ETSI TR 118 551 V2.0.0 (2020-11)

oneM2M API guide
(oneM2M TR-0051 version 2.0.0)

Reference
DTR/oneM2M-000051v2A

Keywords
API, IoT

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This Technical Report (TR) has been produced by ETSI Partnership Project oneM2M (oneM2M).

1 Scope

The present document is a collection of the CRUDN messages used for managing some of the main resources defined in ETSI TS 118 101 [i.2]. It also provides the description and associated flow in basic examples. It aims to use this list as a common sets of APIs to help developers to write applications that can run across different platforms and specific implementations.

When an application developer would need to build software code for managing a specific resource, he could have an immediate access to the list of CRUDN message with description and its associated examples of requests to send and its expected responses. The REST API examples are sorted by resource type and CRUDN operations, which allows a quick and easy access to the information.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

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.

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

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 http://www.onem2m.org/images/files/oneM2M-Drafting-Rules.pdf.

[i.2] ETSI TS 118 101: "oneM2M; Functional Architecture (oneM2M TS-0001)".

[i.3] ETSI TS 118 104: "oneM2M; Service Layer Core Protocol Specification (oneM2M TS-0004)".

3 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 Abbreviations

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

ACP Access Control Policy
AE Application Entity

AE-ID	Application Entity Identifier
API	Application Programming Interface
CBOR	Concise Binary Object Representation
CRUDN	Create, Retrieve, Update, Delete and Notify operations for REST API
CSE	Common Services Entity
HAIM	Home Appliances Information Model
HTTP	HyperText Transfer Protocol
JSON	JavaScript Object Notation
RCN	Result Content
REST	Representational State Transfer
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 oneM2M REST APIs

5.1 Introduction

The major objective of the present document is providing example sets of request and response. The REST APIs that are defined in the present document cover for resources Create, Retrieve, Update and Delete management, subscription/notification, data discovery, etc. Sending the CRUD request to the CSE and getting the response may help user to learn oneM2M specification.

In the current guide, examples of API are written based on HTTP protocol binding and JSON format. The APIs are written based on release 2a version.

For more references, please refer to clause 2.2.

5.2 Short name representation

5.2.1 Introduction

oneM2M defines short names for resources and attributes. To encode the message using XML, JSON and CBOR, short names are used. Request or response body which have been formed in short names can reduce the size of the message.

5.2.2 Resource type short names

Table 5.2.2-1 shows shot names for the resource type. It includes resource types which are used in the present document. For more information please refer to ETSI TS 118 104 [i.3].

Table 5.2.2-1: Resource type short names

Resource Type Name	Short Name
accessControlPolicy	***acp***
AE	***ae***
container	***cnt***
contentInstance	***cin***
CSEBase	***cb***
group	***grp***
remoteCSE	***csr***
subscription	***sub***
semanticDescriptor	***smd***
timeSeries	***ts***
timeSeriesInstance	***tsi***

5.2.3 Resource attribute short names

Table 5.2.3-1 shows shot names for the resource attribute. It includes attributes which are used in the present document. For more information please refer to ETSI TS 118 104 [i.3].

Table 5.2.3-1: Resource attribute short names

Attribute Name	Occurs in	Short Name
accessControlPolicyIDs	All except accessControlPolicy, contentInstance	***acpi***
announcedAttribute	accessControlPolicy, AE, container, contentInstance, group, locationPolicy, mgmtObj, node, remoteCSE, schedule, semanticDescriptor, trafficPattern	***aa***
announceTo	accessControlPolicy, AE, container, contentInstance, group, locationPolicy, mgmtObj, node, remoteCSE, schedule, semanticDescriptor, trafficPattern	***at***
creationTime	All	***ct***
expirationTime	All except contentInstance, CSEBase	***et***
labels	All (optional)	***lbl***
lastModifiedTime	All	***lt***
Link	All	***lnk***
parentID	All	***pi***
resourceID	All	***ri***
resourceType	All	***ty***
stateTag	container, contentInstance, delivery, request	***st***
resourceName	All	***rn***
privileges	accessControlPolicy	***pv***
selfPrivileges	accessControlPolicy	***pvs***
App-ID	AE	***api***
AE-ID	AE	***aei***
appName	AE	***apn***
pointOfAccess	AE, CSEBase, remoteCSE	***poa***
ontologyRef	AE, container, contentInstance, semanticDescriptor. flexContainer, timeSeries	***or***
nodeLink	AE, CSEBase, remoteCSE	***nl***
contentSerialization	AE	***csz***
creator	container, contentInstance, eventConfig, group, pollingChannel, statsCollect, statsConfig, subscription, semanticDescriptor, notificationTargetPolicy, flexContainer, timeSeries	***cr***
maxNrOfInstances	container, timeSeries	***mni***
maxByteSize	container, timeSeries	***mbs***
maxInstanceAge	container, timeSeries	***mia***
currentNrOfInstances	container, timeSeries	***cni***
currentByteSize	container	***cbs***
locationID	container	***li***
disableRetrieval	container	***disr***
contentInfo	contentInstance	***cnf***
contentSize	contentInstance, timeSeriesInstance	***cs***
contentRef	contentInstance	***conr***
containerDefinition	flexContainer	***cnd***

Attribute Name	Occurs in	Short Name
primitiveContent	request	***pc***
content	contentInstance, timeSeriesInstance	***con***
cseType	CSEBase, remoteCSE	***cst***
CSE-ID	CSEBase, remoteCSE, serviceSubscribedNode	***csi***
supportedResourceType	CSEBase	***srt***
notificationCongestionPolicy	CSEBase	***ncp***
memberType	group	***mt***
currentNrOfMembers	group	***cnm***
maxNrOfMembers	group	***mnm***
memberIDs	group	***mid***
membersAccessControlPolicyIDs	group	***macp***
memberTypeValidated	group	***mtv***
consistencyStrategy	group	***csy***
semanticSupportIndicator	group	***ssi***
notifyAggregation	group	***nar***
groupName	group, subscription	***gn***
CSEBase	remoteCSE	***cb***
M2M-Ext-ID	remoteCSE	***mei***
Trigger-Recipient-ID	remoteCSE	***tri***
requestReachability	remoteCSE	***rr***
triggerReferenceNumber	remoteCSE	***trn***
eventNotificationCriteria	subscription	***enc***
expirationCounter	subscription	***exc***
notificationURI	subscription	***nu***
groupID	subscription	***gpi***
notificationForwardingURI	subscription	***nfu***
batchNotify	subscription	***bn***
rateLimit	subscription	***rl***
preSubscriptionNotify	subscription	***psn***
pendingNotification	subscription	***pn***
notificationStoragePriority	subscription	***nsp***
latestNotify	subscription	***ln***
notificationContentType	subscription	***nct***
notificationEventCat	subscription	***nec***
subscriberURI	subscription	***su***
descriptorRepresentation	semanticDescriptor	***dcrp***
semanticOpExec	semanticDescriptor	***soe***
descriptor	semanticDescriptor	***dsp***
relatedSemantics	semanticDescriptor	***rels***
periodicInterval	timeSeries	***pei***
missingDataDetect	timeSeries	***mdd***
missingDataMaxNr	timeSeries	***mdn***
missingDataList	timeSeries	***mdlt***
missingDataCurrentNr	timeSeries	***mdc***
missingDataDetectTimer	timeSeries	***mdt***
dataGenerationTime	timeSeriesInstance	***dgt***
sequenceNr	timeSeriesInstance	***snr***
e2eSecInfo	CSEBase, remoteCSE, AE	***esi***
supportedReleaseVersions	CSEBase, remoteCSE, AE	***srv***
descriptorRepresentation	semanticDescriptor	***dcrp***
semanticOpExec	semanticDescriptor	***soe***
descriptor	semanticDescriptor	***dsp***
relatedSemantics	semanticDescriptor	***rels***
periodicInterval	timeSeries	***pei***
missingDataDetect	timeSeries	***mdd***
missingDataMaxNr	timeSeries	***mdn***
missingDataList	timeSeries	***mdlt***
missingDataCurrentNr	timeSeries	***mdc***
missingDataDetectTimer	timeSeries	***mdt***
dataGenerationTime	timeSeriesInstance	***dgt***
sequenceNr	timeSeriesInstance	***snr***
e2eSecInfo	CSEBase, remoteCSE, AE	***esi***
supportedReleaseVersions	CSEBase, remoteCSE, AE	***srv***

5.3 Enumeration data types

5.3.0 Introduction

The oneM2M Enumeration Types are based on xs:integer, and the numeric values are interpreted as specified in table 5.3.1-1.

5.3.1 m2m:resource Type

The enumeration type of resource Type is used in the Content-Type in the HTTP header of request. Table 5.3.1-1 only has enumeration type for resource Type which are used in the present document. More information can be found in ETSI TS 118 104 [i.3].

Table 5.3.1-1: Interpretation of resourceType

Value	Interpretation	Note
1	accessControlPolicy	
2	AE	
3	container	
4	contentInstance	
5	CSEBase	
9	group	
15	pollingChannel	
16	remoteCSE	
23	subscription	
24	semanticDescriptor	
28	flexContainer	
29	timeSeries	
30	timeSeriesInstance	

5.3.2 m2m:result content

The response format can be changed using resultContent (RCN) parameter. The oneM2M standard defines 8 different result content, but this API guide only deals with result content 0 to 3. Table 5.3.2-1 shows resultContent value and response format matches.

Table 5.3.2-1: Interpretation of resultContent

Value	Interpretation	Note
0	nothing	
1	attributes	
2	hierarchical address	
3	hierarchical address and attributes	

6 Open API collection

6.1 APIs list

6.1.1 Introduction

The identifier of the API is constructed with the following format:

API/<RESOURCE_TYPE>/<OPERATION_TYPE>/<NUMBER>_<PERMUTATION>

Specific values are used in the format defined in table 6.1.1-1.

Table 6.1.1-1: API Id Notation

Name	Value	interpretation
<RESOURCE_TYPE>	CB	CSEBase
	CSR	remoteCSE
	AE	AE
	CONT	container
	CI	contentInstance
	SMD	semanticDescriptor
	DIS	discovery
	SUB	subscription
	GRP	group
	TS	timeSeries
	TSI	timeSeriesInstance
	ACP	accessControlPolicy
	FLX	flexContainer
<OPERATION_TYPE>	CRE	CREATE
	RET	RETRIEVE
	UPD	UPDATE
	DEL	DELETE
	DIS	DISCOVERY
<NUMBER>	001 - 999	-
<PERMUTATION>	short name of attribute or resource type that is used in a request primitive.	A resultContent with its value is presented as a <PERMUTATION> – RCN1, RCN2, RCN3, RCN4 Filter Criteria parameter used in discovery clause is presented as a <PERMUTATION> – TY, LBL, LVL, CRB, etc.

6.1.2 APIs list

Table 6.1.2-1: list of the APIs

Interface ID	Interface Category	Interface Description
API/CB/RET/001 API/CB/RET/001_RCN1	<CSEBase> RETRIEVE	Retrieve CSEBase with resultContent set to 1 or no RCN
API/CB/RET/001_RCN4	<CSEBase> RETRIEVE	Retrieve CSEBase with ResultContent set to 4
API/CSR/CRE/001_RCN0	<remoteCSE> CREATE	Create remoteCSE with resultContent set to 0
API/CSR/CRE/001 API/CSR/CRE/001_RCN1	<remoteCSE> CREATE	Create remoteCSE with resultContent set to 1 or no RCN
API/CSR/CRE/001_RCN2	<remoteCSE> CREATE	Create remoteCSE with resultContent set to 2
API/CSR/CRE/001_RCN3	<remoteCSE> CREATE	Create remoteCSE with resultContent set to 3
API/CSR/RET/001 API/CSR/RET/001_RCN1	<remdoteCSE> RETRIEVE	Retrieve remoteCSE with resultContent set to 1 or no RCN
API/CSR/UPD/001 API/CSR/UPD/001_RCN1	<remoteCSE> UPDATE	Update remoteCSE with resultContent set to 1 or no RCN
API/CSR/UPD/001_RCN0	<remoteCSE> UPDATE	Update remoteCSE with resultContent set to 0
API/CSR/DEL/001_RCN0	<remoteCSE> DELETE	Delete remoteCSE with resultContent set to 0
API/CSR/DEL/001 API/CSR/DEL/001_RCN1	<remoteCSE> DELETE	Delete remoteCSE with resultContent set to 1 or no RCN
API/AE/CRE/001_RCN0	<AE> CREATE	Create AE with resultContent set to 0
API/AE/CRE/001 API/AE/CRE/001_RCN1	<AE> CREATE	Create AE with resultContent set to 1 or no RCN
API/AE/CRE/001_RCN2	<AE> CREATE	Create AE with resultContent set to 2
API/AE/CRE/001_RCN3	<AE> CREATE	Create AE with resultContent set to 3
API/AE/RET/001 API/AE/RET/001_RCN1	<AE> RETRIEVE	Retrieve AE with resultContent set to 1 or no RCN
API/AE/RET/001_RCN4	<AE> RETRIEVE	Retrieve AE with resultContent set to 4
API/AE/UPD/001_RCN0	<AE> UPDATE	Update AE with resultContent set to 0
API/AE/UPD/001 API/AE/UPD/001_RCN1	<AE> UPDATE	Update AE with resultContent set to 1 or no RCN
API/AE/DEL/001_RCN0	<AE> DELETE	Delete AE with ResultContent set to 0
API/AE/DEL/001 API/AE/DEL/001_RCN1	<AE> DELETE	Delete AE with ResultContent set to 1 or no RCN

Interface ID	Interface Category	Interface Description
API/CONT/CRE/001_RCN0	<container> CREATE	Create container with resultContent set to 0
API/CONT/CRE/001 API/CONT/CRE/001_RCN1	<container> CREATE	Create container with resultContent set to 1 or no RCN
API/CONT/CRE/001_RCN2	<container> CREATE	Create container with resultContent set to 2
API/CONT/CRE/001_RCN3	<container> CREATE	Create container with resultContent set to 3
API/CONT/RET/001 API/CONT/RET/001_RCN1	<container> RETRIEVE	Retrieve container with resultContent set to 1 or no RCN
API/CONT/RET/002_RCN4	<container> RETRIEVE	Retrieve container with resultContent set to 4
API/CONT/UPD/001_RCN0	<container> UPDATE	Update container with resultContent set to 0
API/CONT/UPD/001 API/CONT/UPD/001_RCN1	<container> UPDATE	Update container with resultContent set to 1 or no RCN
API/CONT/DEL/001_RCN0	<container> DELETE	Delete container with resultContent set to 0
API/CONT/DEL/001 API/CONT/DEL/001_RCN1	<container> DELETE	Delete container with resultContent set to 1 or no RCN
API/CI/CRE/001_RCN0	<contentInstance> CREATE	Create contentInstance with resultContent set to 0
API/CI/CRE/001 API/CI/CRE/001_RCN1	<contentInstance> CREATE	Create contentInstance with resultContent set to 1 or no RCN
API/CI/CRE/001_RCN2	<contentInstance> CREATE	Create contentInstance with resultContent set to 2
API/CI/CRE/001_RCN3	<contentInstance> CREATE	Create contentInstance with resultContent set to 3
API/CI/RET/001_LA	<contentInstance> RETRIEVE	Retrieve a latest contentInstance resource
API/CI/RET/001_OL	<contentInstance> RETRIEVE	Retrieve an oldest contentInstance resource
API/CI/RET/001_CI	<contentInstance> RETRIEVE	Retrieve a specific contentInstance resource
API/CI/DEL/001_LA	<contentInstance> DELETE	Delete a latest contentInstance resource without setting resultContent
API/CI/DEL/001_LA_RCN0	<contentInstance> DELETE	Delete a latest contentInstance resource with resultContent set to 0
API/CI/DEL/001_OL	<contentInstance> DELETE	Delete an oldest contentInstance resource without setting resultContent
API/CI/DEL/001_OL_RCN0	<contentInstance> DELETE	Delete an oldest contentInstance resource with resultContent set to 0
API/CI/DEL/001_CI	<contentInstance> DELETE	Delete a specific contentInstance resource without setting resultContent
API/CI/DEL/001_CI_RCN0	<contentInstance> DELETE	Delete a specific contentInstance resource with resultContent set to 0
API/SMD/CRE/001_RCN0	<semanticDescriptor> CREATE	Create semanticDescriptor with resultContent set to 0
API/SMD/CRE/001 API/SMD/CRE/001_RCN1	<semanticDescriptor> CREATE	Create semanticDescriptor with resultContent set to 1 or no RCN
API/SMD/CRE/001_RCN3	<semanticDescriptor> CREATE	Create semanticDescriptor with resultContent set to 3
API/SMD/RET/001 API/SMD/RET/001_RCN1	<semanticDescriptor> RETRIEVE	Retrieve semanticDescriptor with resultContent set to 1 or no RCN
API/SMD/UPD/001_RCN0	<semanticDescriptor> UPDATE	Update semanticDescriptor with resultContent set to 0
API/SMD/UPD/001 API/SMD/UPD/001_RCN1	<semanticDescriptor> UPDATE	Update semanticDescriptor with resultContent set to 1 or no RCN
API/SMD/DEL/001_RCN0	<semanticDescriptor> DELETE	Delete semanticDescriptor with resultContent set to 0
API/SMD/DEL/001 API/SMD/DEL/001_RCN1	<semanticDescriptor> DELETE	Delete semanticDescriptor with resultContent set to 1 or no RCN
API/DIS_TY2	Discovery	Discovery with resourceType filter criteria set to 2
API/DIS_TY3	Discovery	Discovery with resourceType filter criteria set to 3
API/DIS_LBL_ACTUATOR	Discovery	Discovery with labels filter criteria set to actuator
API/DIS_LBL_SENSOR	Discovery	Discovery with labels filter criteria set to sensor
API/DIS_LVL1	Discovery	Discovery with level filter criteria set to 1
API/DIS_LVL2	Discovery	Discovery with level filter criteria set to 2
API/DIS_CRB	Discovery	Discovery with createdBefore filter criteria
API/DIS_CRA	Discovery	Discovery with createdAfter filter criteria
API/DIS_STB	Discovery	Discovery with stateTagBigger filter criteria
API/DIS_STS	Discovery	Discovery with stateTagSmaller filter criteria
API/DIS_SZB	Discovery	Discovery with sizeBelow filter criteria
API/DIS_SZA	Discovery	Discovery with sizeAbove filter criteria

Interface ID	Interface Category	Interface Description
API/DIS_CRB	Discovery	Discovery with unmodifiedSince filter criteria
API/DIS_CRA	Discovery	Discovery with modifiedSince filter criteria
API/DIS_EXB	Discovery	Discovery with expiredBefore filter criteria
API/DIS_EXA	Discovery	Discovery with expiredAfter filter criteria
API/SUB/CRE/001_RCN0	<subscription> CREATE	Create subscription with resultContent set to 0
API/SUB/CRE/001 API/SUB/CRE/001_RCN1	<subscription> CREATE	Create subscription with resultContent set to 1 or no RCN
API/SUB/CRE/001_RCN2	<subscription> CREATE	Create subscription with resultContent set to 2
API/SUB/CRE/001_RCN3	<subscription> CREATE	Create subscription with resultContent set to 3
API/SUB/RET/001 API/SUB/RET/001_RCN1	<subscription> RETRIEVE	Retrieve subscription with resultContent set to 1 or no RCN
API/SUB/UPD/001_RCN0	<subscription> UPDATE	Update subscription with resultContent set to 0
API/SUB/UPD/001 API/SUB/UPD/001_RCN1	<subscription> UPDATE	Update subscription with resultContent set to 1 or no RCN
API/SUB/DEL/001_RCN0	<subscription> DELETE	Delete subscription with resultContent set to 0
API/SUB/DEL/001 API/SUB/DEL/001_RCN1	<subscription> DELETE	Delete subscription with resultContent set to 1 or no RCN
API/GRP/CRE/001_RCN0	<group> CREATE	Create group with resultContent set to 0
API/GRP/CRE/001 API/GRP/CRE/001_RCN1	<group> CREATE	Create group with resultContent set to 1 or no RCN
API/GRP/CRE/001_RCN2	<group> CREATE	Create group with resultContent set to 2
API/GRP/CRE/001_RCN3	<group> CREATE	Create group with resultContent set to 3
API/GRP/RET/001 API/GRP/RET/001_RCN1	<group> RETRIEVE	Retrieve group with resultContent set to 1 or no RCN
API/GRP/UPD/001_RCN0	<group> UPDATE	Update group with resultContent set to 0
API/GRP/UPD/001 API/GRP/UPD/001_RCN1	<group> UPDATE	Update group with resultContent set to 1 or no RCN
API/GRP/DEL/001_RCN0	<group> DELETE	Delete group with resultContent set to 0
API/GRP/DEL/001 API/GRP/DEL/001_RCN1	<group> DELETE	Delete group with resultContent set to 1 or no RCN
API/TS/CRE/001_RCN0	<timeSeries> CREATE	Create timeSeries with resultContent set to 0
API/TS/CRE/001 API/TS/CRE/001_RCN1	<timeSeries> CREATE	Create timeSeries with resultContent set to 1 or no RCN
API/TS/CRE/001_RCN2	<timeSeries> CREATE	Create timeSeries with resultContent set to 2
API/TS/CRE/001_RCN3	<timeSeries> CREATE	Create timeSeries with resultContent set to 3
API/TS/RET/001 API/TS/RET/001_RCN1	<timeSeries> RETRIEVE	Retrieve timeSeries with resultContent set to 1 or no RCN
API/TS/UPD/001_RCN0	<timeSeries> UPDATE	Update timeSeries with resultContent set to 0
API/TS/UPD/001_RCN1	<timeSeries> UPDATE	Update timeSeries with resultContent set to 1 or no RCN
API/TS/DEL/001_RCN0	<timeSeries> DELETE	Delete timeSeries with resultContent set to 0
API/TS/DEL/001 API/TS/DEL/001_RCN1	<timeSeries> DELETE	Delete timeSeries with resultContent set to 1 or no RCN
API/TSI/CRE/001_RCN0	<timeSeriesInstance> CREATE	Create timeSeriesInstance with resultContent set to 0
API/TSI/CRE/001 API/TSI/CRE/001_RCN1	<timeSeriesInstance> CREATE	Create timeSeriesInstance with resultContent set to 1 or no RCN
API/TSI/CRE/001_RCN2	<timeSeriesInstance> CREATE	Create timeSeriesInstance with resultContent set to 2
API/TSI/CRE/001_RCN3	<timeSeriesInstance> CREATE	Create timeSeriesInstance with resultContent set to 3
API/TSI/RET/001 API/TSI/RET/001_RCN1	<timeSeriesInstance> RETRIEVE	Retrieve timeSeriesInstance with resultContent set to 1 or no RCN
API/TSI/DEL/001_RCN0	<timeSeriesInstance> DELETE	Delete timeSeriesInstance with resultContent set to 0
API/TSI/DEL/001 API/TSI/DEL/001_RCN1	<timeSeriesInstance> DELETE	Delete timeSeriesInstance with resultContent set to 1 or no RCN
API/ACP/CRE/001_RCN0	<accessControlPolicy> CREATE	Create accessControlPolicy with resultContent set to 0
API/ACP/CRE/001 API/ACP/CRE/001_RCN1	<accessControlPolicy> CREATE	Create accessControlPolicy with resultContent set to 1 or no RCN
API/ACP/CRE/001_RCN2	<accessControlPolicy> CREATE	Create accessControlPolicy with resultContent set to 2
API/ACP/CRE/001_RCN3	<accessControlPolicy> CREATE	Create accessControlPolicy with resultContent set to 3

Interface ID	Interface Category	Interface Description
API/ACP/RET/001 API/ACP/RET/001_RCN1	<accessControlPolicy> RETRIEVE	Retrieve accessControlPolicy with resultContent set to 1 or no RCN
API/ACP/UPD/001_RCN0	<accessControlPolicy> UPDATE	Update accessControlPolicy with resultContent set to 0
API/ACP/UPD/001 API/ACP/UPD/001_RCN1	<accessControlPolicy> UPDATE	Update accessControlPolicy with resultContent set to 1 or no RCN
API/ACP/DEL/001_RCN0	<accessControlPolicy> DELETE	Delete accessControlPolicy with resultContent set to 0
API/ACP/DEL/001 API/ACP/DEL/001_RCN1	<accessControlPolicy> DELETE	Delete accessControlPolicy with resultContent set to 1 or no RCN
API/FLX/CRE/001_RCN0	<flexContainer> CREATE	Create flexContainer with resultContent set to 0
API/FLX/CRE/001 API/FLX/CRE/001_RCN1	<flexContainer> CREATE	Create flexContainer with resultContent set to 1 or no RCN
API/FLX/CRE/001_RCN2	<flexContainer> CREATE	Create flexContainer with resultContent set to 2
API/FLX/CRE/001_RCN3	<flexContainer> CREATE	Create flexContainer with resultContent set to 3
API/FLX/RET/001 API/FLX/RET/001_RCN1	<flexContainer> RETRIEVE	Retrieve flexContainer with resultContent set to 1 or no RCN
API/FLX/UPD/001_RCN0	<flexContainer> UPDATE	Update flexContainer with resultContent set to 0
API/FLX/UPD/001 API/FLX/UPD/001_RCN1	<flexContainer> UPDATE	Update flexContainer with resultContent set to 1 or no RCN
API/FLX/DEL/001_RCN0	<flexContainer> DELETE	Delete flexContainer with resultContent set to 0
API/FLX/DEL/001 API/FLX/DEL/001_RCN1	<flexContainer> DELETE	Delete flexContainer with resultContent set to 1 or no RCN

6.2 API details

6.2.1 Introduction

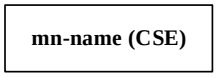
This clause introduces standard APIs to perform CRUD operations on the target resource. Each API has request and response using HTTP binding and JSON serialization, but some resources do not have all CRUD APIs which means that the resource does not support all operations. A result content is only used from 0 to 3 in this clause.

