

ONEM2M TECHNICAL SPECIFICATION

Document Number	TS-0013-V.2.3.2	
Document Name:	Interoperability Testing	
Date:	2018-03-12	
Abstract:	The specification address the testing of the primitives on the oneM2M interfaces as specified in TS-0001 [1] and TS-0004 [2]. The purpose of the interoperability testing is to prove end-to-end functionality between Application Entities and Common Service Entities over the Mca and Mcc reference points	

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About oneM2M

The purpose and goal of oneM2M is to develop technical specifications which address the need for a common M2M Service Layer that can be readily embedded within various hardware and software, and relied upon to connect the myriad of devices in the field with M2M application servers worldwide.

More information about oneM2M may be found at: http//www.oneM2M.org

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1 Scope

The present document specifies Interoperability Test Descriptions (TDs) for the oneM2M Primitives as specified in oneM2M TS-0001 [1], oneM2M TS-0004 [2], the bindings oneM2M TS-0008 [3], oneM2M TS-0009 [4] and oneM2M TS-0010 [5].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are necessary for the application of the present document.

[1]	oneM2M TS-0001: "Functional Architecture- Release 2".
[2]	oneM2M TS-0004 "Service Layer Core protocol Specification - Release 2".
[3]	oneM2M TS-0008: "CoAP Protocol Binding Release 2".
[4]	oneM2M TS-0009: "HTTP Protocol Binding - Release 2".
[5]	oneM2M TS-001: "MQTT Protocol Binding - Release 2".
[6]	oneM2M TS-0015: "Testing Framework".
[7]	oneM2M TS-0011: "Common Terminology".
[8]	IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".
[9]	IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".
[10]	oneM2M TS-0005: "Management Enablement (OMA) - Release 2".
[11]	oneM2M TS-0006: "Management Enablement (BBF) - Release 2".
[12]	oneM2M TS-0003: "Security Solutions - Release 2".

[13] oneM2M TS-0034: "Semantics Support - Release 2".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] oneM2M Drafting Rules.
- NOTE: Available at <u>http://www.onem2m.org/images/files/oneM2M-Drafting-Rules.pdf</u>.
- [i.2] BBF TR-069: "CPE WAN Management Protocol".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in oneM2M TS-0011 [7] and the following apply.

NOTE: A term defined in the present document takes precedence over the definition of the same term, if any, in oneM2M TS-0011 [7].

hosting CSE: CSE where the addressed resource is hosted

M2M service provider domain: part of the M2M System that is associated with a specific M2M Service Provider

mc: interface between the management server and the management client

NOTE: This interface can be realized by the existing device management technologies such as BBF TR-069 [i.2], OMA DM [10], etc.

receiver CSE: any CSE that receives a request

registree: AE or CSE that registers with another CSE

registrar CSE: CSE where an Application or another CSE has registered

resource: uniquely addressable entity in oneM2M architecture

transit CSE: any receiver CSE that is not a Hosting CSE

3.2 Abbreviations

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

ACP	Access Control Policy		
AE	Application Entity		
AE-ID	Application Entity Identifier		
APP-ID	Application Identifier		
BBF	BroadBand Forum		
CFG	Configuration		
CoAP	Constrained Application Protocol		
CSE	Common Services Entity		
CSE-ID	Common Service Entity Identifier		
DM	Device Management		
DTLS	Datagram Transport Layer Security		
DUT	Device Under Test		
FQDN	Fully Qualified Domain Name		
HTTP	HyperText Transfer Protocol		
IN	Infrastructure Node		
IN-CSE	CSE which resides in the Infrastructure Node		
IOP	Interoperability		
IP	Internet Protocol		
JSON	JavaScript Object Notation		
LWM2M	Lightweight M2M		
M2M	Machine to Machine		
MA	Mandatory Announced		
Mca	Reference Point for M2M Communication with AE		
Mcc	Reference Point for M2M Communication with CSE		
MH	Multi Hop		
MO	Management Object		
MQTT	Message Queuing Telemetry Transport		
NB	Non-Blocking		

NH	No Hop
OMA	Open Mobile Alliance
PRO	Protocol
PSK	Pre-Shared Key
RFC	Request for Comments
RP	Reference Point
RPC	Remote Procedure Calls
RQI	Request-ID
SE	Security
SH	Single Hop
SP	Service Provider
SUT	System Under Test
TCP	Transmission Control Protocol
TD	Test Description
TLS	Transport Layer Security
UDP	User Datagram Protocol
URI	Uniform Resource Identifier
XML	eXtensible Markup Language

4 Conventions

The key words "Shall", "Shall not", "May", "Need not", "Should", "Should not" in the present document are to be interpreted as described in the oneM2M Drafting Rules [i.1].

5 Testing conventions

5.1 The Test Description proforma

The testing methodology used in the present document is specified in the oneM2M TS-0015: Testing framework [6].

A Test Description (TD) is a well detailed description of a process that aims to test one or more functionalities of an implementation. Applying to interoperability testing, these testing objectives address the interoperable functionalities between two or more vendor implementations.

In order to ensure the correct execution of an interoperability test, the following information should be provided by the test description:

- The proper configuration of the vendor implementations.
- The availability of additional equipment (protocol monitors, functional equipment, ...) required to achieve the correct behaviour of the vendor implementations.
- The correct initial conditions.
- The correct sequence of the test events and test results.

In order to facilitate the specification of test cases an interoperability test description should include, at a minimum, the following fields as indicated table 1.

Table 1: Interoperability test description

Identifier	A unique test description ID.
Objective	A concise summary of the test which should reflect the purpose of the test and enable
	readers to easily distinguish this test from any other test in the document.
References	A list of references to the base specification section(s), use case(s), requirement(s) and
	TP(s) which are either used in the test or define the functionality being tested.
Applicability	A list of features and capabilities which are required to be supported by the SUT in order to execute this test (e.g. if this list contains an optional feature to be supported, then the test is optional).
Configuration or	A list of all required equipment for testing and possibly also including a reference to an
Architecture	illustration of a test architecture or test configuration.
Pre-Test Conditions	A list of test specific pre-conditions that need to be met by the SUT including information about equipment configuration, i.e. precise description of the initial state of the SUT required to start executing the test sequence.
Test Sequence	An ordered list of equipment operation and observations. The test sequence may also contain the conformance checks as part of the observations.

The test descriptions are provided in proforma tables. In order to ensure the correct execution of an interoperability test, the following information is provided in the test description:

- The configuration applied for the test.
- The need of additional equipment (protocol monitors, functional equipment, etc.) required to achieve the correct behaviour of the implementations.
- The initial conditions.
- The sequence of the test events and test results.

The following different types of test operator actions are considered during the test execution:

- A **stimulus** corresponds to an event that enforces a DUT to proceed with a specific protocol action, such as sending a message.
- A **configure** corresponds to an action to modify the DUT configuration.
- An **IOP check** consists of observing that one DUT behaves as described in the standard: i.e. resource creation, update, deletion, etc. For each IOP check in the Test Sequence, a result can be recorded. The overall **IOP Verdict** will be considered OK if all the IOP checks in the sequence are OK.
- In the context of Interoperability Testing with Conformance Checks, an additional step type, **PRO checks** can be used to verify the appropriate sequence and contents of protocol messages, this is helpful for debugging purposes. **PRO Verdict** will be PASS if all the PRO checks are PASS.

5.2 Test Description naming convention

TD/ <root>/<gr>/<nn></nn></gr></root>		
<root> = root</root>	M2M	oneM2M
<gr> = group</gr>	NH	No Hop: Testing on Mca reference point
	NB	Non-Blocking scenario
	сП	Single Hop: management of remote resources
	511	on Mca + Mcc
	MH	Multi Hop
	SE	Security
<nn> = sequential number</nn>		01 to 99

5.3 Test Settings

This clause contains some test requirements applied to the testing, some constraints, restrictions for executions or some recommendations.

In order to ease test setup and execution, the CSE and AE are requested to support the following settings:

- Security shall be disable as it is out of scope of this interoperability testing.
- Resource names are pre-provisioned, except for content instance resources that are automatically assigned by the hosting CSE.
- After each "Delete" primitive on a resource, the user shall check the resource is effectively deleted.
- Unless it is indicated in the test cases prequisites, by default, all the applications shall have the required access rights to manage resources on the CSE.

In order to address the TBDs in the oneM2M CoAP binding specification (oneM2M TS-0008 [3]), basic XML and JSON media-type numbers shall be used in the contentFormat option.

In the test descriptions specified below, the following definitions of terms used for short-hand notation apply:

Serialized Representation:	refers to either an XML or a JSON representation of data in text-string format as defined in clauses 8.3 and 8.4 of oneM2M TS-0004 [2].
Host Address:	refers to the authority part of a target URI as defined in IETF RFC 3986 [8] and IETF RFC 7230 [9] which can be represented as an IP literal encapsulated within square brackets, an IPv4 address in dotted decimal form, or a registered name, and optionally extended by a port identifier.

5.4 Pre-conditions

5.4.1 Registration

The AE or CSE that originates the request has been successfully registered to its corresponding CSE. The registration of the AE includes the creation of <AE> resource under the <CSEBase> of its registrar CSE. The registration of the CSE includes the creation of <remoteCSE> resource representing itself under the <CSEBase> of its registrar CSE as well as the creation of <remoteCSE> resource representing the registrar CSE under its own <CSEBase> resource. The creation of <remoteCSE> resource representing the registrar CSE can be achieved by remotely retrieving the <CSEBase> resource of the registrar CSE.

5.4.2 Security

The Originator and the receiver have successfully established security association between each other. This may involve the exchange of key and the establishment of a security connection.

The security pre-condition also assumes that the originator has the appropriate access control privilege towards the requested resource.

5.4.3 Service Subscription

Service subscription means that the originator is allowed to be connected with the oneM2M system by contract between the owner of the application and the service provider of the oneM2M system. This may require a corresponding information record in the <m2mServiceSubscriptionProfile> resource.

5.4.4 ID allocation

ID allocation means that the Originator has already acquired usable identity, either from its registrar CSE or the IN-CSE of the oneM2M system. The ID may be CSE relative or SP relative. The ID is then further used as the identity of the Originator to perform access control, charging, etc.

5.4.5 Existence of resource

Existence of resource means the resource been addressed and has already been created.

5.4.6 Management Session between Management Server and Management Client

Before the device management using external technologies is executed, it is required that a management session has already been established between the Management Server and Management Client. If there is no existing management session, the IN-CSE shall request the establishment of a management session between the Management Server and Management Client.

5.5 Binding message convention

In HTTP/CoAP/MQTT binding messages, the present document defines the convention for <variable>:

- <resourceType> represents a resource name (i.e. resourceName attribute) of a resource instance in that resourceType. For example, <CSEBase>/<AE> can represent "CSE1base/AE1" in structured resource ID format.
- <parameter> represents a value of a oneM2M request/response parameter. For example, <Request ID> can represent "0001" value of the Request ID parameter. Parameter names are case sensitive and in long names as specified in oneM2M TS-0004 [2].
- <ID> represents an AE-ID or CSE-ID in MQTT Topic names.

The value will be given at an interoperability test event.

In oneM2M TS-0010 [5], all oneM2M request/response parameters are carried in the MQTT message payload since it has no message header concept. Therefore, the MQTT message payload needs to be described more than HTTP and CoAP messages to describe those parameters in clause 8. In HTTP and CoAP binding messages, payloads are described as "empty" or "<container> resource to be created" in a very abstract way.

Since the representation can be XML or JSON, payload should be abstract to support XML and JSON. The following example is an XML representation and its abstraction for creating a <container> resource.

<pre>example for MQTT binding MQTT binding Abstracted payload example for MQTT binding ty = 3 name = cont1 rti.rt = 3 pc.cnt.bl = SmartMeter pc.cnt.bl = SmartMeter pc.cnt = SmartMeter pc.cnt = Sm</pre>	XML payload	<pre><?xml version="1.0" encoding="UTF-8"?></pre>		
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Abstracted op = 1 payload to = <csebase> example for fr = <from> MQTT binding ty = 3 adopting the name = <name> payload rti.rt = 3 convention pc = <content></content></name></from></csebase>		pc.cnt.iDI = Smartweter		
Abstractedop = 1payloadto = <csebase> fr = <from> rqi = <request id=""> ty = 3 name = <name> name = <name> rti.rt = 3 pc = <content></content></name></name></request></from></csebase>	A b atra ata d	pc.cnt.et - 201410031112033		
payloadcolorcolspase>example forfr = <from>MQTT bindingrqi = <request id="">adopting thename = <name>payloadrti.rt = 3conventionpc = <content></content></name></request></from>	Abstracted			
example for MQTT binding adopting the payloadrd = <tent </tent <tent </tent req = <request id=""> ty = 3 name = <name> rti.rt = 3 pc = <content></content></name></request>	payload	fr = <prom></prom>		
MQTT binding adopting the payloadty = 3 name = <name> rti.rt = 3 pc = <content></content></name>	example for	rai = <remuest id=""></remuest>		
adopting the payload name = <name> rti.rt = 3 pc = <content></content></name>	MQTT binding	$t_{\rm V} = 3$		
payload rti.rt = 3 convention pc = <content></content>	adopting the	name = <name></name>		
convention pc = <content></content>	payload	rti.rt = 3		
	convention	pc = <content></content>		

6 Test Description Summary

6.1 Tests list

Nb	Procedure/Resource	TD ID	TD Description
1	CSEBase Management	TD_M2M_NH_01	AE retrieves the CSEBase resource
2	RemoteCSE	TD_M2M_NH_02	Registree CSE registers to Registrar CSE
3		TD M2M NH 03	Registree CSE retrieves RemoteCSE from Registrar CSE
4	1	TD M2M NH 04	Registree CSE updates RemoteCSE from Registrar CSE
5		TD M2M NH 05	Registree CSE deletes RemoteCSE from Registrar CSE
6	Application Entity	TD M2M NH 06	AE registers to its registrar CSE via an AE Create Reguest
7		TD M2M NH 07	AE retrieves <ae> resource via an AE Retrieve Request</ae>
8		TD M2M NH 08	AE updates attribute in <ae> resource via an AE Update Request</ae>
9		TD M2M NH 09	AE de-registers by deleting <ae> resource via an AE Delete</ae>
Ŭ		1 B_m2m_rm_00	Request
10	Container	TD_M2M_NH_10	AE creates a container resource in registrar CSE via a container
			Create Request
11		TD_M2M_NH_11	AE retrieves information of a container resource via a container Retrieve Request
12		TD_M2M_NH_12	AE updates attribute in application resource via a container Update
13		TD_M2M_NH_13	AE deletes a specific container resource via a container Delete
14	ContentInstance	TD M2M NH 14	AF adds a contentInstance resource < contentInstance> to a
17	Contentinistance		specific container in Registrar CSE via a contentinstance Create
			Request and the registrar CSE updates the parent <container></container>
			resource with stateTag, and currentNrOfInstances, CurrentByteSize
			attributes correspondingly
15	-	TD_M2M_NH_15	AE retrieves information of a contentInstance resource via a
			contentInstance Retrieve Request
16		TD_M2M_NH_17	AE deletes contentInstance resource via a Delete Request and the
			registrar CSE updates the parent <container> resource with</container>
			currentNrOfInstances, and CurrentByteSize attribute
	_		correspondingly
17		TD_M2M_NH_49	AE deletes a <latest> resource in a <container> and the Registrar</container></latest>
			CSE points a latest <contentinstance> among the existing</contentinstance>
	-		contentInstances to the <latest> resource of the <container></container></latest>
18		1D_M2M_NH_50	AE deletes a <oldest> resource in a <container> resource and the</container></oldest>
			Registrar CSE points an oldest <contentinstance> among the</contentinstance>
			existing contentinstances to the <oldest> resource of the</oldest>
10	-		<pre><container></container></pre>
19			AE serios a <contentinistance> CREATE request to a <container></container></contentinistance>
			to that of maxNrOfInstances and Registrar CSE deletes the oldest
			<pre>contentInstances from the parent <containers and="" creates<="" pre="" then=""></containers></pre>
			the requested <contentinstance> resource</contentinstance>
20	-	TD M2M NH 71	AE retrieves a <latest> resource of a <container> and the Registrar</container></latest>
			CSE points a latest <contentinstance> among the existing</contentinstance>
			contentInstances to the <latest> resource of the <container></container></latest>
21	1	TD M2M NH 72	AE retrieves a <oldest> resource of a <container> and the Registrar</container></oldest>
			CSE points a oldest <contentinstance> among the existing</contentinstance>
			contentInstances to the <oldest> resource of the <container></container></oldest>
22	Discovery	TD_M2M_NH_18	AE discovers resources residing in Registrar CSE
23		TD_M2M_NH_19	AE discovers accessible resources residing in Registrar CSE using
			the label filter criteria
24		TD_M2M_NH_20	AE discovers accessible resources residing in Registrar CSE
			limiting the number of matching resources to the specified value.
25		TD_M2M_NH_21	AE discovers accessible resources residing in Registrar CSE using
L	4		multiple Filter Criteria
26		TD_M2M_NH_58	AE discovers accessible resources residing in Registrar CSE using
	4		the level filter criteria value set to 1
27		TD_M2M_NH_59	AE discovers accessible resources residing in Registrar CSE using
	4		the level filter criteria value set to 2
28		TD_M2M_NH_60	AE1 discovers accessible resources residing in Registrar CSE

Nb	Procedure/Resource	TD ID	TD Description
			using the level filter criteria value set to 3
29		TD_M2M_NH_61	AE discovers accessible resources residing in Registrar CSE using the offset filter criteria value set to 3
30		TD_M2M_NH_62	AE discovers all the accessible resources residing in Registrar CSE
31	Subscription	TD_M2M_NH_22	AE creates a subscription to Application Entity resource via
			subscription Create Request
32		TD_M2M_NH_23	AE retrieves information about a subscription via subscription Retrieve Request such as expirationTime, labels, etc.
33		TD_M2M_NH_24	AE updates information about a subscription via subscription Retrieve Request
34		TD_M2M_NH_25	AE cancels subscription via an subscription Delete Request
35	AccessControlPolicy	TD_M2M_NH_26	AE creates an accessControlPolicy resource
36	_	TD_M2M_NH_27	AE retrieves accessControlPolicy resource
37		TD_M2M_NH_28	AE updates attribute in accessControlPolicy resource
38		TD_M2M_NH_29	AE deletes accessControlPolicy resource
39		TD M2M NH 30	AE delete request is rejected due to accessControlPolicy
40		TD M2M NH 73	AE delete request is rejected due to accessControlPolicy
			(accessControlOriginators)
41		TD M2M NH 74	AE delete request is allowed due to accessControlPolicy
42	Group	TD M2M NH 31	AE creates a group resource
43		TD M2M NH 32	AE retrieves group resource
44		TD M2M NH 33	AF updates attribute in group resource
45	•	TD M2M NH 34	AE deletes group resource
46	Node	TD_M2M_NH_35	AE creates a node resource
47		TD M2M NH 36	AE retrieves node resource
48		TD M2M NH 37	AF undates attribute in node resource
49		TD_M2M_NH_38	AE deletes node resource
50	PollingChannel	TD M2M NH 39	AE creates a <pollingchannel> resource in registrar CSE via a</pollingchannel>
			Create Request
51		TD_M2M_NH_40	AE retrieves information of a pollingChannel resource via a Retrieve Request
52		TD_M2M_NH_41	AE updates attribute in pollingChannel resource via a Update Request
53		TD M2M NH 42	AF deletes a pollingChannel resource via a Delete Request
54		TD_M2M_NH_43	AE retrieves information of a pollingChannel resource via a Retrieve
55	FanoutPoint	TD M2M NH 44	AE creates a <contentinstance> resource in each group member</contentinstance>
56		TD_M2M_NH_45	AE retrieves the <containers each="" from="" group="" in="" member<="" resource="" td=""></containers>
57		TD_M2M_NH_46	AE undates an <container> resource of each member resource</container>
58		TD_M2M_NH_47	AE deletes a <container> of each member</container>
59	Notification	TD_M2M_NH_48	AE receives a polification request from the HOST CSE
60	FlexContainer	TD_M2M_NH_52	AE creates a flexcontainer resource in Registrar CSE via a
00			flexcontainer Create Request
61		TD M2M NH 53	AF retrieves information of a flexContainer resource via a
0.			flexContainer Retrieve Request
62		TD_M2M_NH_54	AE updates attribute in application resource via a flexContainer Update Request
63		TD_M2M_NH_55	AE deletes a specific container resource via a container Delete Request
64		TD_M2M_NH_56	AE receives a notification request on flexContainer update from the HOST CSE
65		TD_M2M_NH_57	AE discovers accessible resources residing in Registrar CSE using attribute filter criteria which has a customAttribute name and value assigned to it
66	External Management	TD M2M NH 63	AF creates a momtCmd resource
67	Operations	TD M2M NH 64	AE retrieves mamtCmd resource
68	oporatione	TD_M2M_NH_65	AE updates attribute (not with 'true' in execEnable attribute) in
69		TD_M2M_NH_66	AE updates attribute (with 'true' in execEnable attribute) in
70			
70	4	TD MOM NUL CO	
71	4	TD MOM NUL CO	AE retineves exectinistance resource
12		09_ועובועו_וסיו	to cancel pending management command
i i	i de la companya de la company	1	to surrou ponding management command.

