Enabler Test Specification for Mobile Codes

Candidate Version 1.0 – 21 Feb 2012

Open Mobile Alliance

OMA-ETS-MC-V1_0-20120221-C

Contents

1. Scope

This document describes in detail available test cases for OMA-TS-MC-V1_0-20101130-C.zip . Static Conformance Requirements (SCRs) for the MC Enabler are contained in Appendix B of the MC TS.

The test cases are split in two categories, conformance and interoperability test cases.

The conformance test cases are aimed to verify the adherence to normative requirements described in the technical specifications.

The interoperability test cases are aimed to verify that implementations of the specifications work satisfactory.

If either conformance or interoperability tests do not exists at the creation of the test specification this part should be marked not available.

Organisation of the test cases in this document is intended, whenever possible, to mirror the corresponding enabler test requirements in OMA-ETR-Mobile_Codes-V1_0-20101130-C.zip As in the ETR document, this document does not define the entire breadth of validation nor the individual test cases needed to validate interoperability. Prioritisation of the interoperability test cases is based on perceived market needs as identified by CD-MC SWG participants.

The intended audience for this document is those involved with creation, execution and evaluation of test campaigns for the OMA Mobile Codes v1.0 Enabler [MC-ERELD].

2. References

2.1 Normative References

[DATAMATRIX] "Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification", ISO/IEC 16022:2006, URL: http://www.iso.org/iso/iso_catalogue/catalogue_ics/catalogue_detail_ics.htm?csnumber=44230

[QR] "Information technology — Automatic identification and data capture techniques — QR Code 2005 bar code symbology specification", ISO/IEC 18004:2006, URL: http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=43655

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[MC-RD] "OMA Mobile Codes 1.0 Requirements", Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[MC-AD] "OMA Mobile Codes 1.0 Architecture", Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[MC-TS] "OMA Mobile Codes 1.0 Technical Specification", Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[MC-TS_MO] "OMA Mobile Codes 1.0 Management Object", Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[OMNA] "OMA Naming Authority". Open Mobile Alliance™, URL: http://www.openmobilealliance.org/tech/omna

2.2 Informative References

[MC-ERELD] "Enabler Release Definition for Mobile Codes 1.0", Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[OMADICT] "Dictionary for OMA Specifications", Version 2.8, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_8, URL:http://www.openmobilealliance.org/

[OMAURI] "URI Schemes for the Mobile Applications Environment", Version 1.0, Open Mobile Alliance™, URL:http://www.openmobilealliance.org/

[URI] "RFC 3986. Uniform Resource Identifier (URI): Generic Syntax", IETF, http://www.ietf.org/rfc/rfc3986.txt.

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope”, are normative, unless they are explicitly indicated to be informative.

The following numbering scheme is used:

xxx-y.z-con-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’con’	Indicating this test is a conformance test case
number	Leap number for the test case

Or

xxx-y.z-int-number where:

xxx	Name of enabler, e.g. MMS or Browsing
y.z	Version of enabler release, e.g. 1.2 or 1.2.1
’int’	Indicating this test is a interoperability test case
number	Leap number for the test case

3.2 Definitions

Code Clearing House function	The process of Indirect Code routing based on the Indirect Code Identifier, through which: a) the Resolving CMP is determined, and b) the Indirect Code Identifier is forwarded to the Resolving CMP.
Code Management Platform	The Code Management Platform provides a resolution service pertaining to Indirect Codes; it is normally capable of performing both the Code Clearing House (CCH) function and Code Resolution (CR) and may also interact with other Code Management Platforms, as required. In certain deployment scenarios, the CCH function and the CR function may be implemented in two separate Code Management platforms. (See Split-CMP-Parent and Split-CMP-Child).
Code Resolution (or Code Resolution function)	The process of mapping a Direct Code or an Indirect Code into either content to be consumed directly by the device, or the address of content (or a service) to be accessed by the device. Typically, Code Resolution for Indirect Codes requires access to network service.
Code Transfer	The ability for a Mobile Code Publisher to change the Resolving CMP for a single or multiple Indirect Code Identifiers.
Direct Code	A Mobile Code that contains either: (a) content for direct consumption by the device, or (b) the address of content (or a service) to be accessed (typically, a URI [**Error! Reference source not found.**]).
Data String	Data that represents a Direct Code or an Indirect Code. A Data String is encoded by a Symbology to yield a Mobile Code.
Home CMP	The CMP to which a particular MCC is configured to send all Code Resolution requests. Where applicable in a Split-CMP deployment scenario, the Home CMP may be a Split-CMP-Parent.
Indirect Code	A Mobile Code that contains an Indirect Code Identifier.
Indirect Code Identifier	An identifier in the Indirect Code that has to be resolved in order to access the intended content or service. See also Code Resolution.
Mobile Code	A 1D or 2D barcode as read by camera-equipped devices.
Mobile Code Client	The MC Enabler software entity that resides in the device, and contains the functionality to acquire, decode, and extract the encoded information for further processing as required. This is often referred to as a Mobile Code Reader and these terms can be used synonymously.
Mobile Code Data Format	The syntactical description of the information contained within a Mobile Code.

Mobile Code Publisher	This is a brand (business, organisation or individual) who distributes certain content or services (e.g., an advertising campaign) to a mass audience by using Mobile Code Scanning as a channel.
Mobile Code Registry	A local registry responsible for sub-allocation of Mobile Code Routing Prefixes within the ranges of Routing Prefixes obtained from OMNA. The Mobile Code Registry (MCR) also supports a data look-up facility accessible by authorised principals (e.g., CMPs or Split-CMP-Parents) for Routing Prefixes in its database.
Mobile Code Scanning	The physical act of capturing a Mobile Code Symbology and decoding the information contained within the Mobile Code.
Multi-lateral Arrangement	An arrangement amongst specific CMPs (including Split-CMP-Parents, where applicable) that are not associated with any Mobile Code Registry, in which the parties agreed to support each other in a multi-lateral way in order to manage sub-allocation of MC Routing Prefixes as well as discovery and updates thereof; details of such MLAs are not specified in the MC Enabler TS.
Remote CMP	The CMP that receives a Code Resolution request when the Home CMP (or Split-CMP-Parent, where applicable) is unable to resolve a particular Indirect Code Identifier.
Resolving CMP	The CMP (or Split-CMP-Child, where applicable) that is able to resolve a particular Indirect Code Identifier.
Routing Prefix	That part of the Indirect Code Identifier that contains a value that is uniquely assigned to the CMP (or Split-CMP-Child, where applicable) and is used for routing.
Split-CMP-Child	A CMP in the Split-CMP deployment scenario, where only the Code Resolution function is implemented. In addition, subject to business relationship, a Split-CMP-Child may be associated with one and only one Split-CMP-Parent.
Split-CMP-Parent	A CMP in the Split-CMP deployment scenario, where only the Code Clearing House function is implemented. In addition, subject to business relationship, a Split-CMP-Parent may be associated with multiple Split-CMP-Children.
Symbology	The algorithm by which data is encoded as visual elements (typically arrangements of lines or squares), and the resultant "look and feel" for the user.