6.2.2 Resource Type *CSEBase*

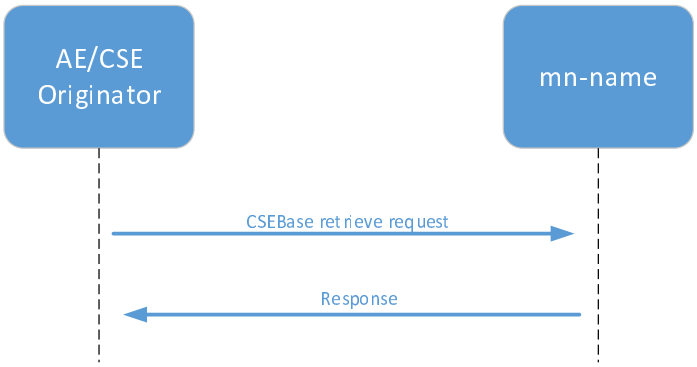
6.2.2.0 Introduction

A <*CSEBase*> resource represents a CSE and it is the root for all resources that are residing in the CSE. The <*CSEBase*>resource does not support the creation, update, and delete operations via API but only supports retrieve operation.

6.2.2.1 API-CB-RET

API Id	API/CB/RET/001 API/CB/RET/001_RCN1 API/CB/RET/001_RCN4
API Name	CSEBase RETRIEVE with or without resultContent parameter
Target Resource	<CSEBase> resource of the requested <AE> resource
Description	The interface is used to send a <CSEBase> resource RETRIEVE request to CSE, and receive response from the CSE.
Resource Structure before Sending Request	

Call Flow



HTTP Header Information

Header	Value
Accept	application/ json
X-M2M-RI	Request ID
X-M2M-Origin	Entity ID of request originator
X-M2M-RVI	Release Version Indicator

Example with RCN=1 or No RCN

API/CB/RET/001
API/CB/RET/001_RCN1

HTTP Request:

```
GET /mn-name?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
Accept: application/json
X-M2M-Origin: CAE0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
HTTP/1.1 200 OK
X-M2M-RI: 1234
X-M2M-RSC: 2000
Content-Length:344
Content-Type:application/json
X-M2M-Origin:/mnID
X-M2M-RVI: 2a
```


```
{
    "m2m:cb": {
        "acpi": [
            "mnIDAcp"
        ],
        "csi": "/mnID",
        "cst": 2,
        "csz": [
            "application/xml",
            "application/json"
        ],
        "ct": "20180727T135221",
        "lbl": [
            "17.0.0+",
            "ID-CSE-01"
        ],
        "lt": "20180727T135221",
        "pi": null,
        "poa": [
            "http://192.168.0.10:8282"
        ],
        "ri": "mnID",
        "rn": "mn-name",
        "srt": [
            1,
            2,
            3,
            4,
            5,
            9,
            12,
            13,
            14,
            15,
            16,
            18,
            23,
            17,
            11,
```

<table>
<tr>
<td></td>
<td>
<pre>
                20,
                19,
                28,
                22,
                7,
                21,
                24,
                100,
                8,
                10
            ],
            "srv": [
                "2a"
            ],
            "ty": 5,
            "srv": [
                "1",
                "2",
                "2a"
            ]

        }
    }
</pre>
</td>
</tr>
</table>

Example with RCN=4

API/CB/RET/001_RCN4

HTTP Request:

```
GET /mn-name?rcn=4 HTTP/1.1
Host: 192.168.0.10:8282
Accept: application/json
X-M2M-Origin: CAE0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
HTTP/1.1 200 OK
X-M2M-RI: 1234
X-M2M-RSC: 2000
Content-Length: 1009
Content-Type:application/json
X-M2M-Origin:/mnID
X-M2M-RVI: 2a
```

```
{
   "m2m:cb": {
      "acpi": [
         "mnIDAcp"
      ],
      "csi": "/mnID",
      "cst": 2,
      "csz": [
         "application/xml",
         "application/json"
      ],
      "ct": "20180727T135221",
      "lbl": [
         "17.0.0+",
         "ID-CSE-01"
      ],
      "lt": "20180727T135221",
      "m2m:acp": [
         {
            "ct": "20180723T141039",
            "et": "99991231T235959",
            "lbl": [
               "cseAcp"
            ],
            "lt": "20180723T141039",
            "pi": "mnID",
            "pv": {
               "acr": [
                  {
                     "acco": {
                        "acip": {
                           "ipv4": [
                              "127.0.0.1/0"
                           ]
                        },
                        "actw": [
                           "* * * * * *"
                        ]
                     },
                     "acop": 63,
                     "acor": [
                        "*"
```

```
                        ]
                    }
                ]
            },
            "pvs": {
                "acr": [
                    {
                        "acco": {
                            "acip": {
                                "ipv4": [
                                    "127.0.0.1/0",
                                    "127.0.0.1/1"
                                ]
                            },
                            "actw": [
                                "* * * * * *"
                            ]
                        },
                        "acop": 63,
                        "acor": [
                            "*"
                        ]
                    }
                ]
            },
            "ri": "mnIDAcp",
            "rn": "mn-nameAcp",
            "ty": 1
        }
    ],
    "m2m:ae": [
        {
            "aei": "CAE0120180723T14153513965201730124 80_cse01",
            "api": "A01.com.company.Temp",
            "ct": "20180723T141535",
            "et": "99991231T235959",
            "lbl": [
                "indoor_temp",
                "room_1"
            ],
            "lt": "20180723T142022",
            "pi": "mnID",
            "ri": "CAE0120180723T14153513965201730124 80_cse01",
            "rn": "ae_sensor",
            "rr": false,
            "ty": 2
        }
    ],
    "pi": null,
    "poa": [
        "http://192.168.0.10:8282"
    ],
    "ri": "mnID",
    "rn": "mn-name",
    "srt": [
        1,
        2,
        3,
        4,
        5,
        9,
        12,
        13,
        14,
        15,
        16,
        18,
        23,
```

<table>
<tr><td></td><td>
<pre>
            17,
            11,
            20,
            19,
            28,
            22,
            7,
            21,
            24,
            100,
            8,
            10
        ],
        "ty": 5,
        "srv": [
            "1",
            "2",
            "2a"
        ]

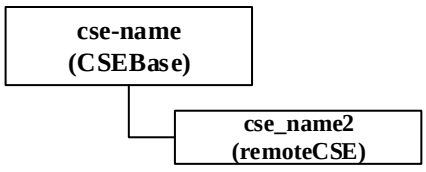
    }
}
</pre>
</td></tr>
</table>

6.2.3 Resource Type *remoteCSE*

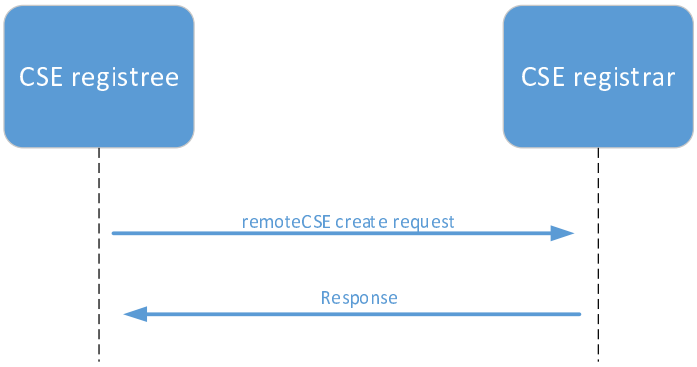
6.2.3.0 Introduction

The <remoteCSE> resource represents a Registree CSE that is registered into a Registrar CSE, and <remoteCSE> locates directly under the <CSEBase> of the Registrar CSE. Similarly, one <remoteCSE> resource will also be created under the <CSEBase> of the Registree CSE to represent the Registrar CSE when the Registree CSE is successfully registered into the Registrar CSE.

6.2.3.1 API-CSR-CRE

API Id	API/CSR/CRE/001 API/CSR/CRE/001_RCN1 API/CSR/CRE/001_RCN2 API/CSR/CRE/001_RCN3 API/CSR/CRE/001_RCN4
API Name	remoteCSE CREATE with or without resultContent parameter
Target Resource	<remoteCSE> resource
Description	The interface is used to send a <remoteCSE> resource CREATE request to CSE, and receive response from the CSE.
Resource Structure	

Call Flow



HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	Entity ID of request originator
Content-Type	application/json;**ty=16**
X-M2M-RVI	Release Version Indicator

Example with RCN=0	**API/CSR/CRE/001_RCN0**
	
	HTTP Request:
	
	POST /cse-name?rcn=0 HTTP/1.1
	Host: 192.168.56.102:9011
	Content-Type:application/json;ty=16
	X-M2M-Origin: C0120180406T084631140585535104768O_cse01
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	
	"m2m:csr": {
	"cb": "//192.168.0.50:8080/cse-name2",
	"csi": "/cse2ID",
	"rn": "cse-name2",
	"rr": true
	
	}
	
	}
	
	HTTP Response:
	
	HTTP/1.1 201 Created
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	Content-Length:0
	Content-Type:application/json
	Content-Location: /cseID/cse2ID

Example with RCN=1 or No RCN

API/CSR/CRE/001
API/CSR/CRE/001_RCN1

HTTP Request:

```
POST /cse-name?rcn=1 HTTP/1.1
Host: 192.168.56.102:9011
Content-Type:application/json;ty=16
X-M2M-Origin: C0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

{

      "m2m:csr": {
         "cb": "//192.168.56.50:8080/cse-name2",
         "csi": "/cse2ID",
         "rn": "cse-name2",
         "rr": true

      }

}
```

HTTP Response:

```
HTTP/1.1 201 Created
X-M2M-RI: 1234
X-M2M-RSC: 2001
X-M2M-RVI: 2a
Content-Length:216
Content-Type:application/json
Content-Location: /cseID/cse2ID
```

```
{
  "m2m:csr": {
    "cb": "//192.168.0.50:8080/cse-name2",
    "csi": "/cse2ID",
    "ct": "20200604T123044,616218",
    "et": "99991231T235959",
    "lt": "20200604T123044,616218",
    "pi": "ID-CSE-01",
    "ri": "cse2ID",
    "rn": "cse-name2",
    "rr": false,
    "ty": 16
  }
}
```

Example with RCN=2	**API/CSR/CRE/001_RCN2**
	
	HTTP Request:
	
	POST /cse-name?rcn=2 HTTP/1.1
	Host: 192.168.56.102:9011
	Content-Type:application/json;ty=16
	X-M2M-Origin: C0120180406T084631140585535104768O_cse01
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	
	"m2m:csr": {
	"cb": "//192.168.0.50:8080/cse-name2",
	"csi": "/cse2ID",
	"rn": "cse-name2",
	"rr": true
	
	}
	
	}
	
	HTTP Response:
	
	HTTP/1.1 201 Created
	X-M2M-RI: 1234
	X-M2M-RSC: 2001
	X-M2M-RVI: 2a
	Content-Length:30
	Content-Type:application/json
	Content-Location: /cseID/cse2ID
	
	{"m2m:uri":"cse-name/cse-name2"}

Example with RCN=3

API/CSR/CRE/001_RCN3

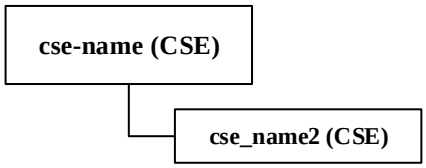
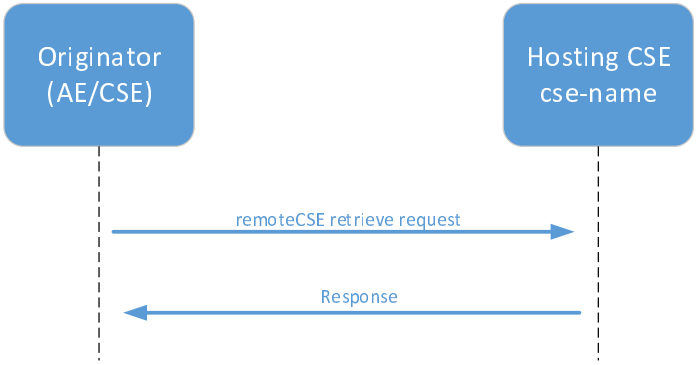
HTTP Request:

```
POST /cse-name?rcn=3 HTTP/1.1
Host: 192.168.56.102:9011
Content-Type:application/json;ty=16
X-M2M-Origin: C0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

{

      "m2m:csr": {
         "cb": "//192.168.0.50:8080/cse-name2",
         "csi": "/cse2ID",
         "rn": "cse-name2",
         "rr": true

      }

}
```

HTTP Response:

```
HTTP/1.1 201 Created
X-M2M-RI: 1234
X-M2M-RSC: 2001
X-M2M-RVI: 2a
Content-Length:264
Content-Type:application/json
Content-Location: /cseID/cse2ID

{
   "m2m:rce": {
      "m2m:csr": {
         "cb": "//192.168.56.2:8282/cse-name2",
         "csi": "/cse2ID",
         "ct": "20180801T093501",
         "et": "99991231T235959",
         "lt": "20180801T093501",
         "pi": "cseID",
         "poa": [
            "http://192.168.56.2:8282"
         ],
         "ri": "cse2ID",
         "rn": "cse-name2",
         "rr": true,
         "ty": 16,
      "srv": [
         "1",
         "2",
         "2a"
      ]

      },
      "uri": "cse-name/cse-name2"
   }
}
```

6.2.3.2 API-CSR-RET

<table>
<tr><td>API Id</td><td>API/CSR/RET/001
API/CSR/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td>remoteCSE RETRIEVE with or without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><remoteCSE> resource located under <CSEBase> of the hosting CSE</td></tr>
<tr><td>Description</td><td>The interface is used to send a <remoteCSE> RETRIEVE request attached with resultContent to a hosting CSE, and the hosting CSE will send back a response containing attributes of the requested <remoteCSE> resource.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>Entity ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
</table>

Example with RCN=1 or No RCN

API/CSR/RET/001
API/CSR/RET/001_RCN1

HTTP Request:

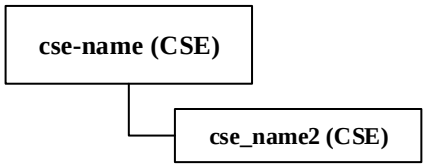
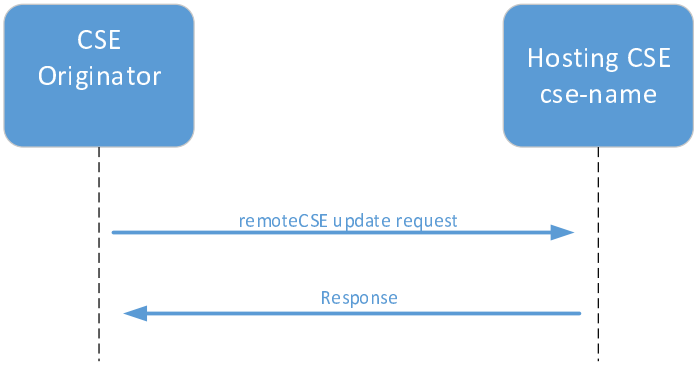
```
GET /cse-name/cse-name2?rcn=1 HTTP/1.1
Host: 192.168.56.102:9011
Accept: application/json
X-M2M-Origin: C0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
HTTP/1.1 200 OK
X-M2M-RI: 1234
X-M2M-RSC: 2000
X-M2M-RVI: 2a
Content-Length:227
Content-Type:application/json
```

```
{
   "m2m:csr": {
      "cb": "//192.168.56.2:8282/cse-name2",
      "csi": "/cse2ID",
      "ct": "20180801T093501",
      "et": "99991231T235959",
      "lt": "20180801T093501",
      "pi": "cseID",
      "poa": [
         "http://192.168.56.2:8282"
      ],
      "ri": "cse2ID",
      "rn": "cse-name2",
      "rr": true,
      "ty": 16,
      "srv": [
         "1",
         "2",
         "2a"
      ]

   }
}
```

6.2.3.3 API-CSR-UPD

API Id	API/CSR/UPD/001 API/CSR/UPD/001_RCN0 API/CSR/UPD/001_RCN1
API Name	remoteCSE UPDATE with or without resultContent parameter
Target Resource	<remoteCSE> resource located under <CSEBase> of the hosting CSE
Description	The interface is used to send a <remoteCSE> UPDATE request attached with resultContent to a hosting CSE, and the hosting CSE will send back a response resultContent.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	**Header** / **Value** Content-Type: application/ json X-M2M-RI: Request ID X-M2M-Origin: CSE-ID of request originator X-M2M-RVI: Release Version Indicator

Example with RCN=0	**API/CSR/UPD/001_RCN0**
	EXAMPLE: Demonstrate the update of the <pointOfAccess> attribute of <remoteCSE> resource.
	HTTP Request:
	PUT /cse-name/cse-name2?rcn=0 HTTP/1.1
	Host: 192.168.56.102:9011
	Content-Type: application/json
	X-M2M-Origin: C0120180406T084631140585535104768O_cse01
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	{
	"m2m:csr": {
	"poa": ["http://192.168.0.101:8282"]
	}
	}
	HTTP Response:
	HTTP/1.1 200 OK

<table>
<tr><td></td><td>X-M2M-RI: 1234
X-M2M-RSC: 2004
X-M2M-RVI: 2a
Content-Length:0</td></tr>
<tr><td>Example with RCN=1 or No RCN</td><td>
API/CSR/UPD/001
API/CSR/UPD/001_RCN1

EXAMPLE: Demonstrate the update of the <pointOfAccess> attribute of <remoteCSE> resource.

HTTP Request:

PUT /cse-name/cse-name2?rcn=1 HTTP/1.1
Host: 192.168.56.102:9011
Accept: application/json
X-M2M-Origin: C0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:csr": {
"poa": ["http://192.168.0.100:8282"]
}
}

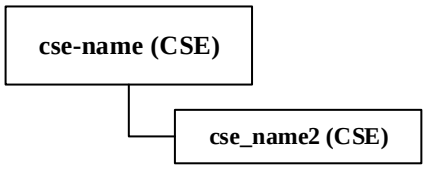
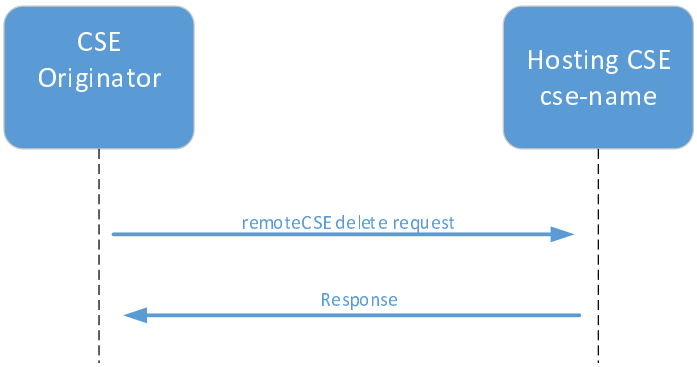
HTTP Response:

HTTP/1.1 200 OK
X-M2M-RI: 1234
X-M2M-RSC: 2004
X-M2M-RVI: 2a
Content-Length:251
Content-Type:application/json

{
"m2m:csr": {
"cb": "//192.168.56.2:8282/cse-name2",
"csi": "/cse2ID",
"ct": "20180801T093501",
"et": "99991231T235959",
"lt": "20180801T095839",
"pi": "cseID",
"poa": [
"http://192.168.0.100:8282"
],
"ri": "cse2ID",
"rn": "cse-name2",
"rr": true,
"ty": 16
"srv": [
"1",
"2",
"2a"
]

}
}
</td></tr>
</table>

6.2.3.4 API-CSR-DEL

<table>
<tr><td>API Id</td><td>API/CSR/DEL/001
API/CSR/DEL/001_RCN0
API/CSR/DEL/001_RCN1</td></tr>
<tr><td>API Name</td><td>remoteCSE DELETE with or without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><remoteCSE> resource located under <CSEBase> of the hosting CSE</td></tr>
<tr><td>Description</td><td>The interface is used to send a <remoteCSE> DELETE request attached with resultContent set to 0 to the hosting CSE, and the hosting CSE will delete the <remoteCSE> resource and send back a response containing the response status code of the DELETE operation.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>CSE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/CSR/DEL/001_RCN0

HTTP Request:

DELETE /cse-name/cse-name2?rcn=0 HTTP/1.1
Host: 192.168.56.102:9011
Accept: application/json
X-M2M-Origin: C0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

HTTP/1.1 200 OK
X-M2M-RI: 1234
X-M2M-RSC: 2002
X-M2M-RVI: 2a
Content-Length:0</td></tr>
<tr><td></td><td>API/CSR/DEL/001
API/CSR/DEL/001_RCN1</td></tr>
</table>

Example with RCN=1 or No RCN	**HTTP Request:**
	
	DELETE /cse-name/cse-name2 HTTP/1.1
	Host: 192.168.56.102:9011
	Accept: application/json
	X-M2M-Origin: C0120180406T084631140585535104768O_cse01
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	HTTP/1.1 200 OK
	X-M2M-RI: 1234
	X-M2M-RSC: 2004
	X-M2M-RVI: 2a
	Content-Length:228
	Content-Type:application/json
	
	{
	"m2m:csr": {
	"cb": "//192.168.56.2:8282/cse-name2",
	"csi": "/cse2ID",
	"ct": "20180801T093501",
	"et": "99991231T235959",
	"lt": "20180801T100431",
	"pi": "cseID",
	"poa": [
	"http://192.168.0.101:8282"
	],
	"ri": "cse2ID",
	"rn": "cse-name2",
	"rr": true,
	"ty": 16,
	"srv": [
	"1",
	"2",
	"2a"
	]
	
	}
	}

6.2.4 Resource Type *AE*

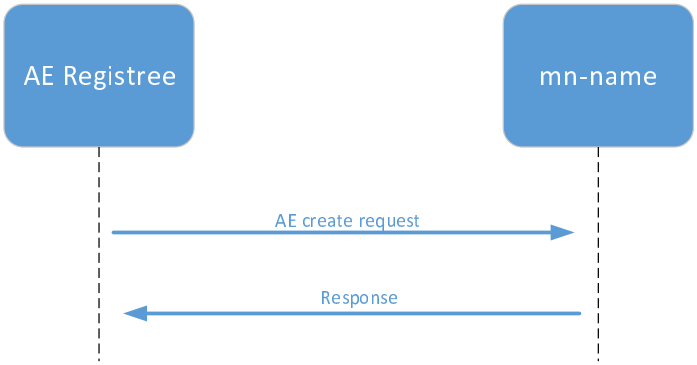
6.2.4.0 Introduction

The <AE> resource represents information about an Application Entity that is registered to a CSE. The originator of an <AE> create request is and only can be an AE. A CSE is not allowed to initiate an <AE> create request.

The <AE> resource which resides in different kind of nodes such as Application Dedicated Node, Middle Node, Infrastructure Node, etc. An Application Dedicated Node could reside in a constrained M2M device, while a Middle Node could reside in an M2M gateway and an Infrastructure Node could reside in an M2M Service Infrastructure. For example, in smart home scenario, light bulbs are modelled as Application Dedicated Node which communicate with home gateway which is modelled as a Middle Node and in resource registration phase, light bulbs can be registered as an <AE> resource.

6.2.4.1 API-AE-CRE

<table>
<tr><td>API Id</td><td>API/AE/CRE/001
API/AE/CRE/001_RCN0
API/AE/CRE/001_RCN1
API/AE/CRE/001_RCN2
API/AE/CRE/001_RCN3</td></tr>
<tr><td>API Name</td><td>AE CREATE with or without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><CSEBase> resource of the requested <AE> resource</td></tr>
<tr><td>Description</td><td>The interface is used by a AE Registree to send an <AE> CREATE request to a Registrar CSE and the Registrar CSE creates an <AE> resource and sends back a response to the AE Registree according to the configured resultContent parameter.