Nb	Procedure/Resource	TD ID	TD Description
73		TD M2M NH 70	AE deletes execinstance resource
74	SemanticDescriptor	TD M2M NH 75	AE creates a SemanticDescriptor resource in Registrar CSE via a
	Management		SemanticDescriptor Create Request
75	management		AF retrieves information of a semantic Descriptor resource via a
10			semanticDescriptor Retrieve Request
76	4		
10			AE upuales all'induite ill'esemaniic Descriptor > resource via a
77	-		
11			AE deletes SemanticDescriptor resource via a SemanticDescriptor
70			
78	Semantic Resource	ID_M2M_NH_79	AE discovers accessible resources residing in Registrar CSE using
	Discovery		
79	Synchronous request	ID_M2M_NB_01	AE creates a container resource using non-blocking synchronous
	4		request in registrar CSE
80		TD_M2M_NB_02	AE retrieves a Container resource using non-blocking synchronous
	-		request in registrar CSE
81		TD_M2M_NB_03	AE updates a Container resource using non-blocking synchronous
			request in registrar CSE
82		TD_M2M_NB_04	AE deletes a Container resource using non-blocking synchronous
			request
83	Asynchronous request	TD_M2M_NB_05	AE creates a container resource using non-blocking asynchronous
			request
84]	TD_M2M_NB_06	AE retrieves a Container resource using non-blocking
			asynchronous request
85	1	TD M2M NB 07	AE updates a Container resource using non-blocking asynchronous
			request
86	1	TD M2M NB 08	AE deletes a Container resource using non-blocking asynchronous
			request
87	Retargeting	TD M2M SH 01	AF creates a remote < Resource> resource
88	rolargeling	TD_M2M_SH_02	
80	4	TD_M2M_OH_02	
09	4	TD_W2W_SH_04	AE delate a remete «Resource» resource
90	Diagovery		AE delete a remote < Resources resource
91	Discovery		AE discovers accessible resources residing in the remote Hosting
00	Lineutherized energtion		AE delete request is rejected offer access rights verification using
92	Unauthorized operation	1D_W2W_5H_10	AE delete request is rejected after access rights vehication using
		TD MON OUL 44	
93	Notification	TD_M2M_SH_11	AE receives a notification request from the remote hosting CSE
94	mgmtObj	ID_M2M_SH_05	AE creates a <mgmtobj> resource</mgmtobj>
95		TD_M2M_SH_06	AE updates a <mgmtobj> resource</mgmtobj>
96		TD_M2M_SH_07	AE retrieves a <mgmtobj> resource</mgmtobj>
97		TD_M2M_SH_08	AE deletes a <mgmtobj> resource</mgmtobj>
98	Announcement	TD_M2M_SH_12	AE1 announces itself to CSE2
99	1	TD M2M SH 13	AE1 announces a child container to CSE2
100	1	TD M2M SH 14	AE1 announces an Optional Announce attribute to CSE2
101		TD M2M SH 15	AE2 retrieves an Announced Resource
102	1	TD M2M SH 16	AE2 retrieves the original resource representation of an announced
103	fanOut	TD M2M SH 17	AF creates a <contentinstance> resource in each group member</contentinstance>
100	lanout		where some memberIDs are on a remoteCSE
104	4		ΔE retrieves a contentinstances resource from each group
104			member where some memberIDs are on a remoteCSE
105	4		
105			AE upuales a <container> resource in each group member, where</container>
100	4		
106		U_IVIZIVI_SH_20	AE deletes a <contentinistance> resource from each group</contentinistance>
407			Interriber, where some memberius are on a remoteUSE
107	Secure AE Registration	U_M2M_SE_01	AE uses Provisioned Symmetric Key Security Association
			Establishment Framework to enable mutual authentication with the
			Registrar USE. Registrar USE performs AE authorization check on
			Incoming AE registration request.

7 Configuration

- 7.1 Test Configuration
- 7.1.1 No hop
- 7.1.1.1 M2M_CFG_01

The AE manages resources on the registrar CSE (Hosting CSE)

oneM2M entities model



7.1.1.2 M2M_CFG_02

oneM2M entities model



7.1.2 Single hop

7.1.2.1 M2M_CFG_03

The AE manages resources on the remote CSE

oneM2M entities model



7.1.2.2 M2M_CFG_04

oneM2M entities model



7.1.2.3 M2M_CFG_05

oneM2M entities model



7.1.2.4 M2M_CFG_08

This configuration concerns group management when the AE is using a group to fan out requests to multiple members. The connection between the AE and the Group Hosting CSE, the Group Hosting CSE and the Member Hosting CSE may be a multi hop connection following the definition in clause 7.1.3.

This configuration is mapped to cases including:

- AE sends a request addressing <group>/fanOutPoint in the Group Hosting CSE, the Group Hosting CSE then further fans out the request to each Member Hosting CSE.
- The Member Hosting CSE sends a notification to the Group Hosting CSE pertaining to the subscription made through the Group Hosting CSE. The Group Hosting CSE then further aggregates the notification and sends it back to the AE.



7.1.2.5 M2M_CFG_09

This configuration concerns device management using external technologies.

This configuration is mapped to cases including:

• The AE sends a request addressing <mgmtObj> to IN-CSE. IN-CSE then further acts as a Management Server to send management commands to Managed Entity over the mc interface. The management command is defined in OMA DM, BBF TR069 or LWM2M.



7.1.3 Multi hops

7.1.3.1 M2M_CFG_06

oneM2M entities model



7.1.3.2 M2M_CFG_07

oneM2M entities model



8 Test Descriptions

8.1 No Hop configuration testing

8.1.1 CSEBase Management

8.1.1.1 CSEBase Retrieve on Mca

Interoperability Test Description			
Identi	fier:		TD_M2M_NH_01
Objec	tive:		AE retrieves the CSEBase resource
Config	guration	1:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.3.2
			oneM2M TS-0004 [2], clause 7.3.2
Pre-te	st cond	itions:	 CSEBase resource has been automatically created in CSE
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a retrieve Request to CSE with name {CSEBaseName}
2	Мса	PRO Check Primitive	 Operation (op) = 2 (Retrieve) To (to) = Resource-ID of requested <csebase> resource, assumed CSE-relative here</csebase> From (from) = AE-ID of request originator Request Identifier (rqi) = (token-string)
3	Мса	PRO Check Primitive	 Response Status Code (rsc) = 2000 (OK) Request Identifier (rqi) = same string as received in request message Content (pc) = Serialized Representation of <csebase> resource</csebase>
4 IOP Check AE indicates successful operation		AE indicates successful operation	
IOP Verdict			
PRO Verdict			

8.1.2 RemoteCSE Management

8.1.2.1 RemoteCSE Create

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_02		
Objec	tive:		Registree CSE registers to Registrar CSE		
Config	guratior	ו:	M2M_CFG_02		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.2.1		
			oneM2M TS-0004 [2], clause 7.3.3.2.1		
Pre-te	st cond	litions:	CSEBase resource has been created in registrar CSE with name {CSEBaseName}		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	Registree CSE is requested to send a RemoteCSE Create request to Registrar CSE		
2	Мсс	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName} fr = Registree CSE-ID rqi = (token-string) ty = 16 (RemoteCSE) pc = Serialized representation of <remotecse> resource</remotecse> 		
3	Мсс	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <remotecse> resource</remotecse> 		
4		IOP Check	Check if possible that the <remotecse> resource has been created in registrar CSE.</remotecse>		
5		IOP Check	Check if possible that the corresponding <remotecse> resource has been also created in registree CSE.</remotecse>		
6		IOP Check	Registree CSE indicates successful operation.		
IOP \	/erdict				
PRO Verdict					

8.1.2.2 remoteCSE Retrieve

	Interoperability Test Description			
Identi	fier:		TD_M2M_NH_03	
Objective:			Registree CSE retrieves RemoteCSE from Registrar CSE	
Config	guratior	1:	M2M_CFG_02	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.2.2	
			oneM2M TS-0004 [2], clause 7.3.3.2.2	
Pre-te	st cond	itions:	 CSEBase resource has been created in registrar CSE with name {CSEBaseName} 	
			 Registree CSE has created a remoteCSE resource on registrar CSE with name 	
			{RemoteCSEName}	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	Registree CSE is requested to send a RemoteCSE retrieve request to Registrar CSE	
			• op = 2 (Retrieve)	
		PPO Check	 to = {CSEBaseName}/{remoteCSEName} 	
2	Mee	Primitivo	• fr = Registree CSE-ID	
	INICC	1 mmave	• rqi = (token-string)	
			• pc = empty	
			Registrar CSE sends response containing:	
2		PRO Check	• rsc = 2000 (OK)	
3	Mcc	Primitive	 rqi = (token-string) same as received in request message 	
			 pc = Serialized representation of <remotecse> resource</remotecse> 	
4		IOP Check	Registree CSE indicates successful operation	
IOP Verdict				
PRO Verdict				

8.1.2.3 remoteCSE Update

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_04		
Objec	tive:		Registree CSE updates RemoteCSE from Registrar CSE		
Config	guration):	M2M_CFG_02		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.2.3		
			oneM2M TS-0004 [2], clause 7.3.3.2.3		
Pre-te	st cond	itions:	• CSEBase resource has been created in registrar CSE with name {CSEBaseName}		
			 Registree CSE has created a remoteCSE resource on registrar CSE with name 		
			{RemoteCSEName}		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	Registree CSE is requested to send a RemoteCSE update request to Registrar CSE		
2	Мсс	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{remoteCSEName} fr = Registree CSE-ID rqi = (token-string) pc = Serialized representation of updated <remotecse> resource</remotecse> 		
3		IOP Check	Check if possible that the <remotecse> resource has been updated in registrar CSE.</remotecse>		
4	Мсс	PRO Check Primitive	Registrar CSE sends response containing: • rsc = 2004 (UPDATED) • rqi = (token-string) same as received in request message • pc = Serialized representation of <remotecse> resource</remotecse>		
5 IOP Check		IOP Check	Registree CSE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.2.4 remoteCSE Delete

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_05		
Objec	tive:		Registree CSE deletes RemoteCSE from Registrar CSE		
Confi	guratior	า:	M2M_CFG_02		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.2.4		
			oneM2M TS-0004 [2], clause 7.3.3.2.4		
Pre-te	est cond	litions:	CSEBase resource has been created in registrar CSE with name {CSEBaseName}		
			 Registree CSE has created a remoteCSE resource on registrar CSE with name {RemoteCSEName} 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	Registree CSE is requested to send a RemoteCSE delete request to Registrar CSE		
2	Мсс	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{remoteCSEName} fr = Registree CSE-ID rqi = (token-string) pc = empty 		
3	Мсс	PRO Check Primitive	Registrar CSE sends response containing: • rsc = 2002 (DELETED) • rqi = (token-string) same as received in request message • pc = empty		
4		IOP Check	Check if possible that the <remotecse> resource has been removed from registrar CSE.</remotecse>		
5		IOP Check	Check if possible that the <remotecse> resource is also removed from registree CSE.</remotecse>		
4		IOP Check	Registree CSE indicates successful operation.		
IOP \	/erdict				
PRO Verdict					

8.1.3 Application Entity Registration

8.1.3.1 AE Create

	Interoperability Test Description				
Identifier:			TD_M2M_NH_06		
Objective:			AE registers to its registrar CSE via an AE Create Request		
Config	guration	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.1.1		
			oneM2M TS-0004 [2], clause 7.3.5.2.1		
Pre-te	st cond	itions:	 CSEBase resource has been created in CSE with name {CSEBaseName} 		
			 AE does not have an AE-ID, i.e. it registers from scratch 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a AE Create request to register to the Registrar CSE		
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName} fr = AE-ID rqi = (token-string) ty = 2 (AE) pc = Serialized representation of <ae> resource</ae> 		
3		IOP Check	Check if possible that the <ae> resource is created in registrar CSE.</ae>		
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <ae> resource</ae> 		
5	5 IOP Check AE indicates successful operation		AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.3.2 AE Retrieve

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_07		
Objective:			AE retrieves <ae> resource via an AE Retrieve Request</ae>		
Config	guratior	ו:	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.1.2		
			oneM2M TS-0004 [2], clause 7.3.5.2.2		
Pre-te	est cond	litions:	• CSEBase resource has been created in registrar CSE with name {CSEBaseName}		
			 AE has created a <ae> resource on registrar CSE with name {AE}bgf</ae> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a AE retrieve request to Registrar CSE		
			• op = 2 (Retrieve)		
		PRO Check	 to = {CSEBaseName}/{AE} 		
2	Мса	Primitive	 fr = AE-ID of request originator 		
			• rqi = (token-string)		
			Registrar CSE sends response containing:		
2		PRO Check	• rsc = 2000 (OK)		
3	Mca	Primitive	 rqi = (token-string) same as received in request message 		
			 pc = Serialized representation of <ae> resource</ae> 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.3.3 AE Update

	Interoperability Test Description			
Identifier:			TD_M2M_NH_08	
Objective:			AE updates attribute in <ae> resource</ae>	
Config	guration):	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.1.3	
			oneM2M TS-0004 [2], clause 7.3.5.2.3	
Pre-te	st cond	itions:	CSEBase resource has been created in registrar CSE with name	
			{CSEBaseName}	
			 AE has created a <ae> resource on registrar CSE with name {AE}</ae> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send an AE Update Request	
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{AE} fr = AE-ID rqi = (token-string) pc = Serialized representation of updated <ae> resource</ae> 	
3		IOP Check	Check if possible that the <ae> resource has been updated in registrar CSE.</ae>	
4	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2004 (UPDATED) rqi = (token-string) same as received in request message pc = Serialized representation of <ae> resource</ae> 	
5 IOP Check		IOP Check	AE indicates successful operation	
IOP Verdict				
PRO Verdict				

8.1.3.4 AE Delete

	Interoperability Test Description				
Identifier:			TD_M2M_NH_09		
Objective:			AE de-registers by deleting <ae> resource via an AE Delete Request</ae>		
Confi	guratio	n:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.1.4		
			oneM2M TS-0004 [2], clause 7.3.5.2.4		
Pre-te	est cond	ditions:	 CSEBase resource has been created in registrar CSE with name 		
			{CSEBaseName}		
			 AE has created a <ae> resource on registrar CSE with name {AE}</ae> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send an AE Delete Request		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{AE} fr = AE-ID rqi = (token-string) pc = empty 		
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
4		IOP Check	Check if possible that the <ae> resource has been removed from registrar CSE.</ae>		
5		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.4 Container Management

8.1.4.1 Container Create

Interoperability Test Description			
Identi	fier:		TD_M2M_NH_10
Objec	tive:		AE creates a container resource in registrar CSE via a container Create Request
Config	guration):	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1
			oneM2M TS-0004 [2], clause 7.3.5.2.1
Pre-te	st cond	itions:	 AE has created an application resource <ae> on registrar CSE</ae>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE sends a request to create a <container></container>
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/URI of <ae> resource</ae> fr = AE-ID rqi = (token-string) ty = 3 (Container) pc = Serialized representation of <container> resource</container>
3		IOP Check	Check if possible that the <container> resource is created in registrar CSE.</container>
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <container> resource</container>
5 IOP Check		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.1.4.2 Container Retrieve

	Interonerability Test Description				
Identi	fier		TD M2M NH 11		
Objective:			AF retrieves information of a container resource via a container Retrieve Request		
Confi	uration	1:	M2M CEG 01		
Refere	ences:	••	oneM2M TS-0001 [1] clause 10.2.4.2		
			oneM2M TS-0004 [2], clause 7.3.5.2.2		
			<u></u> ,		
Pre-te	st cond	itions:	AE has created an Application Entity resource <ae> on Registrar CSE</ae>		
			AE has created a container resource <container> on Registrar CSE</container>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a <container></container>		
		PRO Check Primitive	• op = 2 (Retrieve)		
			 to = {CSEBaseName}/URI of <container> resource</container> 		
2	Maa		• fr = AE-ID		
	IVICa		 rai = (token-string) 		
			• pc = empty		
			• rsc =2000 (OK)		
3		PRO Check	 rgi = (token-string) same as received in request message 		
	ivica	Primitive	 pc = Serialized representation of <container> resource</container> 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.4.3 Container Update

	Interoperability Test Description				
Identifier:			TD_M2M_NH_12		
Objective:			AE updates attribute in application resource via a container Update Request		
Config	guratior	n:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.3		
			oneM2M TS-0004 [2], clause 7.3.5.2.3		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a container Update Request to update the lifetime of the		
			resource.		
			• $op = 3$ (Update)		
-		PRO Check	 to = {CSEBaseName}/URI of <container> resource</container> 		
2	Мса	a Primitive	• $fr = AE-ID$		
			• rqi = (token-string)		
			 pc = Serialized representation of updated <container> resource</container> 		
3		IOP Check	Check if possible that the < container > resource is updated in Registrar CSE.		
		PRO Check	• rsc = 2004 (Updated)		
4	Mca	Primitive	 rqi = (token-string) same as received in request message 		
	ivica	1 mmave	 pc = Serialized representation of <container> resource</container> 		
5		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.4.4 Container Delete

	Interonorschility Test Description				
Idanti	fior		TD M2M NUL 12		
Objec	tive:		AE deletes a specific container resource via a container Delete Request		
Config	guratior	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.4		
			oneM2M TS-0004 [2], clause 7.3.5.2.4		
Pre-te	st cond	itions:	AE has created an Application Entity resource <ae> on Registrar CSE</ae>		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a container Delete Request		
2	Mca	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <container> resource</container> fr = AE-ID rqi = (token-string) pc = empty 		
3		IOP Check	Check if possible that the <container> resource is deleted in registrar CSE.</container>		
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
5		IOP Check	Check if possible that the <container> resource has been removed in registrar CSE.</container>		
6		IOP Check	AE indicates successful operation.		
IOP \	/erdict				
PRO Verdict					

8.1.5 ContentInstance Management

8.1.5.1 ContentInstance Create

	Interoperability Test Description			
Identi	fier:		TD_M2M_NH_14	
Objective:			AE adds a contentInstance resource <contentinstance> to a specific container in Registrar CSE via a contentInstance Create Request and the Registrar CSE updates the parent <container> resource with stateTag, currentNrOfInstances, and CurrentByteSize attributes correspondingly</container></contentinstance>	
Config	guration	ו:	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.19.2 oneM2M TS-0004 [2], clause 7.3.6.2.1	
Pre-te	st cond	litions:	 AE has created an application resource <ae> on registrar CSE</ae> AE has created a container resource <container> on registrar CSE</container> Test Sequence 	
Step	RP	Туре	Description	
1		Stimulus	AE sends a RETRIEVE request with resultContent set to 1 (default value) to retrieve the <container> resource and AE sends a request to create a < contentInstance > resource</container>	
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/URI of < container > resource fr = AE-ID rqi = (token-string) ty = 4 (contentInstance) pc = Serialized representation of <contentinstance> resource</contentinstance> 	
3		IOP Check	Check if possible that the <contentinstance> resource is created in Registrar CSE and AE sends a RETRIEVE request to the <container> resource to check that if the Registrar CSE has updated stateTag, currentNrOfInstances, and CurrentByteSize attribute correspondingly which is resulted from the successful creation of child <contentinstance> resource.</contentinstance></container></contentinstance>	
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <contentinstance> resource</contentinstance> 	
5		IOP Check	AE indicates successful CREATE operation of <contentinstance> and indicates Registrar CSE has updated stateTag, currentNrOfInstances, and CurrentByteSize attribute correspondingly by checking the response of a <container> request to the <container> resource</container></container></contentinstance>	
IOP Verdict Set verdict to performance of the set of th		Set verdict to pa error message.	ass if IOP check goal is achieved exactly, otherwise verdict fail is set with corresponding	
PRO Verdict				

8.1.5.2 ContentInstance Retrieve

	Interoperability Test Description					
Identifier:			TD_M2M_NH_15			
Objec	tive:		AE retrieves information of a contentInstance resource via a contentInstance Retrieve			
			Request			
Config	guratior	ו:	M2M_CFG_01			
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.19.3			
			oneM2M TS-0004 [2], clause 7.3.6.2.2			
Pre-te	st cond	litions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 			
			 AE has created a container resource <container> on Registrar CSE</container> 			
			AE has created a contentInstance resource <contentinstance> as child resource</contentinstance>			
			of <container> resource</container>			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send a Retrieve Request for a <contentinstance></contentinstance>			
			• op = 2 (Retrieve)			
		PRO Check	 to = {CSEBaseName}/URI of <contentinstance> resource</contentinstance> 			
2	Mca	Primitive	• fr = AE-ID			
	ivica	FIITILIVE	• rqi = (token-string)			

	Interoperability Test Description			
			• pc = empty	
3	Мса	PRO Check Primitive	 rsc =2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <contentinstance> resource</contentinstance> 	
4		IOP Check	AE indicates successful operation	
IOP Verdict				
PRO Verdict				

8.1.5.3 ContentInstance Delete

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_17		
Objective:			AE deletes contentInstance resource via a contentInstance Delete Request and the Registrar CSE updates the parent <container> resource with <i>currentNrOfInstances</i>, and <i>CurrentByteSize</i> attributes correspondingly</container>		
Confi	guratio	n:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.19.5 oneM2M TS-0004 [2], clause 7.3.6.2.4		
Pre-test conditions:			 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a container resource <container> on Registrar CSE</container> AE has created a contentInstance resource <contentinstance> as child resource of <container> resource</container></contentinstance> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE sends a RETRIEVE request with resultContent set to 1 (default value) to retrieve the <container> resource and AE is requested to send a contentInstance Delete Request</container>		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <contentinstance> resource</contentinstance> fr = AE-ID rqi = (token-string) pc = empty 		
3		IOP Check	Check if possible that the <contentinstance> resource is deleted in Registrar CSE and AE sends a RETRIEVE request to the parent <container> resource to check that if the Registrar CSE has updated <i>currentNrOfInstances, and CurrentByteSize</i> attribute correspondingly which is resulted from the successful deletion of child <contentinstance> resource.</contentinstance></container></contentinstance>		
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
5		IOP Check	Check if possible that the <contentinstance> resource has been removed in registrar CSE.</contentinstance>		
6		IOP Check	AE indicates successful DELETE operation of <contentinstance> and indicates Registrar CSE has updated <i>currentNrOfInstances</i>, and <i>CurrentByteSize</i> attribute correspondingly</contentinstance>		
IOP Verdict Set the current error		Set the verdict t currentNrOfInst error message.	o pass if both the <contentinstance> is deleted and the Registrar CSE updated ances, and CurrentByteSize attribute. Otherwise, set the verdict to fail with corresponding</contentinstance>		
PRO Verdict					

8.1.5.4 <latest> ContentInstance Delete

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_49		
Objective:			AE deletes a <latest> resource of a <container> and the Registrar CSE points a latest <contentinstance> among the existing contentInstances to the <latest> resource of the <container></container></latest></contentinstance></container></latest>		
Confi	guratior	າ:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.22.2 oneM2M TS-0004 [2], clause 7.4.28.2.5		
Pre-test conditions:			 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a container resource <container> on Registrar CSE</container> AE has created more than one contentInstances <contentinstance> as child of <container> on Registrar CSE</container></contentinstance> 		
		•	Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE retrieves a <latest> resource in a <container> and then sends a DELETE request to the <latest> resource of the <container></container></latest></container></latest>		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <latest> resource of a <container></container></latest> fr = AE-ID rqi = (token-string) pc = empty 		
3	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = representation of deleted <latest> resource of a <container></container></latest> 		
4		IOP Check	AE indicates successful DELETE operation of a <latest> resource and AE sends a RETRIEVE request to <latest> resource of a <container> to check if the retrieved <latest> resource in the <container> is different with that one that was retrieved before DELETE request of the <latest> resource in terms of <i>resourceID</i> and <i>resourceName</i> attribute value.</latest></container></latest></container></latest></latest>		
IOP Verdict Set the verd error messa		Set the verdict t error message.	o pass if IOP check goal is achieved, otherwise set the verdict to fail with corresponding		
PRO Verdict					