3.3 Abbreviations

1D	1-Dimensional
2D	2-Dimensional
CMP	Code Management Platform
DM	Device Management
MCR	Mobile Code Registry
ICI	Indirect Code Identifier
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
MC	Mobile Code
MCC	Mobile Code Client
MLA	Multi-lateral Arrangement
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
QR	Quick Response, a type of barcode symbology [QR]
URI	Uniform Resource Identifier [**Error! Reference source not found.**]
URL	Uniform Resource Locator

4. Introduction

The purpose of this document is to provide test cases for Mobile Codes Candidate Enabler Release V1.0 as specified in

OMA-TS-MC-V1_0-20101130-C.zip.

Mobile Codes 1.0 Test Requirements cover the following components:

- Mobile Code Client (MCC).
- MC Enabler Server components (also referred to as 'network elements' in the [MC-TS]):
  - Code Management Platform (CMP).
  - CMP-Split-Parent (where applicable).
  - CMP-Split-Child (where applicable).
  - Mobile Code Registry (MCR), where applicable.

There are no interoperability tests defined for the Direct Code due to the fact that the MCC has no other entity to interoperate with when processing the Direct Code. Within the [MC-TS], Section 7 therein for Direct Code specification defines how the Data String that is decoded from a 2D code image captured by the device camera is processed so that the original data (as input to the symbology encoding process) is recognized, displayed and/or triggers actions in the device.

The test cases in Section 6 in this document cover only Indirect Codes.

The implementation of some features is optional for the MC Client and/or the Servers (i.e., the CMP or MCR) in the Mobile Codes Enabler. The tests associated with these optional features, where applicable, are marked as "(Includes Optional Features)" in the test specification.

The test instruments required for the interoperability test cases in this document are of a general purpose and consistent with those involved in testing mobile app and web services over the Mobile Internet (e.g. data protocol analyser, test jig for interfacing with a mobile device). No special purpose test instruments are envisaged in executing test cases in this ETS. Specific test instruments pertaining to each test case are listed 'Tool' therein.

Insofar as the test condition injection or test result acquisition through software programming to and from the 'Test Object' are concerned, it is assumed that the device U/I is accessible through the specific device OS. Likewise, for the Mobile Codes servers (i.e., CMP or MCR), it is assumed that each of these servers under test is accessible through its operator and administration system console (typically with a GUI access).

More detailed discussion of the Enabler test environment is provided in the Enabler Validation Plan (EVP) document.

5. Mobile Codes Conformance Test Cases

5.1 Mobile Codes-1.0-con-number

No Conformance Tests are necessary for the Mobile Codes Enabler. All SCR references applicable to the Interoperability Tests are as specified for the respective Interoperability test cases in Section 6.

6. Mobile Codes Interoperability Test Cases

6.1 Mobile Codes-1.0-int-number

6.1.1 MC-1.0-int-001

Test Case Id	MC-1.0-int-001
Test Object	MC Client
Test Case Description	Verify if the MCC can send the MC-1-RESOLVE_ICI_REQUEST message including available user personal data information and Location information.
Specification Reference	[MC-TS] Sections 8.2.2.1 and 10.3.1.1.
SCR Reference	MC-CR-C-001-M, MC-CR-C-002-M, MC-CR-C-003-M, MC-CR-C-004-M, MC-CR-C-005-M and MC-CR-C-006-M.
ETR Reference	MCC-MT-1
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client (‘MCC’) o 1 CMP server (‘Home CMP’) • State: o The MCC is configured on the device to use the MC Enabler. o MCC is configured to work with a CMP server as its Home CMP. o MCC is configured to allow forwarding of User Personal Data and location data (LOC Data), based on user Opt-In permission status. Both Opt-In and Opt-Out conditions are tested. o Assuming no error conditions. o Assuming prior knowledge of the ICI encoded into each of the Indirect Code test samples, respectively. o Assuming prior knowledge of the optional User Personal Data and LOC Data to be added by the MCC when user Opt-In permission is given.
Test Procedure	1. User sets Opt-In permission status (through the device U/I) for sending optional data when requesting Code Resolution as follows: a) ‘Yes’ for User Personal Data and ’Yes’ for LOC Data. b) ‘Yes’ for User Personal Data and ‘No’ for LOC Data. c) ‘No’ for User Personal Data and ‘Yes’ for LOC Data. d) ‘No’ for User Personal Data and ‘No’ for LOC Data. 2. With the user Opt-In permission status set to Step 1(a) above, scanning of an Indirect Code is initiated by the mobile device in which the MCC resides. 3. User gives permission (through the device U/I) for MCC to proceed with resolution of the Indirect Code (i.e. access to network service is authorised). 4. Repeat Steps 2 and 3 above for each of the user Opt-In permission status in Step 1.

Pass-Criteria	1. At the Home CMP, the MC-1-RESOLVE_ICI_REQUEST message is received from the MCC. 2. At the Home CMP, the ICI is contained in the MC-1-RESOLVE_ICI_REQUEST message received from the MCC. 3. At the Home CMP, the received ICI matches the input ICI encoded into the code symbology. 4. At the Home CMP, available User Personal Data and LOC Data is received according to the user Opt-In permission status set by the device U/I for the MCC. 5. At the Home CMP, the received User Personal Data and/or LOC Data, if present, matches the input data inserted by the MCC.