A sensor is registered to the platform by sending an <AE> registration request to the CSEBase.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td>mn-name (CSE)</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=2</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/AE/CRE/001_RCN0

HTTP Request:

POST /mn-name?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: C
Content-Type: application/json;ty=2
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:ae": {
"api": "A01.com.company.Temperature1",
"lbl": [
"indoor_temperature",
"room_1"
],
"rr": false,
"rn": "ae_sensor"
}
}</td></tr>
</table>

<table>
<tr><td></td><td>

HTTP Response:

201 Created
Content-Length:0
Content-Location:/mnID/CAE0120180404T083018140512285796096 0_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001
</td></tr>
<tr><td>Example with RCN=1 or No RCN</td><td>

API/AE/CRE/001
API/AE/CRE/001_RCN1

HTTP Request:

POST /mn-name HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: C
Content-Type: application/json;ty=2
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:ae": {
"api": "A01.com.company.Temperature",
"lbl": [
"indoor_temperature",
"room_1"
],
"rr": false,
"rn": "ae_sensor"
}
}

HTTP Response:

201 Created
</td></tr>
</table>

<table>
<tr><td></td><td>
Content-Length:310
Content-Location:/mnID/CAE0120180404T0833201405122522252800_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
"m2m:ae": {
"aei": "CAE0120180404T0833201405122522252800_cse01",
"api": "A01.com.company.Temperature",
"ct": "20180404T083320",
"et": "99991231T235959",
"lbl": [
"indoor_temperature",
"room_1"
],
"lt": "20180404T083320",
"pi": "mnID",
"ri": "CAE0120180404T0833201405122522252800_cse01",
"rn": "ae_sensor",
"rr": false,
"ty": 2,
"srv": [
"1",
"2",
"2a"
]
}
}
</td></tr>
<tr><td>Example with RCN=2</td><td>
API/AE/CRE/001_RCN2

HTTP Request:

POST /mn-name?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: C
Content-Type: application/json;ty=2
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:ae": {
"api": "A01.com.company.Temperature",
"lbl": [
"indoor_temperature",
"room_1"
],
"rr": false,
"rn": "ae_sensor"
}
}

HTTP Response:

201 Created
</td></tr>
</table>

<table>
<tr><td></td><td>Content-Length:40
Content-Location:/mnID/CAE0120180404T083630140512235439872 0_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
"m2m:uri": "mn-name/ae_sensor"
}</td></tr>
<tr><td>Example with RCN=3</td><td>API/AE/CRE/001_RCN3

HTTP Request:

POST /mn-name?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: C
Content-Type: application/json;ty=2
X-M2M-RI: 1234
X-M2M-RVI: 2a

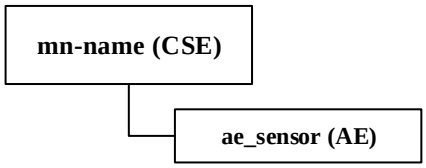
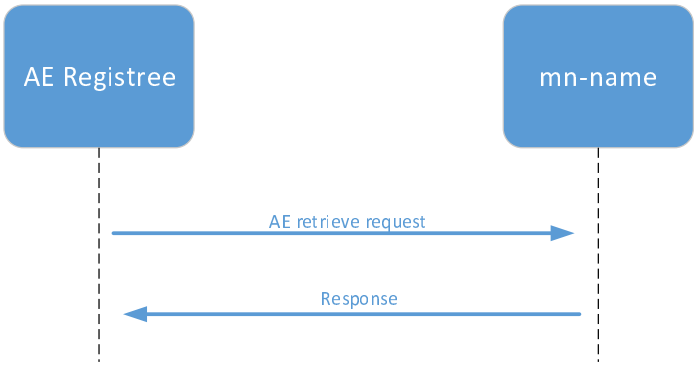
{
"m2m:ae": {
"api": "A01.com.company.Temperature",
"lbl": [
"indoor_temperature",
"room_1"
],
"rr": false,
"rn": "ae_sensor"
}
}

HTTP Response:

201 Created</td></tr>
</table>

	Content-Length:355
	Content-Location:/mnID/CAE0120180404T0838301405122186544640_cse01
	Content-Type:application/json
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	X-M2M-RSC:2001
	
	{
	"m2m:rce": {
	"m2m:ae": {
	"aei": "CAE0120180404T0838301405122186544640_cse01",
	"api": "A01.com.company.Temperature",
	"ct": "20180404T083830",
	"et": "99991231T235959",
	"lbl": [
	"indoor_temperature",
	"room_1"
	],
	"lt": "20180404T083830",
	"pi": "mnID",
	"ri": "CAE0120180404T0838301405122186544640_cse01",
	"rn": "ae_sensor",
	"rr": false,
	"ty": 2,
	"srv": [
	"1",
	"2",
	"2a"
	]
	},
	"uri": "mn-name/ae_sensor"
	}
	}

6.2.4.2 API-AE-RET

<table>
<tr><td>API Id</td><td>API/AE/RET/001_RCN1
API/AE/RET/001_RCN4</td></tr>
<tr><td>API Name</td><td>AE RETRIEVE with or without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td>The <AE> resource located under <CSEBase></td></tr>
<tr><td>Description</td><td>The interface is used to send an <AE> RETRIEVE request attached with resultContent to the <AE> resource located under the <CSEBase> of the CSE, and the hosting CSE will send back a response according to the configured resultContent.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=1 or No RCN</td><td>
API/AE/RET/001
API/AE/RET/001_RCN1

HTTP Request:

GET /mn-name/ae_sensor HTTP/1.1
Accept: application/json
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083830140512218654464O_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:308
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RSC:2000
</td></tr>
</table>

<table>
<tr><td></td><td>
<pre>
{
  "m2m:ae": {
    "aei": "CAE0120180404T083830140512218654464O_cse01",
    "api": "A01.com.company.Temperature",
    "ct": "20180404T083830",
    "et": "99991231T235959",
    "lbl": [
      "indoor_temperature",
      "room_1"
    ],
    "lt": "20180404T083830",
    "pi": "mnID",
    "ri": "CAE0120180404T083830140512218654464O_cse01",
    "rn": "ae_sensor",
    "rr": false,
    "ty": 2,
    "srv": [
      "1",
      "2",
      "2a"
    ]

  }
}
</pre>
</td></tr>
<tr><td>Example with RCN=4</td><td>

API/AE/RET/001_RCN4

HTTP Request:

GET /mn-name/ae_sensor?rcn=4 HTTP/1.1
Accept: application/json
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083830140512218654464O_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a

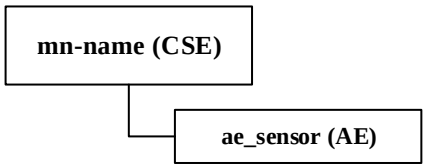
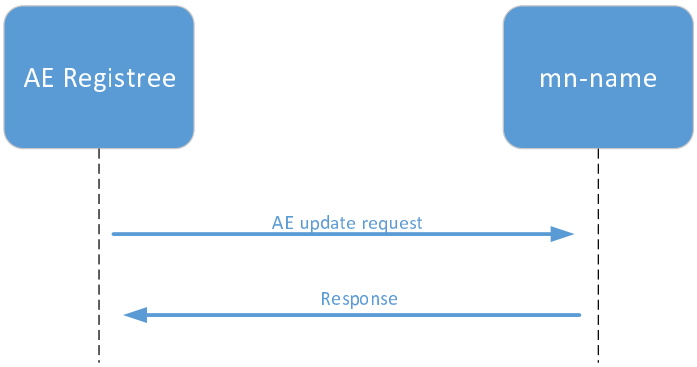
// In the example, the <AE> has 2 child <container> resources cont_temp1 and cont_temp2

HTTP Response:

200 OK
Content-Length:874
Content-Type:application/json
X-M2M-RI:1234
</td></tr>
</table>

```
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
   "m2m:ae": {
      "aei": "CAE0120180404T083830140512218654464 0_cse01",
      "api": "A01.com.company.Temperature",
      "ct": "20180404T083830",
      "et": "99991231T235959",
      "lbl": [
         "indoor_temperature",
         "room_1"
      ],
      "lt": "20180404T084508",
      "m2m:cnt": [
         {
            "cbs": 0,
            "cni": 0,
            "ct": "20180404T084508",
            "et": "99991231T235959",
            "lbl": [
               "indoor_temp"
            ],
            "lt": "20180404T084508",
            "mbs": 60000000,
            "mia": 1600,
            "mni": 10000,
            "pi": "CAE0120180404T083830140512218654464 0_cse01",
            "ri": "cnt20180404T084508140512252225280 1_cse01",
            "rn": "cont_temp2",
            "st": 0,
            "ty": 3
         },
         {
            "cbs": 0,
            "cni": 0,
            "ct": "20180404T084503",
            "et": "99991231T235959",
            "lbl": [
               "indoor_temp"
            ],
            "lt": "20180404T084503",
            "mbs": 60000000,
            "mia": 1600,
            "mni": 10000,
            "pi": "CAE0120180404T083830140512218654464 0_cse01",
            "ri": "cnt20180404T084503140512260617984 0_cse01",
            "rn": "cont_temp1",
            "st": 0,
            "ty": 3
         }
      ],
      "pi": "mnID",
      "ri": "CAE0120180404T083830140512218654464 0_cse01",
      "rn": "ae_sensor",
      "rr": false,
      "ty": 2,
      "srv": [
         "1",
         "2",
         "2a"
      ]
   }
}
```

6.2.4.3 API-AE-UPD

<table>
<tr><td>API Id</td><td>API/AE/UPD/001
API/AE/UPD/001_RCN0
API/AE/UPD/001_RCN1</td></tr>
<tr><td>API Name</td><td>AE UPDATE with or without resultContent set</td></tr>
<tr><td>Target Resource</td><td>The <AE> resource located under <CSEBase> resource of CSE</td></tr>
<tr><td>Description</td><td>The interface is used to send an <AE> UPDATE request to the target <AE> resource under the CSE, and the hosting CSE will send back a response only containing the response status code indicating the request processing status.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>
API/AE/UPD/001_RCN0

HTTP Request:

PUT /mn-name/ae_sensor?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083830140512218654464O_cse01
Content-Type:application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

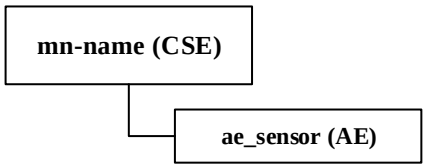
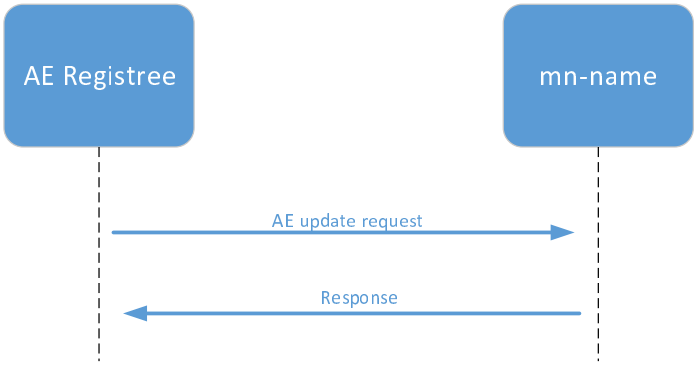
{
"m2m:ae": {
"poa": ["http://ae.temp.com:9090"],
"rr":true
}
}

HTTP Response:

200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2004
</td></tr>
</table>

Example with RCN=1 or No RCN	**API/AE/UPD/001_RCN1**
	
	HTTP Request:
	
	PUT /mn-name/ae_sensor HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE0120180404T083830140512218654464O_cse01
	Content-Type:application/json
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	"m2m:ae": {
	"poa": ["http://ae.temp.com:9090"],
	"rr:":true
	}
	}
	
	HTTP Response:
	
	200 OK
	Content-Length:341
	Content-Type:application/json
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	X-M2M-RSC:2004
	
	{
	"m2m:ae": {
	"aei": "CAE0120180404T083830140512218654464O_cse01",
	"api": "A01.com.company.Temperature",
	"ct": "20180404T083830",
	"et": "99991231T235959",
	"lbl": [
	"indoor_temperature",
	"room_1"
	],
	"lt": "20180404T085903",
	"pi": "mnID",
	"poa": [
	"http://ae.temp.com:9090"
	],
	"ri": "CAE0120180404T083830140512218654464O_cse01",
	"rn": "ae_sensor",
	"rr": true,
	"ty": 2,
	"srv": [
	"1",
	"2",
	"2a"
	]
	
	}
	}

6.2.4.4 API-AE-DEL

<table>
<tr><td>API Id</td><td>API/AE/DEL/001
API/AE/DEL/001_RCN0
API/AE/DEL/001_RCN1</td></tr>
<tr><td>API Name</td><td>AE DELETE</td></tr>
<tr><td>Target Resource</td><td>The <AE> resource located under <CSEBase> resource of CSE</td></tr>
<tr><td>Description</td><td>The interface is used to send an <AE> DELETE request to the hosting CSE, and the hosting CSE will delete the <AE> and send back a response containing a response status code indicating the DELETE request status.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/AE/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/ae_sensor?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083830140512218654464O_cse01
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002</td></tr>
</table>

Example with RCN=1 or no RCN	**API/AE/DEL/001**
	API/AE/DEL/001_RCN1
	
	HTTP Request:
	
	DELETE /mn-name/ae_sensor HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE0120180404T0904581405122774033921_cse01
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Length:308
	Content-Type:application/json
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	X-M2M-RSC:2002
	
	{
	"m2m:ae": {
	"aei": "CAE0120180404T0904581405122774033921_cse01",
	"api": "A01.com.company.Temperature",
	"ct": "20180404T090458",
	"et": "99991231T235959",
	"lbl": [
	"indoor_temperature",
	"room_1"
	],
	"lt": "20180404T090556",
	"pi": "mnID",
	"ri": "CAE0120180404T0904581405122774033921_cse01",
	"rn": "ae_sensor",
	"rr": false,
	"ty": 2,
	"srv": [
	"1",
	"2",
	"2a"
	]
	
	}
	}

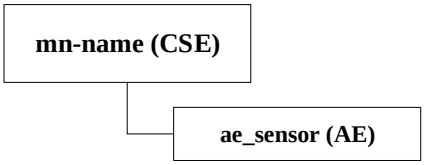
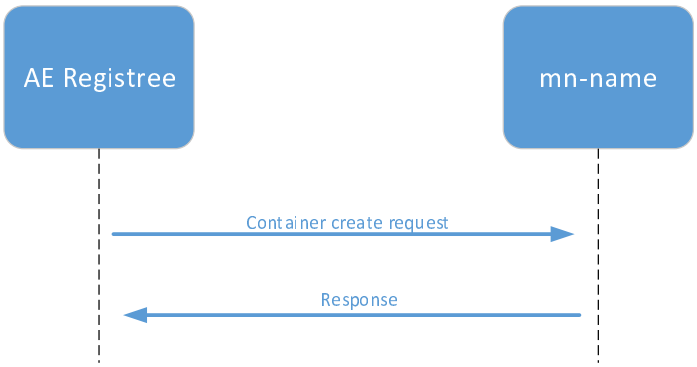
6.2.5 Resource Type *container*

6.2.5.0 Introduction

The <container> resource represents a container for data instances. It is used to share information with other entities and potentially to track the data. A <container> resource has no associated content. It has only attributes and child resources.

The <container> resource can be seen as a container of a group of data instances with same characteristics, for example, sensor measurement of temperature, humidity, illumination, CO2, etc. For example, when a temperature sensor is modelled as application dedicated node and registered with an <AE> resource, a <container> resource can be created under the created <AE> as its child resource to contain temperature measurements. Note that <container> resource has no associated content and the real data is contained in a child resource of container called <contentInstance> which will be introduced in clause 6.2.6.

6.2.5.1 API-CONT-CRE

<table>
<tr><td>API Id</td><td>API/CONT/CRE/001
API/CONT/CRE/001_RCN0
API/CONT/CRE/001_RCN1
API/CONT/CRE/001_RCN2
API/CONT/CRE/001_RCN3</td></tr>
<tr><td>API Name</td><td>container CREATE with and without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><AE> resource as a parent resource of the requested <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <container> CREATE request attached with resultContent under the <AE> resource located in the <CSEBase>. The hosting CSE will create the <container> resource under the <AE>, and send back a response according to the configured resultContent.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/ json; ty=3</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with No RCN or RCN=1</td><td>
API/CONT/CRE/001
API/CONT/CRE/001_RCN1

HTTP Request:

POST /mn-name/ae_sensor HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=3
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:cnt": {
"rn": "cont_temp"
}
}

HTTP Response:

201 Created
Content-Length:265
Content-Location:/mnID/cnt20180406T0857121405855183193600_cse01
Content-Type:application/json
X-M2M-RI:1234
</td></tr>
</table>

<table>
<tr><td></td><td>
X-M2M-RVI: 2a
X-M2M-RSC:2001
{
"m2m:cnt": {
"cbs": 0,
"cni": 0,
"ct": "20180406T085712",
"et": "99991231T235959",
"lt": "20180406T085712",
"mbs": 60000000,
"mia": 1600,
"mni": 10000,
"pi": "CAE0120180406T0846311405855351047680_cse01",
"ri": "cnt20180406T0857121405855183193600_cse01",
"rn": "cont_temp",
"st": 0,
"ty": 3
}
}
</td></tr>
<tr><td>Example with RCN=0</td><td>
API/CONT/CRE/001_RCN/0

HTTP Request:

POST /mn-name/ae_sensor HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=3
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:cnt": {
"rn": "cont_temp"
}
}

HTTP Response:

201 Created
Content-Length:0
Content-Location:/ mnID/cnt20180406T0922111405855351047681_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001
</td></tr>
<tr><td>Example with RCN=2</td><td>
API/CONT/CRE/001_RCN2

HTTP Request:

POST /mn-name/ae_sensor?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=3
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:cnt": {
"rn": "cont_temp"
}
}
</td></tr>
</table>

HTTP Response:

```
201 Created
Content-Length:50
Content-Location:/mnID/cnt20180406T0924461405855854609922_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
   "m2m:uri": "mn-name/ae_sensor/cont_temp"
}
```

Example with RCN=3

API/CONT/CRE/001_RCN3

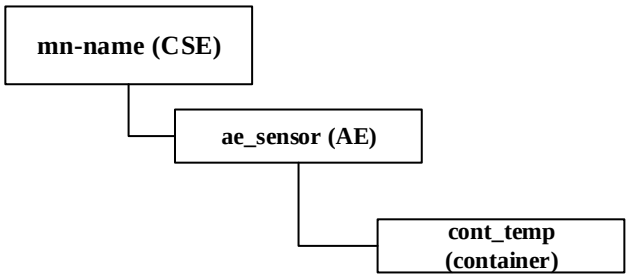
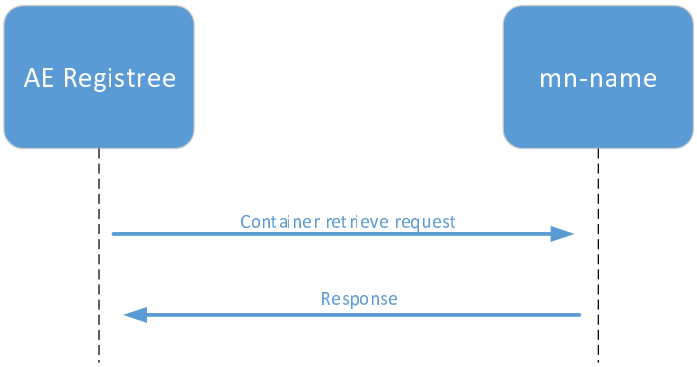
HTTP Request:

```
POST /mn-name/ae_sensor?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=3
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:cnt": {
      "rn": "cont_temp"
   }
}
```

HTTP Response:

```
201 Created
Content-Length:322
Content-Location:/mnID/cnt20180406T0927581405855602828800_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
   "m2m:rce": {
      "m2m:cnt": {
         "cbs": 0,
         "cni": 0,
         "ct": "20180406T092758",
         "et": "99991231T235959",
         "lt": "20180406T092758",
         "mbs": 60000000,
         "mia": 1600,
         "mni": 10000,
         "pi": "CAE0120180406T0846311405855351047680_cse01",
         "ri": "cnt20180406T0927581405855602828800_cse01",
         "rn": "cont_temp",
         "st": 0,
         "ty": 3
      },
      "uri": "mn-name/ae_sensor/cont_temp"
   }
}
```

6.2.5.2 API-CONT-RET

<table>
<tr><td>API Id</td><td>API/CONT/RET/001
API/CONT/RET/001_RCN1
API/CONT/RET/001_RCN4</td></tr>
<tr><td>API Name</td><td>container RETRIEVE with or without resultContent parameter set</td></tr>
<tr><td>Target Resource</td><td>Requested <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <container> RETRIEVE request attached with resultContent to the <container> resource located in the <CSEBase>. The hosting CSE will send back a response according to the configured resultContent.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with No RCN or RCN=1</td><td>
API/CONT/RET/001
API/CONT/RET/001_RCN/1

HTTP Request:

GET /mn-name/ae_sensor/cont_temp HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:265
Content-Type:application/json
X-M2M-RI:1234
</td></tr>
</table>

<table>
<tr><td></td><td>
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
"m2m:cnt": {
"cbs": 0,
"cni": 0,
"ct": "20180406T092758",
"et": "99991231T235959",
"lt": "20180406T092758",
"mbs": 60000000,
"mia": 1600,
"mni": 10000,
"pi": "CAE0120180406T0846311405855351047680_cse01",
"ri": "cnt20180406T0927581405855602828800_cse01",
"rn": "cont_temp",
"st": 0,
"ty": 3
}
}
</td></tr>
<tr><td>Example with RCN=4</td><td>
API/CONT/RET/001_RCN4

HTTP Request:

GET /mn-name/ae_sensor/cont_temp?rcn=4 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE3878123815422295646
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

// Container <cont_temp> has 2 child <contentInstance> resources

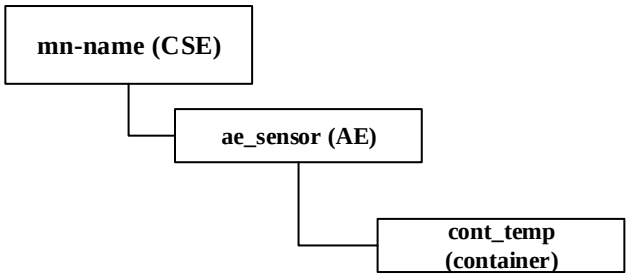
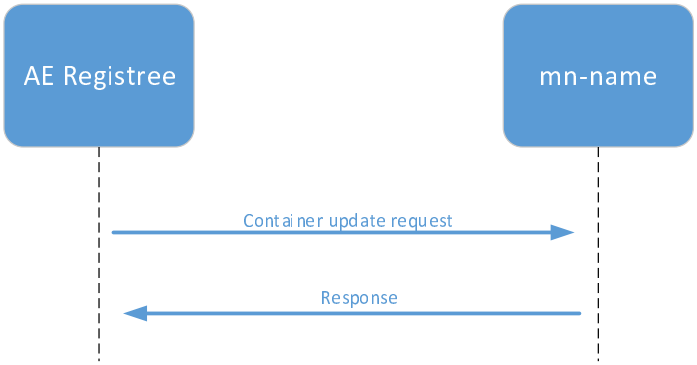
HTTP Response:

200 OK
Content-Length:1347
Content-Type:application/json
X-M2M-Origin:/mnID
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
"m2m:cnt": {
"cbs": 6,
"cni": 2,
"ct": "20180406T092758",
"et": "99991231T235959",
"lt": "20180406T094838",
"m2m:cin": [
{
"con": "27",
"cs": 3,
"ct": "20180406T094838",
"et": "99991231T235959",
"lt": "20180406T094838",
"pi": "cnt20180406T0927581405855602828800_cse01",
"ri": "cin20180406T0948381405855183193602_cse01",
"rn": "cin20180406T0948381405855183193601_cse01",
"st": 2,
"ty": 4
},
{
</td></tr>
</table>

```
                "con": "28",
                "cs": 3,
                "ct": "20180406T094719",
                "et": "99991231T235959",
                "lt": "20180406T094719",
                "pi": "cnt20180406T0927581405855602828800_cse01",
                "ri": "cin20180406T0947191405855686755841_cse01",
                "rn": "cin20180406T0947191405855686755840_cse01",
                "st": 1,
                "ty": 4
            }
        ],
        "mbs": 60000000,
        "mia": 1600,
        "mni": 10000,
        "pi": "CAE0120180406T0846311405855351047680_cse01",
        "ri": "cnt20180406T0927581405855602828800_cse01",
        "rn": "cont_temp",
        "st": 2,
        "ty": 3
    }
}
```


6.2.5.3 API-CONT-UPD

API Id	API/CONT/UPD/001 API/CONT/UPD/001_RCN0 API/CONT/UPD/001_RCN1
API Name	container UPDATE with or without resultContent set
Target Resource	Requested <container> resource
Description	The interface is used to send a <container> UPDATE request to the target <container> resource located under the CSE, and the hosting CSE will respond with only the response status code to indicate the UPDATE operation status.
Resource Structure before Sending Request	
Call Flow	

HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example with RCN=0

API/CONT/UPD/001_RCN0

HTTP Request:

```
PUT /mn-name/ae_sensor/cont_temp?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json
X-M2M-RI:1234
X-M2M-RVI: 2a

{
   "m2m:cnt": {
      "mni": 400,
      "lbl": ["indoor_temperature"]
   }
}
```

HTTP Response:

```
200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2004
```

Example with No RCN or RCN=1

API/CONT/UPD/001

HTTP Request:

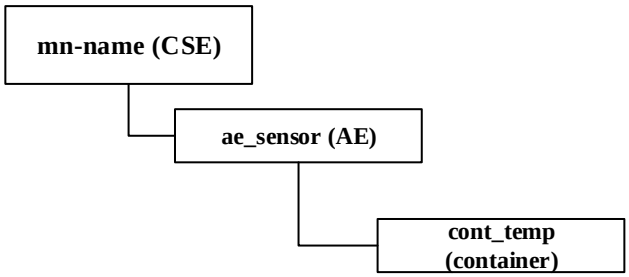
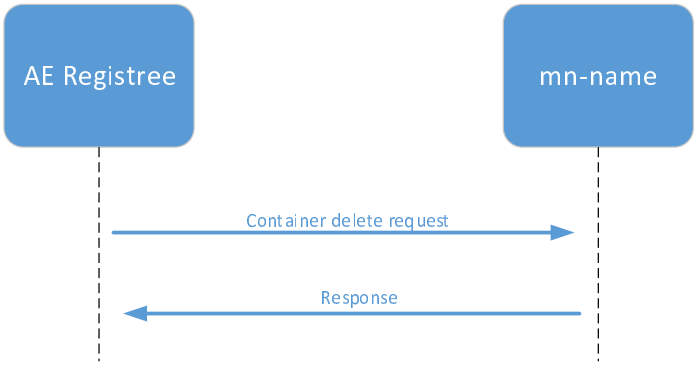
```
PUT /mn-name/ae_sensor/cont_temp HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Accept: application/json
X-M2M-RI:1234
X-M2M-RVI: 2a

{
   "m2m:cnt": {
      "mni": 300,
      "lbl": ["indoor_temp"]
   }
}
```