8.1.5.5 <oldest> ContentInstance Delete

	Interoperability Test Description					
Identifier:			TD_M2M_NH_50			
Objective:			AE deletes a <oldest> resource of a <container> and the Registrar CSE points an oldest</container></oldest>			
			<contentinistance> among the existing contentinistances to the <oldest> resource of the senteiner.</oldest></contentinistance>			
0			<container></container>			
Config	guration	1:				
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.22.2			
			JoneM2M TS-0004 [2], clause 7.4.28.2.5			
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 			
			 AE has created a container resource <container> on Registrar CSE</container> 			
			AE has created more than one contentInstances <contentinstance> as child of</contentinstance>			
			<container> on Registrar CSE</container>			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE retrieves a <oldest> resource of a <container> and AE sends a DELETE Request to the <oldest> resource of the <container></container></oldest></container></oldest>			
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <oldest> resource of a <container></container></oldest> fr = AE-ID rqi = (token-string) pc = empty 			
3	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = representation of deleted <oldest> resource of a <container></container></oldest> 			

	Interoperability Test Description				
4		IOP Check	AE indicates successful DELETE operation of a <oldest> resource and AE sends a RETRIEVE request to <oldest> resource of a <container> to check if the retrieved <oldest> resource in the <container> is different with that one that was retrieved before DELETE request of the <oldest> resource in terms of <i>resourceID</i> and <i>resourceName</i> attribute value and</oldest></container></oldest></container></oldest></oldest>		
IOP Verdict		Set the verdict to <i>pass</i> if IOP check goal is achieved, otherwise set the verdict to <i>fail</i> with corresponding error message.			
PRO	Verdict				

8.1.5.6 ContentInstance Create when currentNrOfInstance equals to maxNrOfInstances in parent <container> resource

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_51		
Objective:			AE sends a <contentinstance> CREATE request to a <container> which contains attribute <i>currentNrOfInstances</i> whose value equals to that of <i>maxNrOfInstances</i> and Registrar CSE deletes the oldest <contentinstance> from the parent <container> and then creates the requested <contentinstance> resource for the originator AE</contentinstance></container></contentinstance></container></contentinstance>		
Config	guratior	ו:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.19.2 oneM2M TS-0004 [2], clause 7.3.6.2.1		
Pre-te	st cond	litions:	 AE has created an application resource <ae> on registrar CSE</ae> AE has created a container resource <container> (where the number of contentInstances equals to the value set in maxNrOfInstance) on registrar CSE</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE sends a RETRIEVE request with resultContent set to 1 (default value) to retrieve the <oldest> contentInstance resource and AE sends a request to create a <contentinstance> resource</contentinstance></oldest>		
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/URI of <container> resource</container> fr = AE-ID rqi = (token-string) ty = 4 (contentInstance) pc = Serialized representation of <contentinstance> resource</contentinstance> 		
3		IOP Check	Check if possible that the <oldest> resource of a <container> is deleted</container></oldest>		
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <contentinstance> resource</contentinstance> 		
5		IOP Check	AE indicates successful CREATE operation of <contentinstance> and indicates the representation of the recent <oldest> resource in the <container> is different with that of <oldest> resource retrieved at the beginning of test in terms of <i>resourceID</i> and <i>resourceName</i> attribute value</oldest></container></oldest></contentinstance>		
IOP Verdict Set the verdict error message		Set the verdict to error message.	o pass if IOP check goal is achieved, otherwise set the verdict to fail with corresponding		
PRO Verdict					

8.1.5.7 <latest> ContentInstance Retrieve

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_71		
Objective:			AE retrieves a <latest> resource of a <container> and the Registrar CSE points a latest <contentinstance> among the existing contentInstances to the <latest> resource of the <container></container></latest></contentinstance></container></latest>		
Confi	guratior	ו:	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.22.1 oneM2M TS-0004 [2], clause 7.4.27.2.2		
Pre-test conditions:		litions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a container resource <container> on Registrar CSE</container> AE has created multiple contentInstance resources <contentinstance> as child resource of <container> resource</container></contentinstance> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a <latest></latest>		
2	Мса	PRO Check Primitive	 op = 2 (Retrieve) to = {CSEBaseName}/URI of <container> resource/la</container> fr = AE-ID rqi = (token-string) pc = empty 		
3	Мса	PRO Check Primitive	 rsc =2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of latest <contentinstance> resource</contentinstance> 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.5.8 <oldest> ContentInstance Retrieve

	Interoperability Test Description					
Identifier:			TD_M2M_NH_72			
Objec	tive:		AE retrieves a <oldest> resource of a <container> and the Registrar CSE points a oldest <contentinstance> among the existing contentInstances to the <oldest> resource of the <container></container></oldest></contentinstance></container></oldest>			
Config	guratior	า:	M2M_CFG_01			
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.23.1 oneM2M TS-0004 [2], clause 7.4.28.2.2			
Pre-test conditions:			 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a container resource <container> on Registrar CSE</container> AE has created multiple contentInstance resources <contentinstance> as child resource of <container> resource</container></contentinstance> 			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send a Retrieve Request for a <oldest></oldest>			
2	Мса	PRO Check Primitive	 op = 2 (Retrieve) to = {CSEBaseName}/URI of <container> resource/ol</container> fr = AE-ID rqi = (token-string) pc = empty 			
3	Мса	PRO Check Primitive	 rsc =2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of oldest <contentinstance> resource</contentinstance> 			
4		IOP Check	AE Indicates successful operation			

8.1.6 Discovery

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	Interoperability Test Description				
Identifier:			TD_M2M_NH_18		
Objective:			AE discovers all accessible resources from registrar CSE		
Config	guration):	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.2.3.13		
Pre-te	st cond	itions:	 CSEBase resource has been created in registrar CSE with name 		
			{CSEBaseName}		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a discovery request to registrar CSE		
		PRO Check Primitive	Sent request contains		
	Мса		• op = 2 (Retrieve)		
			 to = {CSEBaseName} 		
2			• fr = AE-ID		
			• rqi = (token-string)		
			• fu=1		
			• pc = empty		
			Registrar CSE sends response containing:		
		DDO Chask	 rsc = 2000 (OK) 		
3		PRO Check	 rqi = (token-string) same as received in request message 		
	IVICa	Fiimuve	 pc = Serialized representation of data object containing addresses of all 		
			discovered resources		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO Verdict					

8.1.6.2 Discovery with label filter criteria

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_19		
Objective:			AE discovers accessible resources residing in Registrar CSE using the label filter criteria		
Config	guratior	1:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.2.3.13		
Pre-te	st cond	itions:	 CSEBase resource has been created in registrar CSE with name 		
			{CSEBaseName}		
			 A <container> resource with label "key1" is created on Registrar CSE.</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Discovery request in order to discover the <container></container>		
1			resource using the label filter criteria		
			Sent request contains		
			• op = 2 (Retrieve)		
			 to = {CSEBaseName} 		
2		PRO Check	• fr = AE-ID		
2	Mca	Primitive	• rqi = (token-string)		
			• fu=1		
			• Ibl=key1		
			pc = empty		
			Registrar CSE sends response containing:		
		PRO Chack	• rsc = 2000 (OK)		
3	Мса	Mca Primitive	 rqi = (token-string) same as received in request message 		
			 pc = Serialized representation of data object containing the address of the <container> address</container> 		
4		IOP Check	AE indicates successful operation		

Interoperability Test Description				
IOP Verdict				
PRO Verdict				

8.1.6.3 Discovery with limit filter criteria

	Interoperability Test Description				
Identifier:			TD_M2M_NH_20		
Objective:			AE discovers accessible resources residing in Registrar CSE limiting the number of		
			matching resources to the specified value.		
Config	guratior	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.2.3.13		
Pre-te	st cond	itions:	 CSEBase resource has been created in registrar CSE with name 		
			{CSEBaseName}		
	1		Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Discovery request in order to discover at most 2 resources in registrar CSE.		
2	Мса	PRO Check Primitive	Sent request contains • op = 2 (Retrieve) • to = {CSEBaseName} • fr = AE-ID • rqi = (token-string) • fu=1 • lim=2 • pc = empty		
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2000 (OK) rqi = (token-string) same as received in request message cnst=1 cnot=2 pc = Serialized representation of data object containing the address of the <container> address</container> 		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.1.6.4 Discovery with multiple filter criteria

	Interoperability Test Description				
Identifier:			TD_M2M_NH_21		
Objective:			AE discovers accessible resources residing in Registrar CSE using multiple Filter Criteria		
Confi	guratior	า:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.2.3.13		
Pre-te	est cond	litions:	 Two <container> resources with labels "key1" and "key2" are created in</container> 		
			Registrar CSE.		
			 A <group> resources with labels "key1" and "key2" is created in Registrar CSE.</group> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Discovery request in order to discover specific resources		
			located in Registrar CSE using multiple filter criteria (label, resource type and limit)		
			Sent request contains		
			• op = 2 (Retrieve)		
			 to = {CSEBaseName} 		
2	Mee	PRO Check Primitive	• fr = AE-ID		
	мса		• rqi = (token-string)		
			• fu=1		
			• lbl=key1		

	Interoperability Test Description			
			 Ibl=key2 ty=3 lim=1 pc = empty 	
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of data object containing the address of one of the <container> resources</container> 	
4		IOP Check	AE indicates successful operation	
IOP \	Verdict			
PRO	Verdict			

8.1.6.5 Discovery with level filter criteria

	Interoperability Test Description				
Identifier:			TD_M2M_NH_58		
Objective:			AE discovers accessible resources residing in Registrar CSE using the level filter criteria		
			value set to 1		
Config	guratior	ו:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.3.3.14		
			1		
Pre-te	st cond	litions:	 <ae1> and <ae2> resources are created in Registrar CSE.</ae2></ae1> 		
			A <container> resource is created under both <ae> resources in Registrar CSE.</ae></container>		
			 A <contentinstance> resource is created under both <container> resources in</container></contentinstance> 		
			Registrar CSE.		
_			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Discovery request in order to discover specific resources		
			located in Registrar CSE using level filter criteria value set to 1		
	Мса	Ica PRO Check Primitive	Sent request contains		
			• op = 2 (Retrieve)		
			 to = {CSEBaseName} 		
2			• fr = AE1-ID		
2			• rqi = (token-string)		
			• fu=1		
			• lvl=1		
			• pc = empty		
			Registrar CSE sends response containing:		
		DBO Chook	• rsc = 2000 (OK)		
3	Maa	Drimitivo	 rqi = (token-string) same as received in request message 		
	IVICa	Finnuve	 pc = Serialized representation of data object containing the address of both 		
			<ae> resources</ae>		
4		IOP Check	AE1 indicates successful operation		
IOP \	/erdict				
PRO Verdict					

	Interoperability Test Description				
Identifier:			TD_M2M_NH_59		
Objective:			AE discovers accessible resources residing in Registrar CSE using the level filter criteria		
			value set to 2		
Config	guratior	ו:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.3.3.14		
Pre-te	est cond	litions:	 <ae1> and <ae2> resources are created in Registrar CSE. A <container></container></ae2></ae1> 		
			resource is created under both <ae> resources in Registrar CSE.</ae>		
			 A <contentinstance> resource is created under both <container> resources in</container></contentinstance> 		
			Registrar CSE.		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Discovery request in order to discover specific resources		
			located in Registrar CSE using level filter criteria value set to 2		
			Sent request contains		
		ca PRO Check Primitive	• op = 2 (Retrieve)		
			 to = {CSEBaseName} 		
2			• fr = AE1-ID		
-	Мса		• rqi = (token-string)		
			• fu=1		
			• lvl=2		
			• pc = empty		
			Registrar CSE sends response containing:		
		PRO Check	• rsc = 2000 (OK)		
3	Mca	Primitive	 rqi = (token-string) same as received in request message 		
	IVICa	1 mmave	 pc = Serialized representation of data object containing the address of all <ae></ae> 		
			and <container> resources</container>		
4		IOP Check	AE1 indicates successful operation		
IOP \	/erdict				
PRO '	Verdict				

	Interoperability Test Description				
Identifier:			TD_M2M_NH_60		
Objective:			AE1 discovers accessible resources residing in Registrar CSE using the level filter criteria		
			value set to 3		
Config	guratior	1:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.3.3.14		
			1		
Pre-te	est cond	itions:	 <ae1> and <ae2> resources are created in Registrar CSE.</ae2></ae1> 		
			 A <container> resource is created under both <ae> resources in Registrar CSE.</ae></container> 		
			 A <contentinstance> resource is created under both <container> resources in</container></contentinstance> 		
			Registrar CSE.		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a Discovery request in order to discover specific resources		
			located in Registrar CSE using level filter criteria value set to 3		
		ca PRO Check Primitive	Sent request contains		
	Mca		• $op = 2$ (Retrieve)		
			• to = {CSEBaseName}		
2			• fr = AE1-ID		
-			• rqi = (token-string)		
			• fu=1		
			• lvl=3		
			• pc = empty		
			Registrar CSE sends response containing:		
		PRO Check	• rsc = 2000 (OK)		
3	Mca	Primitivo	 rqi = (token-string) same as received in request message 		
	мса	1 mmuve	 pc = Serialized representation of data object containing the address of all <ae>,</ae> 		
			<container> and <contentinstance>resources</contentinstance></container>		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.1.6.6 Discovery with offset filter criteria

	Interoperability Test Description				
Identifier:			TD_M2M_NH_61		
Objective:			AE discovers accessible resources residing in Registrar CSE using the offset filter criteria		
			value set to 3		
Confi	guratior	ו:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.6		
			oneM2M TS-0004 [2], clause 7.3.3.14		
			1		
Pre-te	est cond	litions:	 <ae1> and <ae2> resources are created in Registrar CSE. A <container></container></ae2></ae1> 		
			resource is created under both <ae> resources in Registrar CSE.</ae>		
			 A <contentinstance> resource is created under both <container> resources in</container></contentinstance> 		
			Registrar CSE.		
		-	Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a Discovery request in order to discover specific resources		
			located in Registrar CSE using offset filter criteria value set to 3		
			Sent request contains		
	Мса	PRO Check Primitive	• op = 2 (Retrieve)		
			• to = {CSEBaseName}		
2			• $fr = AE1-ID$		
_			• rqi = (token-string)		
			• fu=1		
			• ofst=3		
			• pc = empty		
			Registrar CSE sends response containing:		
		PRO Check Primitive	• rsc = 2000 (OK)		
3	Мса		 rqi = (token-string) same as received in request message 		
			 pc = Serialized representation of data object containing only 3 of the 6 <ae>,</ae> 		
			<container> and <contentinstance> resources hosted by the Registrar CSE</contentinstance></container>		

Interoperability Test Description					
4		IOP Check	AE1 indicates successful operation		
IOP Verdict					
PRO Verdict					

			Interoperability Test Description			
Identifier:						
Objec	tive:		AF discovers all the accessible resources residing in Registrar CSF using the offset filter			
0.0,00			criteria			
Configuration:			M2M CFG 01			
References:			oneM2M TS-0001 [1], clause 10.2.6			
			oneM2M TS-0004 [2], clause 7.3.3.14			
Pre-test conditions:			 <ae1> and <ae2> resources are created in Registrar CSE.</ae2></ae1> 			
			• A <container> resource is created under both <ae> resources in Registrar CSE.</ae></container>			
			A <contentinstance> resource is created under both <container> resources in</container></contentinstance>			
			Registrar CSE.			
Test Sequence						
Step	RP	Туре	Description			
		Stimulus	AE1 is requested to send a Discovery request in order to discover specific resources			
1			located in Registrar CSE using offset filter criteria attribute value set to 0 (Default value)			
			and limit filter Criteria attribute value set to 2.			
			Sent request contains			
			• $op = 2$ (Retrieve)			
			• to = {CSEBaseName}			
2	Mag	PRO Check	• If = AE1-ID			
	Ivica	Primitive	• $rqi = (token-string)$			
2			pc = empty Pogistrar CSE sonds success response to AE1			
3		IOF CHECK	Registrar CSE sends response containing:			
			rec = 2000 (OK)			
			 rai – (token-string) same as received in request message 			
4		PRO Check	 rgi = (loken-stilling) same as received in request message rgst=1 			
-	Mca	Primitive	• cnot-2			
			 pc = Serialized representation of data object containing the address of first 2 			
			resources hosted by Registrar CSE			
-			AE1 sends discovery request to Registrar CSE with offset filtercriteria value set to 2 and			
5		IOP Check	limit filter criteria attribute value set to 2			
			Sent request contains			
			• op = 2 (Retrieve)			
			 to = {CSEBaseName} 			
			• fr = AE1-ID			
6	Mca	PRO Check	• rqi = (token-string)			
	Ivica	Primitive	• fu=1			
			ofst=2			
			• lim=2			
			• pc = empty			
7		IOP Check	Registrar CSE sends success response to AE1			
8			Registrar CSE sends response containing:			
			• $rsc = 2000 (OK)$			
		PRO Check	 rql = (token-string) same as received in request message 			
	Мса	Primitive	• Crist=1			
			 UIUL=4 no - Socialized representation of data abject containing the address of rout 0. 			
			 pc = Senalized representation of data object containing the address of Next 2 resources bosted by Registrar CSE 			
<u> </u>			AF1 sends discovery request to Registrar CSF with offset filtercriteria value set to 4 and			
9		IOP Check	limit filtercriteria attribute value set to 2			
			Interoperability Test Description			
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10	Мса	PRO Check Primitive	Sent request contains • op = 2 (Retrieve) • to = {CSEBaseName} • fr = AE1-ID • rqi = (token-string) • fu=1 • ofst=4 • lim=2 • pc = empty			
11		IOP Check	Registrar CSE sends success response to AE1			
12	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2000 (OK) rqi = (token-string) same as received in request message cnst =2 pc = Serialized representation of data object containing the address of last 2 resources hosted by Registrar CSE 			
13		IOP Check	AE1 indicates successful operation			
IOP \	/erdict					
PRO	Verdict					

8.1.7 Subscription Management

8.1.7.1 Subscription Create

Interoperability Test Description			
Identi	fier:		TD_M2M_NH_22
Objective:			AE creates a subscription to Application Entity resource via subscription Create Request
Config	guratior	n:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.11.2
			oneM2M TS-0004 [2], clause 7.3.7.2
Pre-te	st cond	itions:	 AE has created an application resource <ae> on registrar CSE</ae>
			 AE has created a container resource <container> on registrar CSE</container>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a subscription Create request to the Registrar CSE
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/URI of <container> resource</container> fr = AE-ID rqi = (token-string) ty = 23 (Subscription) pc = Serialized representation of <subscription> resource</subscription>
3		IOP Check	Check if possible that the <subscription> resource is created in registrar CSE.</subscription>
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <subscription> resource</subscription>
5		IOP Check	AE indicates successful operation
IOP \	/erdict		
PRO Verdict			

8.1.7.2 Subscription Retrieve

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_23		
Objective:			AE retrieves subscription resource from Registrar CSE		
Config	guratior	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.11.3		
			oneM2M TS-0004 [2], clause 7.3.7.2		
Pre-te	st cond	itions:	AE has created an Application Entity resource <ae> on Registrar CSE</ae>		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			AE has created a subscription resource <subscription> on Registrar CSE</subscription>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a <subscription></subscription>		
		PRO Check Primitive	• op = 2 (Retrieve)		
			 to = {CSEBaseName}/URI of <subscription> resource</subscription> 		
2	Maa		• fr = AE-ID		
	IVICa		 rqi = (token-string) 		
			• pc = empty		
			• rsc =2000 (OK)		
3	1400	PRO Check	 rgi = (token-string) same as received in request message 		
	INICa	Primitive	 pc = Serialized representation of <subscription> resource</subscription> 		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.1.7.3 Subscription Update

Interoperability Test Description					
Identifier:			TD_M2M_NH_24		
Objective:			AE updates information about a subscription via subscription Update Request		
Config	guratior	ו:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.11.4		
			oneM2M TS-0004 [2], clause 7.3.7.2		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			 AE has created a subscription resource <subscription> on Registrar CSE</subscription> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a subscription Update Request to update the lifetime of the		
-			resource.		
		PRO Check Aca Primitive	• op = 3 (Update)		
			 to = {CSEBaseName}/URI of <subscription> resource</subscription> 		
2	Mee		• fr = AE-ID		
	ivica		• rqi = (token-string)		
			 pc = Serialized representation of updated <subscription> resource</subscription> 		
3		IOP Check	Check if possible that the <subscription> resource is updated in Registrar CSE.</subscription>		
		PPO Chock	• rsc = 2004 (Updated)		
4	Maa	Primitive	 rqi = (token-string) same as received in request message 		
	IVICa	r minuve	 pc = Serialized representation of <subscription> resource</subscription> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO Verdict					

8.1.7.4 Subscription Delete

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_25		
Objective:			AE cancels subscription via an subscription Delete Request		
Config	guration):	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.11.5		
			oneM2M TS-0004 [2], clause 7.3.7.2		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			 AE has created a subscription resource <subscription> on Registrar CSE</subscription> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a subscription Delete Request		
2	Mca	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <subscription> resource</subscription> fr = AE-ID rqi = (token-string) pc = empty 		
3		IOP Check	Check if possible that the <subscription> resource is deleted in registrar CSE.</subscription>		
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
5		IOP Check	Check if possible that the <subscription> resource has been removed in registrar CSE.</subscription>		
6		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO Verdict					

