding_Acknowledgement } then { IUT sends Fast_Binding_Update FBU_RETRIES times } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_3043_01 | | |
| Summary: | Test reaction to Fast Neighbor Advertisement | | |
| References: | RQ_001_3043, RQ_001_3045, RQ_001_3221 | | |
| IUT Role: | Router | Test Case: | TC_MOB_3043_01 |
| <pre> with { IUT established as New_Access_Router of Mobile_Node and IUT 'having finished Fast Binding procedure with Mobile_Node' } ensure that { when { IUT receives Fast_Neighbor_Advertisement containing source_address set to unacceptable Care_of_address } then { IUT sends Router_Advertisement containing destination_address set to received Care_of_address and containing Neighbor_Advertisement_Acknowledgement_option } } </pre> | | | |

| Test Purpose | | | |
|--|--|-------------------|----------------|
| Identifier: | TP_MOB_3046_01 | | |
| Summary: | Test reaction on Router Advertisement in response to Fast Neighbor Advertisement | | |
| References: | RQ_001_3046, RQ_001_3049, RQ_001_3222 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3046_01 |
| <pre> with { IUT away_from_home IUT 'having finished Fast Binding procedure with NAR' IUT having sent Fast_Neighbor_Advertisement } ensure that { when { IUT receives Router_Advertisement containing (Neighbor_Advertisement_Acknowledgement_option containing option_code set to 2 'The new CoA is invalid; use the supplied CoA' and containing new Care_of_address) } then { IUT sends IPv6Packet containing source_address set to received new Care_of_address and IUT sends no Fast_Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_3048_01 | | |
| Summary: | Test reaction on Router Advertisement in response to Fast Neighbor Advertisement | | |
| References: | RQ_001_3048, RQ_001_3047 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3048_01 |
| <pre> with { IUT away_from_home IUT 'having finished Fast Binding procedure with NAR' IUT having sent Fast_Neighbor_Advertisement } ensure that { when { IUT receives Router_Advertisement containing Neighbor_Advertisement_Acknowledgement_option containing option_code set to 1 'The new CoA is invalid' and not containing new Care_of_address } then { IUT optionally sends Fast_Neighbor_Advertisement containing inner_Fast_Binding_Update } } </pre> | | | |

| Test Purpose | | | |
|---|--|-------------------|----------------|
| Identifier: | TP_MOB_3223_01 | | |
| Summary: | Test reaction on Router Advertisement in response to Fast Neighbor Advertisement | | |
| References: | RQ_001_3223 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3223_01 |
| <pre> with { IUT away_from_home IUT 'having finished Fast Binding procedure with NAR' IUT having sent Fast_Neighbor_Advertisement } ensure that { when { IUT receives Router_Advertisement containing (Neighbor_Advertisement_Acknowledgement_option containing option_code set to 128 'Link Layer Address unrecognized') } then { IUT sends no IPv6Packet containing source_address set to previous Care_of_Address or set to new Care_of_Address } } </pre> | | | |

A.2.3 Miscellaneous

A.2.3.1 Handover capability exchange

| Test Purpose | | | |
|---|---|-------------------|----------------|
| Identifier: | TP_MOB_3053_01 | | |
| Summary: | Test repetition of sending of Router Solicitation for Proxy Advertisement | | |
| References: | RQ_001_3053 | | |
| IUT Role: | Mobile_Node | Test Case: | TC_MOB_3053_01 |
| <pre> with { IUT away_from_home IUT having sent Router_Solicitation_for_Proxy_Advertisement } ensure that { when { IUT receives no Proxy_Router_Advertisement } then { IUT sends Router_Solicitation_for_Proxy_Advertisement for RTSOLPR_RETRIES times } } </pre> | | | |

| Test Purpose | | |
|--|---|---------------------------|
| Identifier: | TP_MOB_3053_02 | |
| Summary: | Test repetition of sending of Router Solicitation for Proxy Advertisement | |
| References: | RQ_001_3053 | |
| IUT Role: | Mobile_Node | Test Case: TC_MOB_3053_02 |
| <pre> with { IUT away_from_home IUT having sent Router_Solicitation_for_Proxy_Advertisement for RTSOLPR_RETRIES times } ensure that { when { IUT receives no Proxy_Router_Advertisement } then { IUT sends no Router_Solicitation_for_Proxy_Advertisement } } </pre> | | |

A.2.3.2 Fast or erroneous movement

| Test Purpose | | |
|---|---|---------------------------|
| Identifier: | TP_MOB_3058_01 | |
| Summary: | Test generation of Fast binding update on early return to PAR | |
| References: | RQ_001_3058 | |
| IUT Role: | Mobile_Node | Test Case: TC_MOB_3058_01 |
| <pre> with { IUT 'having successfully completed exchange of RtSolPr and PrRtAdv' IUT having no binding to New_Access_Router } ensure that { when { IUT receives unsolicited Proxy_Router_Advertisement containing New_Access_Point_link_local_address_option indicating link_layer_address of Previous_Access_Router (containing option_code set to 1 'message sent unsolicited') } -- this tells the Mobile_Node that it is back on the PAR link then { IUT sends Fast_Binding_Update containing destination_address set to address of Previous_Access_Router and containing Home_Address_option indicating previous Care_of_Address and containing lifetime set to 0 } } </pre> | | |

Annex B (informative): Bibliography

- IETF RFC 2473: "Generic Packet Tunneling in IPv6 Specification".
- IETF RFC 3776: "Using IPsec to Protect Mobile IPv6 Signaling Between Mobile Nodes and Home Agents".

History

| Document history | | |
|-------------------------|----------|-------------|
| V1.1.1 | May 2007 | Publication |
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