6.1.2 MC-1.0-int-002

Test Case Id	MC-1.0-int-002
Test Object	MC Client
Test Case Description	Verify if the MCC can receive the MC-1-RESOLVE_ICI_RESPONSE message including available tracking address information.
Specification Reference	[MC-TS] Sections 8.2.2.1 and 10.3.1.2.
SCR Reference	MC-CR-C-002-M, MC-CR-C-003-M, MC-CR-C-004-M, MC-CR-C-005-M, MC-CR-C-006-M, MC-CR-C-008 and MC-CR-C-010-M. MC-CR-S-014-M to MC-CR-S-020-M, inclusively. MC-CR-S-025-M. MC-CR-S-027-M to MC-CR-S-029-M, inclusively. MC-CR-S-032-M.
ETR Reference	MCC-MT-2
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client (‘MCC’) o 1 CMP server (‘Home CMP’) • State: o The MCC is configured on the Client to use the MCC Enabler. o MCC is configured to work with a CMP server as its Home CMP. o Tracking reporting is enabled and implemented at the MCC. o Assuming prior knowledge of the content (or address to content) associated with the ICI that is encoded into each of the Indirect Code test samples, respectively. o Assuming prior knowledge of the Tracking Address associated with the ICI content (or address to content) for each of the Indirect Code test samples, respectively. o Assuming no error conditions.
Test Procedure	1. Scanning of an Indirect Code is initiated by the mobile device where

	the MCC resides. 2. User gives permission for MCC to ask for resolution of the Indirect Code. 3. MCC sends the MC-1-RESOLVE_ICI_REQUEST message to the Home CMP. 4. CPM server resolves the Indirect Code and returns the MC-1-RESOLVE_ICI_RESPONSE message including Tracking Address to the MC Client.
Pass-Criteria	1. At the MC Client, the MC-1-RESOLVE_ICI_RESPONSE message including available Tracking Address information is received from the Home CMP. 2. At the MC Client, the received information resulting from resolution of the ICI matches the intended content (or address to content) for the ICI. 3. At the MC Client, the received Tracking Address information for the resolved ICI content (or address to content) matches the intended Tracking Address.

6.1.3 MC-1.0-int-003

Test Case Id	MC-1.0-int-003
Test Object	MC Client
Test Case Description	Verify if the MCC can send available Tracking Report information to: a) the "trackingaddress" received from the MC-1-RESOLVE_ICI_RESPONSE message, or b) the default pre-provisioned Tracking Address by the Home CMP.
Specification Reference	[MC-TS] Sections 8.4.2.1 and 10.6.1.1.
SCR Reference	MC-TRP-C-001-M to MC-TRP-C-004-M, inclusively.
ETR Reference	MCC-MT-3
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client ('MCC') o 1 CMP server ('Home CMP') • State: o The MCC is configured on the device to use the MC Enabler. o MCC is configured to work with a CMP server as its Home CMP. o MCC is configured to allow forwarding of Tracking Information to the "trackingaddress" or the default pre-provisioned Tracking Address by the Home CMP. o The CMP has resolved an ICI and can send the MC-1-RESOLVE_ICI_RESPONSE message to the MCC.
Test Procedure	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. From the Home CMP, insert a "trackingaddress" together with the

	result of Code Resolution associated with an ICI in the MC-1-RESOLVE_ICI_RESPONSE message and send this message to MCC. 2. Verify the MC-4-TRACKING_REPORT message is sent from the MCC. Part B- 3. Repeat Steps 1 and 2 without the "trackingaddress" but with the *trackingindicator* is set to "true", together with the result of Code Resolution associated with an ICI in the MC-1-RESOLVE_ICI_RESPONSE message and send this message to MCC.
Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. At the MCC, the MC-4-TRACKING_REPORT message received from the Home CMP contains the "trackingaddress". 2. At the MCC, available Tracking Report information is specified according to [MC-TS] Section 10.6.1.1. Part B- 3. At the MCC, the MC-4-TRACKING_REPORT message contains the default pre-provisioned Tracking Address by the Home CMP. 4. At the MCC, available Tracking Report information is specified according to [MC-TS] Section 10.6.1.1.

6.1.4 MC-1.0-int-004

Test Case Id	MC-1.0-int-004
Test Object	MC Client
Test Case Description	Verify if the MCC can receive the MC-ERROR message covering all applicable 'status' values for both MC-1 and MC-4.
Specification Reference	[MC-TS] Sections 8.2.2.1, 8.4.2.1, 10.3.1.3 and 10.6.1.2.
SCR Reference	Nil.
ETR Reference	MCC-MT-4
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client ('MCC') o 1 CMP server ('CMP') • State: o The MCC is configured on the device to use the MC Enabler. o MCC is configured to work with a CMP server as its Home CMP. o The CMP is able to insert "mc-error" element as specified in [MC-TS] Table 13 together with the list of MC error status codes and descriptions as specified in Table 14.
Test Procedure	1. From the CMP, insert an error response containing a "mc-error" element as specified in [MC-TS] Table 13 together with one selected MC error status code from Table 14. 2. Send the error response message to the MCC.

	3. Repeat Steps 1 and 2 for each of the different MC status codes as per Table 14.
Pass-Criteria	1. At the MCC, the error response message is received. 2. At the MCC, the error response message contains the MC status code corresponding to that sent by the CMP.

6.1.5 MC-1.0-int-005

Test Case Id	MC-1.0-int-005
Test Object	Home CMP
Test Case Description	a) Verify if the CMP can receive the MC-1-RESOLVE_ICI_REQUEST message including available user personal data information and Location information as specified in [MC-TS] Sections 8.2.2.2 and 10.3.1.1. b) Verify if the CMP can send the MC-1-RESOLVE_ICI_RESPONSE message including available 'trackingaddress' information and/or 'contentdescription' as specified in [MC-TS] Sections 8.2.2.2, 8.4.2.2 and 10.3.1.2.
Specification Reference	[MC-TS] Sections 8.2.2.2, 8.4.2.2, 10.3.1.1 and 10.3.1.2. [MC-TS] Sections 8.2.2.5.1 and 8.2.2.5.2.
SCR Reference	MC-CR-S-001-M, MC-CR-S-006-M. MC-CR-S-013-M to MC-CR-S-015-M, inclusively. MC-CR-S-016-M and MC-CR-S-032-M.
ETR Reference	CMP-MT-1 and CMP-MT-2
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client ('MCC') o 1 CMP server ('CMP') • State: o The MCC is configured on the device to use the MC Enabler. o MCC is configured to work with a CMP server as its Home CMP. o MCC is configured to allow forwarding of User Personal Data and location data (LOC Data), based on user Opt-In permission status. Both Opt-In and Opt-Out conditions are tested. o Assuming no error conditions. o Assuming prior knowledge of the ICI encoded into each of the Indirect Code test samples, respectively. o Assuming prior knowledge of the optional User Personal Data and LOC Data to be added by the MCC when user Opt-In permission is given. o Assuming the Home CMP is the Resolving CMP (i.e., it has knowledge of how to resolve "codecontentset" and "contentdescription" information intended for the ICI in question). o Assuming no Split-CMP-Parent is involved in the basic scenario.