8.1.8 accessControlPolicy Management

8.1.8.1 accessControlPolicy Create

	Interoperability Test Description				
Identi	fier:		TD M2M NH 26		
Objective:			AE creates an accessControlPolicy resource		
Confi	guratior	า:	M2M_CFG_01		
Refer	ences:		1] 10.2.21.1 oneM2M TS-0004 [2], clause 7.3.1.2		
Pre-test conditions:			CSEBase resource has been created in registrar CSE with name {CSEBaseName}		
			AE has created a <ae> resource on registrar CSE with name {AE}</ae>		
		-	Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send an accessControlPolicy Create Request		
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/{AE} fr = AE-ID rqi = (token-string) ty = 1 (accessControlPolicy) pc = Serialized representation of <accesscontrolpolicy> resource</accesscontrolpolicy> 		
3		IOP Check	Check if possible that the <container> resource is created in registrar CSE.</container>		
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <accesscontrolpolicy> resource</accesscontrolpolicy> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO '	Verdict		-		

8.1.8.2 accessControlPolicy Retrieve

	Interoperability Test Description			
Identifier:			TD_M2M_NH_27	
Objective:			AE retrieves accessControlPolicy resource	
Config	guration):	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.21.2	
			oneM2M TS-0004 [2], clause 7.3.1.2	
Pre-te	st cond	itions:	 CSEBase resource has been created in registrar CSE with name (CSEBaseName) 	
			 AE has created a <ae> resource on registrar CSE with name {AE}</ae> 	
			 accessControlPolicy resource has been created in registrar CSE under <ae></ae> 	
			resource with name {accessControlPolicyName}	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a accessControlPolicy retrieve request to Registrar CSE	
		PRO Check a Primitive	• op = 2 (Retrieve)	
			 to = {CSEBaseName}/{AE}/{accessControlPolicyName} 	
2	Mca		• fr = AE-ID	
	Ivica		• rqi = (token-string)	
			• pc = empty	
			Registrar CSE sends response containing:	
3		PRO Check	• rsc = 2000 (OK)	
5	Mca	Primitive	 rqi = (token-string) same as received in request message 	
			 pc = Serialized representation of <accesscontrolpolicy> resource</accesscontrolpolicy> 	
4		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	Verdict			

8.1.8.3 accessControlPolicy Update

	Interoperability Test Description			
Identi	fier:		TD_M2M_NH_28	
Objective:			AE updates attribute in accessControlPolicy resource	
Config	guratio	n:	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.21.3	
			oneM2M TS-0004 [2], clause 7.3.1.2	
Pre-te	st cond	ditions:	 CSEBase resource has been created in registrar CSE with name 	
			{CSEBaseName}	
			 AE has created a <ae> resource on registrar CSE with name {AE}</ae> 	
			 accessControlPolicy resource has been created in registrar CSE under <ae></ae> 	
			resource with name {accessControlPolicyName}	
	Test Sequence			
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send an accessControlPolicy update request to Registrar CSE	
		PRO Check Primitive	• op = 3 (Update)	
			 to = {CSEBaseName}/{AE}/{accessControlPolicyName} 	
2	Mca		• fr = AE-ID	
	IVICa		• rqi = (token-string)	
			 pc = Serialized representation of updated <accesscontrolpolicy> resource</accesscontrolpolicy> 	
3			Check if possible that the <accesscontrolpolicy> resource has been updated in</accesscontrolpolicy>	
5			registrar CSE.	
			Registrar CSE sends response containing:	
1		PRO Check	 rsc = 2004 (UPDATED) 	
-	Mca	Primitive	 rqi = (token-string) same as received in request message 	
			 pc = Serialized representation of <accesscontrolpolicy> resource</accesscontrolpolicy> 	
5		IOP Check	AE indicates successful operation	
IOP V	'erdict			
PF	20			
Verdict				

8.1.8.4 accessControlPolicy Delete

	Interoperability Test Description			
Identi	fier:		TD_M2M_NH_29	
Objective:			AE deletes accessControlPolicy resource	
Config	guratio	n:	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.21.4	
			oneM2M TS-0004 [2], clause 7.3.1.2	
Pre-test conditions:			 CSEBase resource has been created in registrar CSE with name {CSEBaseName} AE has created a <ae> resource on registrar CSE with name {AE}</ae> 	
			 accessControlPolicy resource has been created in registrar CSE under <ae> resource with name {accessControlPolicyName}</ae> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send an accessControlPolicy delete request to Registrar CSE	
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{AE}/{accessControlPolicyName} fr = AE-ID rqi = (token-string) pc = empty 	
3	Мса	PRO Check Primitive	Registrar CSE sends response containing: • rsc = 2002 (DELETED) • rqi = (token-string) same as received in request message • pc = empty	
4		IOP Check	Check if possible that the <accesscontrolpolicy> resource has been removed from registrar CSE.</accesscontrolpolicy>	
5		IOP Check	AE indicates successful operation	
IOP V	/erdict			
PRO \	/erdict			

8.1.8.5 Unauthorized operation (Insufficient Access Rights, operations)

	Interoperability Test Description			
Identifier:			TD_M2M_NH_30	
Objec	tive:		AE delete request is rejected due to accessControlPolicy (accessControlOperations)	
Confi	guratior	า:	M2M_CFG_01	
Refer	ences:		[2], clause 7.3.3.15	
Pre-test conditions:			 CSEBase resource has been created in registrar CSE with name {CSEBaseName} AE has created a <ae> resource on registrar CSE with name {AE}</ae> 	
			 accessControlPolicy resource has been created in registrar CSE under <ae> resource with name {accessControlPolicyName}, and accessContorlOperations with no delete privilege</ae> AE has created a container> resource on registrar CSE under <ae> with name</ae> 	
			 AE has cleated a <container <ae="" cse="" on="" registral="" resource="" under="">, with tailer {containerName} and accessControlPolicyIDs including proper identifier of accessControlPolicy resource.</container> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a container Delete Request for resource <container></container>	
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{AE}/{containerName} fr = AE-ID rqi = (token-string) pc = empty 	
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 4103 (ACCESS_DENIED) rqi = (token-string) same as received in request message pc = empty 	
4		IOP Check	Check if possible that the <container> resource has not been removed in registrar CSE.</container>	
5		IOP Check	AE indicates unsuccessful operation (Delete error - no privilege)	

Interoperability Test Description				
IOP Verdict				
PRO Verdict				

8.1.8.6 Unauthorized operation (Insufficient Access Rights, originators)

	Interoperability Test Description			
Identi	fier:		TD_M2M_NH_73	
Objective:			AE delete request is rejected due to accessControlPolicy (accessControlOriginators)	
Configuration:			M2M_CFG_01	
Refere	ences:		[2], clause 7.3.3.15	
Pre-test conditions:			 CSEBase resource has been created in registrar CSE with name {CSEBaseName} AE has created a <ae> resource on registrar CSE with name {AE}</ae> accesseControlDaliay resource has been created in registrar CSE under cAE> 	
			 accessControlPolicyTesource has been created in registral CSE under <ae> resource with name {accessControlPolicyName}, and accessControlOriginators with no privilege for AE.</ae> 	
			 AE has created a <container> resource on registrar CSE under <ae>, with name {containerName} and accessControlPolicyIDs including proper identifier of accessControlPolicy resource.</ae></container> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a container Delete Request for resource <container></container>	
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{AE}/{containerName} fr = AE-ID rqi = (token-string) pc = empty 	
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 4103 (ACCESS_DENIED) rqi = (token-string) same as received in request message pc = empty 	
4		IOP Check	Check if possible that the <container> resource has not been removed in registrar CSE.</container>	
5		IOP Check	AE indicates unsuccessful operation (Delete error - no privilege)	
IOP \	/erdict			
PRO Verdict				

8.1.8.7 Authorized operation

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_74		
Objec	tive:		AE delete request is allowed due to accessControlPolicy		
Config	guratior	ו:	M2M_CFG_01		
Refer	ences:		[2], clause 7.3.3.15		
Pre-test conditions:			 CSEBase resource has been created in registrar CSE with name {CSEBaseName} AE has created a <ae> resource on registrar CSE with name {AE}</ae> accessControlPolicy resource has been created in registrar CSE under <ae> resource with name {accessControlPolicyName}, and accessControlOperations with delete privilege and accessControlOriginators with privilege for AE.</ae> AE has created a <container> resource on registrar CSE under <ae>, with name {containerName} and accessControlPolicyIDs including proper identifier of accessControlPolicy resource.</ae></container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a container Delete Request for resource <container></container>		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/{AE}/{containerName} fr = AE-ID rqi = (token-string) 		

	Interoperability Test Description			
			• pc = empty	
3	Мса	PRO Check Primitive	Registrar CSE sends response containing: • rsc = 2002 (DELETED) • rqi = (token-string) same as received in request message • pc = empty	
4		IOP Check	Check if possible that the <container> resource has been removed in registrar CSE.</container>	
5		IOP Check	AE indicates successful operation.	
IOP Verdict				
PRO	Verdict			

8.1.9 Group Management

8.1.9.1 Group Retrieve

			Interoperability Test Description
Identifier:			TD_M2M_NH_32
Objec	tive:		AE retrieves group resource
Config	guration):	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.7.3
			oneM2M TS-0004 [2], clause 7.4.14.2.2
Pre-te	st cond	itions:	 AE has created a <group> resource on Registrar CSE</group>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a group Retrieve Request
2	Мса	PRO Check Primitive	 op = 2 (RETRIEVE) to = {CSEBaseName}/{group} fr = AE-ID rqi = (token-string)
3	Мса	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <group> resource</group>
4 IOP Check		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.1.9.2 Group Create

	Interoperability Test Description				
Identifier:			TD_M2M_NH_31		
Objectiv	ve:		AE creates a group resource		
Configu	uration:		M2M_CFG_01		
Referen	nces:		oneM2M TS-0001 [1], clause 10.2.7.2		
			oneM2M TS-0004 [2], clause 7.4.14.2.2		
Pre-test	t conditie	ons:	void		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a group Create Request		
			• op = 1 (Create)		
			 to = {CSEBaseName} 		
2		PRO Check	• fr = AE-ID		
2	Mca	Primitive	• rqi = (token-string)		
			• ty = 9 (group)		
			 pc = Serialized representation of <group> resource</group> 		
3		IOP Check	Check if possible that the <group> resource is created in Registrar CSE.</group>		

	Interoperability Test Description			
	Мса	PRO Check Primitive	• rsc = 2001 (CREATED)	
4			 rqi = (token-string) same as received in request message 	
			 pc = Serialized representation of <group> resource</group> 	
5		IOP Check	AE indicates successful operation	
IOP Verdict				
PRO Verdict				

8.1.9.3 Group Update

	Interoperability Test Description				
Identifier:			TD_M2M_NH_33		
Objec	tive:		AE updates attribute in group resource		
Config	guration):	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.7.4		
			oneM2M TS-0004 [2], clause 7.4.14.2.4		
Pre-te	st cond	itions:	 AE has created a <group> resource on Registrar CSE</group> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a group Update Request		
2	Mca	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{group} fr = AE-ID rqi = (token-string) pc = Serialized representation of <group> resource</group> 		
3		IOP Check	Check if possible that the <group> resource is updated in Registrar CSE</group>		
4	Мса	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = Serialized representation of <group> resource</group> 		
5 IOP 0		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.9.4 Group Delete

			Interoperability Test Description
Identifier:			TD_M2M_NH_34
Objec	tive:		AE deletes group resource
Config	guratior):	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.7.5
			oneM2M TS-0004 [2], clause 7.4.14.2.5
Pre-te	st cond	itions:	 AE has created a <group> resource on Registrar CSE</group>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a group Delete Request
			• op = 4 (DELETE)
		PRO Check	 to = {CSEBaseName}/{group}
2	Мса	Primitive	• fr = AE-ID
			• rqi = (token-string)
0		PRO Check	• rsc = 2002 (DELETED)
3	Мса	Primitive	 rqi = (token-string) same as received in request message
4		IOP Check	Check if possible that the <group> resource is deleted in Registrar CSE.</group>
5 IOP Check		IOP Check	AE indicates successful operation.
IOP Verdict			
PRO Verdict			

8.1.10 Node Management

8.1.10.1 Node Create

			Interoperability Test Description
Identifier:			TD_M2M_NH_35
Objectiv	ve:		AE creates a node resource
Configu	ration:		M2M_CFG_01
Referen	ces:		oneM2M TS-0001 [1], clause 10.2.14.1
			oneM2M TS-0004 [2], clause 7.3.18.2.1
Pre-test	condition	ons:	void
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a node Create Request
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName} fr = AE-ID rqi = (token-string) ty = 14 (node) pc = Serialized representation of <node> resource</node>
3		IOP Check	Check if possible that the <node> resource is created in Registrar CSE.</node>
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <node> resource</node>
5		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.1.10.2 Node Retrieve

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_36		
Objec	tive:		AE retrieves node resource		
Config	guration):	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.14.2		
			oneM2M TS-0004 [2], clause 7.3.18.2.2		
Pre-te	st cond	itions:	AE has created a <node> resource on Registrar CSE</node>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a node Retrieve Request		
2	Мса	PRO Check Primitive	 op = 2 (RETRIEVE) to = {CSEBaseName}/{node} fr = AE-ID rqi = (token-string) 		
3	Мса	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <node> resource</node> 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.10.3 Node Update

			Interoperability Test Description
Identifier:			TD_M2M_NH_37
Objec	tive:		AE updates attribute in node resource
Config	guration):	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.14.3
			oneM2M TS-0004 [2], clause 7.3.18.2.3
Pre-te	st cond	itions:	AE has created a <node> resource on Registrar CSE</node>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a node Update Request
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{node} fr = AE-ID rqi = (token-string) pc = Serialized representation of <node> resource</node>
3		IOP Check	Check if possible that the <node> resource is updated in Registrar CSE</node>
4	Мса	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = Serialized representation of <node> resource</node>
5		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.1.10.4 Node Delete

			Interoperability Test Description
Identifier:			TD_M2M_NH_38
Objec	tive:		AE deletes node resource
Config	guratior	1:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.14.4
			oneM2M TS-0004 [2], clause 7.3.18.2.4
Pre-te	st cond	itions:	 AE has created a <node> resource on Registrar CSE</node>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a node Delete Request
			• op = 4 (DELETE)
_		PRO Check	 to = {CSEBaseName}/{node}
2	Мса	Primitive	• fr = AE-ID
			• rqi = (token-string)
2		PRO Check	• rsc = 2002 (DELETED)
3	Мса	Primitive	 rqi = (token-string) same as received in request message
4		IOP Check	Check if possible that the <node> resource is deleted in Registrar CSE.</node>
5 IOP Che		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.1.11 PollingChannel Management

			Interoperability Test Description
Identifier:			TD_M2M_NH_39
Objec	tive:		AE creates a <pollingchannel> resource in registrar CSE via a Create Request</pollingchannel>
Config	guratior	า:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.13.2
			oneM2M TS-0004 [2], clause 7.3.21.2.1
Pre-te	st cond	litions:	AE has created an application resource <ae> on registrar CSE</ae>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE sends a request to create a < pollingChannel >
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/URI of <ae> resource</ae> fr = AE-ID rqi = (token-string) ty = 15 (pollingChannel) pc = Serialized representation of < pollingChannel > resource
3		IOP Check	Check if possible that the < pollingChannel > resource is created in registrar CSE.
4	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of < pollingChannel > resource
5		IOP Check	AE indicates successful operation
IOP Verdict			
PRO V	Verdict		

8.1.11.1 PollingChannel Create

8.1.11.2 PollingChannel Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_NH_40		
Objective:			AE retrieves information of a pollingChannel resource via a Retrieve Request		
Confi	guration	1:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.13.3		
			oneM2M TS-0004 [2], clause 7.3.21.2.2		
Pre-te	st cond	itions:	AE has created an Application Entity resource <ae> on Registrar CSE</ae>		
			 AE has created a container resource < pollingChannel > on Registrar CSE 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a < pollingChannel >		
		PRO Check ca Primitive	• op = 2 (Retrieve)		
			 to = {CSEBaseName}/URI of < pollingChannel > resource 		
2	Maa		• fr = AE-ID		
	ivica		 rqi = (token-string) 		
			• pc = empty		
			• rsc =2000 (OK)		
3	Maa	PRO Check	 rgi = (token-string) same as received in request message 		
	Mca	Primitive	 pc = Serialized representation of < pollingChannel > resource 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.11.3 pollingChannel Update

	Interoperability Test Description				
Identifier:			TD_M2M_NH_41		
Objective:			AE updates attribute in pollingChannel resource via a Update Request		
Config	guratior	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.13.4		
			oneM2M TS-0004 [2], clause 7.3.21.2.3		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a pollingChannel Update Request to update the lifetime of the		
'			resource.		
		PRO Check Primitive	 op = 3 (Update) to = (CSEBaseName)/UPL of < pollingChannel > recourse 		
2			• $to = \{collocient antegrate of < pointing of anter > resource$ • $fr = \Delta F_{-}ID$		
2	Mca		 rai – (token_string) 		
				 ng = (loken-string) ng = Serialized representation of undated < nollingChannel > resource 	
3		IOP Check	Check if possible that the < pollingChannel > resource is undated in Registrar CSE		
0			 rsc = 2004 (I Indated) 		
4		PRO Check	 rai – (token-string) same as received in request message 		
-	Mca	Primitive	 ng = (loken sting) same as received in request message ng = Serialized representation of < nolling/bannel > resource 		
5		IOP Check	ΔE indicates successful operation		
	/ordict				
	veruici				

8.1.11.4 pollingChannel Delete

	Interoperability Test Description				
Identifier:			TD_M2M_NH_42		
Objective:			AE deletes a pollingChannel resource via a Delete Request		
Config	guratior	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.13.5		
			oneM2M TS-0004 [2], clause 7.3.21.2.4		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a container resource <container> on Registrar CSE</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a subscription Delete Request		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of < pollingChannel > resource fr = AE-ID rqi = (token-string) pc = empty 		
3		IOP Check	Check if possible that the < pollingChannel > resource is deleted in registrar CSE.		
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
5		IOP Check	Check if possible that the < pollingChannel > resource has been removed in registrar CSE.		
6		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.11.5 Long Polling on a PollingChannel Retrieve

			Interoperability Test Description
Identi	fier:		TD_M2M_NH_43
Objective:			AE retrieves information of a pollingChannel resource via a Retrieve Request
Config	guratior	n:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.13.7
			oneM2M TS-0004 [2], clause 7.3.22.2.2
Pre-te	st cond	itions:	 A pollingChannel resource < pollingChannel > has been created in application
			<ae> on the Registrar CSE</ae>
			 A subscription to a <container> resource has been created using the</container>
			<pollingchannel> as a notificationURI in the subscription.</pollingchannel>
			 A single <contentinstance> resource is created in the subscribed to resource.</contentinstance>
-		r	Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a pollingChannelURI Retrieve Request for <pollingchanneluri></pollingchanneluri>
		PRO Check Primitive	Sent RETRIEVE request contains
2	Мса		 To: <csebase>/<ae>/<pollingchannel>/pollingChannelURI</pollingchannel></ae></csebase>
			• Fr. AE-ID
			Sent RETRIEVE response contains
			• To: AE-ID
3	Maa	PRO Check	• Fr. CSE-ID
	IVICa	Primitive	Response Statuse Code: OK
			Cn: pending Notification request
4		IOP Check	AE indicates successful operation
F			Repeat steps 1-2. There is no pending request. When the Request Expiration Timestamp
Э			expires Registrar sends response indicating "REQUEST_TIMEOUT"
			Sent RETRIEVE response contains
6		PRO Check	• To: AE-ID
	Mca	Primitive	• Fr. CSE-ID
			Response Statuse Code: REQUEST_TIMEOUT
IOP \	/erdict		
PRO	Verdict		

8.1.12 FanoutPoint Management

8.1.12.1 FanoutPoint Create

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_44		
Objec	tive:		AE creates a <contentinstance> resource in each group member</contentinstance>		
Config	guration	:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.7.6		
			oneM2M TS-0004 [2], clause 7.3.14.3.1		
Pre-te	st cond	itions:	 A group is created containing 2 members of type <container></container> 		
	-		Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Create Request to create <contentinstance> in each group</contentinstance>		
-			member		
			• op = 1 (Create)		
			 to = {CSEBaseName}/{group}/fopt 		
2	Check	PRO Check	• fr = AE-ID		
2	Mca	Primitive	 rqi = (token-string) 		
			• ty = 4 (contentInstance)		
			 pc = Serialized representation of <contentinstance> resource</contentinstance> 		
2		IOD Chook	Check if possible that the <contentinstance> resource is created in each member hosting</contentinstance>		
3		IOP Check	CSE		
	Chook	DBO Chook	 rsc = 2001 (CREATED) 		
4	Мса		 rqi = (token-string) same as received in request message 		
		Mca	Finnuve	 pc = aggregated response 	

	Interoperability Test Description				
5		IOP Check	AE indicates successful operation		
IOP Verdict		Verify that the a	ggregate response includes responses from each member of the group		
PRO	Verdict				

8.1.12.2 FanoutPoint Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_NH_45		
Objec	tive:		AE retrieves the <container> resource from in each group member</container>		
Config	guration):	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.7.8		
			oneM2M TS-0004 [2], clause 7.3.14.3.2		
Pre-te	st cond	itions:	 A group is created containing 2 members of type <container></container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request to the fanoutPoint of <group> resource</group>		
2	Check Mca	PRO Check Primitive	 op = 2 (Retrieve) to = {CSEBaseName}/{group}/fopt fr = AE-ID rqi = (token-string) 		
3		IOP Check			
4	Check Mca	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = aggregated response 		
5		IOP Check	AE indicates successful operation		
IOP Verdict Verify that		Verify that the ag	ggregate response includes responses from each member of the group		
PRO Verdict					

8.1.12.3 FanoutPoint Update

	Interoperability Test Description				
Identifier:			TD_M2M_NH_46		
Objec	tive:		AE updates an <container> resource of each member resource</container>		
Confi	guratio	า:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.7.9		
			oneM2M TS-0004 [2], clause 7.3.14.3.3		
Pre-te	est cond	litions:	A group is created containing 2 members of type <container></container>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Update Request to the fanoutPoint of <group> resource to</group>		
			lifetime of the resource.		
2	Check Mca	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{group}/fopt fr = AE-ID rqi = (token-string) pc = Serialized representation of <container> resource</container> 		
3		IOP Check	Check if possible that both of the <container> resources have been updated in registrar CSE.</container>		
4	Check Mca	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = aggregated response 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict	Verify that the a	ggregrate response includes responses from each member of the group		
PRO	Verdict				