HTTP Response:

```
200 OK
Content-Length:285
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2004
```

```
{
   "m2m:cnt": {
      "cbs": 0,
      "cni": 0,
      "ct": "20180406T125807",
      "et": "99991231T235959",
      "lbl": [
         "indoor_temp"
      ],
      "lt": "20180406T130109",
      "mbs": 60000000,
      "mia": 1600,
      "mni": 300,
      "pi": "CAE0120180406T084631140585535104768O_cse01",
      "ri": "cnt20180406T125807140585518319360 3_cse01",
      "rn": "cont_temp",
      "st": 1,
      "ty": 3
   }
}
```


6.2.5.4 API-CONT-DEL

API Id	API/CONT/DEL/001 API/CONT/DEL/001_RCN0
API Name	container DELETE with no resultContent (or resultContent set to 0)
Target Resource	Requested <container> resource
Description	The interface is used to send a <container> DELETE request to a target <container> resource located under the CSE, and the hosting CSE will respond with only response status code to indicate the DELETE operation status.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example with RCN=0	**API/CONT/DEL/001_RCN0** **HTTP Request:** DELETE /mn-name/ae_sensor/cont_temp?rcn=0 HTTP/1.1 Host: 192.168.0.10:8282 X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01 X-M2M-RI:1234 X-M2M-RVI: 2a **HTTP Response:** 200 OK Content-Length:0 X-M2M-RI:1234 X-M2M-RVI: 2a X-M2M-RSC:2002

Example with No RCN or RCN=1	**API/CONT/DEL/001**
	API/CONT/DEL/001_RCN1
	
	HTTP Request:
	
	DELETE /mn-name/ae_sensor/cont_temp HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	X-M2M-Origin:/mnID
	X-M2M-RI:1234
	X-M2M-RVI: 2a
	X-M2M-RSC:2002
	{
	"m2m:cnt": {
	"cbs": 0,
	"cni": 0,
	"ct": "20180406T125807",
	"et": "99991231T235959",
	"lbl": [
	"indoor_temp"
	],
	"lt": "20180406T130330",
	"mbs": 60000000,
	"mia": 1600,
	"mni": 400,
	"pi": "CAE0120180406T0846311405855351047680_cse01",
	"ri": "cnt20180406T1258071405855183193603_cse01",
	"rn": "cont_temp",
	"st": 2,
	"ty": 3
	}
	}

6.2.6 Resource Type *contentInstance*

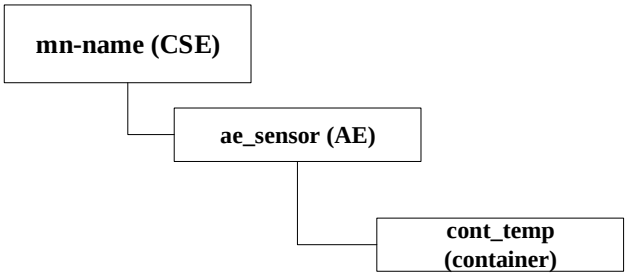
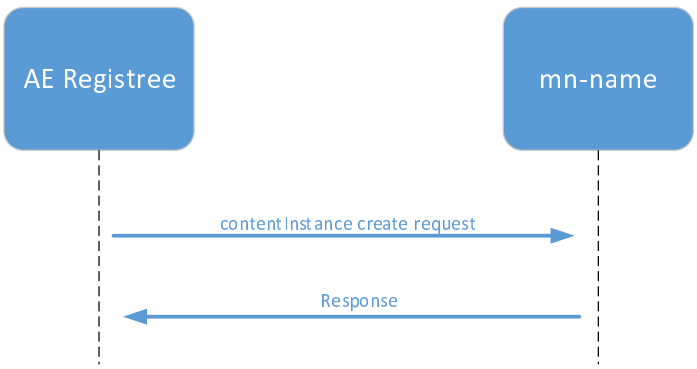
6.2.6.0 Introduction

The <contentInstance> resource represents a data instance stored in the <container> resource. Taking a temperature sensor device as an example, the temperature sensor is designed to collect temperature data of environment and in this case, the real temperature data is modelled as a <contentInstance> resource. In details, we assume both the temperature sensor is registered with <AE> resource and a <container> resource is created under the <AE> to store temperature instances, under this consumption, whenever the temperature data is uploaded into a central server, the temperature data has to be denoted as a value of *content* attribute of <contentInstance> resource.

The <contentInstance> resource cannot be modified once created, and is able to be deleted explicitly by an AE or may be deleted by the platform based on specific policies. If the platform has policies to manage the <contentInstance> resource, these policies are represented by attributes *axByteSize*, *maxNrOfInstances* and/or *maxInstanceAge* attributes in their parent <container> resource.

The <contentInstance> resource inheritances the same access control policies of its parent <*container*> resource, and does not have its own *accessControlPolicyIDs* attribute.

6.2.6.1 API-CI-CRE

API Id	API/CI/CRE/001 API/CI/CRE/001_RCN0 API/CI/CRE/001_RCN1 API/CI/CRE/001_RCN2 API/CI/CRE/001_RCN3
API Name	contentInstance CREATE with or without resultContent parameter
Target Resource	The <container> resource as a parent resource of being created <contentInstance> resource
Description	The interface is used to send a <contentInstance> CREATE request to the target <container> resource located under the CSE, and the hosting CSE will create a new <contentInstance> under the requested <container>, and send back a response containing only the response status code to indicate the CREATE operation status.
Resource Structure before Sending Request	
Call Flow	

HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json;ty=**4**
X-M2M-RVI	Release Version Indicator

Example with rcn=0

API/CI/CRE/001_RCN/0

HTTP Request:

```
POST /mn-name/ae_sensor/cont_temp?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=4
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:cin": {
      "con": "20"
   }
}
```

HTTP Response:

```
201 Created
Content-Length:0
Content-Location:/mnID/cin20180406T1358251405855267120642_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001
```

Example with No RCN or RCN=1

API/CI/CRE/001
API/CI/CRE/001_RCN1

HTTP Request:

```
POST /mn-name/ae_sensor/cont_temp HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=4
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:cin": {
      "con": "20"
   }
}
```

HTTP Response:

```
201 Created
Content-Length:258
Content-Location:/mnID/cin20180406T1355091405855351047683_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
```

<table>
<tr><td></td><td>X-M2M-RSC:2001

{
"m2m:cin": {
"con": "20",
"cs": 2,
"ct": "20180406T135509",
"et": "99991231T235959",
"lt": "20180406T135509",
"pi": "cnt20180406T1353041405855518901760_cse01",
"ri": "cin20180406T1355091405855351047683_cse01",
"rn": "cin20180406T1355091405855351047682_cse01",
"st": 1,
"ty": 4
}
}</td></tr>
<tr><td>Example with RCN=2</td><td>API/CI/CRE/001_RCN2

HTTP Request:

POST /mn-name/ae_sensor/cont_temp?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=4
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:cin": {
"con": "20"
}
}

HTTP Response:

201 Created
Content-Length:91
Content-Location:/mnID/cin20180406T1400131405855099266562_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
"m2m:uri": "mn-name/ae_sensor/cont_temp/cin20180406T1400131405855099266561_cse01"
}</td></tr>
<tr><td>Example with RCN=3</td><td>API/CI/CRE/001_RCN3

HTTP Request:

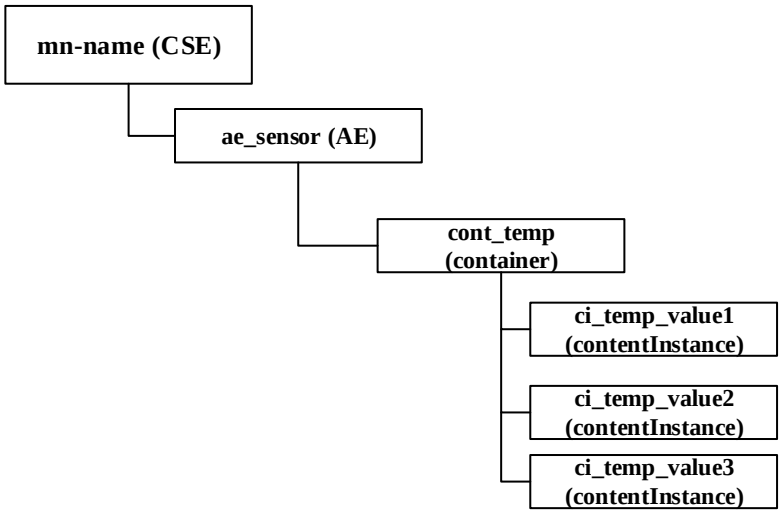
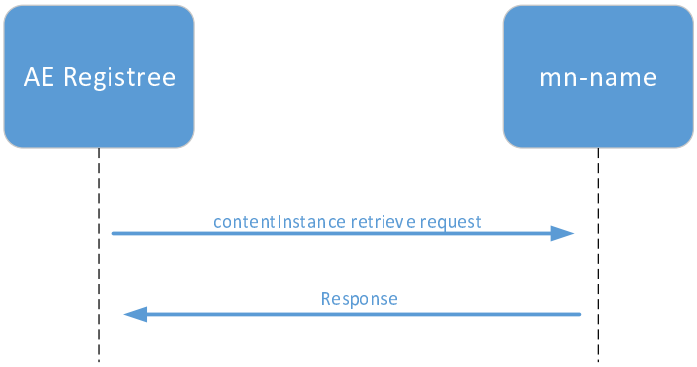
POST /mn-name/ae_sensor/cont_temp?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
Content-Type: application/json;ty=4
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:cin": {
"con": "20"
}
}</td></tr>
</table>

HTTP Response:

```
201 Created
Content-Length:356
Content-Location:/mnID/cin20180406T1402131405855770682883_cse01
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

{
   "m2m:rce": {
      "m2m:cin": {
         "con": "20",
         "cs": 2,
         "ct": "20180406T140213",
         "et": "99991231T235959",
         "lt": "20180406T140213",
         "pi": "cnt20180406T1353041405855518901760_cse01",
         "ri": "cin20180406T1402131405855770682883_cse01",
         "rn": "cin20180406T1402131405855770682882_cse01",
         "st": 4,
         "ty": 4
      },
      "uri": "mn-name/ae_sensor/cont_temp/cin20180406T1402131405855770682882_cse01"
   }
}
```

6.2.6.2 API-CI-RET

<table>
<tr><td>API Id</td><td>API/CI/RET/001_LA
API/CI/RET/001_OL
API/CI/RET/001_CI</td></tr>
<tr><td>API Name</td><td>Latest, Oldest or specific contentInstance RETRIEVE</td></tr>
<tr><td>Target Resource</td><td><latest>, <oldest> virtual resources or individual <contentInstance> resource of the requested <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <contentInstance> RETRIEVE request to the CSE, and the hosting CSE will send back a response containing the result.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with latest</td><td>
API/CI/RET/001_LA

HTTP Request:

GET /mn-name/ae_sensor/cont_temp/la HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:258
Content-Type:application/json
</td></tr>
</table>

<table>
<tr><td></td><td>X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
"m2m:cin": {
"con": "20",
"cs": 2,
"ct": "20180406T140213",
"et": "99991231T235959",
"lt": "20180406T140213",
"pi": "cnt20180406T1353041405855518901760_cse01",
"ri": "cin20180406T1402131405855770682883_cse01",
"rn": "cin20180406T1402131405855770682882_cse01",
"st": 4,
"ty": 4
}
}</td></tr>
<tr><td>Example with oldest</td><td>API/CI/RET/001_OL

HTTP Request:

GET /mn-name/ae_sensor/cont_temp/ol HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:258
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
"m2m:cin": {
"con": "20",
"cs": 2,
"ct": "20180406T135509",
"et": "99991231T235959",
"lt": "20180406T135509",
"pi": "cnt20180406T1353041405855518901760_cse01",
"ri": "cin20180406T1355091405855351047683_cse01",
"rn": "cin20180406T1355091405855351047682_cse01",
"st": 1,
"ty": 4
}
}</td></tr>
<tr><td>Example with CI name</td><td>API/CI/RET/001_CI

HTTP Request:

GET /mn-name/ae_sensor/cont_temp/cin20180406T1400131405855099266561_cse01 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

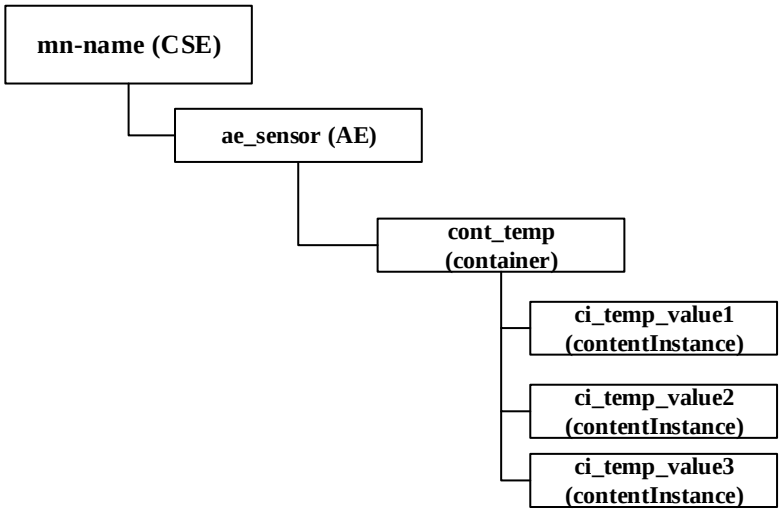
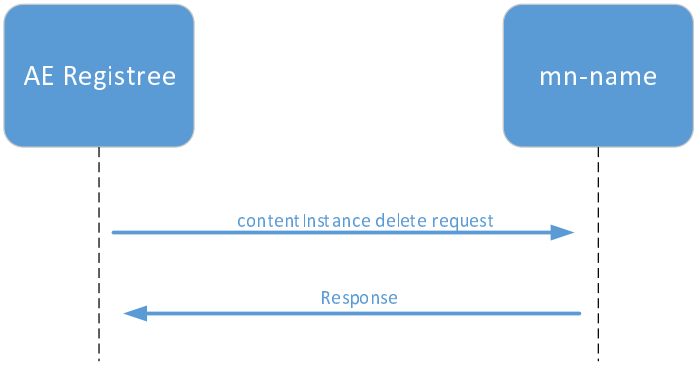
HTTP Response:

```
200 OK
Content-Length:258
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2000

{
    "m2m:cin": {
        "con": "20",
        "cs": 2,
        "ct": "20180406T140013",
        "et": "99991231T235959",
        "lt": "20180406T140013",
        "pi": "cnt20180406T1353041405855518901760_cse01",
        "ri": "cin20180406T1400131405855099266562_cse01",
        "rn": "cin20180406T1400131405855099266561_cse01",
        "st": 3,
        "ty": 4
    }
}
```

6.2.6.3 API-CI-DEL

<table>
<tr><td>API Id</td><td>API/CI/DEL/001_LA
API/CI/DEL/001_LA_RCN0

API/CI/DEL/001_OL
API/CI/DEL/001_OL_RCN0

API/CI/DEL/001_CI
API/CI/DEL/001_CI_RCN0</td></tr>
<tr><td>API Name</td><td>Latest, Oldest or specific contentInstance DELETE</td></tr>
<tr><td>Target Resource</td><td><latest>, <oldest> virtual resources or individual <contentInstance> resource of the requested <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <container> DELETE request to the CSE, and the hosting CSE will delete the <contentInstance>, and send back a response containing the response status code to indicate the status of the DELETE operation.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with latest

(No RCN or RCN=1)</td><td>API/CI/DEL/001_LA

HTTP Request:

DELETE /mn-name/ae_sensor/cont_temp/la HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T084631140585535104768O_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

HTTP Response:

```
200 OK
Content-Length:258
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002

{
   "m2m:cin": {
      "con": "20",
      "cs": 2,
      "ct": "20180406T140213",
      "et": "99991231T235959",
      "lt": "20180406T140213",
      "pi": "cnt20180406T1353041405855518901760_cse01",
      "ri": "cin20180406T1402131405855770682883_cse01",
      "rn": "cin20180406T1402131405855770682882_cse01",
      "st": 4,
      "ty": 4
   }
}
```

Example with latest and RCN=0

API/CI/DEL/001_LA_RCN0

HTTP Request:

```
DELETE /mn-name/ae_sensor/cont_temp/la?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002
```

Example with oldest

(No RCN or RCN=1)

API/CI/DEL/001_OL

HTTP Request:

```
DELETE /mn-name/ae_sensor/cont_temp/ol HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
200 OK
Content-Length:258
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002
```

<table>
<tr><td></td><td>
<pre>
{
   "m2m:cin": {
      "con": "20",
      "cs": 2,
      "ct": "20180406T135509",
      "et": "99991231T235959",
      "lt": "20180406T135509",
      "pi": "cnt20180406T1353041405855518901760_cse01",
      "ri": "cin20180406T1355091405855351047683_cse01",
      "rn": "cin20180406T1355091405855351047682_cse01",
      "st": 1,
      "ty": 4
   }
}
</pre>
</td></tr>
<tr><td>Example with oldest and RCN=0</td><td>

API/CI/DEL/001_OL_RCN0

HTTP Request:

DELETE /mn-name/ae_sensor/cont_temp/ol?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002
</td></tr>
<tr><td>Example with CI name

(No RCN or RCN=1)</td><td>

API/CI/DEL/001_CI

HTTP Request:

DELETE /mn-name/ae_sensor/cont_temp/cin20180406T1400131405855099266561_cse01 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
X-M2M-Origin:/mnID
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002

<pre>
{
   "m2m:cin": {
      "con": "20",
      "cs": 2,
      "ct": "20180406T143434",
      "et": "99991231T235959",
      "lt": "20180406T143434",
      "pi": "cnt20180406T1353041405855518901760_cse01",
      "ri": "cin20180406T1434341405855518901762_cse01",
      "rn": "cin20180406T1434341405855518901761_cse01",
      "st": 9,
      "ty": 4
</pre>
</td></tr>
</table>

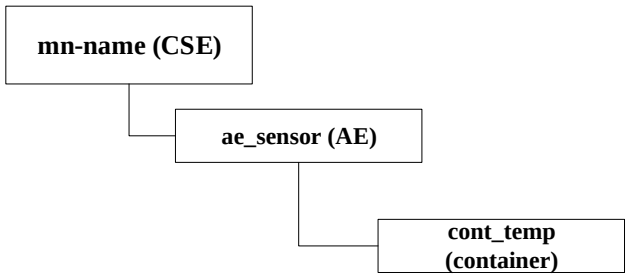
	} }
Example with CI name and RCN=0	**API/CI/DEL/001_CI_RCN0** **HTTP Request:** DELETE /mn-name/ae_sensor/cont_temp/cin20180406T1400131405855099266561_cse01?rcn=0 HTTP/1.1 Host: 192.168.0.10:8282 X-M2M-Origin: CAE0120180406T0846311405855351047680_cse01 X-M2M-RI: 1234 X-M2M-RVI: 2a **HTTP Response:** 200 OK Content-Length:0 X-M2M-RI:1234 X-M2M-RVI: 2a X-M2M-RSC:2002

6.2.7 Resource Type *semanticDescriptor*

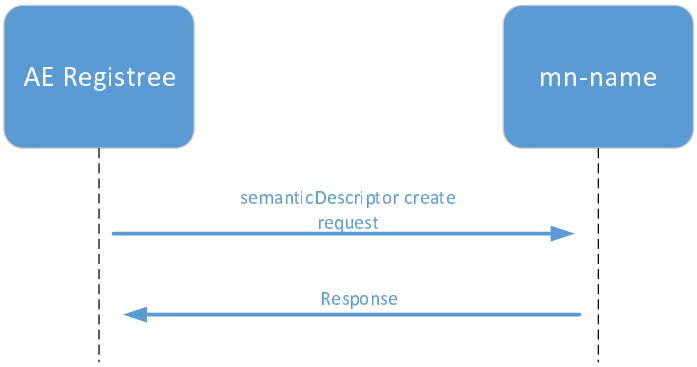
6.2.7.0 Introduction

The <semanticDescriptor> resource is used to store a semantic description pertaining to a resource and potentially sub-resources. Such a description may be provided according to ontologies. The semantic information is used by the semantic functionalities of the oneM2M system and is also available to applications or CSEs.

6.2.7.1 API-SMD-CRE

API Id	API/SMD/CRE/001 API/SMD/CRE/001_RCN0 API/SMD/CRE/001_RCN1 API/SMD/CRE/001_RCN3
API Name	semanticDescriptor CREATE with or without resultContent parameter
Target Resource	The <container> resource as a parent resource of being created <semanticDescriptor> resource
Description	The interface is used to send a <semanticDescriptor> CREATE request to the target <container> resource located under the CSE, and the hosting CSE will create a new <semanticDescriptor> under the requested <container>, and send back a response according to the configured resultContent.
Resource Structure before Sending Request	

Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json;ty=**24**
X-M2M-RVI	Release Version Indicator

RDF content

The RDF content will be encode Base64 in the HTTP payload

```
<?xml version="1.0"?>
<rdf:RDF xmlns="http://www.onem2m.org/ontology/houses_temperature_example#"
    xml:base="http://www.onem2m.org/ontology/houses_temperature_example"
    xmlns:temperature_example="http://www.onem2m.org/ontology/temperature_example#"
    xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
    xmlns:owl="http://www.w3.org/2002/07/owl#"
    xmlns:xml="http://www.w3.org/XML/1998/namespace"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema#"
    xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#">

   <owl:NamedIndividual
rdf:about="http://www.onem2m.org/ontology/houses_temperature_example#House1">
       <rdf:type rdf:resource="http://www.onem2m.org/ontology/temperature_example#House"/>
       <temperature_example:hasIndoorTemperature
rdf:resource="http://www.onem2m.org/ontology/houses_temperature_example#IndoorTempPropert
y1"/>
   </owl:NamedIndividual>

   <owl:NamedIndividual
rdf:about="http://www.onem2m.org/ontology/houses_temperature_example#IndoorTempProperty1"
>
       <rdf:type
rdf:resource="http://www.onem2m.org/ontology/temperature_example#TemperatureProperty"/>
       <temperature_example:hasDatatype>xsd:int</temperature_example:hasDatatype>
       <temperature_example:hasUnit>Fahrenheit</temperature_example:hasUnit>
       <temperature_example:valueIsStoredIn>http://mnprovider.com:9011/mn-
name/ae_sensor/cont_temp/la</temperature_example:valueIsStoredIn>
   </owl:NamedIndividual>
</rdf:RDF>
```

Example with RCN=0

API/SMD/CRE/001_RCN0

HTTP Request:

```
POST /mn-name/ae_sensor/cont_temp?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083018140512285796096O_cse01
Content-Type: application/json;ty=24
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:smd" : {
      "dcrp"     : "application/rdf+xml:1",
```

	"rn" : "semantic_describer", "dsr": "PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8cmRmOlJERiB4bWxucz0iaHR0cDovL3d3dy5v bmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFtcGxlIyINCiAgICAgeG1sO mJhc2U9Imh0dHA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS9ob3VzZXNfdGVtcGVyYXR1cmVfZ XhhbXBsZSINCiAgICAgeG1sbnM6dGVtcGVyYXR1cmVfZXhhbXBsZT0iaHR0cDovL3d3dy5vbmVt Mm0ub3JnL29udG9sb2d5L3RlbXBlcmF0dXJlX2V4YW1wbGUjIg0KICAgICB4bWxuczpyZGY9Imh0 dHA6Ly93d3cudzMub3JnLzE5OTkvMDIvMjItcmRmLXN5bnRheC1ucyMiDQogICAgIHhtbG5zOm93 bD0iaHR0cDovL3d3dy53My5vcmcvMjAwMi8wNy9vd2wjIg0KICAgICB4bWxuczp4bWw9Imh0dHA6 Ly93d3cudzMub3JnL1hNTC8xOTk4L25hbWVzcGFjZSINCiAgICAgeG1sbnM6eHNkPSJodHRwOi8 vd3d3LnczLm9yZy8yMDAxL1hNTFNjaGVtYSMiDQogICAgIHhtbG5zOnJkZnM9Imh0dHA6Ly93d3c udzMub3JnLzIwMDAvMDEvcmRmLXNjaGVtYSMiPg0KICAgIDxvd2w6TmFtZWRJbmRpdmlkdWFs IHJkZjphYm91dD0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhd HVyZV9leGFtcGxlI0hvdXNlMSI+DQogICAgICAgIDxyZGY6dHlwZSByZGY6cmVzb3VyY2U9Imh0d HA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS90ZW1wZXJhdHVyZV9leGFtcGxlI0hvdXNlIi8+DQog ICAgICAgIDx0ZW1wZXJhdHVyZV9leGFtcGxlOmhhc0luZG9vclRlbXBlcmF0dXJlIHJkZjpyZXNvdXJj ZT0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFt cGxlI0luZG9vclRlbXBQcm9wZXJ0eTEiLz4NCiAgICA8L293bDpOYW1lZEluZGl2aWR1YWw+DQogI CAgPG93bDpOYW1lZEluZGl2aWR1YWwgcmRmOmFib3V0PSJodHRwOi8vd3d3Lm9uZW0ybS5v cmcvb250b2xvZ3kvaG91c2VzX3RlbXBlcmF0dXJlX2V4YW1wbGUjSW5kb29yVGVtcFByb3BlcnR5 MSI+DQogICAgICAgIDxyZGY6dHlwZSByZGY6cmVzb3VyY2U9Imh0dHA6Ly93d3cub25lbTJtLm9y Zy9vbnRvbG9neS90ZW1wZXJhdHVyZV9leGFtcGxlI1RlbXBlcmF0dXJlUHJvcGVydHkiLz4NCiAgIC AgICAgPHRlbXBlcmF0dXJlX2V4YW1wbGU6aGFzRGF0YXR5cGU+eHNkOmludDwvdGVtcGVyYX R1cmVfZXhhbXBsZTpoYXNEYXRhdHlwZT4NCiAgICAgICAgPHRlbXBlcmF0dXJlX2V4YW1wbGU6 aGFzVW5pdD5GYWhyZW5oZWl0PC90ZW1wZXJhdHVyZV9leGFtcGxlOmhhc1VuaXQ+DQogICA gICAgIDx0ZW1wZXJhdHVyZV9leGFtcGxlOnZhbHVlSXNTdG9yZWRJbj5odHRwOi8vbW5wcm92a WRlci5jb206OTAxMS9tbi1uYW1lL2FlX3NlbnNvci9jb250X3RlbXAvbGE8L3RlbXBlcmF0dXJlX2V4Y W1wbGU6dmFsdWVJc1N0b3JlZEluPg0KICAgIDwvb3dsOk5hbWVkSW5kaXZpZHVhbD4NCjwvcm RmOlJERj4=" } } **HTTP Response:** 201 Created Content-Length:0 Content-Location:/mnID/CAE0120180404T083018140512285796O960_cse01 X-M2M-RI:1234 X-M2M-RVI: 2a X-M2M-RSC:2001