Test Procedure	1. User sets Opt-In permission status (through the device U/I) for sending optional data when requesting Code Resolution as follows: a) 'Yes' for User Personal Data and 'Yes' for LOC Data. b) 'Yes' for User Personal Data and 'No' for LOC Data. c) 'No' for User Personal Data and 'Yes' for LOC Data. d) 'No' for User Personal Data and 'No' for LOC Data. 2. With the user Opt-In permission status set to Step 1(a) above, scanning of an Indirect Code is initiated by the mobile device in which the MCC resides. 3. User gives permission (through the device U/I) for MCC to proceed with resolution of the Indirect Code (i.e. access to network service is authorised). 4. MCC sends MC-1-RESOLVE_ICI_REQUEST message to the Home CMP. 5. Home CMP sends the MC-1-RESOLVE_ICI_REQUEST message to the MCC together with the "trackingaddress" information. 6. Repeat Steps 2 to 6 above for each of the user Opt-In permission status in Step 1.
Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. At the Home CMP, the MC-1-RESOLVE_ICI_REQUEST message is received. 2. At the Home CMP, any User Personal Data and/or LOC Data present in the MC-1-RESOLVE_ICI_REQUEST message is retrieved as per Section 10.3.1.1 Table 15. Part B- 3. At the MCC, the MC-1-RESOLVE_ICI_REQUEST message is received. 4. At the MCC, "codecontentset" and "contentdescription" information intended for the ICI in question is received as per Section 10.3.1.2 Table 16. 5. At the MCC, the "trackingaddress" information intended for the ICI in question is received as per Section 10.3.1.2 Table 16. 6. Apply Pass-Criteria for Steps 1 to 5 above repeated for each of the each of the user Opt-In permission status (see Test Procedure Step 1).

6.1.6 MC-1.0-int-006

Test Case Id	MC-1.0-int-006
Test Object	Home CMP
Test Case Description	Verify if the CMP (or the Split-CMP-Parent when applicable) can send the MC-3-RESOLVE_ICI_REQUEST message including available user personal data information, Location information and/or security information as specified in [MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.5.1.1.
Specification Reference	[MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.5.1.1.
SCR Reference	MC-CR-S-004-M, MC-CR-S-008-M and MC-CR-S-029-M.

ETR Reference	CMP-MT-3
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server acting as the Home CMP. o 1 CMP server acting as the Remote/Resolving CMP. • State: o Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message from the MCC. o Home CMP has knowledge of the network address of the Remote (Resolving) CMP. This knowledge has been discovered by any one of the following pre-conditions: a) This information exists in the local cache of the Home CMP. b) Home CMP has a prior query to the associated MCR, where it exists. c) Home CMP has a prior query to the Lead CMP within a Multi-lateral Arrangement community. o Assuming the 'Split-CMP-Parent' variant is not applicable. o The Security information option is disabled. o User has opted-in to send User Personal Data information and LOC Data information. o Assuming prior knowledge of the Personal Data information and LOC Data of the user and/or device contained in the MC-1-RESOLVE_ICI_REQUEST message received from the MCC. o Assuming no error conditions.
Test Procedure	1. Home CMP sends a MC-3-RESOLVE_ICI_REQUEST message to the Remote (Resolving) CMP.
Pass-Criteria	1. At the Remote (Resolving) CMP, MC-3-RESOLVE_ICI_REQUEST message is from the requestor CMP. 2. At the Remote (Resolving) CMP, the ICI and optional Personal Data and LOC Data information (as applicable) is included in the MC-3-RESOLVE_ICI_REQUEST message received from the Home CMP. 3. At the Remote (Resolving) CMP, the received ICI matches the intended ICI. 4. At the Remote (Resolving) CMP, the received optional Personal Data and LOC Data information (as applicable) matches the intended information, respectively.

6.1.7 MC-1.0-int-007

Test Case Id	MC-1.0-int-007
Test Object	Home CMP
Test Case Description	Verify if the CMP (or the Split-CMP-Parent when applicable) can receive the MC-3-RESOLVE_ICI_RESPONSE message including available 'trackingaddress' information and/or 'contentdescription' as specified in

	[MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.5.1.2.
Specification Reference	[MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.5.1.2.
SCR Reference	MC-CR-S-004-M. MC-CR-S-007-M to MC-CR-S-010-M, inclusively. MC-CR-S-028-M and MC-CR-S-029-M.
ETR Reference	CMT-MT-4
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server acting as the Home CMP. o 1 CMP server acting as the Remote/Resolving CMP. • State: o Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message from the MCC. o Home CMP has knowledge of the network address of the Remote (Resolving) CMP. This information has been discovered by one of the following pre-conditions: a) This information exists in the local cache of the Home CMP. b) By querying the associated MCR, where it exists. c) By querying the Lead CMP within a Multi-lateral Arrangement community. o Assuming prior knowledge of the content (or address to content) associated with the ICI that is encoded into each of the Indirect Code test samples, respectively. o Assuming prior knowledge of the Tracking Address associated with the ICI content (or address to content) for each of the Indirect Code test samples, respectively. o Assuming the Split-CMP-Parent variant is not applicable. o The Security information option is disabled. o Home CMP has sent a MC-3-RESOLVE_ICI_REQUEST message to the Remote (Resolving) CMP.
Test Procedure	1. Remote (Resolving) CMP receives a MC-3-RESOLVE_ICI_REQUEST message from the Home CMP. 2. Remote (Resolving) CMP resolves the Indirect Code content based on the ICI in the MC-3-RESOLVE_ICI_REQUEST message received from Home CMP. 3. Remote (Resolving) CMP sends a MC-3-RESOLVE_ICI_RESPONSE message to the Home CMP, including ‘contentdescription’ associated with the ICI and any available ‘trackingaddress’ information.
Pass-Criteria	1. At the Home CMP, MC-3-RESOLVE_ICI_RESPONSE message is received from the Remote (Resolving) CMP. 2. At the Home CMP, the ‘contentdescription’ associated with the ICI and available ‘trackingaddress’ information (as applicable) is included in the MC-3-RESOLVE_ICI_RESPONSE message received from the Remote (Resolving) CMP. 3. At the Home CMP, the ‘contentdescription’ information received

	matches the intended content (or address to content) associated with the ICI. 4. At the Home CMP, the 'trackingaddress' information received matches the intended Tracking Address information for the intended content (or address to content) associated with the ICI.