8.1.12.4 FanoutPoint Delete

	Interoperability Test Description				
Identifier:			TD_M2M_NH_47		
Objectiv	ve:		AE deletes a <container> of each member</container>		
Configu	iration:		M2M_CFG_01		
Referen	ices:		oneM2M TS-0001 [1], clause 10.2.7.10		
			oneM2M TS-0004 [2], clause 7.3.14.3.4		
Pre-test	t conditi	ons:	 A group is created containing 2 members of type <container></container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Delete 'oldest' Request to the fanoutPoint of <group></group>		
I			resource		
			• op = 4 (Delete)		
2	Check	PRO Check	 to = {CSEBaseName}/{group}/fopt 		
2	Мса	Primitive	• fr = AE-ID		
			 rqi = (token-string) 		
			 rsc = 2002 (DELETED) 		
3	Спеск	PRO Check	 rqi = (token-string) same as received in request message 		
	IVICa	Finnuve	 pc = aggregated response 		
4		Vorifi	Check if possible that the oldest <contentinstance> resource has been removed in</contentinstance>		
4		veniy	registrar CSE.		
5		Verify	AE indicates successful operation		
IOP Verdict		Verify that the a	ggregrate response includes responses from each member of the group		
PRO Verdict					

8.1.13 Notification Management

8.1.13.1 Notification

	Interoperability Test Description				
Identifier:			TD_M2M_NH_48		
Objective:			AE receives a notification request from the HOST CSE		
Confi	guratior):	M2M_CFG_01		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.12		
			oneM2M TS-0004 [2], clause 7.4.1		
Pre-te	est cond	itions:	AE1 has created an application resource <ae> on registrar CSE</ae>		
			AE1 has created a container resource <container> on registrar CSE</container>		
			• AE1 has created a <subscription> as a child resource of a <container></container></subscription>		
			 AE2 has created an application resource <ae> on registrar CSE</ae> 		
			AE2 has permissions to UPDATE the container created by AE1		
			Test Seguence		
Step	RP	Туре	Description		
4		Stimulus	AE2 is requested to send a Update request to the <container> created by AE1. This</container>		
1			triggers or causes the HOST CSE to send a notification to AE1.		
		heck PRO Check Mca Primitive	• op = 5 (Notify)		
	0		 to = notificationURI of subscription resource 		
2	Спеск		 from = Registrar CSE-ID 		
	Ivica		• rqi = (token-string)		
			 pc = Serialized representation of Notification data object 		
3		IOP Check	Check if the notification representation		
			Sent response contains		
4	Спеск	PRO Check	• rsc = 2000 (OK)		
	Ivica	Primitive	 rgi = (token-string) same as received in request message 		
5		IOP Check	AE1 indicates notification received		
IOP \	/erdict				
PRO	Verdict				

8.1.14 FlexContainer Management

8.1.14.1 FlexContainer Create

	Interoperability Test Description				
Identifier:			TD_M2M_NH_52		
Objective:			AE creates a flexContainer resource in Registrar CSE via a flexContainer Create Request		
Config	guration	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.29.1, 9.6.1.2.2		
			oneM2M TS-0004 [2], clause 7.4.37.2.1		
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE sends a request to create a <flexcontainer></flexcontainer>		
		PRO Check Primitive	• op = 1 (Create)		
	Mca		 to = {CSEBaseName} 		
2			• fr = AE-ID		
2			 rqi = (token-string) 		
			• ty = 28 (flexContainer)		
				 pc = Serialized representation of <flexcontainer> resource</flexcontainer> 	
3		IOP Check	Check if possible that the <flexcontainer> resource is created in Registrar CSE.</flexcontainer>		
		BBO Chock	 rsc = 2001 (CREATED) 		
4	Mea	Primitivo	 rqi = (token-string) same as received in request message 		
	ivica	T TITILIVE	 pc = Serialized representation of <flexcontainer> resource</flexcontainer> 		
5		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO \	Verdict				

8.1.14.2 FlexContainer Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_NH_53		
Objective:			AE retrieves information of a flexContainer resource via a flexContainer Retrieve Request		
Config	guration	1:	M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clauses 10.2.29.2, 9.6.1.2.2		
			oneM2M TS-0004 [2], clause 7.4.37.2.2		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			 AE has created a flexContainer resource <flexcontainer> on Registrar CSE</flexcontainer> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a <flexcontainer></flexcontainer>		
		PRO Check Primitive	• op = 2 (Retrieve)		
	Maa		 to = {CSEBaseName}/URI of <flexcontainer> resource</flexcontainer> 		
2			• fr = AE-ID		
	IVICa		 rqi = (token-string) 		
			• pc = empty		
		DDO Chask	 rsc =2000 (OK) 		
3	Mee	PRO Check	 rqi = (token-string) same as received in request message 		
	IVICa	FIIIIIIVE	 pc = Serialized representation of <flexcontainer> resource</flexcontainer> 		
4		IOP Check	AE indicates successful operation		
IOP Verdict					
PRO Verdict					

8.1.14.3 FlexContainer Update

			Interoperability Test Description
Identi	fier:		TD_M2M_NH_54
Objec	tive:		AE updates attribute in application resource via a flexContainer Update Request
Config	guratior	n:	M2M_CFG_01
Refere	References:		oneM2M TS-0001 [1], clauses 10.2.29.3, 9.6.1.2.2
			oneM2M TS-0004 [2], clause 7.4.37.2.3
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae>
			 AE has created a flexContainer resource <flexcontainer> on Registrar CSE</flexcontainer>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a flexContainer Update Request to update the any
			customAttribute of the resource.
		PRO Check Mca Primitive	• op = 3 (Update)
			 to = {CSEBaseName}/URI of <flexcontainer> resource</flexcontainer>
2	Mca		• fr = AE-ID
	moa		• rqi = (token-string)
			 pc = Serialized representation of updated <flexcontainer> resource</flexcontainer>
3		IOP Check	Check if possible that the < flexContainer > resource is updated in Registrar CSE.
		PPO Chock	 rsc = 2004 (Updated)
4	Mca	Primitive	 rqi = (token-string) same as received in request message
	INICA	1 minuve	 pc = Serialized representation of <flexcontainer> resource</flexcontainer>
5		IOP Check	AE indicates successful operation
IOP \	/erdict		
PRO	Verdict		

8.1.14.4 FlexContainer Delete

			Interoperability Test Description
Identi	fier:		TD_M2M_NH_55
Objec	tive:		AE deletes a specific container resource via a container Delete Request
Configuration:):	M2M_CFG_01
References:			oneM2M TS-0001 [1], clauses 10.2.29.4, 9.6.1.2.2
			oneM2M TS-0004 [2], clause 7.4.37.2.4
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae>
			 AE has created a flexContainer resource <flexcontainer> on Registrar CSE</flexcontainer>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a flexContainer Delete Request
2	Mca	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <flexcontainer> resource</flexcontainer> fr = AE-ID rqi = (token-string) pc = empty
3		IOP Check	Check if possible that the <flexcontainer> resource is deleted in Registrar CSE.</flexcontainer>
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty
5		IOP Check	Check if possible that the <flexcontainer> resource has been removed in Registrar CSE.</flexcontainer>
6		IOP Check	AE indicates successful operation.
IOP \	/erdict		
PRO	Verdict		

8.1.14.5 Notification Create

			Interoperability Test Description
Identi	fier:		TD_M2M_NH_56
Objec	tive:		AE receives a notification request on flexContainer update from the HOST CSE
Configuration:		1:	M2M_CFG_01
References:			oneM2M TS-0001 [1], clauses 10.2.1.5, 9.6.1.2.2
			oneM2M TS-0004 [2], clause 7.4.1
Pre-test conditions:		itions:	 AE1 has created an application resource <ae> on Registrar CSE</ae> AE1 has created a flexContainer resource <flexcontainer> on Registrar CSE</flexcontainer> AE1 has created a <subscription> as a child resource of a <flexcontainer></flexcontainer></subscription> AE2 has created an application resource <ae> on Registrar CSE</ae> AE2 has permissions to UPDATE customAttributes of flexContainer
Step	RP	Type	Description
1		Stimulus	AE2 is requested to send a update request to <flexcontainer> for updating customAttribute. This triggers or causes the HOST CSE to send a notification to AE1.</flexcontainer>
2	Check Mca	PRO Check Primitive	 op = 5 (Notify) to = notificationURI of subscription resource from = Registrar CSE-ID rqi = (token-string) pc = Serialized representation of Notification data object
3		IOP Check	Check if the notification representation
4	Check Mca	PRO Check Primitive	Sent response contains rsc = 2000 (OK) rqi = (token-string) same as received in request message
5		IOP Check	AE1 indicates notification received
IOP \	/erdict		
PRO	Verdict		

8.1.14.6 Discovery with attribute filter criteria over customAttributes

			Interoperability Test Description	
Identi	fier:		TD_M2M_NH_57	
Objec	tive:		AE discovers accessible resources residing in Registrar CSE using attribute filter criteria which has a customAttribute name and value assigned to it.	
Confi	guratio	n:	M2M_CFG_01	
Refer	References:		oneM2M TS-0001 [1], clauses 10.2.6, 9.6.1.2.2 oneM2M TS-0004 [2], clause 7.3.3.14	
Pre-te	Pre-test conditions:		 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a flexContainer resource <flexcontainer> on Registrar CSE with customAttribute set to a specific value "x", created on Registrar CSE.</flexcontainer> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a Discovery request in order to discover the <container> resource using attribute filter criteria</container>	
2	Мса	PRO Check Primitive	Sent request contains • op = 2 (Retrieve) • to = {CSEBaseName} • fr = AE-ID • rqi = (token-string) • fu=1 • atr= <nm>,<val> • pc = empty</val></nm>	
3	Мса	PRO Check Primitive	 Registrar CSE sends response containing: rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of data object containing the address of the <flexcontainer> address</flexcontainer> 	
4		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	Verdict			

8.1.15 External Management Operations Management

8.1.15.1 mgmtCmd Create

			Interoperability Test Description
Identifie	er:		TD_M2M_NH_63
Objectiv	/e:		AE creates a mgmtCmd resource
Configuration:			M2M_CFG_01
References:			oneM2M TS-0001 [1], clause 10.2.9.2
			oneM2M TS-0004 [2], clause 7.4.16.2.1
Pre-test	conditio	ons:	 AE has created an application resource <ae> on Registrar CSE</ae>
			 AE has created a node resource <node> on Registrar CSE</node>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a mgmtCmd Create Request
			• op = 1 (Create)
			 to = {CSEBaseName}
2		PRO Check	• fr = AE-ID
2	Мса	Primitive	 rqi = (token-string)
			 ty = 12 (mgmtCmd)
			 pc = Serialized representation of <mgmtcmd> resource</mgmtcmd>
3		IOP Check	Check if possible that the <mgmtcmd> resource is created in Registrar CSE.</mgmtcmd>
		DDO Chask	 rsc = 2001 (CREATED)
4	Maa	PRO Check	 rqi = (token-string) same as received in request message
	ivica	Finnuve	 pc = Serialized representation of <mgmtcmd> resource</mgmtcmd>
5		IOP Check	AE indicates successful operation

	Interoperability Test Description
IOP Verdict	Set verdict to pass if IOP check goal is achieved exactly, otherwise verdict fail is set with corresponding
	lenor message.
PRO Verdict	

8.1.15.2 mgmtCmd Retrieve

			Interoperability Test Description	
Identi	fier:		TD_M2M_NH_64	
Objec	tive:		AE retrieves mgmtCmd resource	
Configuration:		1:	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.9.3	
			oneM2M TS-0004 [2], clause 7.4.16.2.2	
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae> 	
			 AE has created a node resource <node> on Registrar CSE</node> 	
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a mgmtCmd Retrieve Request	
			 op = 2 (RETRIEVE) 	
_		PRO Check	 to = {CSEBaseName}/{mgmtCmd} 	
2	Mca	Primitive	• fr = AE-ID	
			• rqi = (token-string)	
		DPO Chook	• rsc = 2000 (OK)	
3	Mca	PRO Check	 rqi = (token-string) same as received in request message 	
	Ivica	1 minuve	 pc = Serialized representation of <mgmtcmd> resource</mgmtcmd> 	
4		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	/erdict			

8.1.15.3 mgmtCmd Update (Normal)

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_65		
Objec	tive:		AE updates attribute (not with 'true' in execEnable attribute) in mgmtCmd resource		
Configuration:		n:	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.9.4		
			oneM2M TS-0004 [2], clause 7.4.16.2.3.1		
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae> 		
			 AE has created a node resource <node> on Registrar CSE</node> 		
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a mgmtCmd Update Request		
			• op = 3 (Update)		
		PRO Check	 to = {CSEBaseName}/{mgmtCmd} 		
2	Maa		• fr = AE-ID		
	IVICa	Primitive	 rqi = (token-string) 		
			 pc = Serialized representation of <mgmtcmd> resource</mgmtcmd> 		
3		IOP Check	Check if possible that the <mgmtcmd> resource is updated in Registrar CSE.</mgmtcmd>		
		DDO Chask	• rsc = 2004 (UPDATED)		
4	Maa	PRO Check	 rqi = (token-string) same as received in request message 		
	IVICa	Primitive	 pc = Serialized representation of <mgmtcmd> resource</mgmtcmd> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	/erdict				

8.1.15.4 mgmtCmd Update (Execute)

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_66		
Objec	tive:		AE updates attribute (with 'true' in execEnable attribute) in mgmtCmd resource		
Config	guratior	ו:	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.9.6		
			oneM2M TS-0004 [2], clause 7.4.16.2.3.2		
Pre-te	st cond	litions:	 AE has created an application resource <ae> on Registrar CSE</ae> 		
			 AE has created a node resource <node> on Registrar CSE</node> 		
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a mgmtCmd Update Request		
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{mgmtCmd} fr = AE-ID rqi = (token-string) pc = Serialized representation of <mgmtcmd> resource</mgmtcmd> 		
3		IOP Check	Check if possible that the <mgmtcmd> resource is updated in Registrar CSE.</mgmtcmd>		
4	Мса	PRO Check Primitive	 rsc = 2004 (UPDATED) rqi = (token-string) same as received in request message pc = Serialized representation of <mgmtcmd> resource</mgmtcmd> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.1.15.5 mgmtCmd Delete

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_67		
Objec	tive:		AE deletes mgmtCmd resource		
Configuration:):	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.9.5		
			oneM2M TS-0004 [2], clause 7.4.16.2.4		
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae> 		
			 AE has created a node resource <node> on Registrar CSE</node> 		
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a mgmtCmd Delete Request		
			• op = 4 (DELETE)		
		PRO Check	 to = {CSEBaseName}/{mgmtCmd} 		
2	Mca	Primitive	• fr = AE-ID		
			• rqi = (token-string)		
0		PRO Check	• rsc = 2002 (DELETED)		
3	Mca	Primitive	 rqi = (token-string) same as received in request message 		
4		IOP Check	Check if possible that the <mgmtcmd> resource is deleted in Registrar CSE.</mgmtcmd>		
5		IOP Check	AE indicates successful operation		
IOP V	/erdict				
PRO \	/erdict				

8.1.15.6 execlnstance Retrieve

			Interoperability Test Description		
Identi	fier:		TD_M2M_NH_68		
Objec	tive:		AE retrieves execInstance resource		
Configuration:		1:	M2M_CFG_01		
References:			oneM2M TS-0001 [1], clause 10.2.9.8		
			oneM2M TS-0004 [2], clause 7.4.17.2.2		
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae> 		
			 AE has created a node resource <node> on Registrar CSE</node> 		
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 		
			 AE has executed the mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd> 		
			(update execEnable attribute with 'true')		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a execInstance Retrieve Request		
			 op = 2 (RETRIEVE) 		
		PRO Check	 to = {CSEBaseName}/{mgmtCmd}/{execInstance} 		
2	Мса	Primitive	• fr = AE-ID		
			• rqi = (token-string)		
			• rsc = 2000 (OK)		
3		PRO Check	 rgi = (token-string) same as received in request message 		
Ŭ	Мса	Primitive	 nc = Serialized representation of <execlostance> resource</execlostance> 		
4		IOP Check	AE indicates successful operation		
IOP V	/erdict	. S. C.CON			
PRO	/erdict				

8.1.15.7 execInstance Update (Cancel)

			Interoperability Test Description
Identi	fier:		TD_M2M_NH_69
Objec	tive:		AE updates attribute 'execDisable' to true in execInstance resource to cancel pending
-			management command.
Configuration:		ו:	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.9.7
			oneM2M TS-0004 [2], clause 7.4.17.2.1
Pre-te	st cond	litions:	 AE has created an application resource <ae> on Registrar CSE</ae>
			 AE has created a node resource <node> on Registrar CSE</node>
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd>
			 AE has executed the mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd>
			(update execEnable attribute with 'true')
			Test Sequence
Step	RP	Туре	Description
Step 1	RP	Type Stimulus	Description AE is requested to send a execInstance Update Request
Step 1	RP	Type Stimulus	Description AE is requested to send a execlnstance Update Request • op = 3 (Update)
Step 1	RP	Type Stimulus	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne}
Step 1 2	RP	Type Stimulus PRO Check	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID
Step 1 2	RP Mca	Type Stimulus PRO Check Primitive	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string)
Step 1 2	RP Mca	Type Stimulus PRO Check Primitive	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execinstance> resource</execinstance>
Step 1 2 3	RP Mca	Type Stimulus PRO Check Primitive IOP Check	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execinstance> resource Check if possible that the <execinstance> resource is updated in Registrar CSE.</execinstance></execinstance>
Step 1 2 3	RP Mca	Type Stimulus PRO Check Primitive IOP Check	Description AE is requested to send a execlustance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execinstance> resource Check if possible that the <execinstance> resource is updated in Registrar CSE. • rsc = 2004 (UPDATED)</execinstance></execinstance>
Step 1 2 3 4	RP Mca	Type Stimulus PRO Check Primitive IOP Check PRO Check	Description AE is requested to send a execInstance Update Request op = 3 (Update) to = {CSEBaseName}/{mgmtCmd}/{execInstacne} fr = AE-ID rqi = (token-string) pc = Serialized representation of <execinstance> resource Check if possible that the <execinstance> resource is updated in Registrar CSE. rgi = (token-string) same as received in request message</execinstance></execinstance>
Step 1 2 3 4 4	RP Mca Mca	Type Stimulus PRO Check Primitive IOP Check PRO Check Primitive	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execinstance> resource Check if possible that the <execinstance> resource is updated in Registrar CSE. • rsc = 2004 (UPDATED) • rqi = (token-string) same as received in request message • pc = Serialized representation of <execinstance> resource</execinstance></execinstance></execinstance>
Step 1 2 3 4 5	RP Mca Mca	Type Stimulus PRO Check Primitive IOP Check Primitive IOP Check	Description AE is requested to send a execInstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execInstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execinstance> resource Check if possible that the <execinstance> resource is updated in Registrar CSE. • rsc = 2004 (UPDATED) • rqi = (token-string) same as received in request message • pc = Serialized representation of <execinstance> resource</execinstance></execinstance></execinstance>
Step 1 2 3 4 5 IOP \ 1	RP Mca Mca	Type Stimulus PRO Check Primitive IOP Check PRO Check Primitive IOP Check	Description AE is requested to send a execlnstance Update Request • op = 3 (Update) • to = {CSEBaseName}/{mgmtCmd}/{execlnstacne} • fr = AE-ID • rqi = (token-string) • pc = Serialized representation of <execlnstance> resource Check if possible that the <execlnstance> resource is updated in Registrar CSE. • rsc = 2004 (UPDATED) • rqi = (token-string) same as received in request message • pc = Serialized representation of <execlnstance> resource</execlnstance></execlnstance></execlnstance>

8.1.15.8 execlnstance Delete

			Interoperability Test Description
Identifier:			TD_M2M_NH_70
Objec	tive:		AE deletes execInstance resource
Config	guration):	M2M_CFG_01
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.9.9
			oneM2M TS-0004 [2], clause 7.4.17.2.3
Pre-te	st cond	itions:	 AE has created an application resource <ae> on Registrar CSE</ae>
			 AE has created a node resource <node> on Registrar CSE</node>
			 AE has created a mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd>
			 AE has executed the mgmtCmd resource <mgmtcmd> on Registrar CSE</mgmtcmd>
			(update execEnable attribute with 'true')
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a execInstance Delete Request
			• op = 4 (DELETE)
		PRO Check	 to = {CSEBaseName}/{mgmtCmd}/{execInstacne}
2	Мса	Primitive	• fr = AE-ID
			• rqi = (token-string)
		PRO Check	• rsc = 2002 (DELETED)
3	Мса	Primitive	 rgi = (token-string) same as received in request message
4		IOP Check	Check if possible that the <execinstance> resource is deleted in Registrar CSE.</execinstance>
5 IOP Check		IOP Check	AE indicates successful operation
IOP Verdict			· ·
IOP V	eruici		

8.1.16 SemanticDescriptor Management

8.1.16.1 SemanticDescriptor Create

Interoperability Test Description					
Identi	fier:		TD_M2M_NH_75		
Objec	tive:		AE creates a SemanticDescriptor resource in Registrar CSE via a SemanticDescriptor		
-			Create Request		
Confi	guratior	ו:	M2M CFG 01		
Refer	ences:		oneM2M TS-0034 [13], clause 6.1.2		
			oneM2M TS-0004 [2], clause 7.4.34.2.1		
			· · · ·		
Pre-te	st cond	litions:	AE has created an application resource <ae> on Registrar CSE</ae>		
			AE has created a container resource <container> on Registrar CSE</container>		
-			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE sends a request to create a <semanticdescriptor></semanticdescriptor>		
			• op = 1 (Create)		
			 to = {CSEBaseName}/URI of < container > resource 		
		PRO Check	• fr = AE-ID		
2	Мса	Primitive	• rai = (token-string)		
			• $ty = 24$ (semanticDescriptor)		
			 pc = Serialized representation of <semanticdescriptor> resource</semanticdescriptor> 		
3		IOP Check	Check if possible that the <semanticdescriptor> resource is created in Registrar CSE.</semanticdescriptor>		
			• rsc = 2001 (CREATED)		
4		PRO Check	 rgi = (token-string) same as received in request message 		
	Мса	Primitive	 pc = Serialized representation of <semanticdescriptor> resource</semanticdescriptor> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO Verdict					