Example with no RCN or RCN=1	**API/SMD/CRE/001**
	API/SMD/CRE/001_RCN1
	
	HTTP Request:
	
	POST /mn-name/ae_sensor/cont_temp HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE0120180404T083018140512285796O960_cse01
	Content-Type: application/json;ty=24
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	"m2m:smd" : {
	"dcrp" : "application/rdf+xml:1",
	"rn" : "semantic_describer",
	"dsr": "PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8cmRmOlJERiB4bWxucz0iaHR0cDovL3d3dy5v
	bmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFtcGxlIyINCiAgICAgeG1sO
	mJhc2U9Imh0dHA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS9ob3VzZXNfdGVtcGVyYXR1cmVfZ
	XhhbXBsZSINCiAgICAgeG1sbnM6dGVtcGVyYXR1cmVfZXhhbXBsZT0iaHR0cDovL3d3dy5vbmVt
	Mm0ub3JnL29udG9sb2d5L3RlbXBlcmF0dXJlX2V4YW1wbGUjIg0KICAgICB4bWxuczpyZGY9Imh0
	dHA6Ly93d3cudzMub3JnLzE5OTkvMDIvMjItcmRmLXN5bnRheC1ucyMiDQogICAgIHhtbG5zOm93
	bD0iaHR0cDovL3d3dy53My5vcmcvMjAwMi8wNy9vd2wjIg0KICAgICB4bWxuczp4bWw9Imh0dHA6
	Ly93d3cudzMub3JnL1hNTC8xOTk4L25hbWVzcGFjZSINCiAgICAgeG1sbnM6eHNkPSJodHRwOi8
	vd3d3LnczLm9yZy8yMDAxL1hNTFNjaGVtYSMiDQogICAgIHhtbG5zOnJkZnM9Imh0dHA6Ly93d3c
	udzMub3JnLzIwMDAvMDEvcmRmLXNjaGVtYSMiPg0KICAgIDxvd2w6TmFtZWRJbmRpdmlkdWFs

IHJkZjphYm91dD0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhd
HVyZV9leGFtcGxlI0hvdXNlMSI+DQogICAgICAgIDxyZGY6dHlwZSByZGY6cmVzb3VyY2U9Imh0d
HA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS90ZW1wZXJhdHVyZV9leGFtcGxlI0hvdXNlIi8+DQog
ICAgICAgIDx0ZW1wZXJhdHVyZV9leGFtcGxlOmhhc0luZG9vclRlbXBlcmF0dXJlIHJkZjpyZXNvdXJj
ZT0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFt
cGxlI0luZG9vclRlbXBQcm9wZXJ0eTEiLz4NCiAgICA8L293bDpOYW1lZEluZGl2aWR1YWw+DQogI
CAgPG93bDpOYW1lZEluZGl2aWR1YWwgcmRmOmFib3V0PSJodHRwOi8vd3d3Lm9uZW0ybS5v
cmcvb250b2xvZ3kvaG91c2VzX3RlbXBlcmF0dXJlX2V4YW1wbGUjSW5kb29yVGVtcFByb3BlcnR5
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Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a

X-M2M-RSC:2001

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        "dcrp": "application/rdf+xml:1",
        "dsp":
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        "lt": "20180413T125601",
        "or": "http://www.onem2m.org/ontology/temperature_example",
        "pi": "cnt20180413T0847561400030050526720_cse01",
        "ri": "smd20180413T1256011400030218380800_cse01",
        "rn": "semantic_describer",
        "ty": 24
    }
}

Example with RCN=3

API/SMD/CRE/001
API/SMD/CRE/001_RCN3

HTTP Request:

POST /mn-name/ae_sensor/cont_temp?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T0830181405122857960960_cse01
Content-Type: application/json;ty=24
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
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"rn" : "semantic_describer",
"dsr": "PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8cmRmOlJERiB4bWxucz0iaHR0cDovL3d3dy5v
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RmOlJERj4="
}
}

HTTP Response:

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Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2001

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"m2m:smd": {
"ct": "20180413T125601",
"dcrp": "application/rdf+xml:1",
"dsp":
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                "ri": "smd20180413T125601140003021838080O_cse01",
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            "uri": "mn-name/ae_sensor/cont_temp/semantic_describer"
        }
}
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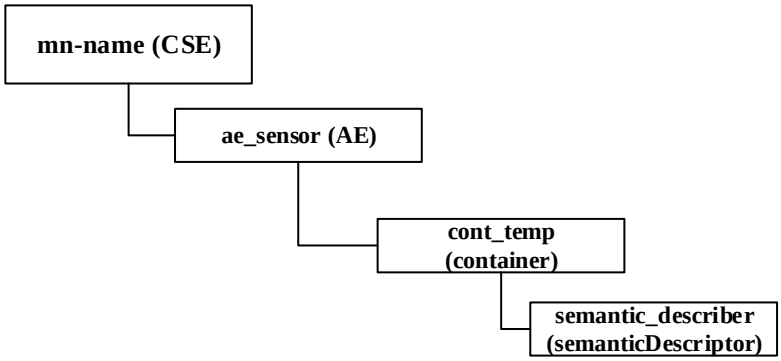
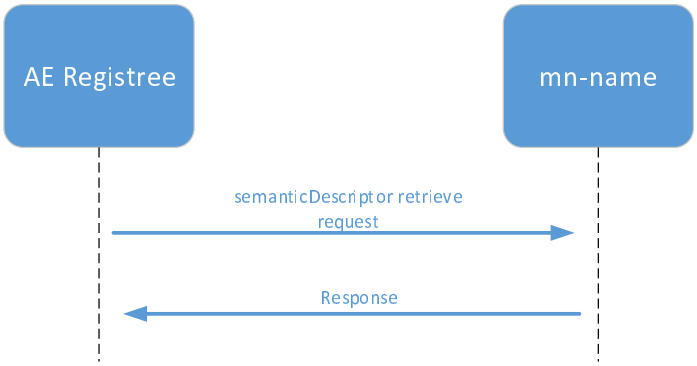
6.2.7.2 API-SMD-RET

<table>
<tr><td>API Id</td><td>API/SMD/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td>SemanticDescriptor RETRIEVE with or without resultContent parameter</td></tr>
<tr><td>Target Resource</td><td>Requested <semanticDescriptor> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <semanticDescriptor> RETRIEVE request attached with resultContent to the <container> resource located in the <CSEBase>. The hosting CSE will send back a response according to the configured resultContent.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=1 or No RCN</td><td>
API/SMD/RET/001
API/SMD/RET/001_RCN1

HTTP Request:

GET /mn-name/ae_sensor/cont_temp/semantic_describer HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T0838301405122186544640_cse01
Accept: application/json
X-M2M-RI:1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:3374
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
</td></tr>
</table>

X-M2M-RSC:2000

{
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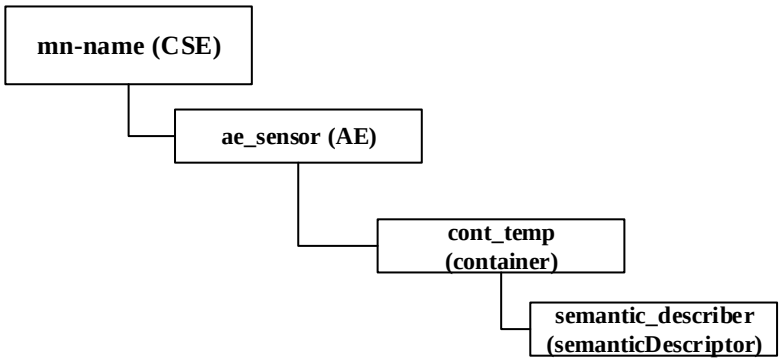
        "lt": "20180413T125601",
        "or": "http://www.onem2m.org/ontology/temperature_example",
        "pi": "cnt20180413T084756140003005052 6720_cse01",
        "ri": "smd20180413T125601140003021838 0800_cse01",
        "rn": "semantic_describer",
        "ty": 24
    }
}

6.2.7.3 API-SMD-UPD

<table>
<tr><td>API Id</td><td>API/SMD/UPD/001
API/SMD/UPD/001_RCN0
API/SMD/UPD/001_RCN1</td></tr>
<tr><td>API Name</td><td>semanticDescriptor UPDATE with or without resultContent set</td></tr>
<tr><td>Target Resource</td><td>The < semanticDescriptor > resource located under <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <semanticDescriptor> UPDATE request to the target <container> resource located under the CSE, and the hosting CSE will create a new <semanticDescriptor> under the requested <container>, and send back a response according to the configured resultContent.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
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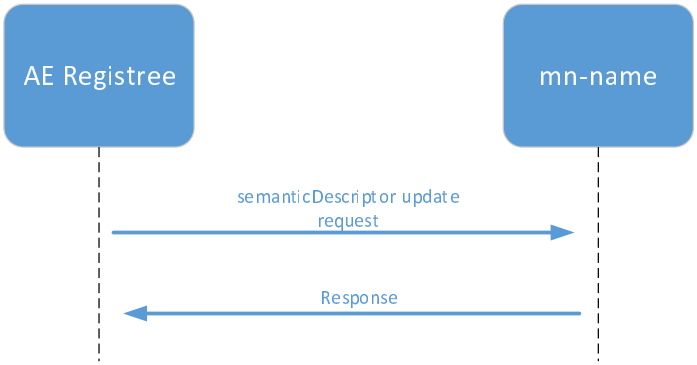
<tr><td>Call Flow</td><td> 
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<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/AE/UPD/001_RCN0

HTTP Request:

PUT /mn-name/ae_sensor/cont_temp/semantic_describer?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083018140512285796096O_cse01
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:smd" : {

"dsp":
" PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8cmRmOlJERiB4bWxucz0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFtcGxlIyINCiAgICAgeG1sOmJhc2U9Imh0dHA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS9ob3VzZXNfdGVtcGVyYXR1cmVfZXhhbXBsZSINCiAgICAgeG1sbnM6dGVtcGVyYXR1cmVfZXhhbXBsZT0iaHR0cDovL3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L3RlbXBlcmF0dXJlX2V4YW1wbGUjIg0KICAgICB4bWxuczpyZGY9Imh0dHA6Ly93d3cudzMub3JnLzE5OTkvMDIvMjItcmRmLXN5bnRheC1uczMiDQogICAgIHhtbG5zOm93bD0iaHR0</td></tr>
</table>

<table>
<tr>
<td></td>
<td>
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"or": "http://www.onem2m.org/ontology/temperature_example2",

}
}

HTTP Response:

200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2004
</td>
</tr>
<tr>
<td>Example with RCN=1 or No RCN</td>
<td>
API/AE/UPD/001
API/AE/UPD/001_RCN1

HTTP Request:

PUT /mn-name/ae_sensor/cont_temp/semantic_describer HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T0830181405122857960960_cse01
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:smd" : {

"dsp":
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</td>
</tr>
</table>

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"or": "http://www.onem2m.org/ontology/temperature_example2",

}
}

HTTP Response:

200 OK
Content-Length:2405
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a

```
X-M2M-RSC:2004

{
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      "ct": "20180413T125601",
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      "dsp":
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0Pg0KICAgICAgICA8dGVtcGVyYXR1cmVfZXhhbXBsZTp2YWx1ZUlzU3RvcmVkSW4+aHR0cDov
L2luLnByb3ZpZGVyLmNvbTo4MjgyL3NlcnZlci90ZW1wc2Vuc29yYWUxL3RlbXBlcmF0dXJlL2xhdG
VzdDwvdGVtcGVyYXR1cmVfZXhhbXBsZTp2YWx1ZUlzU3RvcmVkSW4+DQogICAgPC9vd2w6Tm
FtZWRJbmRpdmlkdWFsPg0KPC9yZGY6UkRGPg==",
      "et": "99991231T235959",
      "lt": "20180413T150302",
      "or": "http://www.onem2m.org/ontology/temperature_example2",
      "pi": "cnt20180413T084756140003005052672O_cse01",
      "ri": "smd20180413T125601140003021838080O_cse01",
      "rn": "semantic_describer",
      "ty": 24
   }
}
```
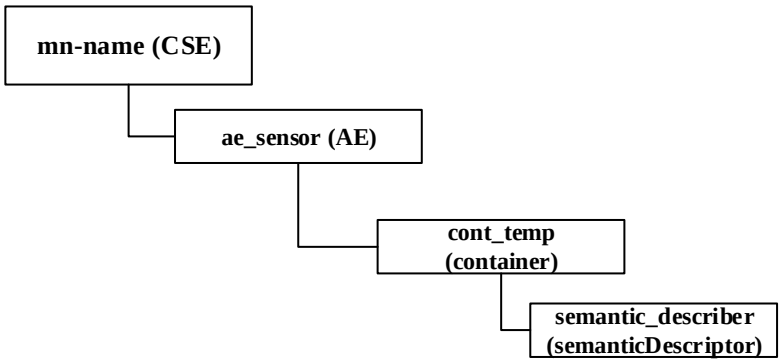
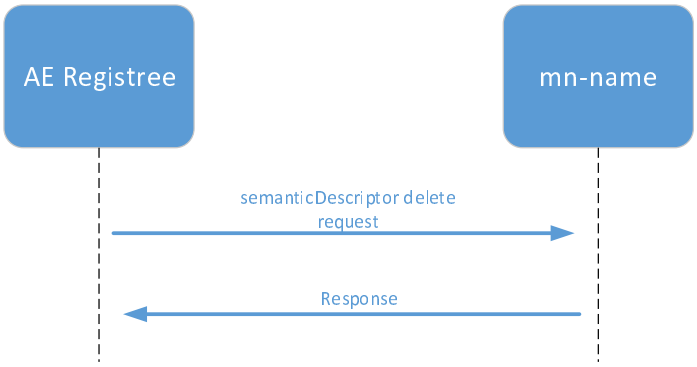

6.2.7.4 API-SMD-DEL

<table>
<tr><td>API Id</td><td>API/SMD/DEL/001
API/SMD/DEL/001_RCN0
API/SMD/DEL/001_RCN1</td></tr>
<tr><td>API Name</td><td>SMD DELETE</td></tr>
<tr><td>Target Resource</td><td>The <semanticDescriptor> resource located under the <container> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <semanticDescriptor> DELETE request to the hosting CSE, and the hosting CSE will delete the <semanticDescriptor> and send back a response containing a response status code indicating the DELETE request status.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>
API/AE/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/ae_sensor/cont_temp/semantic_describer?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083018140512285796096O_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:0
X-M2M-RI:1234
X-M2M-RSC:2002
</td></tr>
</table>

Example with RCN=1 or no RCN

API/SMD/DEL/001
API/SMD/DEL/001_RCN1

HTTP Request:

DELETE /mn-name/ae_sensor/cont_temp/semantic_describer HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083018140512285796096O_cse01
X-M2M-RI:1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Length:2299
Content-Type:application/json
X-M2M-RI:1234
X-M2M-RVI: 2a
X-M2M-RSC:2002


```
{
    "m2m:smd": {
        "ct": "20180413T125601",
        "dcrp": "application/rdf+xml:1",
        "dsp":
"PD94bWwgdmVyc2lvbj0iMS4wIj8+DQo8cmRmOlJERiB4bWxucz0iaHR0cDovL3d3dy5vbmVtMm0
ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFtcGxlIyINCiAgICAgeG1sOmJhc2U9I
mh0dHA6Ly93d3cub25lbTJtLm9yZy9vbnRvbG9neS9ob3VzZXNfdGVtcGVyYXR1cmVfZXhhbXBsZ
SINCiAgICAgeG1sbnM6dGVtcGVyYXR1cmVfZXhhbXBsZT0iaHR0cDovL3d3dy5vbmVtMm0ub3Jn
L29udG9sb2d5L3RlbXBlcmF0dXJlX2V4YW1wbGUjIg0KICAgICB4bWxuczpyZGY9Imh0dHA6Ly93
d3cudzMub3JnLzE5OTkvMDIvMjItcmRmLXN5bnRheC1ucyMiDQogICAgIHhtbG5zOm93bD0iaHR0
cDovL3d3dy53My5vcmcvMjAwMi8wNy9vd2wjIg0KICAgICB4bWxuczp4bWw9Imh0dHA6Ly93d3cud
zMub3JnL1hNTC8xOTk4L25hbWVzcGFjZSINCiAgICAgeG1sbnM6eHNkPSJodHRwOi8vd3d3Lncz
Lm9yZy8yMDAxL1hNTFNjaGVtYSMiDQogICAgIHhtbG5zOnJkZnM9Imh0dHA6Ly93d3cudzMub3J
nLzIwMDAvMDEvcmRmLXNjaGVtYSMiPg0KDQogICAgPG93bDpOYW1lZEluZGl2aWR1YWwgcm
RmOmFib3V0PSJodHRwOi8vd3d3Lm9uZW0ybS5vcmcvb250b2xvZ3kvaG91c2VzX3RlbXBlcmF0d
XJlX2V4YW1wbGUjSG91c2UxIj4NCiAgICAgICAgPHJkZjp0eXBlIHJkZjpyZXNvdXJjZT0iaHR0cDov
L3d3dy5vbmVtMm0ub3JnL29udG9sb2d5L3RlbXBlcmF0dXJlX2V4YW1wbGUjSG91c2UiLz4NCiAgI
CAgICAgPHRlbXBlcmF0dXJlX2V4YW1wbGU6aGFzSW5kb29yVGVtcGVyYXR1cmUgcmRmOnJlc
291cmNlPSJodHRwOi8vd3d3Lm9uZW0ybS5vcmcvb250b2xvZ3kvaG91c2VzX3RlbXBlcmF0dXJlX
2V4YW1wbGUjSW5kb29yVGVtcFByb3BlcnR5MSIvPg0KICAgIDwvb3dsOk5hbWVkSW5kaXZpZH
VhbD4NCg0KICAgIDxvd2w6TmFtZWRJbmRpdmlkdWFsIHJkZjphYm91dD0iaHR0cDovL3d3dy5vb
mVtMm0ub3JnL29udG9sb2d5L2hvdXNlc190ZW1wZXJhdHVyZV9leGFtcGxlI0luZG9vclRlbXBQcm
9wZXJ0eTEiPg0KICAgICAgICA8cmRmOnR5cGUgcmRmOnJlc291cmNlPSJodHRwOi8vd3d3Lm9u
ZW0ybS5vcmcvb250b2xvZ3kvdGVtcGVyYXR1cmVfZXhhbXBsZSNUZW1wZXJhdHVyZVByb3Blcn
R5Ii8+DQogICAgICAgIDx0ZW1wZXJhdHVyZV9leGFtcGxlOmhhc0RhdGF0eXBlPnhzZDppbnQ8L3
RlbXBlcmF0dXJlX2V4YW1wbGU6aGFzRGF0YXR5cGU+DQogICAgICAgIDx0ZW1wZXJhdHVyZV
9leGFtcGxlOmhhc1VuaXQQ+RmFocmVuaGVpdDwvdGVtcGVyYXR1cmVfZXhhbXBsZTpoYXNVbml
0Pg0KICAgICAgICA8dGVtcGVyYXR1cmVfZXhhbXBsZTp2YWx1ZUlzU3RvcmVkSW4+aHR0cDov
L2luLnByb3ZpZGVyLmNvbTo4MjgyL3NlcnZlci90ZW1wc2Vuc29yYWUxL3RlbXBlcmF0dXJlL2xhdG
VzdDwvdGVtcGVyYXR1cmVfZXhhbXBsZTp2YWx1ZUlzU3RvcmVkSW4+DQogICAgPC9vd2w6Tm
FtZWRJbmRpdmlkdWFsPg0KPC9yZGY6UkRGPg==",
        "et": "99991231T235959",
        "lt": "20180413T151556",
        "or": "http://www.onem2m.org/ontology/temperature_example2",
        "pi": "cnt20180413T084756140003005052672O_cse01",
        "ri": "smd20180413T125601140003021838080O_cse01",
        "rn": "semantic_describer",
        "ty": 24
    }
}
```

6.2.8 Resource discovery

6.2.8.0 Introduction

The discovery is one of the common service functions which searches information about application and services. An originator can receive the matching information according to the filter criteria, by sending the discovery request. The format of a query string has both target resource address and filter criteria information; e.g. /mn-name?fu=2&ty=2.

The filterUsage can be set to retrieve any preferred format of the discovery response. The filterUsage value is specified in table 6.2.8.0-1. When filterUsage sets to 1, the response of the discovery is represented with a format of the URI list and all URIs of discovered resources is listed in the response. And when filterUsage sets to 2, the response contains attributes of the resources that matched with presented filter criteria conditions.

Table 6.2.8.0-1: Interpretation of filterUsage

Interpretation	Value	Note
Discovery Criteria	1	
Conditional Retrieval	2	Default

Filter criteria are set to search the resources with specific conditions. For example, AE resources can be found by setting the resourceType to 2. Some filter criteria conditions are listed in table 6.2.8.0-2, which is extracted from the table 8.1.2-2 of ETSI TS 118 101 [i.2].

Table 6.2.8.0-2: Filter criteria conditions

Condition tag	Short Name	Multiplicity	Description
Matching Conditions			
createdBefore	crb	0..1	The creationTime attribute of the matched resource is chronologically before the specified value.
createdAfter	cra	0..1	The creationTime attribute of the matched resource is chronologically after the specified value.
modifiedSince	ms	0..1	The lastModifiedTime attribute of the matched resource is chronologically after the specified value.
unmodifiedSince	us	0..1	The lastModifiedTime attribute of the matched resource is chronologically before the specified value.
stateTagSmaller	sts	0..1	The stateTag attribute of the matched resource is smaller than the specified value.
stateTagBigger	stb	0..1	The stateTag attribute of the matched resource is bigger than the specified value.
expireBefore	exb	0..1	The expirationTime attribute of the matched resource is chronologically before the specified value.
expireAfter	exa	0..1	The expirationTime attribute of the matched resource is chronologically after the specified value.
labels	lbl	0..1	The labels attribute of the matched resource matches the specified value.
resourceType	ty	0..n	The resourceType attribute of the matched resource is the same as the specified value. It also allows differentiating between normal and announced resources.
sizeAbove	sza	0..1	The contentSize attribute of the <contentInstance> matched resource is equal to or greater than the specified value.
sizeBelow	szb	0..1	The contentSize attribute of the <contentInstance> matched resource is smaller than the specified value.
Filter Handling Conditions			
limit	lim	0..1	The maximum number of resources to be included in the filtering result. This may be modified by the Hosting CSE. When it is modified, then the new value shall be smaller than the suggested value by the Originator.
level	lvl	0..1	The maximum level of resource tree that the Hosting CSE shall perform the operation starting from the target resource (i.e. **To** parameter). This shall only be applied for Retrieve operation. The level of the target resource itself is zero and the level of the direct children of the target is one.

As an initial condition to use discovery function, CSEBase need to have resources. Table 6.2.8.0-3 has detailed information of resources which will be used in this clause.