6.1.8 MC-1.0-int-008

Test Case Id	MC-1.0-int-008
Test Object	Remote (Resolving) CMP
Test Case Description	a) Verify if the CMP can receive the MC-3-RESOLVE_ICI_REQUEST message including available user personal data information, Location information and/or security information as specified in [MC-TS] Sections 8.2.2.3 and 10.5.1.1. b) Verify if the CMP can send the MC-3-RESOLVE_ICI_RESPONSE message including available 'trackingaddress' information and/or 'contentdescription' as specified in [MC-TS] Sections 8.2.2.3, 8.2.2.5, 8.4.2.4 and 10.5.1.2.
Specification Reference	[MC-TS] Sections 8.2.2.3 and 10.5.1.1. [MC-TS] Sections 8.2.2.5, 8.4.2.4 and 10.5.1.2.
SCR Reference	MC-CR-S-001-M, MC-CR-S-003-M, MC-CR-S-006-M, MC-CR-S-015-M, MC-CR-S-016-M, MC-CR-S-026, MC-CR-S-029-M and MC-CR-S-033-M.
ETR Reference	CMP-MT-5 and CMP-MT-6
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server acting as the Home CMP. o 1 CMP server acting as the Remote/Resolving CMP. • State: o Home CMP has received user opted-in User Personal Data information and LOC Data information in the MC-1-RESOLVE_ICI_REQUEST message from the MCC. o Home CMP is not the Resolving CMP but has knowledge of the network address of the Remote (Resolving) CMP. o Assuming the Home CMP (requester CMP) supports tracking. o Assuming the Security information option is disabled. o Assuming no error conditions. o Assuming the 'Split-CMP-Parent' and 'Split-CMP-Child' variants are not applicable.
Test Procedure	1. Home CMP (as the requestor CMP) sends a MC-3-RESOLVE_ICI_REQUEST message to the Remote (Resolving) CMP including available User Data Profile and LOC Data information; also the Home CMP sets the "trackingindicator" to 1. 2. Remote (Resolving) CMP resolves the ICI in question and returns the MC-3-RESOLVE_ICI_RESPONSE message including available 'trackingaddress' information and/or 'contentdescription' back to the Home CMP (requester CMP).

Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. At the Remote (Resolving) CMP, the MC-3-RESOLVE_ICI_REQUEST message is received from the requestor CMP. 2. At the Remote (Resolving) CMP, the ICI and optional Personal Data and LOC Data information (as applicable) included in the MC-3-RESOLVE_ICI_REQUEST message is retrieved as per [MC-TS] Section 10.5.1.1 Table 21. Part B- 3. At the Home CMP (requester CMP), the MC-3-RESOLVE_ICI_RESPONSE message is received from the Remote (Resolving) CMP. 4. At the Home CMP (requester CMP), the available 'trackingaddress' information and/or 'contentdescription' is retrieved as per [MC-TS] Section 10.5.1.2 Table 22.

6.1.9 MC-1.0-int-009

Test Case Id	MC-1.0-int-009
Test Object	Home CMP
Test Case Description	Verify if the CMP (or the Split-CMP-Parent when applicable) can receive the MC-4-TRACKING_REPORT message including available user personal data information, Location information and/or security information when the MC-1-RESOLVE_ICI_RESPONSE message contains the following: a) a "trackingaddress", and b) there is no "trackingaddress", but "trackindicator" is set to true.
Specification Reference	[MC-TS] Sections 8.4.2.3 and 10.6.1.1.
SCR Reference	MC-TRP-S-001-M, MC-TRP-S-003-M, MC-TRP-S-004-M and MC-TRP-S-009-M. MC-TRP-C-001-M to MC-TRP-C-004-M, inclusively.
ETR Reference	CMP-MT-7
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o MC Client. o 1 CMP server acting as the Home CMP. • State: o User has Opted In to release personal profile data and/or LOC Data. o MCC has received a MC-1-RESOLVE_ICI_RESPONSE message with and without the "trackingaddress". o Assuming the Home CMP is the Resolving CMP. o Assuming the Home CMP supports tracking. o Assuming the Security information option is disabled.

	○ Assuming no error conditions. ○ Assuming the 'Split-CMP-Parent' variant is not applicable.
Test Procedure	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- There is a "trackingaddress" in the MC-1-RESOLVE_ICI_RESPONSE message: 1. MCC sends the MC-4-TRACKING_REPORT message to the Home CMP together the tracking server(s) as indicated by the "trackingaddress" parameter(s) containing the available user profile data and/or LOC Data. 2. Home CMP receives the MC-4-TRACKING_REPORT message with the "trackingaddress". Part B- There is no "trackingaddress" in the MC-1-RESOLVE_ICI_RESPONSE message, but "trackindicator'' is set to true. 3. MCC sends the MC-4-TRACKING_REPORT message to the Home CMP together the default pre-provisioned "trackingaddress" by the Home CMP the parameter(s) containing the available user profile data and/or LOC Data. 4. Home CMP receives the MC-4-TRACKING_REPORT message with the default pre-provisioned "trackingaddress".
Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. At the Home CMP, the MC-4-TRACKING_REPORT message is received from the MCC. 2. At the Home CMP, the tracking report information can be retrieved as per [MC-TS] Section 10.6.1.1 Tables 23 and 24, including the "trackingaddress" and available user profile data and LOC Data information. Part B- 3. Repeat Step 1 above. 4. At the Home CMP, the tracking report information can be retrieved as per [MC-TS] Section 10.6.1.1 Tables 23 and 24, including the default pre-provisioned "trackingaddress" by the Home CMP and available user profile data and LOC Data information.

6.1.10 MC-1.0-int-010

Test Case Id	MC-1.0-int-010
Test Object	Home CMP and Remote (Resolving) CMP
Test Case Description	a) Verify if the CMP (or the Split-CMP-Parent when applicable) can send the MC-6-TRACKING_REPORT message including available user personal data information and Location information as specified in [MC-TS] Sections 8.4.2.3, 8.4.2.5 and 10.6.1.1. b) Verify if the CMP (or the Split-CMP-Parent or Split-CMP-Child when applicable) can receive the MC-6-TRACKING_REPORT message including available user personal data information and Location information as specified in [MC-TS] Sections 8.4.2.5 and 10.6.1.1.
Specification Reference	[MC-TS] Sections 8.4.2.3, 8.4.2.5 and 10.6.1.1.