8.1.16.2 SemanticDescriptor Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_NH_76		
Objective:			AE retrieves information of a semanticDescriptor resource via a semanticDescriptor Retrieve Request		
Confi	guratior	ו:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0034 [13], clause 6.1.3 oneM2M TS-0004 [2], clause 7.4.34.2.2		
Pre-test conditions:			 AE has created an Application Entity resource <ae> on Registrar CSE</ae> AE has created a semanticDescriptor resource <semanticdescriptor> as child resource of <ae> resource</ae></semanticdescriptor> 		
			Test Seguence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request for a <semanticdescriptor></semanticdescriptor>		
2	Мса	PRO Check Primitive	 op = 2 (Retrieve) to = {CSEBaseName}/URI of <semanticdescriptor> resource</semanticdescriptor> fr = AE-ID rqi = (token-string) pc = empty 		
3	Мса	PRO Check Primitive	 rsc =2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <semanticdescriptor> resource</semanticdescriptor> 		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO Verdict					

8.1.16.3 SemanticDescriptor Update

	Interoperability Test Description				
Identi	fier:		TD_M2M_NH_77		
Objective:			AE updates attribute in <semanticdescriptor> resource via a semanticDescriptor Update</semanticdescriptor>		
-			Request		
Confi	guratio	า:	M2M_CFG_01		
Refer	ences:		oneM2M TS-0034 [13], clause 6.1.4		
			oneM2M TS-0004 [2], clause 7.4.34.2.3		
Pre-te	st conc	litions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			AE has created a semanticDescriptor resource <semanticdescriptor> as child</semanticdescriptor>		
			resource of <ae> resource</ae>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a semanticDescriptor Update Request to update the descriptor		
1			attribute of the resource.		
	Mag	PRO Check Ica Primitive	• op = 3 (Update)		
			 to = {CSEBaseName}/URI of <semanticdescriptor> resource</semanticdescriptor> 		
2			• fr = AE-ID		
	IVICa		• rqi = (token-string)		
			 pc = Serialized representation of updated <semanticdescriptor> resource</semanticdescriptor> 		
3		IOP Check	Check if possible that the <semanticdescriptor> resource is updated in Registrar CSE.</semanticdescriptor>		
		DDO Chaok	 rsc = 2004 (Updated) 		
4	Maa	PRO Check	 rqi = (token-string) same as received in request message 		
	ivica	Finnuve	 pc = Serialized representation of <semanticdescriptor> resource</semanticdescriptor> 		
5		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO '	Verdict				

8.1.16.4 SemanticDescriptor Delete

	Interoperability Test Description				
Identifier:			TD_M2M_NH_78		
Objective:			AE deletes SemanticDescriptor resource via a SemanticDescriptor Delete Request		
Config	guration):	M2M_CFG_01		
Refer	ences:		oneM2M TS-0034 [13], clause 6.1.5		
			oneM2M TS-0004 [2], clause 7.4.34.2.4		
Pre-te	st cond	itions:	 AE has created an Application Entity resource <ae> on Registrar CSE</ae> 		
			AE has created a semanticDescriptor resource <semanticdescriptor> as child of</semanticdescriptor>		
			<ae> resource</ae>		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a semanticDescriptor Delete Request		
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = {CSEBaseName}/URI of <semanticdescriptor> resource</semanticdescriptor> fr = AE-ID rqi = (token-string) pc = empty 		
3		IOP Check	Check if possible that the <semanticdescriptor> resource is deleted in Registrar CSE.</semanticdescriptor>		
4	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message pc = empty 		
5		IOP Check	Check if possible that the <semanticdescriptor> resource has been removed in Registrar CSE.</semanticdescriptor>		
6		IOP Check	AE indicates successful operation.		
IOP \	/erdict				
PRO Verdict					

8.1.17 Semantic Resource Discovery

8.1.17.1 Discovery with semanticFilter filter criteria

	Interoperability Test Description				
Identifier:			TD_M2M_NH_79		
Objective:			AE discovers accessible resources residing in Registrar CSE using the semanticFilter		
Confi	auration				
Conn	guration	1.			
Refer	ences:		onem2/MTS-0034 [13], clause 7.4		
			onemzin 15-0004 [z], clause 7.3.3.18		
Pre-test conditions:			 AE1 has created an application resource <ae> on Registrar CSE</ae> AE1 has created a container resource <container> on Registrar CSE</container> AE1 has created a <semanticdescriptor> as a child resource of a <container></container></semanticdescriptor> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a Discovery request to discover the <container> resource using the semanticFilter filterCriteria</container>		
2	Check Mca	PRO Check Primitive	Sent request contains • op = 2 (Retrieve) • to = {CSEBaseName} • from = AE-ID • rqi = (token-string) • fu=1 • smf=sparqlQuery1 • pc = empty		
3	Check Mca	PRO Check Primitive	Sent response contains • rsc = 2000 (OK) • rqi = (token-string) same as received in request message • pc = Serialized representation of data object containing the <container> address</container>		
4	1	IOP Check	AE'I INDICATES NOTIFICATION FECEIVED		

Interoperability Test Description				
IOP Verdict				
PRO Verdict				

Non-blocking configuration testing 8.2

Synchronous request 8.2.1

8.2.1.1 Container management

8.2.1.1.1 **Container Create**

Interoperability Test Description		
Identifier:	TD_M2M_NB_01	
Objective:	AE creates a <container> resource using non-blocking synchronous request in registrar CSE.</container>	
Configuration:	M2M_CFG_01	
References:	oneM2M TS-0001 [1], clause 10.2.4.1 oneM2M TS-0004 [2], clause 7.3.6.2.1	

Pre-te	Pre-test conditions:				
	Test Sequence				
Step	RP	Type	Description		
1		Stimulus	AE is requested to send a non-blocking synchronous request to create a <container></container>		
-			resource in registrar CSE		
2	Мса	PRO Check Primitive	<pre>Sent request contains</pre>		
3	Mca	PRO Check Primitive	Registrar CSE creates an internal <request> resource and sends acknowledgement response containing: • rsc = 1000 (Accepted) • rqi = token-string) same as received in request message • pc = Reference to the created <request> resource</request></request>		
4		IOP Check	AE indicates successful operation		
5		Stimulus	AE is requested to wait then send a retrieve request to <request> reference</request>		
6	Mca	PRO Check Primitive	Sent Retrieve request contains • op = 2 (Retrieve) • to = <request> reference • fr = AE-ID • rqi = (token-string) • pc = empty</request>		
7	Mca	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = <request> resource with the parameter "requestStatus" set to 1 (COMPLETED) and the "operationResult" parameter containing the <container> resource.</container></request> 		
8		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.2.1.1.2 Container Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_NB_02		
Objective:			AE retrieves a <container> resource using non-blocking synchronous request from registrar CSE.</container>		
Config	guration):	MŽM_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1		
			oneM2M TS-0004 [2], clause 7.3.6.2.1		
Pre-te	st cond	itions:	 AE has created a <container> resource in registrar CSE.</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a non-blocking synchronous request to retrieve the <container> resource from registrar CSE.</container>		
2	Мса	PRO Check Primitive	<pre>Sent request contains op = 2 (Retrieve) to = {CSEBaseName}/URI of <container> resource fr= AE-ID rqi = (token-string) rt = 1 (non-blocking synchronous) pc = empty</container></pre>		
3	Mca	PRO Check Primitive	Registrar CSE creates an internal <request> resource and sends acknowledgement response containing: rsc = 1000 (Accepted) rqi = token-string) same as received in request message pc = Reference to the created <request> resource</request></request>		
4		IOP Check	AE indicates successful operation		
5		Stimulus	AE is requested to send a retrieve request to <request> reference</request>		
6	Mca	PRO Check Primitive	Sent Retrieve request contains • op = 2 (Retrieve) • to = <request> reference • fr = AE-ID • rqi = (token-string) • pc = empty</request>		
7	Mca	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = <request> resource with the parameter "requestStatus" set to 1 (COMPLETED) and the "operationResult" parameter containing the <container> resource.</container></request> 		
8		IOP Check	AE indicates successful operation		
IOP V	/erdict				
PRO \	/erdict				

8.2.1.1.3 Container Update

	Interoperability Test Description			
Identifier:			TD_M2M_NB_03	
Objective:			AE updates a <container> resource using non-blocking synchronous request in registrar CSE.</container>	
Confi	guratio	า:	M2M_CFG_01	
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.4.1	
			oneM2M TS-0004 [2], clause 7.3.6.2.1	
Pre-te	est conc	litions:	AE has created a <container> resource in registrar CSE.</container>	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a non-blocking synchronous request to update the <container></container>	
1			resource.	
2	Мса	PRO Check Primitive	Sent request contains • op = 3 (Update) • to = {CSEBaseName}/URI of <container> resource • fr= AE-ID • rqi = (token-string)</container>	

	Interoperability Test Description			
			 rt = 1 (non-blocking synchronous) 	
			 pc = Serialized Representation of the updated <container> resource</container> 	
3	Mca	PRO Check Primitive	Registrar CSE creates an internal <request> resource and sends acknowledgement response containing: • rsc = 1000 (Accepted) • rqi = token-string) same as received in request message • pc = Reference to the created <request> resource</request></request>	
4		IOP Check	AE indicates successful operation	
5		Stimulus	AE is requested to wait then send a retrieve request to <request> reference</request>	
6	Мса	PRO Check Primitive	Sent Retrieve request contains • op = 2 (Retrieve) • to = <request> reference • fr = AE-ID • rqi = (token-string) • pc = empty</request>	
7	Mca	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = <request> resource with the parameter "requestStatus" set to 1 (COMPLETED) and the "operationResult" parameter containing the <container> resource.</container></request> 	
8		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	/erdict			

8.2.1.1.4 Container Delete

	Interoperability Test Description			
Identifier:			TD_M2M_NB_04	
Objective:			AE deletes a Container resource using non-blocking synchronous request.	
Configuration:			M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1	
			oneM2M TS-0004 [2], clause 7.3.6.2.1	
Pre-te	st cond	itions:	 AE has created <container> resource on registrar CSE.</container> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a non-blocking synchronous request to delete the <container></container>	
•			resource.	
			Sent request contains	
			• op = 4 (Delete)	
		DPO Chack	 to = {CSEBaseName}/URI of <container> resource</container> 	
2	Mca	PRO Check	• fr= AE-ID	
		Pliniuve	 rqi = (token-string) 	
			 rt = 1 (non-blocking synchronous) 	
			• pc = empty	
			Registrar CSE creates an internal <request> resource and sends acknowledgement</request>	
		DDO Chask	response containing:	
3	Mca	PRO Check	 rsc = 1000 (Accepted) 	
		Primitive	 rqi = token-string) same as received in request message 	
			 pc = Reference to the created <request> resource</request> 	
4		IOP Check	AE indicates successful operation	
5		Stimulus	AE is requested to send a retrieve request to <request> reference</request>	
			Sent Retrieve request contains	
			• op = 2 (Retrieve)	
6	Maa	PRO Check	 to = <request> reference</request> 	
0	IVICa	Primitive	• fr = AE-ID	
			 rqi = (token-string) 	
			• pc = empty	
			• rsc = 2000 (OK)	
7	Maa	PRO Check	 rqi = (token-string) same as received in request message 	
'	ivica	a Primitive	 pc = <request> resource with the parameter "requestStatus" set to 1</request> 	
			(COMPLETED)	
8		IOP Check	AE indicates successful operation	

Interoperability Test Description			
IOP Verdict			
PRO Verdict			

8.2.2 Asynchronous request

8.2.2.1 Container management

8.2.2.1.1 Container Create

	Interoperability Test Description			
Identifier:			TD_M2M_NB_05	
Objec	tive:		AE creates a <container> resource using non-blocking asynchronous request</container>	
Configuration:			M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1	
			oneM2M TS-0004 [2], clause 7.3.6.2.1	
Pre-te	st cond	itions:	AE is reachable on the URI: "AE-Notification-URI"	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a non-blocking asynchronous request to create the <container> resource in registrar CSE.</container>	
			Sent request contains	
			• op = 1 (Create)	
			 to = {CSEBaseName} 	
			• fr= AE-ID	
		PRO Check	 rqi = (token-string) 	
2	Мса	Primitive	 rt = 2 (non-blocking asynchronous) 	
			• ty = 3 (container)	
			nu= AE-Notification-URI	
			oneM2M-RQI: Request-ID	
			 pc = Serialized Representation of the <container> resource</container> 	
	Мса		Registrar CSE creates an internal <reguest> resource and sends acknowledgement</reguest>	
			response containing:	
3		PRO Check	 rsc = 1000 (Accepted) 	
		Primitive	 rgi = token-string) same as received in request message 	
			 pc = Reference to the created <request> resource</request> 	
4		IOP Check	AE indicates successful operation	
5		IOP Check Registrar CSE sends notify request to AE		
			Sent request contains	
			• op = 5 (Notify)	
e		PRO Check	 to = AE-Notification-URI 	
0	Mca	Primitive	• fr = registrar CSE-ID	
			• rqi = (token-string)	
			 pc = Serialized representation of notification data object 	
		BBO Chock	AE sends notify response to Registrar CSE containing:	
7	Мса	Primitive	• rsc = 2000 (OK)	
		a Primitive	 rqi = (token-string) same as received in request message 	
8		IOP Check	Registrar CSE indicates successful operation	
IOP \	/erdict			
PRO	/erdict			

8.2.2.1.2 Container Retrieve

	Interoperability Test Description			
Identifier:			TD_M2M_NB_06	
Objec	tive:		AE retrieves a <container> resource using non-blocking asynchronous request</container>	
Config	guration	:	M2M_CFG_01	
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1	
			oneM2M TS-0004 [2], clause 7.3.6.2.1	
Pre-te	st cond	itions:	 AE has created a <container> resource on registrar CSE.</container> 	
			 AE is reachable on the URI: "AE-Notification-URI" 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a non-blocking asynchronous request to retrieve the <container></container>	
			resource from registrar CSE	
			Sent request contains	
			• op = 2 (Retrieve)	
			 to = {CSEBaseName}/URI of <container> resource</container> 	
2		PRO Check Primitive	• fr = AE-ID	
2	Mca		 rqi = (token-string) 	
			 rt = 2 (non-blocking asynchronous) 	
			 nu = AE-Notification-URI 	
			• pc = empty	
			Registrar CSE creates an internal <request> resource and sends acknowledgement</request>	
			response containing:	
	Maa	PRO Check	 rsc = 1000 (Accepted) 	
	ivica	Primitive	 rgi = token-string) same as received in request message 	
			 pc = Reference to the created <request> resource</request> 	
4 IOP Check AE indicates successful operation		AE indicates successful operation		
5 IOP Check Registrar CSE sends notify request to AE		Registrar CSE sends notify request to AE		
			Sent request contains	
			• op = 5 (Notify)	
6		PRO Check	 to = AE-Notification-URI 	
0	Mca	Primitive	 fr = registrar CSE-ID 	
			 rqi = (token-string) 	
			 pc = Serialized representation of notification data object 	
		DDO Chaak	AE sends notify response to Registrar CSE containing:	
7	Maa	PRO Check	• rsc = 2000 (OK)	
	ivica	Filmuve	 rqi = (token-string) same as received in request message 	
8		IOP Check	Registrar CSE indicates successful operation	
IOP V	/erdict			
PRO Verdict				

8.2.2.1.3 Container Update

			Interoperability Test Description		
Identifier:			TD_M2M_NB_07		
Objective:			AE updates a <container> resource using non-blocking asynchronous request</container>		
Configuration:			M2M CFG 01		
References:			oneM2M TS-0001 [1], clause 10.2.4.1		
			oneM2M TS-0004 [2], clause 7.3.6.2.1		
-					
Pre-test conditions:			AE has created a Container resource <container> on registrar CSE</container>		
			AE is reachable on the URI: "AE-Notification-URI"		
	Test Sequence				
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a non-blocking asynchronous request to update the <container></container>		
I			resource in registrar CSE.		
			Sent request contains		
			• op = 3 (Update)		
~		PRO Check	 to = {CSEBaseName}/URI of <container> resource</container> 		
2	Мса	Primitive	• fr = AE-ID		
			• rai = (token-string)		
			 rt = 2 (non-blocking asynchronous) 		

			Interoperability Test Description		
			nu = AE-Notification-URI		
			 pc = Serialized Representation of the updated <container> resource</container> 		
3	Мса	PRO Check Primitive	Registrar CSE creates an internal <request> resource and sends acknowledgement response containing: • rsc = 1000 (Accepted) • rqi = token-string) same as received in request message • pc = Reference to the created <request> resource</request></request>		
4		IOP Check	AE indicates successful operation		
5		IOP Check	Registrar CSE sends notify request to AE		
6	Мса	PRO Check Primitive	Sent request contains • op = 5 (Notify) • to = AE-Notification-URI • fr = registrar CSE-ID • rqi = (token-string) • pc = Serialized representation of notification data object		
7	Мса	PRO Check Primitive	Check nitive AE sends notify response to Registrar CSE containing: • rsc = 2000 (OK) • rqi = (token-string) same as received in request message		
8		IOP Check	Registrar CSE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.2.2.1.4 Container Delete

	Interoperability Test Description				
Identifier:			TD_M2M_NB_08		
Objective:			AE deletes a Container resource using non-blocking asynchronous request		
Configuration:			M2M_CFG_01		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.4.1		
			oneM2M TS-0004 [2], clause 7.3.6.2.1		
Pre-te	st cond	itions:	AE has created a <container> resource on registrar CSE</container>		
			AE is reachable on the URI: "AE-Notification-URI"		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a non-blocking asynchronous request to delete the <container> resource in registrar CSE.</container>		
			Sent request contains		
			• $op = 4$ (Delete)		
			 to = {CSEBaseName}/URI of <container> resource</container> 		
•		PRO Check Primitive	• fr = AE-ID		
2	Mca		• rqi = (token-string)		
			 rt = 2 (non-blocking asynchronous) 		
			• nu = AE-Notification-URI		
			• pc = empty		
			Registrar CSE creates an internal <request> resource and sends acknowledgement</request>		
		DDO Chask	response containing:		
3	Mea	Ica PRO Check	• rsc = 1000 (Accepted)		
	MCa		 rqi = token-string) same as received in request message 		
			 pc = Reference to the created <request> resource</request> 		
4		IOP Check	AE indicates successful operation		
5		IOP Check	Registrar CSE sends notify request to AE		
			Sent request contains		
			• $op = 5$ (Notify)		
6		PRO Check	 to = AE-Notification-URI 		
Ŭ	Mca	Primitive	• fr = registrar CSE-ID		
			• rqi = (token-string)		
			 pc = Serialized representation of notification data object 		
		PRO Check	AE sends notify response to Registrar CSE containing:		
7	Mca	Primitive	• rsc = 2000 (OK)		
	ivica		rqi = (token-string) same as received in request message		
8	8 IOP Check Registrar CSE indicates successful operation				

Interoperability Test Description				
IOP Verdict				
PRO Verdict				

8.3 Single hop configuration testing

8.3.1 Retargeting

8.3.1.1 RetargetingResource Create (Generic Test Description)

	Interoperability Test Description				
Identifier:			TD_M2M_SH_01		
Objective:			AE creates a remote <resource> resource</resource>		
Configuration:			M2M_CFG_03		
Refere	ences:				
Pre-test conditions			 Parents resources need to be created on the hosting CSE 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Create Request to create <resource> on the Hosting CSE.</resource>		
			• op = 1 (Create)		
			 to = URI of the parent resource 		
2		PRO Check	• fr = AE-ID		
2	Mca	Primitive	 rqi = (token-string) 		
			 ty = <resource> type number</resource> 		
			 pc = Serialized representation of <resource> resource</resource> 		
3		IOP Check	heck if possible that the request is forwarded by the registrar CSE to the Hosting CSE.		
4 Mcc PRO Check Primitive Primitive • op = 1 (Create) • to = URI of the parent resource • fr = AE-ID • ty = m2m:resourceType • ty = m2m:resourceType		 op = 1 (Create) to = URI of the parent resource fr = AE-ID rqi = (token-string) ty = m2m:resourceType pc = Serialized representation of <resource> resource</resource> 			
5 IOP Check Check if possible that the <resource> resource is created in the</resource>		Check if possible that the <resource> resource is created in the Hosting CSE.</resource>			
6	Мсс	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 		
7		IOP Check	Check if possible that the response is forwarded by the registrar CSE to the AE.		
8 Mca		PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 		
9		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	Verdict				

8.3.1.2 <Resource> Create

<resource></resource>	Identifier	Refs	IOP Verdict	PRO Verdict
<container></container>	TD_M2M_SH_01#01	oneM2M TS-		
		0001 [1], clause		
		10.2.4.1		
		oneM2M TS-		
		0004 [2], clause		
		7.3.5.2.1		
<contentinstance></contentinstance>	TD M2M SH 01#02	oneM2M TS-		
		0001 [1], clause		
		10.2.19.2		
		oneM2M TS-		
		0004 [2], clause		
		7372		
<subscription></subscription>	TD M2M SH 01#03	oneM2M TS-		
Concernations		0001 [1] clause		
		10 2 11 2		
		oneM2M TS-		
		7372		
		7.3.7.2 opoM2M TS		
<accesscontrolfolicy></accesscontrolfolicy>	10_1012101_311_01#04			
		10 2 21 1		
		10.2.21.1		
		0004 [2], clause		
	TD M2M SH 01#05	7.3.1.2		
		00.2.7.2 000M2M TS-		
		7 3 12 2 1		
<pre>cnollingChannel></pre>	TD M2M SH 01#06	000M2M TS-		
	10_102101_01#00			
		10 2 12 2		
		10.2.13.2 opoM2M TS		
		0004 [2], clause		
for OutDaint		7.3.21.2.1		
<tanoutpoint></tanoutpoint>	TD_M2M_SH_01#07			
		0001 [1], clause		
		10.2.7.6		
		oneivizivi 15-		
		0004 [2], clause		
		7.3.14.3.1		
<node></node>	1D_M2M_SH_01#08	oneM2M TS-		
		0001 [1], clause		
		10.2.14.1		
		oneM2M TS-		
		0004 [2], clause		
		7.3.18.2.1		

8.3.1.3 Resource Retrieve (Generic Test Description)

	Interoperability Test Description				
Identifier:			TD_M2M_SH_02		
Objec	tive:		AE retrieves a remote <resource> resource</resource>		
Config	guratior	1:	M2M_CFG_03		
Refere	References:				
Pre-te	st cond	itions:	 Parents resources need to be created on the hosting CSE 		
			 Resource <resource> has been created in Hosting CSE</resource> 		
	Test Sequence				
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send a Retrieve Request to retrieve <resource> on the remote</resource>		