Table 6.2.8.0-3: Resource Specifications

Resource Name	Resource attributes in JSON format
CSEBase	{ "m2m:cb": { "pi": null, "ty": 5, "ct": "20180302T070445", "ri": "CSE9486743758493047362", "rn": "mn-name", "lt": "20180302T070445", "lbl": ["mn-name"], "cst": 1, "csi": "/mn-name", "srt": [1, 2, 3, 4, 5, 9, 10, 13, 14, 16, 17, 23], "poa": ["http://192.168.0.10:8282"] } }
ae_actuator	{ "m2m:ae": { "pi": "mnID", "ty": 2, "ct": "20180404T083025", "ri": "CAE0120180404T0830251405122594272800_cse01", "rn": "ae_actuator", "lbl": ["actuator", "light"], "lt": "20180406T083320", "et": "20221231T235959", "api": "A01.com.company.Light", "aei": "CAE0120180404T0830251405122594272800_cse01", "rr": false } }
cnt_light1	{ "m2m:cnt": { "pi": "CAE0120180404T0830251405122594272800_cse01", "ty": 3, "ct": "20180406T085318", "ri": "cnt20180406T0853181405855183193600_cse01", "rn": "cont_light1", "lt": "20180406T085318", "et": "20201231T235959", "lbl": ["indoor_light" "actuator"

Resource Name	Resource attributes in JSON format
	"room1"], "st": 5, "cr": "S20170717074825768bp2l", "mni": 10000, "mbs": 60000000, "mia": 1600, "cni": 5, "cbs": 10 } }

cnt_light2	{
	"m2m:cnt": {
	"pi": "CAE0120180404T08302514051225942728 00_cse01",
	"ty": 3,
	"ct": "20180405T085318",
	"ri": "cnt20180406T08531814058551831936 00_cse01",
	"rn": "cont_light2",
	"lt": "20180406T085318",
	"et": "20201231T235959",
	"lbl": [
	"outdoor_light"
	"actuator"
	],
	"st": 4,
	"cr": "S20170717074825768bp2l",
	"mni": 10000,
	"mbs": 60000000,
	"mia": 1600,
	"cni": 10,
	"cbs": 20
	}
	}

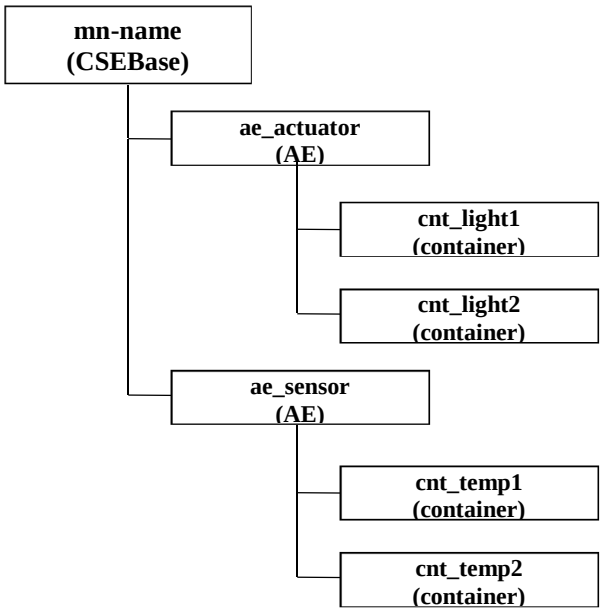
ae_sensor	{
	"m2m:ae": {
	"pi": "mnID",
	"ty": 2,
	"ct": "20180404T083320",
	"ri": "CAE0120180404T08332014051225222528 00_cse01",
	"rn": "ae_sensor",
	"lbl": [
	"sensor",
	"temperature"
	],
	"lt": "20180404T083320",
	"et": "20221231T235959",
	"api": "A01.com.company.Temperature",
	"aei": "CAE0120180404T08332014051225222528 00_cse01",
	"rr": false
	}
	}

cnt_temp1	{
	"m2m:cnt": {
	"pi": "CAE0120180404T08332014051225222528 00_cse01",
	"ty": 3,
	"ct": "20180406T085712",
	"ri": "cnt20180406T08571214058551831936 00_cse01",
	"rn": "cont_temp1",
	"lt": "20180406T085712",
	"et": "20201231T235959",
	"lbl": [
	"indoor_temperature"
	"sensor"
	"room2"
	],
	"st": 8,

Resource Name	Resource attributes in JSON format
	"cr": "S20170717074825768bp2l", "mni": 10000, "mbs": 60000000, "mia": 1600, "cni": 10, "cbs": 20 } }

cnt_temp2	{
	"m2m:cnt": {
	"pi": "CAE0120180404T08332014051225222528 00_cse01",
	"ty": 3,
	"ct": "20180406T085820",
	"ri": "cnt20180406T08582014058555639936 00_cse01",
	"rn": "cont_temp2",
	"lt": "20180406T085820",
	"et": "20211231T235959",
	"lbl": [
	"outdoor_temperature"
	"sensor"
	],
	"st": 9,
	"cr": "S20170717074825768bp2l",
	"mni": 10000,
	"mbs": 60000000,
	"mia": 1600,
	"cni": 15,
	"cbs": 30
	}
	}

6.2.8.1 API-DIS-TY

<table>
<tr><td>API Id</td><td>API/DIS_TY2
API/DIS_TY3</td></tr>
<tr><td>API Name</td><td>Discovery with resourceType Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the specific resource type. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with ty=2</td><td>API/DIS_TY2

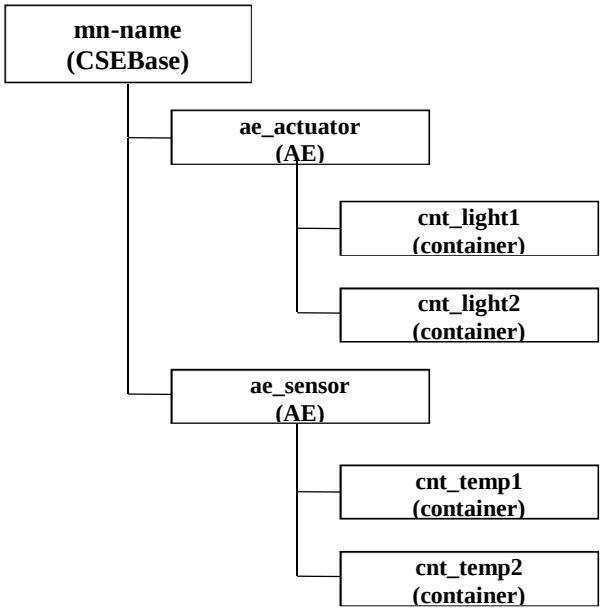
HTTP Request:

GET /mn-name?fu=1&ty=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180404T083025140512259427280 0_cse01
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_sensor"
	}

Example with ty=3	**API/DIS_TY3**
	
	HTTP Request:
	
	GET /mn-name?fu=1&ty=3 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE0120180404T0830251405122594272800_cse01
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril": [
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	]
	}

6.2.8.2 API-DIS-LBL

<table>
<tr><td>API Id</td><td>API/DIS_LBL_ACTUATOR
API/DIS_LBL_SENSOR</td></tr>
<tr><td>API Name</td><td>Discovery with label Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the specific label value. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with lbl=actuator</td><td>API/DIS_LBL_ACTUATOR

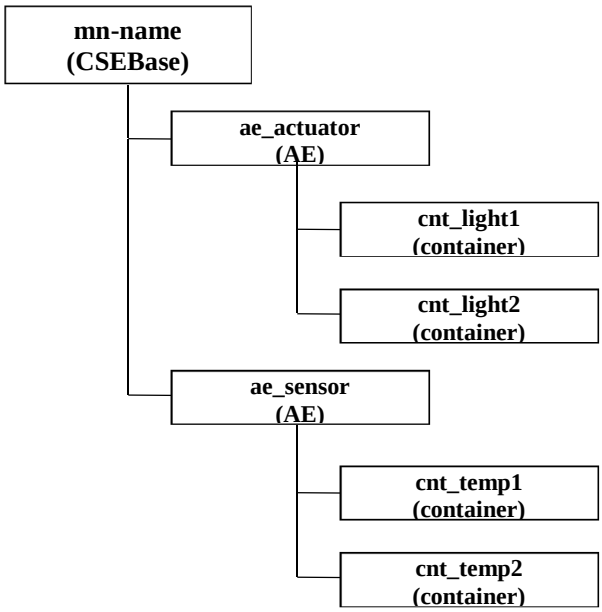
HTTP Request:

GET /mn-name?fu=1&lbl=actuator HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE563028321602645866 5
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2"
	}

Example with lbl=sensor	**API/DIS_LBL_SENSOR**
	
	HTTP Request:
	
	GET /mn-name?fu=1&lbl=sensor HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_sensor",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

6.2.8.3 API-DIS-LVL

<table>
<tr><td>API Id</td><td>API/DIS_LVL1
API/DIS_LVL2</td></tr>
<tr><td>API Name</td><td>Discovery with level Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the child level value. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with lvl=1</td><td>API/DIS_LVL1

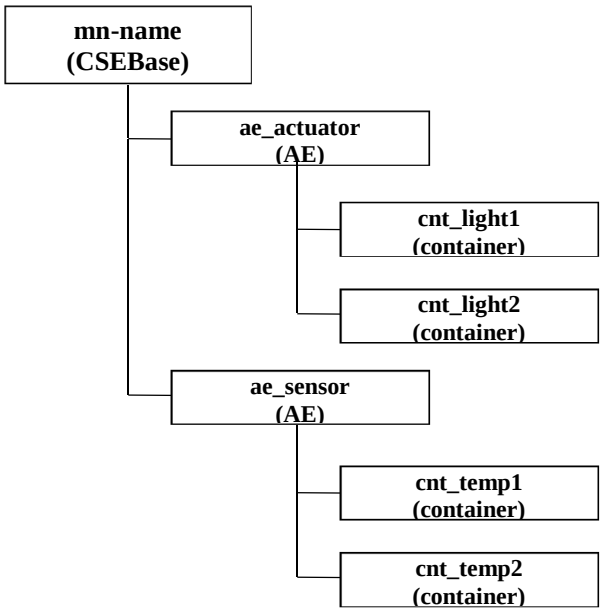
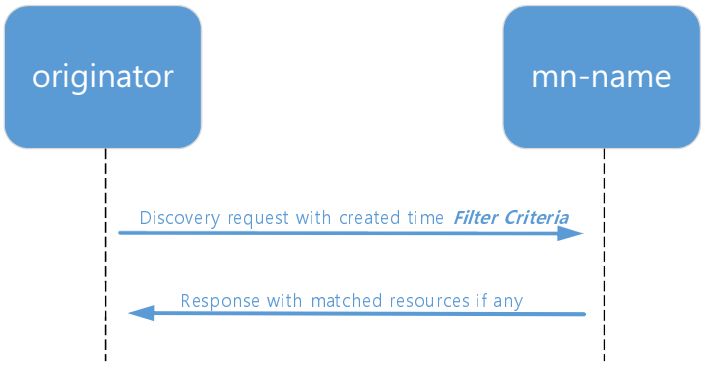
HTTP Request:

GET /mn-name?fu=1&lvl=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_sensor"
	}

Example with lvl=2	**API/DIS_LVL2**
	
	HTTP Request:
	
	GET /mn-name?fu=1&lvl=2 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

6.2.8.4 API-DIS-CRB, API-DIS-CRA

<table>
<tr><td>API Id</td><td>API/DIS_CRB
API/DIS_CRA</td></tr>
<tr><td>API Name</td><td>Discovery with createdBefore and createdAfter Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the period of created time. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with crb</td><td>API/DIS_CRB

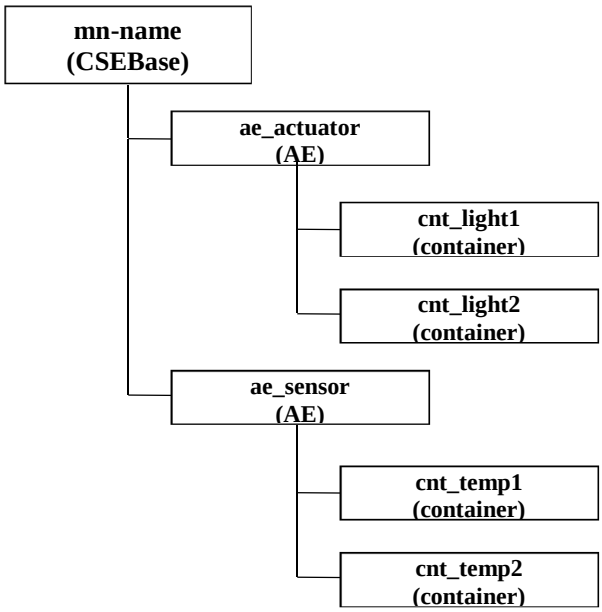
HTTP Request:

GET /mn-name?fu=1&crb=20180405T235959 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor"
	}

Example with cra	**API/DIS_CRA**
	
	HTTP Request:
	
	GET /mn-name?fu=1&cra=20180405T235959 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

6.2.8.5 API-DIS-STB, API-DIS-STS

<table>
<tr><td>API Id</td><td>API/DIS_STB
API/DIS_STS</td></tr>
<tr><td>API Name</td><td>Discovery with stateTagBigger and stateTagSmaller Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the stateTag. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with stb</td><td>API/DIS_STB

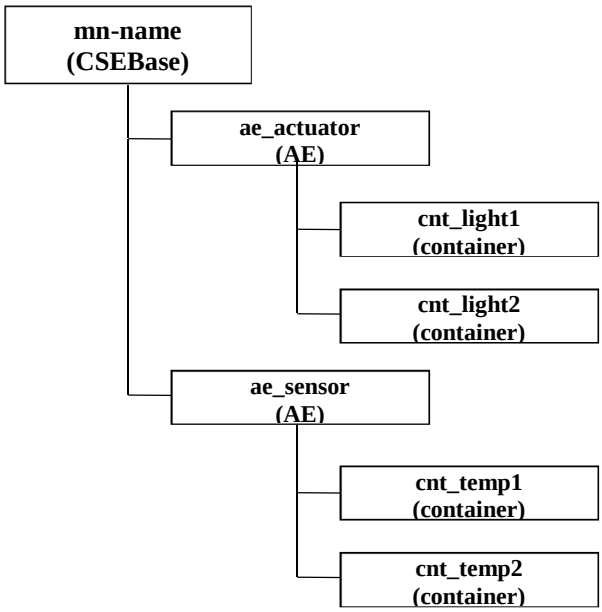
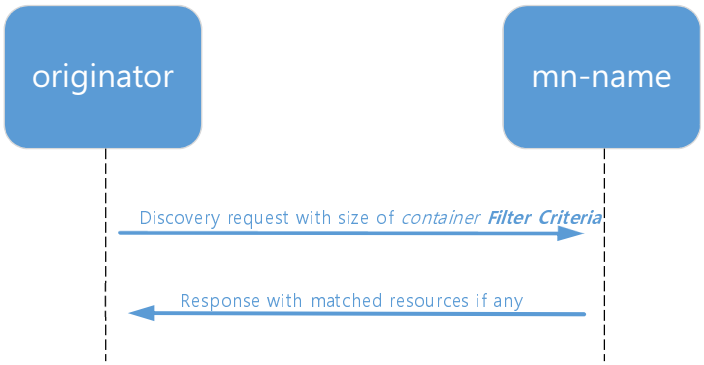
HTTP Request:

GET /mn-name?fu=1&stb=6 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

Example with sts	**API/DIS_STS**
	
	HTTP Request:
	
	GET /mn-name?fu=1&sts=6 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2"
	}

6.2.8.6 API-DIS-SZB, API-DIS-SZA

<table>
<tr><td>API Id</td><td>API/DIS_SZB
API/DIS_SZA</td></tr>
<tr><td>API Name</td><td>Discovery with sizeBelow and sizeAbove Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the size of container. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with szb</td><td>API/DIS_SZB

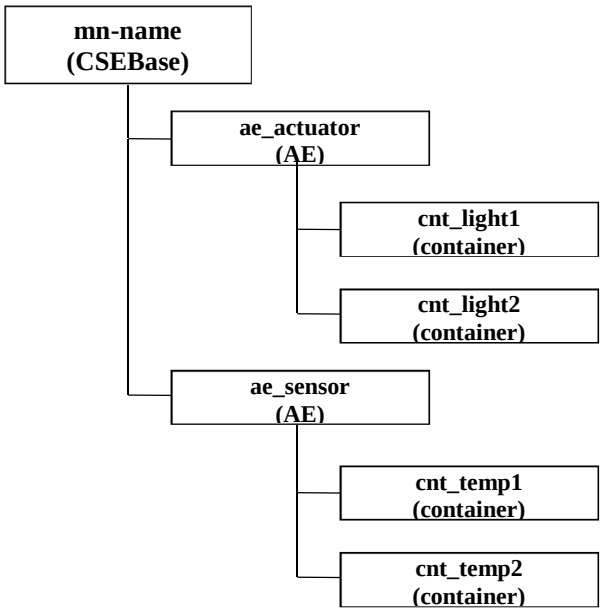
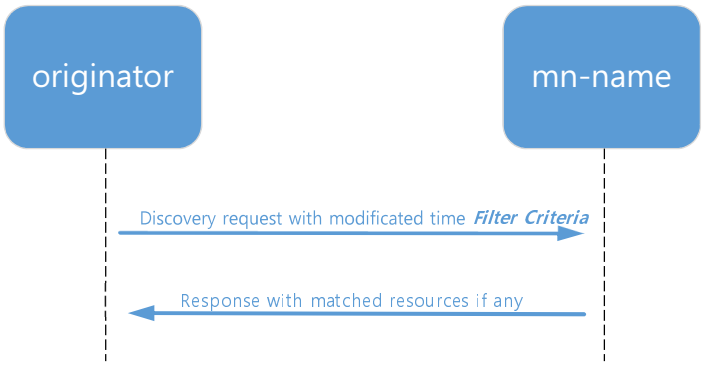
HTTP Request:

GET /mn-name?fu=1&szb=15 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator/cnt_light1"
	}

Example with sza	**API/DIS_SZA**
	
	HTTP Request:
	
	GET /mn-name?fu=1&sza=15 HTTP/1.1
	Accept: application/json
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

6.2.8.7 API-DIS-US, API-DIS-MS

<table>
<tr><td>API Id</td><td>API/DIS_US
API/DIS_MS</td></tr>
<tr><td>API Name</td><td>Discovery with unmodifiedSince and modifiedSince Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the time of modification. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with us</td><td>API/DIS_US

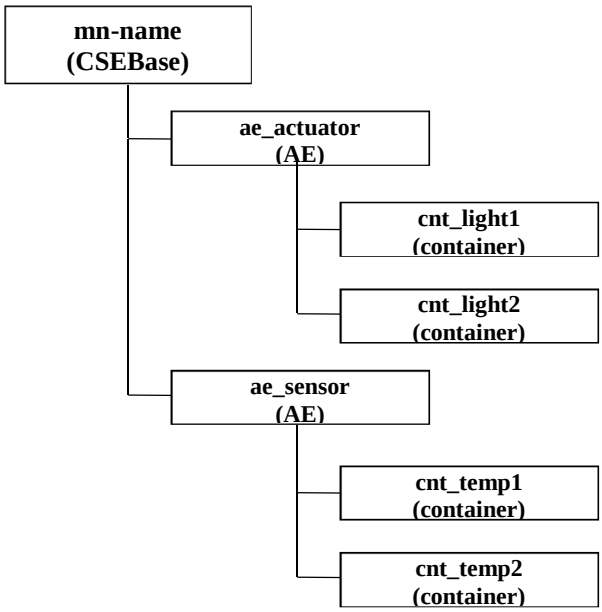
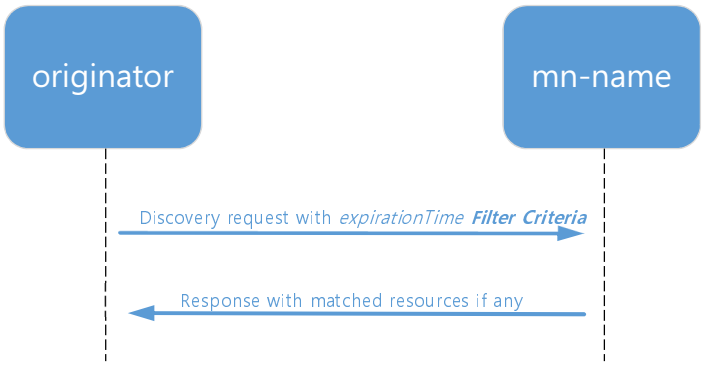
HTTP Request:

GET /mn-name?fu=1&us=20180405T235959 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_sensor"
	}

Example with ms	**API/DIS_MS**
	
	HTTP Request:
	
	GET /mn-name?fu=1&ms=20180405T235959 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

6.2.8.8 API-DIS-EXB, API-DIS-EXA

<table>
<tr><td>API Id</td><td>API/DIS_EXB
API/DIS_EXA</td></tr>
<tr><td>API Name</td><td>Discovery with expiredBefore and expiredAfter Filter Criteria condition</td></tr>
<tr><td>Target Resource</td><td>CSEBase (can be any oneM2M resource primitives)</td></tr>
<tr><td>Description</td><td>The interface is used to discovery resources that match with the period of expirationTime. If found, the Hosting CSE sends back a response with matched resources.</td></tr>
<tr><td>Resource Structure</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with exb</td><td>API/DIS_EXB

HTTP Request:

GET /mn-name?fu=1&exb=20211231T235959 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator/cnt_light1",
	"/mn-name/ae_actuator/cnt_light2",
	"/mn-name/ae_sensor/cnt_temp1",
	"/mn-name/ae_sensor/cnt_temp2"
	}

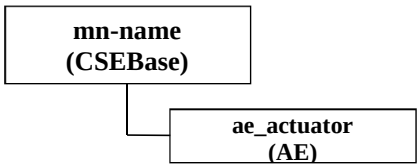
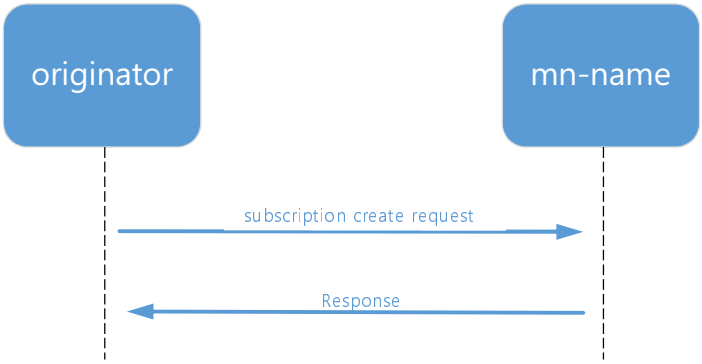
Example with exa	**API/DIS_EXA**
	
	HTTP Request:
	
	GET /mn-name?fu=1&exa=20211231T235959 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE563028321602645866 5
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2000
	
	{
	"m2m:uril":
	"/mn-name/ae_actuator",
	"/mn-name/ae_sensor",
	}

6.2.9 Resource Type *subscription*

6.2.9.0 Introduction

The <subscription> resource contains subscription information for its subscribed-to resource. The <subscription> resource created under the subscribed-to resource. Each <subscription> may include notification policies that specify when, and how notification are sent.

6.2.9.1 API-SUB-CRE

<table>
<tr><td>API Id</td><td>API/SUB/CRE/001
API/SUB/CRE/001_RCN0
API/SUB/CRE/001_RCN1
API/SUB/CRE/001_RCN2
API/SUB/CRE/001_RCN3</td></tr>
<tr><td>API Name</td><td><subscription> resource CREATE</td></tr>
<tr><td>Target Resource</td><td><AE> resource of the requested <subscription> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <subscription> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <subscription> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=23</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/SUB/CRE/001_RCN0

HTTP Request:

POST /mn-name/ae_actuator?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	{
	"m2m:sub": {
	"enc": {
	"net": [2]
	},
	"nct": 2,
	"nu": ["https://192.168.0.10:8282/notification/handler"],
	"rn": "ae_sub"
	}
	}
	
	HTTP Response:
	
	201 Created
	Content-Location: mn-name/ae_actuator/ae_sub
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2001

Example with no RCN or RCN=1	**API/SUB/CRE/001**
	API/SUB/CRE/001_RCN1
	
	HTTP Request:
	
	POST /mn-name/ae_actuatorHTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Content-Type: application/json;ty=23
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	"m2m:sub": {
	"enc": {
	"net": [2]
	},
	"nct": 2,
	"nu": [
	https://192.168.0.10:8282/notification/handler
	],
	"rn": "ae_sub"
	}
	}
	
	HTTP Response:
	
	201 Created
	Content-Location: mn-name/ae_actuator/ae_sub
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a

<table>
<tr><td></td><td>
X-M2M-RSC: 2001

{
"m2m:sub": {
"rn": "ae_sub",
"ty": 23,
"ri": "SUB583675048372974938",
"pi": "CAE56302832160264586 65",
"ct": "20180302T070445",
"lt": "20180302T070445",
"nu": [
"https://192.168.0.10:8282/notification/handler"
],
"cnm": 2,
"mnm": 50,
"enc": {
"net": [2]
},
"nct": 2
}
}
</td></tr>
<tr><td>Example with RCN=2</td><td>
API/SUB/CRE/001_RCN2

HTTP Request:

POST /mn-name/ae_actuator?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE563028321602645866 5
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:sub": {
"enc": {
"net": [2]
},
"nct": 2,
"nu": [
https://192.168.0.10:8282/notification/handler
],
"rn": "ae_sub"
}
}

HTTP Response:

201 Created
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
"m2m:uri": "mn-name/ae_actuator/ae_sub"
}
</td></tr>
</table>

Example with RCN=3

API/SUB/CRE/001_RCN3

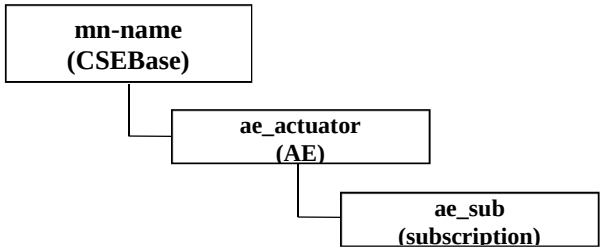
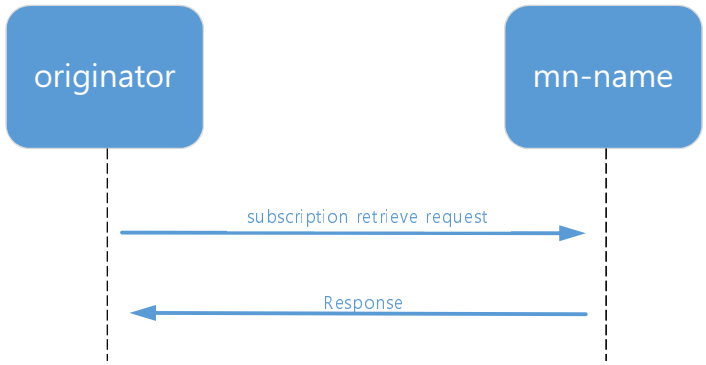
HTTP Request:

```
POST /mn-name/ae_actuator?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sub": {
      "enc": {
         "net": [2]
      },
      "nct": 2,
      "nu": [
         https://192.168.0.10:8282/notification/handler
      ],
      "rn": "ae_sub"
   }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:sub": {
      "rn": "ae_sub",
      "ty": 23,
      "ri": "SUB583675048372974938",
      "pi": "CAE5630283216026458665",
      "ct": "20180302T070445",
      "lt": "20180302T070445",
      "nu": [
         "https://192.168.0.10:8282/notification/handler"
      ],
      "cnm": 2,
      "mnm": 50,
      "enc": {
            "net": [2]
      },
       "nct": 2
   }
}
```