SCR Reference	MC-TRP-S-009-M, MC-TRP-S-012-M and MC-TRP-S-014-M.
ETR Reference	CMP-MT-8 and CMP-MT-9
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server acting as the Home CMP o 1 CMP server acting as the Remote (Resolving) CMP. • State: o User has Opted In to release personal profile data and/or LOC Data. o Assuming the Remote CMP is the Resolving CMP. o Assuming the Home CMP supports tracking. o Assuming there is a "trackingaddress" in the MC-3-RESOLVE_ICI_RESPONSE message from the Remote (Resolving) CMP sent to the Home CMP. o Assuming the Security information option is disabled. o Assuming no error conditions. o Assuming the 'Split-CMP-Parent' and 'Split-CMP-Child' variants are not applicable.
Test Procedure	1. Home CMP sends the MC-6-TRACKING_REPORT message to the Remote (Resolving) CMP using tracking server address as indicated by the "trackingaddress" parameter(s) including the available user profile data and/or LOC Data. 2. Remote (Resolving) receives the MC-6-TRACKING_REPORT message with the "trackingaddress" of the tracking server.
Pass-Criteria	1. At the Remote (Resolving) CMP, the MC-6-TRACKING_REPORT message is received from the Home CMP. 2. At the Remote (Resolving) CMP, the "trackingaddress" can be retrieved from the MC-6-TRACKING_REPORT message as per [MC-TS] Section 10.6.1.1 Tables 23 and 24, including available user profile data and LOC Data information.

6.1.11 MC-1.0-int-011

Test Case Id	MC-1.0-int-011
Test Object	CMP
Test Case Description	a) Verify if the CMP (or the Split-CMP-Parent when applicable) can send the MC-2-ROUTE_ICI_REQUEST message as specified in [MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.4.1.1. b) Verify if the CMP (or the Split-CMP-Parent when applicable) can receive the MC-2-ROUTE_ICI_RESPONSE message as specified in [MC-TS] Sections 8.2.2.2, 8.2.2.3 and 10.4.1.2.
Specification Reference	[MC-TS] Sections 8.2.2.2, 8.2.2.3, 10.4.1.1 and 10.4.1.2.
SCR Reference	MC-CR-S-004-M, MC-CR-S-011-M and MC-CR-S-012-M.
ETR Reference	CMP-MT-10 and CMP-MT-11

Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server o 1 MCR server ('MC Registry') • State: o Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message pertaining to a given ICI from the MCC. o Home CMP is associated with a MCR. o MCR has prior knowledge of the network address information of the Resolving CMP for a given ICI. o Assuming the Security information option is disabled o Assuming no error conditions o Assuming the 'Split-CMP-Parent' and 'Split-CMP-Child' variants are not applicable.
Test Procedure	1. Home CMP sends a MC-2-ROUTE_ICI_REQUEST message to the MCR. 2. MCR processes the MC-2-ROUTE_ICI_REQUEST message by looking up the network address of the Resolving CMP based on the Routing Prefix as part of the ICI. 3. MCR returns the MC-2-ROUTE_ICI_RESPONSE message to the requestor CMP.
Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A- 1. At the MCR, the MC-2-ROUTE_ICI_REQUEST message is received from the Home CMP. 2. At the MCR, the "tid" and "ici" can be retrieved as per [MC-TS] Section 10.4.1.1 Table 19. Part B- 3. At the Home CMP, the MC-2-ROUTE_ICI_RESPONSE message is received from the MCR. 4. At the Home CMP, the "tid" and "addr" (i.e., network address information of the Resolving CMP for a given ICI) can be retrieved as per [MC-TS] Section 10.4.1.1 Table 19.

6.1.12 MC-1.0-int-012

Test Case Id	MC-1.0-int-012
Test Object	CMP
Test Case Description	a) Verify if the CMP (or the Split-CMP-Parent or Split-CMP-Child when applicable) can send the MC-ERROR message covering all applicable 'status' values for each Interface as specified in [MC-TS] Sections 8.2.2.2, 8.2.2.3, 8.2.2.5, 8.4.2.3, 8.4.2.5, 10.1, 10.3.1.3, 10.5.1.3, 10.6.1.2 and 10.8.3.2. b) Verify if the CMP (or the Split-CMP-Parent or Split-CMP-Child when applicable) can receive the MC-ERROR message covering all applicable

	'status' values for each Interface as specified in [MC-TS] Sections 8.2.2.2, 8.2.2.3, 8.3.2.1.1, 10.1, 10.4.1.3, 10.5.1.3, 10.6.1.2 and 10.8.3.2.
Specification Reference	[MC-TS] Sections 8.2.2.2, 8.2.2.3, 8.2.2.5, 8.4.2.3, 8.4.2.5, 10.1, 10.3.1.3, 10.5.1.3, 10.6.1.2 and 10.8.3.2. [MC-TS] Sections 8.2.2.2, 8.2.2.3, 8.3.2.1.1, 10.1, 10.4.1.3, 10.5.1.3, 10.6.1.2 and 10.8.3.2.
SCR Reference	MC-GIC-C-001-M to MC-GIC-C-012-M, inclusively. MC-CR-S-001-M to MC-CR-S-010-M, inclusively. MC-CR-S-013-M to MC-CR-S-033-M, inclusively. MC-TRP-S-005-M to MC-TRP-S-007-M, inclusively. MC-TRP-S-015-M to MC-TRP-S-017-M, inclusively. MC-INT1-S-010-M to MC-INT1-S-012-M, inclusively. MC-INT2-S-010-M to MC-INT2-S-012-M, inclusively. MC-INT3-S-015-M to MC-INT3-S-017-M, inclusively. MC-INT4-S-008-M to MC-INT4-S-010-M, inclusively. MC-INT6-S-034-M to MC-INT4-S-036-M, inclusively. MC-EH-S-001-M to MC-EH-S-012-M, inclusively.
ETR Reference	CMP-MT-12 and CMP-MT-13
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 MC Client ('MCC') o 1 CMP server as Home CMP o 1 CMP server as Remote CMP o 1 MCR server ('MC Registry') • State: o Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message pertaining to a given ICI from the MCC. o Remote CMP cannot resolve a MC-3-REESOLVE_ICI_ REQUEST message pertaining to a given ICI from the Home CMP. o Home CMP is associated with a MCR. o MCR cannot locate the network address information of the Resolving CMP for a given ICI. o Assuming the Security information option is disabled. o Assuming the 'Split-CMP-Parent' and 'Split-CMP-Child' variants are not applicable. o Assuming Code Transfer option is not supported (i.e., skip all references to [MC-TS] Section 8.3 and sub-sections therein (e.g. 8.3.2.1.1) pertaining to MC-Error messages related to Code Transfer. In addition, skip MC Error messages for Code Transfer and Code Transfer Confirmations applicable to MC-5 and MC-6 Interfaces as per [MC-TS] Section 10.2 Table 14.
Test Procedure	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A – Over MC-1 Interface:

	1. MCC sends a MC-1-RESOLVE_ICI_REQUEST message to the Home CMP. 2. Force an error condition in the MC-1-RESOLVE_ICI_REQUEST message sent by the MCC to the Home CMP by deviating from the compliant MC-1-RESOLVE_ICI web service as per [MC-TS] Section 10.3.1.1 Table 15. 3. Home CMP detects the corresponding error condition to (2) above before, or during, its processing of the MC-1-RESOLVE_ICI_REQUEST message by looking up the content associated with the ICI contained in this message. 4. Home CMP responds with a MC-Error message containing a status code applicable to MC-1-RESOLVE_ICI web service corresponding to one of the following error conditions (as per Sections 10.2 Table 14, 10.2.1 and 10.2.2): a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI e) MC_INACTIVE_ICI f) MC_CANNOT_RESOLVE_ICI g) MC_FRAUDULENT_ICI 5. Repeat Steps (1) to (4) until each of the error conditions of interest has been demonstrated. Part A (also for Part B) – Over MC-3 Interface: 6. Home CMP sends a MC-3-RESOLVE_ICI_REQUEST message to the Remote CMP. 7. Force an error condition in the MC-3-RESOLVE_ICI_REQUEST message sent by the Home CMP to the Remote CMP by deviating from the compliant MC-3-RESOLVE_ICI web service as per [MC-TS] Section 10.5.1.1 Table 21. 8. Remote CMP detects the corresponding error condition to (7) above before, or during, its processing of the MC-3-RESOLVE_ICI_REQUEST message by looking up the content associated with the ICI contained in this message. 9. Remote CMP responds with a MC-Error message containing a status code applicable to MC-3-RESOLVE_ICI_REQUEST web service corresponding to one of the following error conditions (as per Sections 10.2 Table 14, 10.2.1 and 10.2.2): a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI e) MC_INACTIVE_ICI f) MC_CANNOT_RESOLVE_ICI g) MC_FRAUDULENT_ICI 10. Repeat Steps (6) to (9) until each of the error conditions of interest has

	been demonstrated. Part A – Over MC-4 Interface: 11. MCC sends a MC-4-TRACKING_REPORT message to the Home CMP. 12. Force an error condition in the MC-4-TRACKING_REPORT message sent by the MCC to the Home CMP by deviating from the compliant MC-4-TRACKING_REPORT web service as per [MC-TS] Section 10.6.1.1 Table 23. 13. Home CMP detects the corresponding error condition to (12) above before, or during, its processing of the MC-4-TRACKING_REPORT message by extracting the available MCC and/or user information associated with the ICI contained in this message. 14. Home CMP responds with a MC-Error message containing a status code applicable to MC-4-TRACKING_REPORT web service corresponding to one of the following error conditions (as per Sections 10.2 Table 14, 10.2.1 and 10.2.2): a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI 15. Repeat Steps (11) to (14) until each of the error conditions of interest has been demonstrated. Part A – Over MC-6 Interface: 16. Home CMP sends a MC-6-TRACKING_REPORT message to the Remote CMP. 17. Force an error condition in the MC-6-TRACKING_REPORT message sent by the Home CMP to the Remote CMP by deviating from the compliant MC-6-TRACKING_REPORT web service as per [MC-TS] Section 10.8.3.1 Table 33. 18. Remote CMP detects the corresponding error condition to (17) above before, or during, its processing of the MC-6-TRACKING_REPORT message by extracting the available MCC and/or user information associated with the ICI contained in this message. 19. Remote CMP responds with a MC-Error message containing a status code applicable to MC-6-TRACKING_REPORT web service corresponding to one of the following error conditions (as per Sections 10.2 Table 14, 10.2.1 and 10.2.2): a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI 20. Repeat Steps (16) to (19) until each of the error conditions of interest has been demonstrated. Part B – Over MC-2 Interface: 21. Home CMP sends a MC-2-ROUTE_ICI_REQUEST message to the MCR. 22. Force an error condition in the MC-2-ROUTE_ICI_REQUEST message sent by the Home CMP to the MCR by deviating from the

	compliant MC-2-ROUTE_ICI web service as per [MC-TS] Section 10.4.1.1 Table 19. 23. MCR detects the corresponding error condition to (22) above before, or during, its processing of the MC-2-ROUTE_ICI_REQUEST message by looking up the network address of the Resolving CMP based on the Routing Prefix as part of the ICI. 24. MCR responds with a MC-Error message containing a status code applicable to MC-2-ROUTE_ICI web service corresponding to one of the following error conditions (as per Sections 10.2 Table 14, 10.2.1 and 10.2.2): a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI e) MC_INACTIVE_ICI 25. Repeat Steps (21) to (24) until each of the error conditions of interest has been demonstrated.
Pass-Criteria	Parts A and B correspond to (a) and (b) of the Test Case Description. Part A – Over MC-1 Interface: 1. At the MCC, the MC ERROR response is received from the Home CMP. 2. At the MCC, the MC ERROR response contains a "status" element as per [MC-TS] Section 10.2 Table 13. 3. From the MC ERROR response, the "status" element matches one of the error status codes applicable to MC-1-RESOLVE_ICI web service as per [MC-TS] Section 10.3.1.3. 4. At the MCC, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-1 ERROR response received from the Home CMP, respectively. Part A (also for Part B) – Over MC-3 Interface: 1. At the Home CMP, the MC ERROR response is received from the Remote CMP. 2. At the Home CMP, the MC-3 ERROR response contains a "status" element as per [MC-TS] Section 10.2 Table 13. 3. From the MC ERROR response, the "status" element matches one of the error status codes applicable to MC-3-RESOLVE_ICI web service as per [MC-TS] Section 10.5.1.3. 4. At the Home CMP, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-3 ERROR response received from the Remote CMP, respectively. Part A – Over MC-4 Interface: 1. At the MCC, the MC ERROR response is received from the Home CMP. 2. At the MCC, the MC ERROR response contains a "status" element as per [MC-TS] Section 10.2 Table 13. 3. From the MC ERROR response, the "status" element matches one of the error status codes applicable to MC-4-TRACKING_REPORT web

	service as per [MC-TS] Section 10.6.1.2. 4. At the MCC, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-4 ERROR response received from the Home CMP, respectively. Part A – Over MC-6 Interface: 1. At the Home CMP, the MC ERROR response is received from the Remote CMP. 2. At the Home CMP, the MC ERROR response contains a "status" element as per [MC-TS] Section 10.2 Table 13. 3. From the MC ERROR response, the "status" element matches one of the error status codes applicable to MC-6-TRACKING_REPORT web service as per [MC-TS] Section 10.8.3.2. 4. At the Home CMP, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-6 ERROR response received from the Remote CMP, respectively. Part B – Over MC-2 Interface: 1. At the Home CMP, the MC ERROR response is received from the MCR. 2. At the Home CMP, the MC-2 ERROR response contains a "status" element as per [MC-TS] Section 10.2 Table 13. 3. From the MC ERROR response, the "status" element matches one of the error status codes applicable to MC-2-ROUTE_ICI web service as per [MC-TS] Section 10.4.1.3. 4. At the Home CMP, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-2 ERROR response received from the MCR, respectively.