	Interoperability Test Description				
	Hosting CSE.				
2	Мса	 PRO Check Primitive op = 2 (Retrieve) to = URI of the <resource> resource U</resource> fr = AE-ID rqi = (token-string) 			
3		IOP Check	Check if possible that the request is forwarded by the registrar CSE to the Hosting CSE.		
4	Мсс	PRO Check Primitive	 op = 2 (Retrieve) to URI of the <resource> resource</resource> fr = AE-ID rqi = (token-string) 		
5	Мсс	PRO Check Primitive	 PRO Check Primitive rgi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 		
6		IOP Check	Check if possible that the response is forwarded by the registrar CSE to the AE.		
7	Мса	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 		
8 IOP Check AE indicates successful operation		AE indicates successful operation			
IOP \	/erdict				
PRO	Verdict				

8.3.1.4 <Resource> retrieve

<resource></resource>	Identifier	Refs	IOP Verdict	PRO Verdict
<container></container>	TD_M2M_SH_02#01	oneM2M TS-		
		0001 [1], clause		
		10.2.4.2		
		oneM2M TS-		
		0004 [2], clause		
		7.3.5.2.2		
<contentinstance></contentinstance>	TD_M2M_SH_02#02	oneM2M TS-		
		0001 [1], clause		
		10.2.19.3		
		oneM2M IS-		
		0004 [2], clause		
	TO MOM OIL 00/00	7.3.6.2.2		
<subscription></subscription>	TD_M2M_SH_02#03	oneM2M IS-		
		0001 [1], clause		
		10.2.11.3		
		7 3 7 2		
		0.0.1.2		
	10_10210_01_02#04	0001 [1] clause		
		10 2 21 2		
		oneM2M TS-		
		0004 [2]. clause		
		7.3.1.2		
<group></group>	TD M2M SH 02#05	oneM2M TS-		
5		0001 [1], clause		
		10.2.7.3		
		oneM2M TS-		
		0004 [2], clause		
		7.3.12.2.2		
<pollingchannel></pollingchannel>	TD_M2M_SH_02#06	oneM2M TS-		
		0001 [1], clause		
		10.2.13.3		
		oneM2M TS-		
		0004 [2], clause		
		7.3.21.2.2		
<fanoutpoint></fanoutpoint>	TD_M2M_SH_02#07	oneM2M TS-		
		0001 [1], clause		
		10.2.7.8		
		0004 [2], clause		
<pre>cpode></pre>	TD M2M SH 02#08	0.014.3.2		
	10_102101_02#00	0001 [1] clause		
		10 2 14 2		
		oneM2M TS-		
		0004 [2], clause		
		7.3.18.2.2		
<remotecse></remotecse>	TD_M2M_SH 02#09	oneM2M TS-		1
		0001 [1], clause		
		10.2.2.3		
		oneM2M TS-		
		0004 [2], clause		
		7.3.3.2.3		
<ae></ae>	TD_M2M_SH_02#10	oneM2M TS-		
		0001 [1], clause		
		10.2.1.2		
		oneM2M TS-		
		0004 [2], clause		
0055		7.3.5.2.2		
<csebase></csebase>	ID_M2M_SH_02#11	ONEM2M IS-		
		0001 [1], clause		
		10.2.3.2		
		0004 [2], clause		

7.3.2	

8.3.1.5 Resource Update (Generic Test Description)

Interoperability Test Description						
Identifier:			TD_M2M_SH_03			
Objective:			AE updates a remote <resource> resource</resource>			
Configuration:			M2M_CFG_03			
Refere	ences:					
Pre-test conditions:		itions:	 Parents resources need to be created on the hosting CSE 			
			Resource < Resource > has been created in Hosting CSE			
Test Sequence						
Step	RP	Туре	Description			
1		Stimulus	imulus AE is requested to send an Update Request to update the <resource> on the Hosting CSE.</resource>			
2	Мса	PRO Check Primitive	 op = 3 (Update) to = URI of the resource <resource></resource> fr = AE-ID rqi = (token-string) pc = Serialized representation of <resource> resource</resource> 			
3		IOP Check	Check if possible that the request is forwarded by the registrar CSE to the Hosting CSE.			
4	Мсс	PRO Check Primitive	 or best in precision that the request to forwarded by the registral CCL to the resource control of the registral CCL to the registral CCL to the resource control of the registral CCL to the registral CCL to the resource control of the resource control of the registral CCL to the resource control of the resource control of the registral CCL to the resource control of the resource contres control of the resource contres control of the resource con			
5		IOP Check Check if possible that the <resource> resource is updated in the Hosting CSE.</resource>				
6	Мсс	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 			
7		IOP Check	Check if possible that the response is forwarded by the registrar CSE to the AE.			
8	Мса	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = Serialized representation of <resource> resource</resource> 			
9		IOP Check	AE indicates successful operation			
IOP \	/erdict					
PRO	/erdict					
8.3.1.6 <Resource> update

<resource></resource>	Identifier	Refs	IOP Verdict	PRO Verdict
<container></container>	TD_M2M_SH_03#01	oneM2M TS-0001 [1], clause		
		10.2.4.3		
		oneM2M TS-0004 [2], clause		
		7.3.5.2.3		
<subscription></subscription>	TD_M2M_SH_03#02	oneM2M TS-0001 [1], clause		
		10.2.11.4		
		oneM2M TS-0004 [2], clause		
		7.3.7.2		
<accesscontrolpolicy></accesscontrolpolicy>	TD_M2M_SH_03#03	oneM2M TS-0001 [1], clause		
		10.2.21.3		
		oneM2M TS-0004 [2], clause		
		7.3.1.2		
<group></group>	TD_M2M_SH_03#04	oneM2M TS-0001 [1], clause		
		10.2.7.4		
		oneM2M TS-0004 [2], clause		
		7.3.12.2.3		
<pollingchannel></pollingchannel>	TD_M2M_SH_03#05	oneM2M TS-0001 [1], clause		
		10.2.13.4		
		oneM2M IS-0004 [2], clause		
		7.3.21.2.3		
<tanoutpoint></tanoutpoint>	TD_M2M_SH_03#06	oneM2M TS-0001 [1], clause		
		10.2.7.9		
		oneM2M IS-0004 [2], clause		
		7.3.14.3.3		-
<node></node>	TD_M2M_SH_03#07	oneM2M IS-0001 [1], clause		
		10.2.14.3		
		oneM2M IS-0004 [2], clause		
1.005		7.3.18.2.3		
<remotecse></remotecse>	TD_M2M_SH_03#08	oneM2M 1S-0001 [1], clause		
		10.2.2.3		
		7.3.3.2.3		
<ae></ae>				
		10.2.1.3		
		1.3.3.2.3		

8.3.1.7 Resource Delete (Generic Test Description)

	Interoperability Test Description					
Identi	fier:		TD_M2M_SH_04			
Objec	tive:		AE delete a remote <resource> resource</resource>			
Config	guratior	າ:	M2M_CFG_03			
Refer	ences:					
Pre-te	est cond	litions:	Parents resources need to be created on the hosting CSE			
			 Resource <resource> has been created in Hosting CSE</resource> 			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send a Delete Request to delete <resource> on the Hosting CSE.</resource>			
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = URI of the resource <resource></resource> fr = AE-ID rqi = (token-string) 			
3		IOP Check	Check if possible that the request is forwarded by the registrar CSE to the Hosting CSE.			
4	Мсс	PRO Check Primitive	 op = 4 (Delete) to = URI of the resource <resource></resource> fr = AE-ID rqi = (token-string) 			
5		IOP Check	Check if possible that the <resource> resource is deleted in the Hosting CSE.</resource>			
6		PRO Check	• rsc = 2002 (DELETED)			

	Interoperability Test Description				
	Мсс	Primitive	 rqi = (token-string) same as received in request message 		
7		IOP Check	Check if possible that the response is forwarded by the registrar CSE to the AE.		
0		PRO Check	 rsc = 2002 (DELETED) 		
8	Мса	Primitive	 rqi = (token-string) same as received in request message 		
9		IOP Check	AE indicates successful operation		
IOP \	Verdict				
PRO	PRO Verdict				

8.3.1.8 <Resource> delete

<resource></resource>	Identifier	Refs	IOP Verdict	PRO Verdict
<container></container>	TD_M2M_SH_04#01	oneM2M TS-0001 [1], clause		
		10.2.4.4		
		oneM2M TS-0004 [2], clause		
		7.3.5.2.4		
<contentinstance></contentinstance>	TD_M2M_SH_04#02	oneM2M TS-0001 [1], clause		
		10.2.19.5		
		oneM2M TS-0004 [2], clause		
		7.3.6.2.4		
<subscription></subscription>	TD_M2M_SH_04#03	oneM2M TS-0001 [1], clause		
		10.2.11.5		
		oneM2M TS-0004 [2], clause		
		7.3.7.2		
<accesscontrolpolicy></accesscontrolpolicy>	TD_M2M_SH_04#04	oneM2M TS-0001 [1], clause		
		10.2.21.4		
		oneM2M TS-0004 [2], clause		
		7.3.1.2		
<group></group>	TD_M2M_SH_04#05	oneM2M TS-0001 [1], clause		
		10.2.7.5		
		oneM2M TS-0004 [2], clause		
		7.3.12.2.4		
<pollingchannel></pollingchannel>	TD_M2M_SH_04#06	oneM2M TS-0001 [1], clause		
		10.2.13.5		
		oneM2M TS-0004 [2], clause		
		7.3.21.2.4		
<fanoutpoint></fanoutpoint>	TD_M2M_SH_04#07	oneM2M TS-0001 [1], clause		
		10.2.7.10		
		oneM2M TS-0004 [2], clause		
		7.3.14.3.4		
<node></node>	TD_M2M_SH_04#08	oneM2M TS-0001 [1], clause		
		10.2.14.4		
		oneM2M TS-0004 [2], clause		
		7.3.18.2.4		

8.3.1.9 Discovery with multiple filter criteria

	Interoperability Test Description					
Identi	Identifier: TD_M2M_SH_09					
Objec	tive:		AE discovers accessible resources residing in the remote Hosting CSE using multiple Filter Criteria			
Config	guration):	M2M_CFG_03			
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.6 oneM2M TS-0004 [2], clause 7.2.3.13			
Pre-test conditions:		itions:	 Two <container> resources with labels "key1" and "key2" are created in Hosting CSE.</container> 			
			 A <group> resources with labels "key1" and "key2" is created in Hosting CSE.</group> 			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send a discovery request to discover specific resources located in			
I			hosting CSE using multiple filter criteria (label, resource type and limit)			
2	Mca	PRO Check	Sent request contains			

			Interoperability Test Description
		Primitive	 op = 2 (Retrieve) to = LIRL of bosting CSEBase
			• $fr = \Delta F - ID$
			• $rai = (token-string)$
			• $f_{II}=1$
			• rty=3
			• lim-1
			Check if possible that the request is forwarded by the registrar CSE to the
3		IOP Check	Hosting CSE.
			Forwarded request contains
			• op = 2 (Retrieve)
		PRO Check Primitive	 to = hosting CSEBase
			• fr = AE-ID
			• rqi = (token-string)
4	Mcc		• fu=1
			• lbl=key1
			• lbl=key2
			• rty=3
			• lim=1
			• pc = empty
5		IOP Check	Check if possible that the response is sent by the hosting CSE to the registrar CSE.
			Hosting CSE sends response containing:
		PPO Chock	• rsc = 2000 (OK)
6	Mcc	Primitive	 rqi = (token-string) same as received in request message
			• pc = Serialized representation of data object containing the address of one of the
			<container> resources</container>
7		IOP Check	Check if possible that the response is forwarded from the registrar CSE to AE
			Registrar CSE sends response containing:
_		PRO Check	• rsc = 2000 (OK)
6	Mca		 rqi = (token-string) same as received in request message
			• pc = Serialized representation of data object containing the address of one of the
			<container> resources</container>
7		IOP Check	AE indicates successful operation

8.3.1.10 Unauthorized operation (Insufficient Access Rights)

	Interoperability Test Description					
Identi	fier:		TD M2M SH 10			
Objec	tive:		AE delete request is rejected after access rights verification using retargeting.			
Confi	guration	ו:	M2M_CFG_03			
Refer	ences:		oneM2M TS-0004 [2], clause 7.3.1.2			
Pre-test conditions:		litions:	 An <accesscontrolpolicy> resource with name {ACPName} has been created in remote hosting CSE, not allowing delete operation.</accesscontrolpolicy> AE has created an <ae> resource on registrar CSE with name {AEName}</ae> AE has created a <container> sub-resource in the <ae> resource with name {containerName} and having as accessControlPolicy-ID the ID of the remote <accesscontrolpolicy>.</accesscontrolpolicy></ae></container> 			
			Test Sequence			
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send a Request to delete the <container> resource from the registrar CSE.</container>			
2	Мса	PRO Check Primitive	 op = 4 (Delete) to = URI of addressed resource fr = AE-ID rqi = (token-string) pc = empty 			
3		IOP Check	Check if possible that a request is sent by the registrar CSE to the Hosting CSE to retrieve the corresponding remote <accesscontrolpolicy> resource.</accesscontrolpolicy>			

	Interoperability Test Description				
4	Мсс	PRO Check Primitive	Sent request contains • op = 2 (Retrieve) • to = URI of addressed resource • fr = Registrar CSE-ID • rqi = (token-string) • pc = empty		
5		IOP Check	Check if possible that the response is sent by the hosting CSE to the registrar CSE.		
6	Мсс	PRO Check Primitive	 Hosting CSE sends response containing: rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <accesscontrolpolicy> resource</accesscontrolpolicy> 		
7		IOP Check	Check if possible that an access denied error response is sent by registrar CSE to AE		
8	Мса	PRO Check Primitive	Registrar CSE sends response containing: • rsc = 4103 (ACCESS_DENIED) • rqi = (token-string) same as received in request message • pc = empty		
9		IOP Check	Check if possible that the <container> resource has not been deleted.</container>		
10		IOP Check	AE indicates unsuccessful operation (Delete error - no privilege)		

8.3.1.11 Notification

			Interoperability Test Description		
Identifier:			TD_M2M_SH_11		
Objective:			AE receives a notification request from the remote hosting CSE		
Confi	guration	า:	M2M_CFG_03		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.12		
			oneM2M TS-0004 [2], clause 7.4.1		
Pre-te	st cond	litions:	 A <container> resource has been created on hosting CSE</container> 		
			 AE has created an <ae> resource on registrar CSE</ae> 		
			AE has created a <subscription> resource for the <container> resource on the</container></subscription>		
			remote hosting CSE.		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	A <contentinstance> sub-resource is created on the <container> resource. This triggers or</container></contentinstance>		
•			causes the hosting CSE to send a notification to AE.		
			• op = 5 (Notify)		
		PRO Check	 to = URI of AE resource 		
2	Мса	Primitive	 from = Hosting CSE-ID 		
			• rqi = (token-string)		
			 pc = Serialized representation of Notification data object 		
3		IOP Check	Check if possible that the Notify request is forwarded by the registrar CSE to the AE-ID.		
			• op = 5 (Notify)		
		DDO Chook	• to = AE		
4	Mcc	PRO Check	 from = Hosting CSE-ID 		
		Primitive	• rqi = (token-string)		
			 pc = Serialized representation of Notification data object 		
5		IOP Check	Check if possible that the response is sent by the AE to the registrar CSE.		
			AE sends response containing:		
6	Maa	PRO Check	• rsc = 2000 (OK)		
0	IVICC	Primitive	 rqi = (token-string) same as received in request message 		
			• pc = empty		
7		IOP Check	Check if possible that the response is forwarded by registrar CSE to Hosting CSE		
			Registrar CSE sends response containing:		
	Мса	PRO Check	• rsc = 2000 (OK)		
8		Primitive	 rqi = (token-string) same as received in request message 		
			• pc = empty		
9		IOP Check	Check if possible that the <container> resource has not been deleted.</container>		
10		IOP Check	AE indicates unsuccessful operation (Delete error - no privilege).		

8.3.2 <mgmtObj> Test Description

8.3.2.1 <mgmtObj> Create

			Interoperability Test Description		
Identifier:			TD_M2M_SH_05		
Object	tive:		AE creates a <mgmtobj> resource</mgmtobj>		
Configuration:		ו:	M2M_CFG_03		
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.8.2		
Pre-te	st cond	litions:	Management Session between Management Server and Management Client		
		-	Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send an <mgmtobj> Create Request to create an <mgmtobj> on IN- CSE.</mgmtobj></mgmtobj>		
2	Мса	PRO Check Primitive	 op: 1 (CREATE) fr: AE-ID to: {CSEBaseName}/{node} rqi = (token-string) ty = 13 (mgmtObj) pc: Serialized representation of the <mgmtobj> resource</mgmtobj> 		
3		IOP Check	Check if possible that the <mgmtobj> resource is created in IN-CSE</mgmtobj>		
		PRO Check Primitive	N/A		
		PRO Check OMA DM	Requests to create the corresponding MO using Add DM command. The mapping of <mgmtobj> and MO can be referenced from clause 5.3 of oneM2M TS- 0005 [10].</mgmtobj>		
4	mc	PRO Check BBF TR069	Requests to create the corresponding information model using AddObject RPC. The mapping of <mgmtobj> and information model or RPC can be referenced from clause 7 of oneM2M TS-0006 [11].</mgmtobj>		
		PRO Check OMA LWM2M	Requests to create the corresponding Objects using Create LWM2M Create operations. The mapping of <mgmtobj> and Object can be referenced from clause 6.3 of oneM2M TS-0005 [10].</mgmtobj>		
5		IOP Check	Check if possible that the corresponding MO for OMA DM, information model for BBF TR069 or Object for OMA LWM2M is created on the Managed Entity.		
		PRO Check Primitive	N/A		
6	mc	PRO Check OMA DM	Response with status code (200) OK. Details can be found in clause 5.4 oneM2M TS-0005 [10].		
Ū	me	PRO Check BBF TR069	Successful response of the RPC. Details can be found in clause 8.1 oneM2M TS-0006 [11].		
		PRO Check OMA LWM2M	Response with status code 2.01 Created. Details can be found in clause 6.4 oneM2M TS-0005 [10].		
7	Mca	PRO Check	 rsc = 2001 (CREATED) rgi = (token-string) same as received in request message 		
	mou	Primitive	 nc = Serialized representation of <montohis li="" resource<=""> </montohis>		
8		IOP Check	AF indicates successful operation		
	erdict				
PRO \	/erdict				

8.3.2.2 <mgmtObj> Update

	Interoperability Test Description					
Identi	fier:		TD_M2M_SH_06			
Objec	tive:		AE updates a <mgmtobj> resource</mgmtobj>			
Config	guratior	n:	M2M_CFG_03			
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.8.4			
Pre-test conditions:		itions:	 Management Session between Management Server and Management Client 			
	Test Sequence					
Step	RP	Туре	Description			
1		Stimulus	AE is requested to send an <mgmtobj> Update Request to update an <mgmtobj> on IN- CSE.</mgmtobj></mgmtobj>			

	Interoperability Test Description				
2	Мса	PRO Check Primitive	 op: 3 (UPDATE) fr: AE-ID to: {CSEBaseName}/{node}/{mgmtObj} rqi = (token-string) pc: Serialized representation of the <mgmtobj> resource</mgmtobj> 		
3		IOP Check	Check if possible that the <mgmtobj> resource is updated in IN-CSE</mgmtobj>		
		PRO Check Primitive	N/A		
		PRO Check OMA DM	Requests to update the corresponding MO using Replace DM command. The mapping of <mgmtobj> and MO can be referenced from clause 5.3 of oneM2M TS- 0005 [10].</mgmtobj>		
4	mc	PRO Check BBF TR069	Requests to Update the corresponding information model using SetParameterValues RPC. The mapping of <mgmtobj> and information model or RPC can be referenced from clause 7 of oneM2M TS-0006 [11].</mgmtobj>		
		PRO Check OMA LWM2M	Requests to Update the corresponding Objects using LWM2M Write operations. The mapping of <mgmtobj> and Object can be referenced from clause 6.3 of oneM2M TS-0005 [10].</mgmtobj>		
5		IOP Check	Check if possible that the corresponding MO for OMA DM, information model for BBF TR069 or Object for OMA LWM2M is Updated on the Managed Entity.		
		PRO Check Primitive	N/A		
6		PRO Check OMA DM	Response with status code (200) OK. Details can be found in clause 5.4 oneM2M TS-0005 [10].		
0	mc	PRO Check BBF TR069	Successful response of the RPC. Details can be found in clause 8.1 oneM2M TS-0006 [11].		
		PRO Check OMA LWM2M	Response with status code 2.04 Changed. Details can be found in clause 6.4 oneM2M TS-0005 [10].		
7	Мса	PRO Check Primitive	 rsc = 2004 (CHANGED) rqi = (token-string) same as received in request message pc = Serialized representation of <mgmtobj> resource</mgmtobj> 		
8		IOP Check	AE indicates successful operation		
IOP \	/erdict				
PRO	/erdict				

8.3.2.3 <mgmtObj> Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_SH_07		
Objective:			AE retrieves a <mgmtobj> resource</mgmtobj>		
Config	guratior	ו:	M2M_CFG_03		
Refer	ences:		oneM2M TS-0001 [1], clause 10.2.8.3		
Pre-te	st cond	litions:	Management Session between Management Server and Management Client		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE is requested to send an <mgmtobj> Retrieve Request to retrieve an <mgmtobj> on IN-CSE.</mgmtobj></mgmtobj>		
2	Мса	PRO Check Primitive	 op = 2 (RETRIEVE) to = {CSEBaseName}/{node}/{mgmtObj} fr = AE-ID rqi = (token-string) 		
3		IOP Check	Check if possible that the <mgmtobj> resource is retrieved in IN-CSE</mgmtobj>		
	mc	PRO Check Primitive	N/A		
1		PRO Check OMA DM	Requests to retrieve the corresponding MO using Get DM command.		
4		PRO Check BBF TR069	Requests to retrieve the corresponding information model using GetParametersValue RPC.		
		PRO Check OMA LWM2M	Requests to retrieve the corresponding Objects using Retrieve LWM2M Read operation.		
5		IOP Check			
6	mc	PRO Check	N/A		