6.2.9.2 API-SUB-RET

<table>
<tr><td>API Id</td><td>API/SUB/RET/001
API/SUB/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td><subscription> resource RETRIEVE with resultContent set to 1</td></tr>
<tr><td>Target Resource</td><td>Requested <subscription> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <subscription> RETRIEVE request attached with resultContent set to 1 to the <subscription> resource hosting CSE and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>
API/SUB/RET/001

HTTP Request:

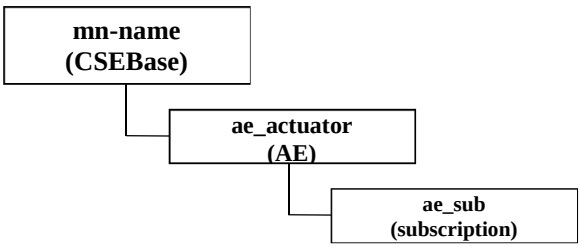
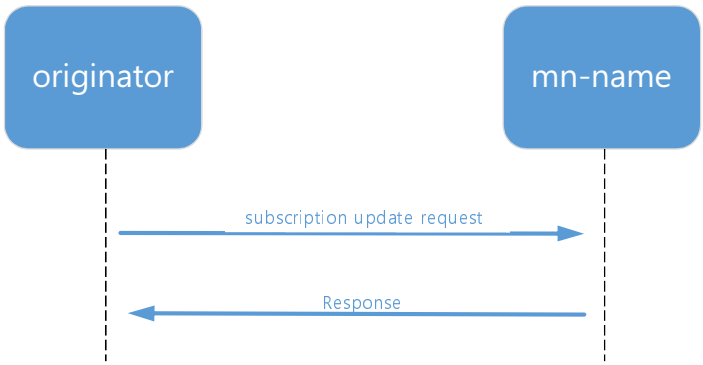
GET /mn-name/ae_actuator/ae_sub HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2000
	
	{
	"m2m:sub": {
	"rn": "ae_sub",
	"ty": 23,
	"ri": "SUB583675048372974938",
	"pi": "CAE5630283216026458665",
	"ct": "20180302T070445",
	"lt": "20180302T070445",
	"nu": [
	"https://192.168.0.10:8282/notification/handler"
	],
	"cnm": 2,
	"mnm": 50,
	"enc": {
	"net": [2]
	},
	"nct": 2
	}
	}

6.2.9.3 API-SUB-UPD

API Id	API/SUB/UPD/001 API/SUB/UPD/001_RCN0 API/SUB/UPD/001_RCN1
API Name	<subscription> resource UPDATE with resultContent parameter
Target Resource	Requested <subscription> resource
Description	The interface is used to send a <subscription> UPDATE request attached with resultContent to the Registrar CSE, and the Registrar CSE updates a <subscription> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	

HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example with RCN=0

API/SUB/UPD/001_RCN0

HTTP Request:

```
PUT /mn-name/ae_actuator/ae_sub?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE56302832160264586 65
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sub": {
      "nct": 3
   }
}
```

HTTP Response:

```
200 OK
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004
```

Example with no RCN or RCN=1

API/SUB/UPD/001
API/SUB/UPD/001_RCN1

HTTP Request:

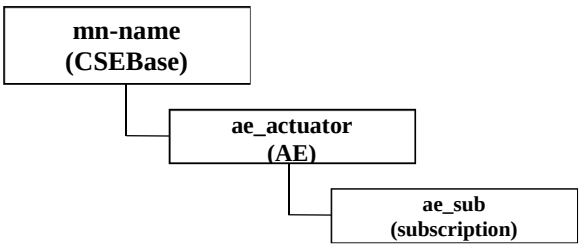
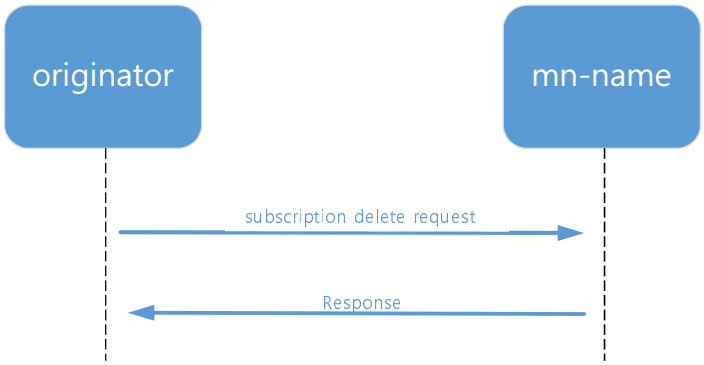
```
PUT /mn-name/ae_actuator/ae_sub HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE56302832160264586 65
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sub": {
      "nct": 3
   }
}
```

HTTP Response:

```
200 OK
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

	X-M2M-RSC: 2004
	
	{
	"m2m:sub": {
	"rn": "ae_sub",
	"ty": 23,
	"ri": "SUB583675048372974938",
	"pi": "CAE56302832160264586 65",
	"ct": "20180302T070445",
	"lt": "20180302T070445",
	"nu": [
	"https://192.168.0.10:8282/notification/handler"
	],
	"cnm": 2,
	"mnm": 50,
	"enc": {
	"net": [2]
	},
	"nct": 3
	}
	}

6.2.9.4 API-SUB-DEL

API Id	API/SUB/DEL/001 API/SUB/DEL/001_RCN0 API/SUB/DEL/001_RCN1
API Name	<subscription> resource DELETE with resultContent parameter
Target Resource	Requested <subscription> resource
Description	The interface is used to send a <subscription> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE deletes a <subscription> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	**Header** / **Value** Accept: application/json X-M2M-RI: Request ID X-M2M-Origin: AE-ID of request originator X-M2M-RVI: Release Version Indicator

<table>
<tr><td>Example with no RCN or RCN=0</td><td>

API/SUB/DEL/001
API/SUB/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/ae_actuator/ae_sub?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002

</td></tr>
<tr><td>Example with RCN=1</td><td>

API/SUB/DEL/001_RCN1

HTTP Request:

DELETE /mn-name/ae_actuator/ae_sub?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/ae_sub
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002

{
"m2m:sub": {
"rn": "ae_sub",
"ty": 23,
"ri": "SUB583675048372974938",
"pi": "CAE5630283216026458665",
"ct": "20180302T070445",
"lt": "20180302T070445",
"nu": [
"https://192.168.0.10:8282/notification/handler"
],
"cnm": 2,
"mnm": 50,
"enc": {
"net": [2]
},
"nct": 3
}
}

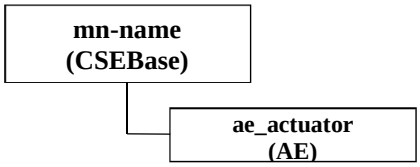
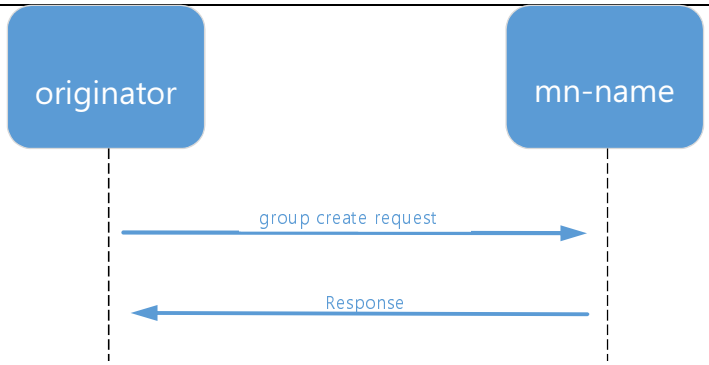
</td></tr>
</table>

6.2.10 Resource Type *group*

6.2.10.0 Introduction

The <group> resource represents a group of resources of the same or mixed types. It basically designed to handle several of resources at the same time. When a request sent through the <group> resource, it distributes the request to each member of the <group> resources, which are indicated by the memberIDs attribute.

6.2.10.1 API-GRP-CRE

<table>
<tr><td>API Id</td><td>API/GRP/CRE/001
API/GRP/CRE/001_RCN0
API/GRP/CRE/001_RCN1
API/GRP/CRE/001_RCN2
API/GRP/CRE/001_RCN3</td></tr>
<tr><td>API Name</td><td><group> resource CREATE</td></tr>
<tr><td>Target Resource</td><td><AE> resource of the requested <group> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <group> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <group> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=9</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/GRP/CRE/001_RCN0

HTTP Request:

POST /mn-name/ae_actuator?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE563028321602645866 5
Content-Type: application/json;ty=9
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

	{
	"m2m:grp": {
	"mid": [
	"mn-name/ae_actuator/lamp_container1",
	"mn-name/ae_actuator/lamp_container2"
	],
	"mt": 3,
	"mnm": 50,
	"rn": "group_lamp"
	}
	}
	
	HTTP Response:
	
	201 Created
	Content-Location: mn-name/ae_actuator/group_lamp
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2001

***Example* with no RCN or RCN=1**	**API/GRP/CRE/001**
	API/GRP/CRE/001_RCN1
	
	HTTP Request:
	
	POST /mn-name/ae_actuator HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Content-Type: application/json;ty=9
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	"m2m:grp": {
	"mid": [
	"mn-name/ae_actuator/lamp_container1",
	"mn-name/ae_actuator/lamp_container2"
	],
	"mt": 3,
	"mnm": 50,
	"rn": "group_lamp"
	}
	}
	
	HTTP Response:
	
	201 Created
	Content-Location: mn-name/ae_actuator/group_lamp
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a

<table>
<tr><td></td><td>
X-M2M-RSC: 2001

{
"m2m:grp": {
"rn": "group_lamp",
"ty": 9,
"ri": "GRP792482146823489621",
"pi": "CAE5630283216026458665",
"ct": "20171212T170445",
"lt": "20171212T170445",
"mt": 3,
"cnm": 2,
"mnm": 50,
"mid": [
"mn-name/ae_actuator/lamp_container1",
"mn-name/ae_actuator/lamp_container2"
]
"mtv": true,
"csy": 1
}
}
</td></tr>
<tr><td>Example with RCN=2</td><td>
API/GRP/CRE/001_RCN2

HTTP Request:

POST /mn-name/ae_actuator?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=9
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:grp": {
"mid": [
"mn-name/ae_actuator/lamp_container1",
"mn-name/ae_actuator/lamp_container2"
],
"mt": 3,
"mnm": 50,
"rn": "group_lamp"
}
}

HTTP Response:

201 Created
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
"m2m:uri": "mn-name/ae_actuator/group_lamp"
}
</td></tr>
</table>

Example with RCN=3

API/GRP/CRE/001_RCN3

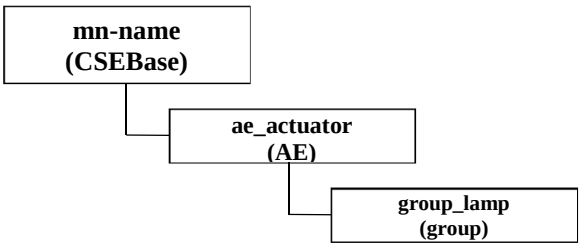
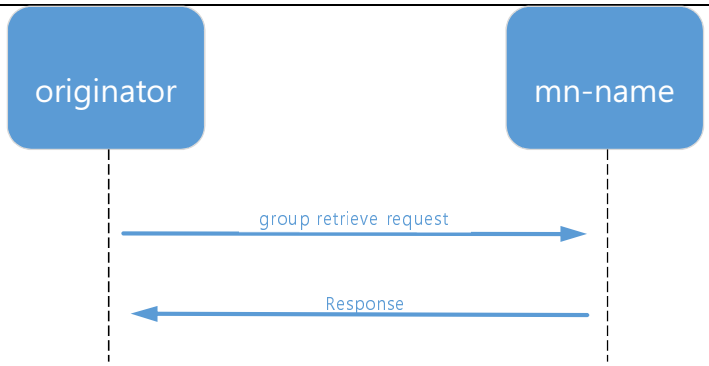
HTTP Request:

```
POST /mn-name/ae_actuator?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=9
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:grp": {
      "mid": [
         "mn-name/ae_actuator/lamp_container1",
         "mn-name/ae_actuator/lamp_container2"
      ],
      "mt": 3,
      "mnm": 50,
      "rn": "group_lamp"
    }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:rce": {
      "m2m:grp": {
         "rn": "group_lamp",
         "ty": 9,
         "ri": "GRP792482146823489621",
         "pi": "CAE5630283216026458665",
         "ct": "20171212T170445",
         "lt": "20171212T170445",
         "mt": 3,
         "cnm": 2,
         "mnm": 50,
         "mid": [
            "mn-name/ae_actuator/lamp_container1",
            "mn-name/ae_actuator/lamp_container2"
         ]
         "mtv": true,
         "csy": 1
      }
      "uri": "mn-name/ae_actuator/group_lamp"
   }
}
```

6.2.10.2 API-GRP-RET

<table>
<tr><td>API Id</td><td>API/GRP/RET/001
API/GRP/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td><group> resource RETRIEVE with resultContent set to 1</td></tr>
<tr><td>Target Resource</td><td>Requested <group> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <group> RETRIEVE request attached with resultContent set to 1 to the <group> resource hosting CSE and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/ json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>
API/GRP/RET/001
API/GRP/RET/001_RCN1

HTTP Request:

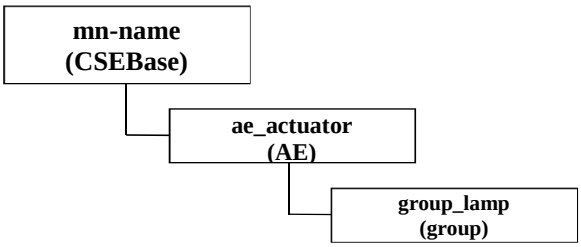
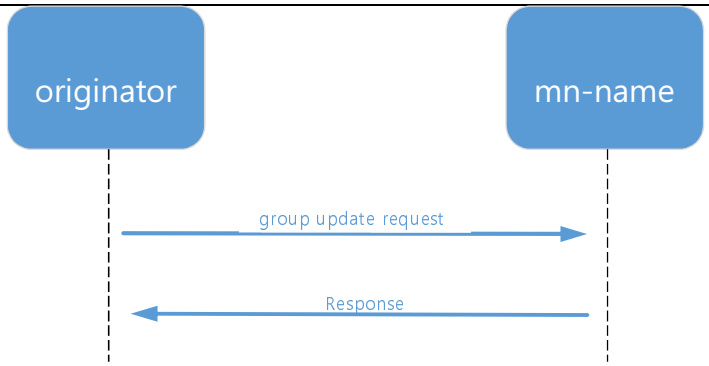
GET /mn-name/ae_actuator/group_lamp?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2000
	{
	"m2m:grp": {
	"rn": "group_lamp",
	"ty": 9,
	"ri": "GRP792482146823489621",
	"pi": "CAE5630283216026458665",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"mt": 3,
	"cnm": 2,
	"mnm": 50,
	"mid": [
	"mn-name/ae_actuator/lamp_container1",
	"mn-name/ae_actuator/lamp_container2"
	]
	"mtv": true,
	"csy": 1
	}
	}

6.2.10.3 API-GRP-UPD

API Id	API/GRP/UPD/001 API/GRP/UPD/001_RCN0 API/GRP/UPD/001_RCN1
API Name	<group> resource UPDATE with resultContent parameter
Target Resource	Requested <group> resource
Description	The interface is used to send a <group> UPDATE request attached with resultContent to the Registrar CSE, and the Registrar CSE updates a <group> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	**Header** / **Value** X-M2M-RI: Request ID X-M2M-Origin: AE-ID of request originator Content-Type: application/json X-M2M-RVI: Release Version Indicator

<table>
<tr><td>Example with RCN=0</td><td>

API/GRP/UPD/001_RCN0

HTTP Request:

PUT /mn-name/ae_actuator/group_lamp?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:grp": {
"mnm": 100
}
}

HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004

</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>

API/GRP/UPD/001
API/GRP/UPD/001_RCN1

HTTP Request:

PUT /mn-name/ae_actuator/group_lamp?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:grp": {
"mnm": 100
}
}

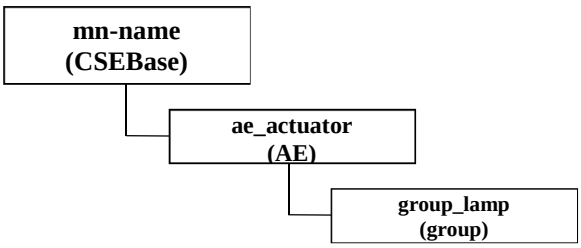
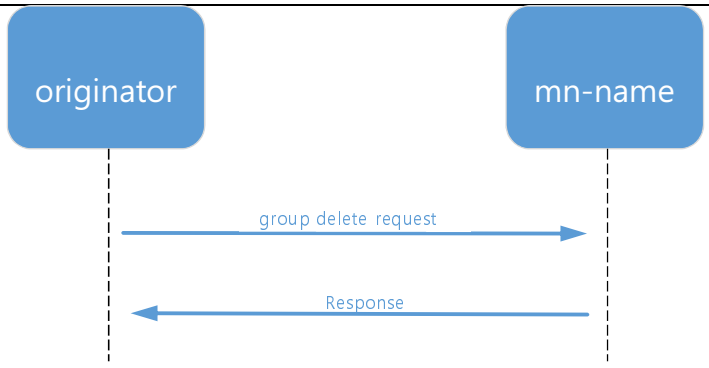
HTTP Response:

200 OK
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

</td></tr>
</table>

	X-M2M-RSC: 2004
	
	{
	"m2m:grp": {
	"rn": "group_lamp",
	"ty": 9,
	"ri": "GRP792482146823489621",
	"pi": "CAE56302832160264586 65",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"mt": 3,
	"cnm": 2,
	"mnm": 100,
	"mid": [
	"mn-name/ae_actuator/lamp_container1",
	"mn-name/ae_actuator/lamp_container2"
	]
	"mtv": true,
	"csy": 1
	}
	}

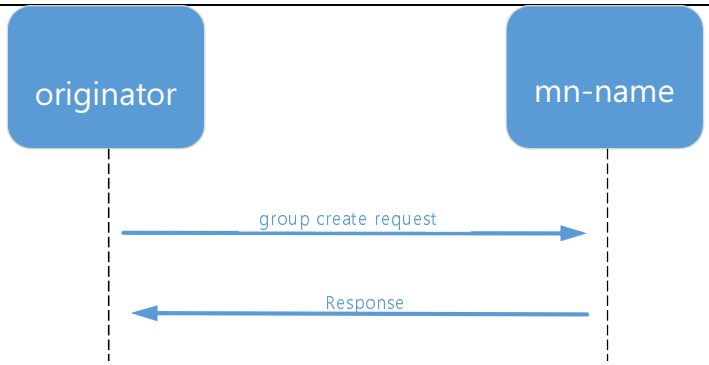
6.2.10.4 API-GRP-DEL

API Id	API/GRP/DEL/001 API/GRP/DEL/001_RCN0 API/GRP/DEL/001_RCN1
API Name	<group> resource DELETE with resultContent parameter
Target Resource	Requested <group> resource
Description	The interface is used to send a <group> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE deletes a <group> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	**Header** / **Value** Accept: application/ json X-M2M-RI: Request ID X-M2M-Origin: AE-ID of request originator X-M2M-RVI: Release Version Indicator

Example with RCN=0	**API/GRP/DEL/001_RCN0** **HTTP Request:** DELETE /mn-name/ae_actuator/group_lamp?rcn=0 HTTP/1.1 Host: 192.168.0.10:8282 X-M2M-Origin: CAE5630283216026458665 Accept: application/json X-M2M-RI: 1234 X-M2M-RVI: 2a **HTTP Response:** 200 OK Content-Location: mn-name/ae_actuator/group_lamp Content-Type: application/json X-M2M-RI: 1234 X-M2M-RVI: 2a X-M2M-RSC: 2002

Example with no RCN or RCN=1	**API/GRP/DEL/001**
	API/GRP/DEL/001_RCN1
	
	HTTP Request:
	
	DELETE /mn-name/ae_actuator/group_lamp?rcn=1 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Accept: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	HTTP Response:
	
	200 OK
	Content-Location: mn-name/ae_actuator/group_lamp
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2002
	
	{
	"m2m:grp": {
	"rn": "group_lamp",
	"ty": 9,
	"ri": "GRP792482146823489621",
	"pi": "CAE5630283216026458665",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"mt": 3,
	"cnm": 2,
	"mnm": 100,
	"mid": [
	"mn-name/ae_actuator/lamp_container1",
	"mn-name/ae_actuator/lamp_container2"
	]
	"mtv": true,
	"csy": 1
	}
	}

6.2.10.5 API-GRP-FOPT

<table>
<tr><td>API Id</td><td>API/GRP/FOPT/001</td></tr>
<tr><td>API Name</td><td><group> resource</td></tr>
<tr><td>Target Resource</td><td>Fopt virtual resource of the <group> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a contentInstance CREATE request to the FanoutOutPoint Virtual resource of a group.
As a result, the contentInstances will be created on each container that belonging to this group.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td>mn-name (CSE)
ae_sensor (AE)
cont_temp (container)</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=4</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
</table>

Example with no RCN or RCN=1

API/GRP/

HTTP Request:

```
POST /mn-name/ae_actuator/ group_lamp/fopt   HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=4
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:cin": {
      "con": "20"
   }
}
```

HTTP Response:

```
200 Created
Content-Location: mn-name/ae_actuator/group_lamp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2000


{
   "m2m:agr": {
      "rsp": [
         {
            "fr": "/ID-CSE-01/mn-name/ae_actuator/lamp_container1",
            "pc": {
               "m2m:cin": {
                  "con": "20",
                  "cs": 2,
                  "ct": "20200609T163651,675786",
                  "et": "99991231T235959",
                  "lt": "20200609T163651,675786",
                  "pi": "cnt20200609T1632571403417286346243_cse01",
                  "ri": "cin20200609T1636511403417286346245_cse01",
                  "rn": "fopt20200609T1636511403417286346244_cse01",
                  "st": 1,
                  "ty": 4
               }
            },
            "rqi": "1234",
            "rsc": 2001
         },
         {
            "fr": "/ID-CSE-01/mn-name/ae_actuator/lamp_container2",
            "pc": {
               "m2m:cin": {
                  "con": "20",
                  "cs": 2,
                  "ct": "20200609T163651,680775",
                  "et": "99991231T235959",
                  "lt": "20200609T163651,680775",
                  "pi": "cnt20200609T1609261403417286346240_cse01",
                  "ri": "cin20200609T1636511403417286346246_cse01",
                  "rn": "fopt20200609T1636511403417286346244_cse01",
                  "st": 1,
                  "ty": 4
               }
            },
```

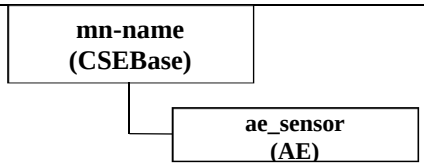
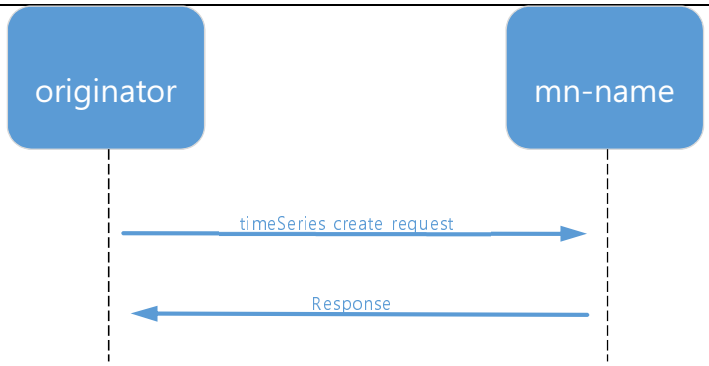
```
                "rqi": "1234",
                "rsc": 2001
            }
        ]
    }
}
```


6.2.11 Resource Type *timeSeries*

6.2.11.0 Introduction

The <timeSeries> resource represents a container for Time Series Data Instance. It is used to share information with other entities and potentially to track, detect and report the missing data in Time Series.

6.2.11.1 API-TS-CRE

API Id	API/TS/CRE/001 API/TS/CRE/001_/RCN0 API/TS/CRE/001_/RCN1 API/TS/CRE/001_/RCN2 API/TS/CRE/001_/RCN3
API Name	<timeSeries> resource CREATE with resultContent parameter
Target Resource	<AE> resource of the requested <timeSeries> resource
Description	The interface is used to send a <timeSeries> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <timeSeries> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	**Header** / **Value** X-M2M-RI: Request ID X-M2M-Origin: AE-ID of request originator Content-Type: application/json;ty=**29** X-M2M-RVI: Release Version Indicator

<table>
<tr>
<td>Example with RCN=0</td>
<td>

API/TS/CRE/001_RCN0

HTTP Request:

POST /mn-name/ae_sensor?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=29
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:ts": {
"rn": timeSeries_cont,
"pei": 1,
"mdd": true,
"mdt": 5
}
}

HTTP Response:

201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

</td>
</tr>
<tr>
<td>Example with no RCN or RCN=1</td>
<td>

API/TS/CRE/001
API/TS/CRE/001_RCN1

HTTP Request:

POST /mn-name/ae_sensor?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=29
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:ts": {
"rn": timeSeries_cont,
"pei": 1,
"mdd": true,
"mdt": 1
}
}

HTTP Response:

201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

</td>
</tr>
</table>

X-M2M-RSC: 2001