6.1.13 MC-1.0-int-013

Test Case Id	MC-1.0-int-013
Test Object	MCR
Test Case Description	a) Verify if the MCR can receive the MC-2-ROUTE_ICI_REQUEST message as specified in [MC-TS] Sections 8.2.2.4 and 10.4.1.1. b) Verify if the MCR can send the MC-2-ROUTE_ICI_RESPONSE message as specified in [MC-TS] Sections 8.2.2.4 and 10.4.1.2.
Specification Reference	[MC TS] Sections 8.2.2.4, 10.4.1.1 and 10.4.1.2.
SCR Reference	MC-CR-S-004, MC-CR-S-011 and MC-CR-S-012. MC-INT2-S-001-M to MC-INT2-S-009-M, inclusively.
ETR Reference	MCR-MT-1 and MCR-MT-2
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: o 1 CMP server o 1 MCR server ('MC Registry') • State:

	○ Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message from the MCC. ○ Home CMP is associated with a MCR. ○ MCR has prior knowledge of the network address information of the Resolving CMP for a given ICI. ○ Assuming no error conditions.
Test Procedure	1. Home CMP sends a MC-2-ROUTE_ICI_REQUEST message to the MCR. 2. MCR processes the MC-2-ROUTE_ICI_REQUEST message by looking up the network address of the Resolving CMP based on the Routing Prefix as part of the ICI. 3. MCR returns the MC-2-ROUTE_ICI_RESPONSE message to the requestor CMP.
Pass-Criteria	1. At the Home CMP, the MC-2-ROUTE_ICI_RESPONSE message is received from the MCR. 2. At the Home CMP, the network address of the Resolving CMP is included in the MC-2-ROUTE_ICI_RESPONSE message. 3. At the Home CMP, the network address of the Resolving CMP matches the intended network address information for the given ICI.

6.1.14 MC-1.0-int-014

Test Case Id	MC-1.0-int-014
Test Object	MCR
Test Case Description	Verify if the MCR can send the MC-ERROR message covering all applicable ‘status’ values for each Interface.
Specification Reference	[MC TS] Sections 8.2.2.4 and 10.4.1.3.
SCR Reference	MC-EH-S-001-M and MC-EH-S-002-M. MC-INT2-S-001-M; MC-INT2-S-010-M, MC-INT2-S-011-M and MC-INT2-S-012-M.
ETR Reference	MCR-MT-3
Tool	Not Applicable
Test code	Not Applicable
Preconditions	• Equipment: ○ 1 CMP server ○ 1 MCR server (‘MC Registry’) • State: ○ Home CMP cannot resolve a MC-1-RESOLVE_ICI_REQUEST message from the MCC. ○ Home CMP is associated with a MCR. ○ MCR has prior knowledge of the network address information of the Resolving CMP for a given ICI. ○ Assuming no Code Transfer is implemented. ○ Assuming an error condition is forced to the MC-2-ROUTE_ICI_REQUEST message sent by the CMP towards the

	MCR. Error conditions causing the following error status codes of interest can be forced by deviations as described in [MC-TS] Sections 10.2 Table 14, 10.2.1 and 10.2.2: a) MC_UNAUTHORISED b) MC_SERVICE_UNAVAILABLE c) MC_MISSING_PARAMS d) MC_INVALID_ICI e) MC_INACTIVE_ICI o Failure caused by unsuccessful execution of the MC-2-ROUTE_ICI web service is detected.
Test Procedure	1. Home CMP sends a MC-2-ROUTE_ICI_REQUEST message to the MCR. 2. Force an error condition in the MC-2-ROUTE_ICI_REQUEST message sent by the CMP to the MCR by deviating from the compliant MC-2-ROUTE_ICI web service as per [MC-TS] Section 10.4.1.1 Table 19. 3. MCR detects the corresponding error condition to (2) above before, or during, its processing of the MC-2-ROUTE_ICI_REQUEST message by looking up the network address of the Resolving CMP based on the Routing Prefix as part of the ICI. 4. Repeat Steps (1) to (3) until each of the error conditions of interest has been demonstrated.
Pass-Criteria	1. At the Home CMP, the MC-2 ERROR response is received from the MCR. 2. At the Home CMP, the MC-2 “mc-error” element in the response contains the information and occurrences according to [MC-TS] Section 10.2 Table 13. 3. From the MC-ERROR response, the status code matches one of the possible “status” errors applicable to MC-2-ROUTE_ICI web service as per [MC-TS] Section 10.4.1.3. 4. At the Home CMP, repeat Steps (1) to (3) above until all of the error status codes have been received in the MC-2 ERROR element of the response received from the MCR, respectively.

This is the end of the Interoperability test cases for the MC ETR Mandatory test requirements.

Interoperability test cases for the MC ETR Optional test requirements are not provided in this version of the ETS Document.

Appendix A. Change History (Informative)

A.1 Approved Version History

Editor's Note: Example references are shown in this table, to be replaced by actual approved version information (TBD).

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ETS-MC-V1_0	08 Nov 2011	All	Set up skeleton document and incorporated latest input from the following document: OMA-MC-2011-0052R02-INP_ETS_Strawman.zip
	19 Dec 2011	All	All Interoperability test cases were completed. Provided a logical re-ordering of the various test case sub-sections, including editorial clean-up, as appropriate.
	09 Jan 2012	All	Edited all Pass Criteria to reflect use of consistent language. Provided a general editorial clean-up.
	19 Jan 2012	All	Incorporated review results with IOP-BRO SWG on 2012-01-19: - Removed App B (not applicable). - Removed all unnecessary highlights. - Inserted clarifying notes to relate some multi-part Test Case Descriptions to the corresponding Test Procedures and Pass Criteria. - Updated the Table of Content. IOP-BRO agreed this updated revision with the above changes made.
Candidate Version OMA-ETS-MC-V1_0	21 Feb 2012	All	Status Changed to candidate by TP : OMA-TP-2012-0047-INP_MC_1.0_ETS_for_Candidate_approval