	Interoperability Test Description			
		Primitive		
		PRO Check	Response with status code (200) OK with the information of the MO. Details can be found	
		OMA DM	in clause 5.4 oneM2M TS-0005 [10].	
		PRO Check	Successful response of the RPC with the information about the management related	
		BBF TR069	information. Details can be found in clause 8.1 oneM2M TS-0006 [11].	
		PRO Check	Response with status code 2.05 Content with the information of the Object. Details can be	
		OMA LWM2M	found in clause 6.4 oneM2M TS-0005 [10].	
	Мса	PRO Check	• rsc = 2000 (OK)	
7			 rqi = (token-string) same as received in request message 	
		rinnuve	 pc = Serialized representation of <mgmtobj> resource</mgmtobj> 	
8		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	Verdict			

8.3.2.4 <mgmtObj> Delete

Interoperability Test Description			
Identi	fier:		TD_M2M_SH_08
Objec	tive:		AE deletes a <mgmtobj> resource</mgmtobj>
Configuration:			M2M_CFG_03
Refere	ences:		oneM2M TS-0001 [1], clause 10.2.8.5
-			
Pre-te	st cond	litions:	Management Session between Management Server and Management Client
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send an <mgmtobj> Delete Request to delete an <mgmtobj> on IN- CSE.</mgmtobj></mgmtobj>
2	Мса	PRO Check Primitive	 op = 4 (DELETE) to = {CSEBaseName}/{node}/{mgmtObj} fr = AE-ID rqi = (token string)
3		IOP Check	Check if possible that the <mgmtobj> resource is deleted in IN-CSE</mgmtobj>
	mc	PRO Check Primitive PRO Check OMA DM	N/A Requests to delete the corresponding MO using Delete DM command.
4		PRO Check BBF TR069	Requests to delete the corresponding information model using DeleteObject RPC.
		PRO Check OMA LWM2M	Requests to delete the corresponding Objects using LWM2M Delete operation.
5		IOP Check	Check if possible that the corresponding MO for OMA DM, information model for BBF TR069 or Object for OMA LWM2M is deleted on the Managed Entity.
		PRO Check Primitive	N/A
6	mc	PRO Check OMA DM	Response with status code (200) OK. Details can be found in clause 5.4 oneM2M TS- 0005 [10].
Ū	mo	PRO Check BBF TR069	Successful response of the RPC. Details can be found in clause 8.1 oneM2M TS-0006 [11].
		PRO Check OMA LWM2M	Response with status code 2.02 Deleted. Details can be found in clause 6.4 oneM2M TS-0005 [10]
7	Мса	PRO Check Primitive	 rsc = 2002 (DELETED) rqi = (token-string) same as received in request message
8		IOP Check	AE indicates successful operation
IOP V	/erdict		
PRO \	Verdict		

8.3.3 Announcement Management

8.3.3.1 AEAnnc Create

	Interoperability Test Description				
Identifier:			TD_M2M_SH_12		
Objective:			AE1 announces itself to CSE2		
Config	guration):	M2M_CFG_04		
Refere	ences:				
Pre-te	st cond	itions	 <csebase> resource has been created in CSE1 with name {CSEBaseName1}</csebase> AE1 has created a <ae> resource on registrar CSE with name {AE1}</ae> <csebase> resource has been created in CSE2 with name {CSEBaseName2}</csebase> CSE1 is registered to CSE2 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a an AE Update Request with announceTo attribute set to CSE2 CSE-ID		
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{AE} fr = AE-ID rqi = (token-string) pc = Serialized representation of updated <ae> resource</ae> 		
3		IOP Check	Check if possible that the CREATE <aeannc> is sent from CSE1 to CSE2.</aeannc>		
4	Мсс	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName2}/{CSEBaseName1} fr = CSE1-ID rqi = (token-string) ty = 10002 (AEAnnc) pc = Serialized representation of <aeannc> resource</aeannc> 		
5		IOP Check	Check if possible that the <aeannc> resource is created in CSE2 with only MA attributes.</aeannc>		
6	Мсс	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <aeannc> resource</aeannc> 		
7		IOP Check	CSE1 sends a UPDATED response to the AE1.		
8	Мса	PRO Check Primitive	 rsc = 2004 (UPDATED) rqi = (token-string) same as received in request message pc = Serialized representation of <ae> resource</ae> 		
9		IOP Check	AE indicates successful operation		
IOP V	/erdict				
PRO	/erdict				

8.3.3.2 ContainerAnnc Create

	Interoperability Test Description				
Identi	fier:		TD_M2M_SH_13		
Objec	tive:		AE1 announces a child container to CSE2		
Config	guration	า:	M2M_CFG_04		
Refere	ences:				
Pre-test conditions			 <csebase> resource has been created in CSE1 with name {CSEBaseName1}</csebase> AE1 has created a <ae> resource on registrar CSE with name {AE1}</ae> <csebase> resource has been created in CSE2 with name {CSEBaseName2}</csebase> AE2 has created a <ae> resource on registrar CSE with name {AE2}</ae> CSE1 is registered to CSE2 <container> resource is created as a child of AE1</container> AE1 is announced on CSE2 		
	-		Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a an <container> Update Request with announceTo attribute set to CSE2 CSE-ID</container>		

	Interoperability Test Description			
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{container} fr = AE-ID rqi = (token-string) pc = Serialized representation of updated <container> resource</container> 	
3		IOP Check	Check if possible that the CREATE <containerannc> is sent from CSE1 to CSE2.</containerannc>	
4	Мсс	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName2}/{AE1Annc} fr = CSE1-ID rqi = (token-string) ty = 10003 (containerAnnc) pc = Serialized representation of < containerAnnc > resource 	
5		IOP Check	Check if possible that the < containerAnnc > resource is created in CSE2 with only MA attributes.	
6	Мсс	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of < containerAnnc > resource 	
7		IOP Check	CSE1 sends a UPDATED response to the AE1.	
8	Мса	PRO Check Primitive	 rsc = 2004 (UPDATED) rqi = (token-string) same as received in request message pc = Serialized representation of <container> resource</container> 	
9		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	Verdict			

8.3.3.3 ContainerAnnc Update

	Interoperability Test Description				
Identifier:			TD_M2M_SH_14		
Objective:			AE1 announces an Optional Announce attribute to CSE2		
Config	guratior	1:	M2M_CFG_04		
Refere	ences:				
Pre-test conditions			 <csebase> resource has been created in CSE1 with name {CSEBaseName1}</csebase> AE1 has created a <ae> resource on registrar CSE with name {AE1}</ae> <csebase> resource has been created in CSE2 with name {CSEBaseName2}</csebase> AE2 has created a <ae> resource on registrar CSE with name {AE2}</ae> CSE1 is registered to CSE2 <container> resource is created as a child of AE1</container> AE1 is announced on CSE2 		
			 <container> is announced on CSE2</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE1 is requested to send a an <container> Update Request with announcedAttribute = maxNrOfInstances</container>		
2	Мса	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName}/{container} fr = AE-ID rqi = (token-string) pc = Serialized representation of updated <container> resource</container> 		
3		IOP Check	Check if possible that the UPDATE <containerannc> is sent from CSE1 to CSE2.</containerannc>		
4	Мсс	PRO Check Primitive	 op = 3 (Update) to = {CSEBaseName2}/{ ContainerAnnc } fr = CSE1-ID rqi = (token-string) pc = Serialized representation of < containerAnnc > resource 		
5		IOP Check	Check if possible that the < containerAnnc > resource is update in CSE2 with maxNrOfInstances attributes.		
6	Мсс	PRO Check Primitive	 rsc = 2004 (UPDATED) rqi = (token-string) same as received in request message pc = Serialized representation of < containerAnnc > resource 		
7		IOP Check	CSE1 sends a UPDATED response to the AE1.		

	Interoperability Test Description			
			• rsc = 2004 (UPDATED)	
8	Мса		 rqi = (token-string) same as received in request message 	
			 pc = Serialized representation of <container> resource</container> 	
9		IOP Check	AE1 indicates successful operation	
IOP Verdict				
PRO Verdict				

8.3.3.4 ContainerAnnc Retrieve

	Interoperability Test Description				
Identifier:			TD_M2M_SH_15		
Objec	tive:		AE2 retrieves an Announced Resource		
Config	guratio	n:	M2M_CFG_04		
Refer	ences:				
Pre-te	est conc	litions:	 <csebase> resource has been created in CSE1 with name {CSEBaseName1}</csebase> 		
			 AE1 has created a <ae> resource on registrar CSE with name {AE1}</ae> 		
			 <csebase> resource has been created in CSE2 with name {CSEBaseName2}</csebase> 		
			 AE2 has created a <ae> resource on registrar CSE with name {AE2}</ae> 		
			CSE1 is registered to CSE2		
			 <container> resource is created as a child of AE1</container> 		
			AE1 is announced on CSE2		
			 <container> is announced on CSE2</container> 		
			Test Sequence		
Step	RP	Туре	Description		
1		Stimulus	AE2 is requested to send a Retrieve Request for a < containerAnnc >		
			• op = 2 (Retrieve)		
			 to = {CSEBaseName2}/URI of < containerAnnc > resource 		
2	Mee	PRO Check	• fr = AE2-ID		
	IVICa	FIIIIIIVe	• rqi = (token-string)		
			• pc = empty		
		DBO Chook	• rsc =2000 (OK)		
3	Mca	Primitivo	 rqi = (token-string) same as received in request message 		
	Ivica	T THTHUVE	 pc = Serialized representation of <containerannc> resource</containerannc> 		
4		IOP Check	AE indicates successful operation		
IOP \	/erdict	Verify that this is	s a containAnnc resource		
PRO Verdict					

8.3.3.5 ContainerAnnc Retrieve Original

			Interoperability Test Description
Identi	fier:		TD_M2M_SH_16
Objective:			AE2 retrieves the original resource representation of an announced resource
Configuration:			M2M_CFG_04
Refer	ences:		
Pre-te	est cond	litions	 <csebase> resource has been created in CSE1 with name {CSEBaseName1}</csebase>
			 AE1 has created a <ae> resource on registrar CSE with name {AE1}</ae>
			 <csebase> resource has been created in CSE2 with name {CSEBaseName2}</csebase>
			 AE2 has created a <ae> resource on registrar CSE with name {AE2}</ae>
			CSE1 is registered to CSE2
			 <container> resource is created as a child of AE1</container>
			AE1 is announced on CSE2
			<container> is announced on CSE2</container>
	1		Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE2 is requested to send a Retrieve Request to a < containerAnnc > with rcn = 7
			• op = 2 (Retrieve)
		PRO Check Primitive	 to = {CSEBaseName2}/URI of < containerAnnc > resource
2	Мса		• fr = AE2-ID
-			• rqi = (token-string)
			• rcn = 7 (original)
			• pc = empty
3		IOP Check	Check if possible that the GET <container> is sent from CSE2 to CSE1.</container>
		PRO Check	• op = 2 (Retrieve)
			 to = {CSEBaseName1}/{ Container}
4	Mcc	Primitive	• fr = AE2-ID
			• rqi = (token-string)
			pc = empty
5		IOP Check	
		PRO Check	• rsc =2000 (OK)
6	Mcc	Primitive	 rqi = (token-string) same as received in request message
			pc = Serialized representation of <container> resource</container>
7		IOP Check	Check if possible that the response is forwarded by the registrar CSE to the AE.
		PRO Check	• rsc =2000 (OK)
8	Мса	Primitive	 rqi = (token-string) same as received in request message
			pc = Serialized representation of <container> resource</container>
9		IOP Check	AE indicates successful operation
IOP \	/erdict		
PRO	Verdict		

8.3.4 Single Hop <fanOutPoint> operations

8.3.4.1 Create <fanOutPoint>

	Interoperability Test Description			
Identi	fier:		TD_M2M_SH_17	
Objective:			AE creates a <contentinstance> resource in each group member, where some memberIDs are on a remoteCSE</contentinstance>	
Config	guration	า:	M2M_CFG_08	
References:			oneM2M TS-0001 [1], clause 10.2.7.7 oneM2M TS-0004 [2], clause 7.4.15.2, 7.4.15.3	
Pre-test conditions			 Two or more resources of type <container> exist on the member hosting CSE</container> A group exists containing these two members of type <container></container> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a Create Request to create <contentinstance> in each group member</contentinstance>	

	Interoperability Test Description			
2	Мса	PRO Check Primitive	 op = 1 (Create) to = {CSEBaseName}/{group}/fopt fr = AE-ID rqi = (token-string) ty = 4 (contentInstance) pc = Serialized representation of <contentinstance> resource</contentinstance> 	
3		IOP Check	Check if possible that the request is forwarded by the registrar/Group Hosting CSE to the Member Hosting CSE.	
4	Мсс	PRO Check Primitive	 op = 1 (Create) to = {MemberCSEBaseName}/{subgroupId}/fopt or {MemberCSEBaseName}/{memberId} fr = AE-ID rqi = (token-string) gid = (grpId-token-string) ty = 4 (contentInstance) pc = Serialized representation of <contentinstance> resource</contentinstance> 	
5		IOP Check	Check if possible that the <contentinstance> resource is created in the Member Hosting CSE.</contentinstance>	
6	Мсс	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message gid = (grpld-token-string) same as received in request message pc = Serialized representation of <contentinstance> resource or <aggregated response=""></aggregated></contentinstance> 	
7		IOP Check	Check that the response is aggregated by the group hosting CSE and sent to the AE.	
8	Мса	PRO Check Primitive	 rsc = 2001 (CREATED) rqi = (token-string) same as received in request message pc = Serialized representation of <aggregated response=""></aggregated> 	
9		IOP Check	AE indicates successful operation	
IOP \	/erdict			
PRO	Verdict			

8.3.4.2 Retrieve <fanOutPoint>

			Interoperability Test Description
Identifier:			TD_M2M_SH_18
Objective:			AE retrieves a <container> resource from each group member, where some memberIDs</container>
			are on a remoteCSE
Config	guratior	ו:	M2M_CFG_08
Refer	ences:		
_			
Pre-te	est cond	litions:	 Two or more resources of type <container> exist on the member hosting CSE</container>
			A group exists containing these two members of type <container></container>
_		_	Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a Retrieve Request to the fanoutPoint of <group> resource</group>
2	Мса	PRO Check Primitive	 op = 2 (Retrieve) to = {CSEBaseName}/{group}/fopt fr = AE-ID rqi = (token-string)
3		IOP Check	Check if possible that the request is forwarded by the registrar/group hosting CSE to the Member Hosting CSE.
4	Мсс	PRO Check Primitive	 op = 2 (Retrieve) to = {MemberCSEBaseName}/{subgroupId}/fopt or {MemberCSEBaseName}/{memberId} fr = AE-ID rqi = (token-string) gid = (grpId-token-string)
5	Мсс	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message gid = (grpld-token-string) same as received in request message pc = Serialized representation of <container> resource</container>
o		IOP Check	Check that the response is aggregated by the group hosting CSE and sent to the AE.

Interoperability Test Description			
7	Мса	PRO Check Primitive	 rsc = 2000 (OK) rqi = (token-string) same as received in request message pc = Serialized representation of <aggregated_response></aggregated_response>
8		IOP Check	AE indicates successful operation
IOP Verdict			
PRO Verdict			

8.3.4.3 Update <fanOutPoint>

Interoperability Test Description			
Identifier:			TD_M2M_SH_19
Objective:			AE updates a <container> resource in each group member, where some memberIDs are</container>
			on a remoteCSE
Config	guratior):	M2M_CFG_08
Refere	ences:		
Pre-te	st cond	itions:	 Two or more resources of type <container> exist on the member hosting CSE</container>
			 A <group> exists containing these two members of type <container></container></group>
			Test Sequence
Step	RP	Туре	Description
1		Stimulus	AE is requested to send a Update Request to the fanoutPoint of <group> resource to</group>
-			lifetime of the resource.
			• op = 3 (Update)
		PRO Check	 to = {CSEBaseName}/{group}/fopt
2	Mca	Primitive	• fr = AE-ID
	iviou		• rqi = (token-string)
			pc = Serialized representation of <container> resource</container>
3		IOP Check	Check if possible that the request is forwarded by the registrar/group hosting CSE to the
0			Member Hosting CSE.
	Мсс	PRO Check Primitive	• op = 3 (Update)
			 to = {MemberCSEBaseName}/{subgroupId}/fopt
4			 or {MemberCSEBaseName}/{memberId}
•			• fr = AE-ID
			• rqi = (token-string)
			 pc = Serialized representation of <container> resource</container>
5		IOP Check	Check if possible that the <resource> resource is updated in the Hosting CSE.</resource>
	Мсс	PRO Check Primitive	• rsc = 2004 (CHANGED)
			 rqi = (token-string) same as received in request message
6			 gid = (grpld-token-string) same as received in request message
			 pc = Serialized representation of <container> resource or <aggregated< li=""> </aggregated<></container>
			response>
7		IOP Check	Check that the response is aggregated by the group hosting CSE and sent to the AE.
	Мса	ca PRO Check Primitive	• rsc = 2004 (CHANGED)
8			 rqi = (token-string) same as received in request message
			 pc = Serialized representation of <aggregated response=""></aggregated>
9		IOP Check	AE indicates successful operation
IOP V	/erdict		
PRO	Verdict		

8.3.4.4 Delete <fanOutPoint>

	Interoperability Test Description			
Identifier:			TD_M2M_SH_20	
Objective:			AE deletes a <contentinstance> resource from each group member, where some</contentinstance>	
			memberIDs are on a remoteCSE	
Config	guratior	1:	M2M_CFG_08	
Refere	ences:			
Pre-te	st cond	itions:	 Two or more resources of type <container> exist on the member hosting CSE</container> 	
			 Each <container> has at least 1 <contentinstance></contentinstance></container> 	
			 A group exists containing these two members of type <container></container> 	
			Test Sequence	
Step	RP	Туре	Description	
1		Stimulus	AE is requested to send a Delete 'oldest' Request to the fanoutPoint of <group> resource</group>	
			• op = 4 (Delete)	
		PRO Check Primitive	 to = {CSEBaseName}/{group}/fopt/ol 	
2	Мса		• fr = AE-ID	
			• rqi = (token-string)	
3		IOP Check	Check if possible that the request is forwarded by the registrar CSE to the Hosting CSE	
			• $op = 4$ (Delete)	
	Мсс	PRO Check Primitive	 to = {MemberCSEBaseName}/{subgrounId}/font/ol 	
			 or {MemberCSEBaseName}/{memberId}/ol 	
4			 fr = AF-ID 	
			• $rai = (token-string)$	
			 aid = (arold-token-string) 	
5		IOP Check	Check if possible that the <resource> resource is deleted in the Hosting CSE.</resource>	
			• $rsc = 2002 (DELETED)$	
6	Мсс	PRO Check Primitive	 rgi = (token-string) same as received in request message 	
Ŭ			 qid = (arpld-token-string) same as received in request message 	
7		IOP Check	Check that the response is aggregated by the group hosting CSE and sent to the AE.	
	Мса	PRO Check Primitive	• $rsc = 2002 (DELETED)$	
8			 rgi = (token-string) same as received in request message 	
-			 pc = Serialized representation of <aggregated response=""></aggregated> 	
9		IOP Check	AE indicates successful operation	
IOP V	/erdict			
PRO \	/erdict			

8.4 Secure AE Registration

8.4.1 PSK Security Association Establishment Framework

			Interoperability Test Description
Identifier:			TD_M2M_SE_01
Objective:			AE uses Provisioned Symmetric Key Security Association Establishment Framework to
	-		enable mutual authentication with the Registrar CSE. Registrar CSE performs AE
			authorization check on incoming AE registration request.
Confi	guratior	า:	M2M_CFG_01
Refer	ences:		oneM2M TS-0003 [12], clause 8.2.2.1
			oneM2M TS-0001 [1], clauses 9.6.29, 9.6.19, 9.16.20
Pre-te	est cond	litions:	 AE and Registrar CSE are pre-Provisioned with Kpsa = 123456, Kpsald =
			test@onem2m.com and Cipher Suites =
			TLS_PSK_WITH_AES_128_CBC_SHA256,
			TLS_PSK_WITH_AES_128_CCM_8
			Registrar CSE is provisioned with Service Subscribed Profile and Service
			Subscribed Node Resources.
			 Service Subscribed Node contains csi <registrar cse-id=""> and rlk < URI of</registrar>
			serviceSubscribedAppRule > attributes.
			Registrar CSE is configured with <servicesubscribedapprule> resource having</servicesubscribedapprule>
			a CredentialD, APP-ID and AE-ID with the following values:
			• <m2m:asar m="asar"></m2m:asar>
			<aci>outest@onem2m.com</aci>
			• <aai>APP01</aai>
			<aae>AE-ID</aae>
-			•
Ston		Turne	Test Sequence
	КГ	Stimulus	AE is requested to send a primitive to the Registrar CSE
-			Security Association Establishment
		PRO Check Primitive	
		PRO Check TCP	TLS Handshake
			 Cipher Suite:TLS_PSK_WITH_AES_128_CBC_SHA256
2			Version: TLS v1.2
	Ivica		 Kpsald = test@onem2m.com
			DTLS Handshake
		PRO Check UDP	 Cipher Suite:TLS_PSK_WITH_AES_128_CCM_8
			Version: DTLS v1.2
			 Kpsald = test@onem2m.com
3		IOP Check	Check if possible that Handshake was successful
			• op = 1 (Create)
			 to = {CSEBaseName}
1		PRO Check	• fr = AE-ID
4	Mca	Primitive	• rqi = (token-string)
			• ty = 2 (AE)
			 pc = Serialized representation of <ae> resource</ae>
5		IOP Check	Check that APP-ID, AE-ID, Credential ID are in <servicesubscribedapprule></servicesubscribedapprule>
5		IOI OHECK	Check if possible that the <ae> resource is created in registrar CSE.</ae>
		PRO Check	• rsc = 2001 (CREATED)
6	Mca	Primitive	 rqi = (token-string) same as received in request message
	inca	1 minuve	 pc = Serialized representation of <ae> resource</ae>
7		IOP Check	AE indicates successful operation
IOP \	/erdict		
	Verdict	1	

History

Publication history		
V1.0.0	29-Feb-2016	Updated Release 1 - Publication
V2.3.2	12-Mar-2016	Release 2A - Publication