```
{
   "m2m:ts": {
      "rn": "timeSeries_cont",
      "ty": 29,
      "ri": "TS792482146823489621",
      "pi": "CAE5630283216026458665",
      "ct": "20171212T170445",
      "lt": "20171212T170445",
      "et": "2021212T170445",
      "st": 0,
      "mni": 3153600000,
      "mbs": 3153600000,
      "mia": 31536000,
      "cni": 0,
      "cbs": 0,
      "pei": 1,
      "mdd": "true",
      "mdn": 1000,
      "mdc": 0,
      "mdt": 1
   }
}
```


Example with RCN=2

API/TS/CRE/001_RCN2

HTTP Request:

```
POST /mn-name/ae_sensor?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=29
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```


```
{
   "m2m:ts": {
      "rn": timeSeries_cont,
      "pei": 1,
      "mdd": true,
      "mdt": 1
   }
}
```


HTTP Response:

```
201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```


```
{
   "m2m:uri": "mn-name/ae_sensor/timeSeries_cont"
}
```

Example with RCN=3

API/TS/CRE/001_RCN3

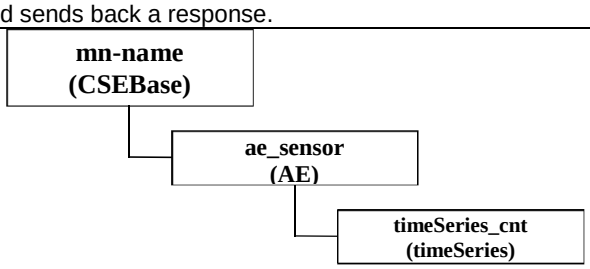
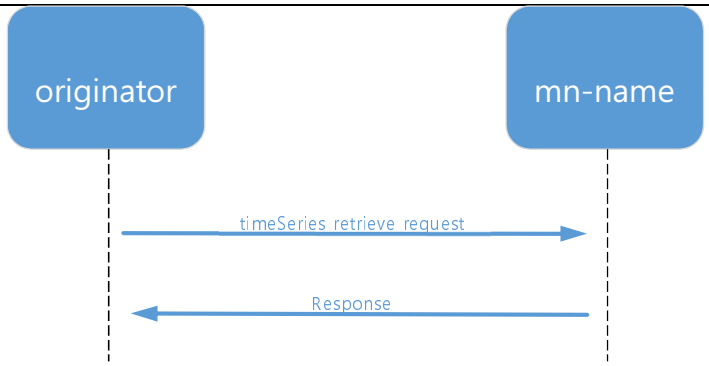
HTTP Request:

```
POST /mn-name/ae_sensor?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=29
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:ts": {
      "rn": timeSeries_cont,
      "pei": 1,
       "mdd": true,
       "mdt": 1
   }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:rce": {
      "m2m:ts": {
         "rn": "timeSeries_cont",
         "ty": 29,
         "ri": "TS792482146823489621",
         "pi": "CAE5630283216026458665",
         "ct": "20171212T170445",
         "lt": "20171212T170445",
         "et": "2021212T170445",
         "st": 0,
         "mni": 3153600000,
         "mbs": 3153600000,
         "mia": 31536000,
         "cni": 0,
         "cbs": 0,
         "pei": 1,
         "mdd": "ture",
         "mdn": 1000,
         "mdc": 0,
         "mdt": 1
      }
      "m2m:uri": "mn-name/ae_sensor/timeSeries_cont"
   }
}
```

6.2.11.2 API-TS-RET

<table>
<tr><td>API Id</td><td>API/TS/CRE/001
API/TS/CRE/001_RCN1</td></tr>
<tr><td>API Name</td><td><timeSeries> resource RETRIEVE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td>Requested <timeSeries> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <timeSeries> RETRIEVE request attached with resultContent set to 1 to the Registrar CSE and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>
API/TS/RET/001
API/TS/RET/001_RCN1

HTTP Request:

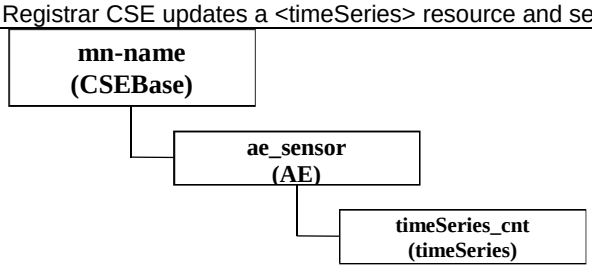
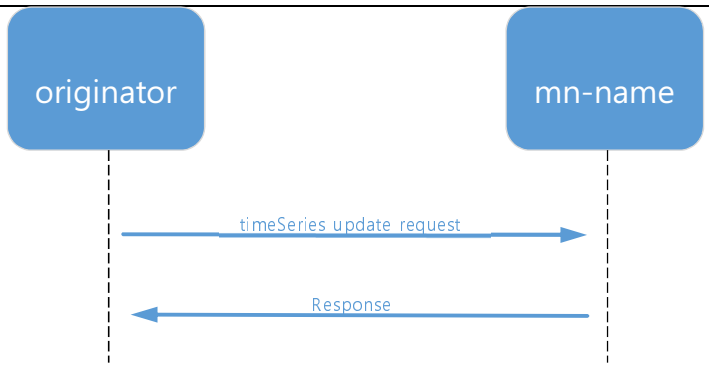
GET /mn-name/ae_sensor?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2000
	
	{
	"m2m:ts": {
	"rn": "timeSeries_cont",
	"ty": 29,
	"ri": "TS792482146823489621",
	"pi": "CAE5630283216026458665",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"et": "2021212T170445",
	"st": 0,
	"mni": 3153600000,
	"mbs": 3153600000,
	"mia": 31536000,
	"cni": 0,
	"cbs": 0,
	"pei": 1,
	"mdd": "ture",
	"mdn": 1000,
	"mdc": 0,
	"mdt": 1
	}
	}

6.2.11.3 API-TS-UPD

API Id	API/TS/UPD/001 API/TS/UPD/001_RCN0 API/TS/UPD/001_RCN1
API Name	<timeSeries> resource UPDATE with resultContent parameter
Target Resource	Requested <timeSeries> resource
Description	The interface is used to send a <timeSeries> UPDATE request attached with resultContent to the Registrar CSE, and the Registrar CSE updates a <timeSeries> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	

HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example with RCN=0

API/TS/UPD/001_RCN0

HTTP Request:

```
PUT /mn-name/ae_sensor/timeSeries_cont?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:ts": {
      "mdt": 2
   }
}
```

HTTP Response:

```
200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004
```

Example with no RCN or RCN=1

API/TS/UPD/001
API/TS/UPD/001_RCN1

HTTP Request:

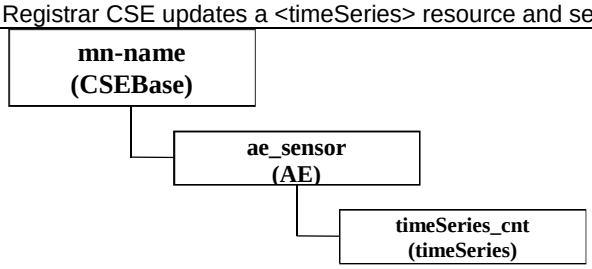
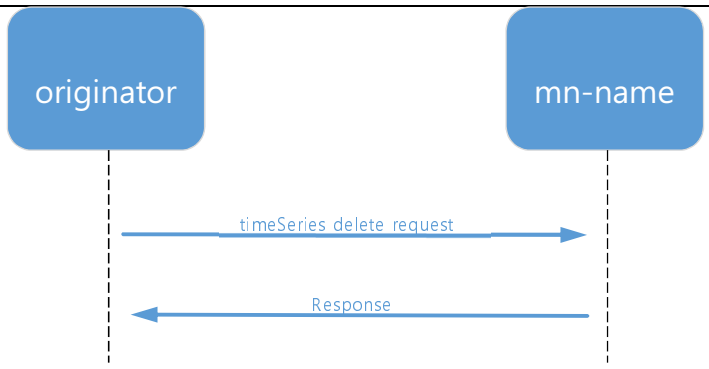
```
PUT /mn-name/ae_sensor/timeSeries_cont?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:ts": {
      "mdt": 2
   }
}
```

HTTP Response:

```
200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

	X-M2M-RSC: 2004
	
	{
	"m2m:ts": {
	"rn": "timeSeries_cont",
	"ty": 29,
	"ri": "TS792482146823489621",
	"pi": "CAE5630283216026458665",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"et": "2021212T170445",
	"st": 0,
	"mni": 3153600000,
	"mbs": 3153600000,
	"mia": 31536000,
	"cni": 0,
	"cbs": 0,
	"pei": 1,
	"mdd": "ture",
	"mdn": 1000,
	"mdc": 0,
	"mdt": 2
	}
	}

6.2.11.4 API-TS-DEL

API Id	API/TS/DEL/001 API/TS/DEL/001_RCN0 API/TS/DEL/001_RCN1
API Name	<timeSeries> resource DELETE with resultContent parameter
Target Resource	Requested <timeSeries> resource
Description	The interface is used to send a <timeSeries> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE updates a <timeSeries> resource and sends back a response.
Resource Structure before Sending Request	
Call Flow	

<table>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=0</td><td>
API/TS/DEL/001
API/TS/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/ae_sensor/timeSeries_cont?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002
</td></tr>
<tr><td>Example with RCN=1</td><td>
API/TS/DEL/001_RCN1

HTTP Request:

DELETE /mn-name/ae_sensor/timeSeries_cont?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

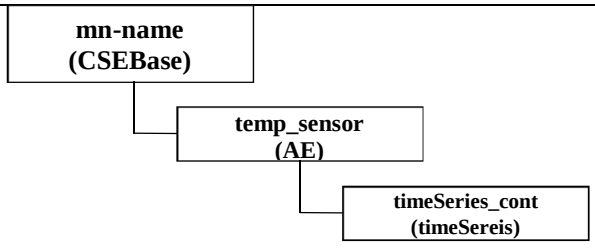
	X-M2M-RSC: 2002
	
	{
	"m2m:ts": {
	"rn": "timeSeries_cont",
	"ty": 29,
	"ri": "TS792482146823489621",
	"pi": "CAE5630283216026458665",
	"ct": "20171212T170445",
	"lt": "20171212T170445",
	"et": "2021212T170445",
	"st": 0,
	"mni": 3153600000,
	"mbs": 3153600000,
	"mia": 31536000,
	"cni": 0,
	"cbs": 0,
	"pei": 1,
	"mdd": "ture",h
	"mdn": 1000,
	"mdc": 0,
	"mdt": 2
	}
	}

6.2.12 Resource Type *timeSeriesInstance*

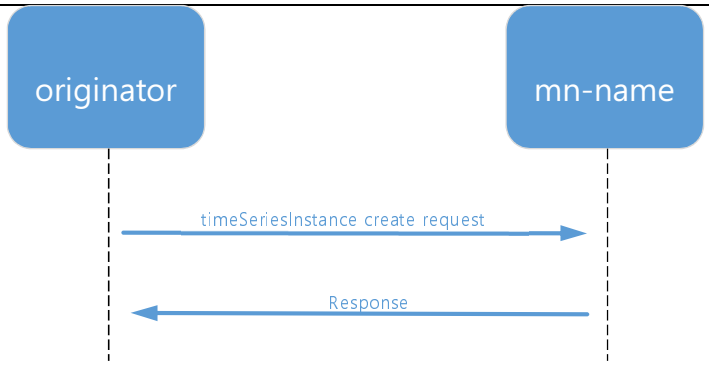
6.2.12.0 Introduction

The <timeSeriesInstance> resource represents a data instance in the <timeSeries> resource.

6.2.12.1 API-TSI-CRE

API Id	API/TSI/CRE/001 API/TSI/CRE/001_RCN0 API/TSI/CRE/001_RCN1 API/TSI/CRE/001_RCN2 API/TSI/CRE/001_RCN3
API Name	<timeSeriesInstance> resource CREATE with resultContent parameter
Target Resource	<timeSeries> resource of the requested <timeSeriesInstance> resource
Description	The interface is used to send a <timeSeriesInstance> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <timeSeriesInstance> resource and sends back a response.
Resource Structure before Sending Request	

Call Flow



HTTP Header Information

Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json;ty=**30**
X-M2M-RVI	Release Version Indicator

Example with RCN=0

API/TSI/CRE/001_RCN0

HTTP Request:

```
POST /mn-name/ae_sensor/timeSeries_cont?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=30
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:tsi": {
      "dgt": "20180307T123456",
      "con": "DATA_TACK"
   }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```

Example with no RCN or RCN=1

API/TSI/CRE/001
API/TSI/CRE/001_RCN1

HTTP Request:

```
POST /mn-name/ae_sensor/timeSeries_cont HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=30
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

<table>
<tr><td></td><td>

<pre>
{
   "m2m:tsi": {
      "rn": "tsi_value1",
      "dgt": "20180307T123456",
      "con": "DATA_TACK"
   }
}
</pre>

HTTP Response:

<pre>
201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont
Content-Type: application/json
X-M2M-Origin: CAE5630283216026458665
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:tsi": {
      "rn": "tsi_value1",
      "ty": 30,
      "pi": "CAE5630283216026458665",
      "ri": "TSI840674869203617594",
      "ct": "20180307T012211",
      "lt": "20180307T012211",
      "et": "20210307T012211",
      "dgt": "20180307T123456"
      "con": "DATA_TACK",
      "cs": 9,
      "st": 7
   }
}
</pre>

</td></tr>
<tr><td>Example with RCN=2</td><td>

API/TSI/CRE/001_RCN2

HTTP Request:

<pre>
POST /mn-name/ae_sensor/timeSeries_cont?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=30
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:tsi": {
      "rn": "tsi_value1",
      "dgt": "20180307T123456",
      "con": "DATA_TACK"
   }
}
</pre>

HTTP Response:

<pre>
201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</pre>

</td></tr>
</table>

<table>
<tr><td></td><td>X-M2M-RSC: 2001

{
"m2m:uri": "mn-name/ae_sensor/timeSeries_cont/tsi_value1"
}</td></tr>
<tr><td>Example with RCN=3</td><td>API/TSI/CRE/001_RCN3

HTTP Request:

POST /mn-name/ae_sensor/timeSeries_cont?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=30
X-M2M-RI: 1234
X-M2M-RVI: 2a

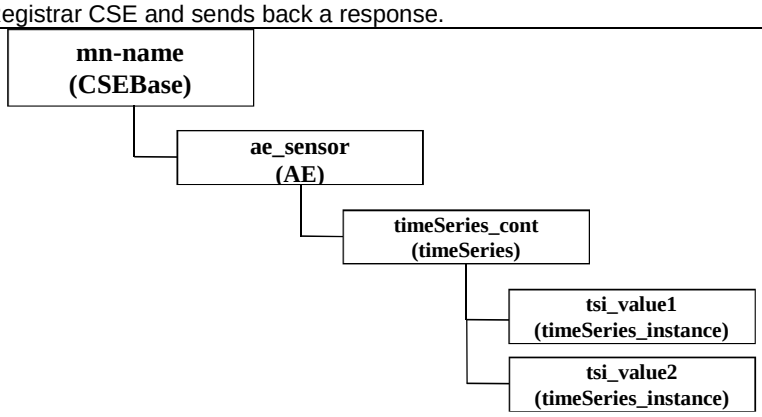
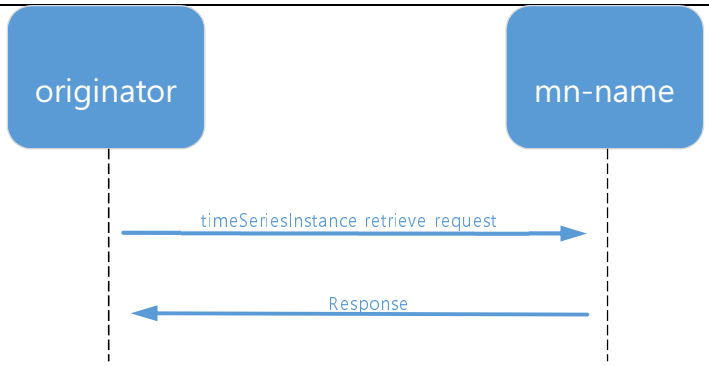
{
"m2m:tsi": {
"rn": "tsi_value1",
"dgt": "20180307T123456",
"con": "DATA_TACK"
}
}

HTTP Response:

201 Created
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
"m2m:rce": {
"m2m:tsi": {
"rn": "tsi_value1",
"ty": 30,
"pi": "CAE5630283216026458665",
"ri": "TSI840674869203617594",
"ct": "20180307T012211",
"lt": "20180307T012211",
"et": "2n0210307T012211",
"dgt": "20180307T123456"
"con": "DATA_TACK",
"cs": 9,
"st": 7
}
"m2m:uri": "mn-name/ae_sensor/timeSeries_cont/tsi_value1"
}
}</td></tr>
</table>

6.2.12.2 API-TSI-RET

<table>
<tr><td>API Id</td><td>API/TSI/RET/001
API/TSI/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td><timeSeriesInstance> resource RETRIEVE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td>Requested <timeSeriesInstance> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <timeSeriesInstance> RETRIEVE request attached with resultContent set to 1 to the Registrar CSE and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>
API/TSI/RET/001
API/TSI/RET/001_RCN1

HTTP Request:

GET /mn-name/ae_sensor/timeSeries_cont/tsi_value1?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

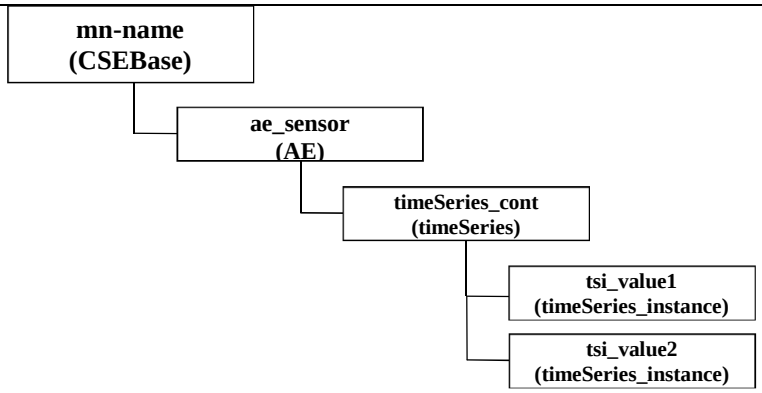
200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2000
	
	{
	"m2m:tsi": {
	"rn": "tsi_value1",
	"ty": 30,
	"pi": "CAE5630283216026458665",
	"ri": "TSI840674869203617594",
	"ct": "20180307T012211",
	"lt": "20180307T012211",
	"et": "2n0210307T012211",
	"dgt": "20180307T123456"
	"con": "DATA_TACK",
	"cs": 9,
	"st": 7
	}
	}

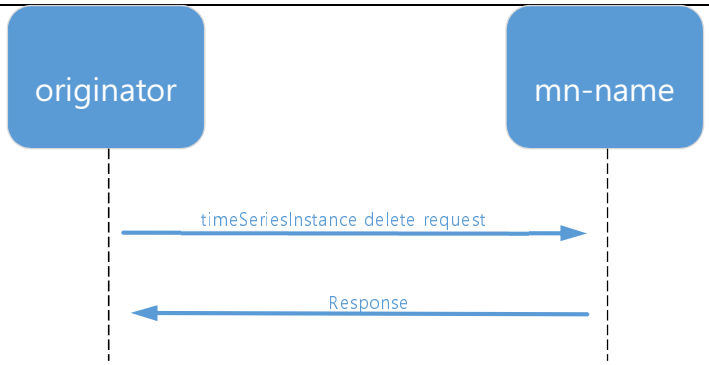
6.2.12.3 API-TSI-UPD

API Id	API/TSI/UPD
API Name	<timeSeriesInstance> resource UPDATE
Target Resource	Requested <timeSeriesInstance> resource
Description	Update operation is not allowed in <timeSeriesInstance> resource

6.2.12.4 API-TSI-DEL

API Id	API/TSI/DEL/001 API/TSI/DEL/001_RCN0 API/TSI/DEL/001_RCN1
API Name	<timeSeriesInstance> resource DELETE with resultContent parameter
Target Resource	Requested <timeSeriesInstance> resource
Description	The interface is used to send a <timeSeriesInstance> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <timeSeriesInstance> resource and sends back a response.
Resource Structure before Sending Request	

Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
X-M2M-RVI	Release Version Indicator

Example with no RCN or RCN=0

API/TSI/DEL/001
API/TSI/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/ae_sensor/timeSeries_cont/tsi_value1?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002

Example with RCN=1

API/TSI/DEL/001_RCN1

HTTP Request:

DELETE /mn-name/ae_sensor/timeSeries_cont/tsi_value1?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/ae_sensor/timeSeries_cont/tsi_value1
Content-Type: application/json
X-M2M-Origin: CAE5630283216026458665
X-M2M-RI: 1234
X-M2M-RVI: 2a

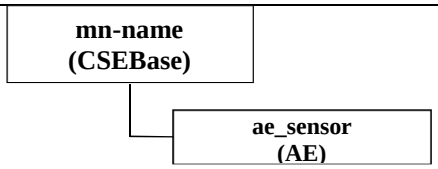
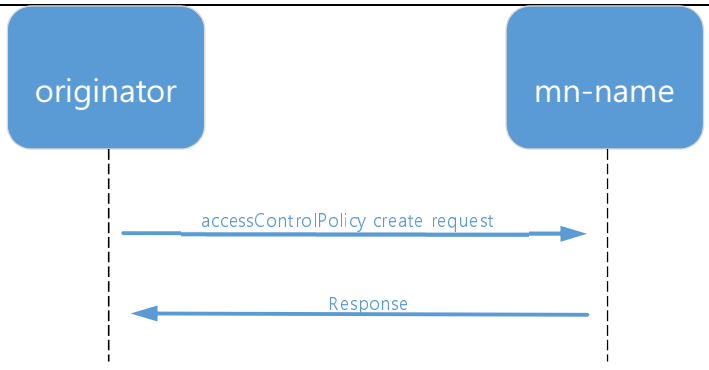
	X-M2M-RSC: 2002
	
	{
	"m2m:tsi": {
	"rn": "tsi_value1",
	"ty": 30,
	"pi": "CAE5630283216026458665",
	"ri": "TSI840674869203617594",
	"ct": "20180307T012211",
	"lt": "20180307T012211",
	"et": "2n0210307T012211",
	"dgt": "20180307T123456"
	"con": "DATA_TACK",
	"cs": 9,
	"st": 7
	}
	}

6.2.13 Resource Type *accessControlPolicy*

6.2.13.0 Introduction

The <accessControlPolicy> resource is defined to contain a set of access control rules defining for which entities have which privilege to perform operations such as CREATE, RETRIEVE, UPDATE and DELETE. The allowed operations are defined by an attribute accessControlOperations that associated with each <accessControlPolicy> resource.

6.2.13.1 API-ACP-CRE

API Id	API/ACP/CRE/001 API/ACP/CRE/001_RCN0 API/ACP/CRE/001_RCN1 API/ACP/CRE/001_RCN2 API/ACP/CRE/001_RCN3
API Name	<accessControlPolicy> resource CREATE with resultContent parameter
Target Resource	<CSEBase> of the requested <accessControlPolicy> resource
Description	The interface is used to send a <accessControlPolicy> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <accessControlPolicy> resource, and sends back a response.
Resource Structure before Sending Request	
Call Flow	

HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
Content-Type	application/json;ty=**1**
X-M2M-RVI	Release Version Indicator

Example with RCN=0

API/ACP/CRE/001_RCN0

HTTP Request:

```
POST /mn-name?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=1
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:acp" : {
      "rn": "accessControlPolicy",
      "et" : "20201221T064952",
      "pv" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "CAE1", "CAE2" ]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "all" ]
            }
         ]
      }
   }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```

Example with no RCN or RCN=1

API/ACP/CRE/001
API/ACP/CRE/001_RCN1

HTTP Request:

```
POST /mn-name?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=1
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:acp" : {
      "rn": "accessControlPolicy",
      "et" : "20201221T064952",
      "pv" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "CAE1", "CAE2" ]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "all" ]
            }
         ]
      }
   }
}


HTTP Response:

201 Created
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:acp": {
      "rn": "accessControlPolicy",
      "ty": 1,
      "ri": "ACP503720698362418574",
      "pi": "mnID",
      "ct": "20180308T115922",
      "lt": "20180308T115922",
      "et": "20201221T064952",
      "pv": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE1",
                  "CAE2"
               ]
            }
         ]
      },
      "pvs": {
         "acr": [
            {
```

<table>
<tr><td></td><td>

<pre>
                "acco": [],
                "acop": 63,
                "acor": [
                   "all"
                ]
             }
          ]
       }
    }
}
</pre>

</td></tr>
<tr><td>Example with RCN=2</td><td>

<h2>API/ACP/CRE/001_RCN2</h2>

HTTP Request:

<pre>
POST /mn-name?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=1
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:acp" : {
      "rn": "accessControlPolicy",
      "et" : "20201221T064952",
      "pv" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : ["CAE1", "CAE2"]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : ["all"]
            }
         ]
      }
   }
}
</pre>

HTTP Response:

<pre>
201 Created
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:uri": "mn-name/accessControlPolicy"
}
</pre>

</td></tr>
</table>

Example with RCN=3

API/ACP/CRE/001_RCN3

HTTP Request:

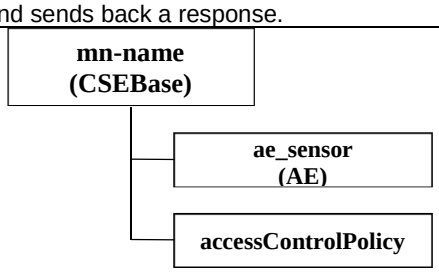
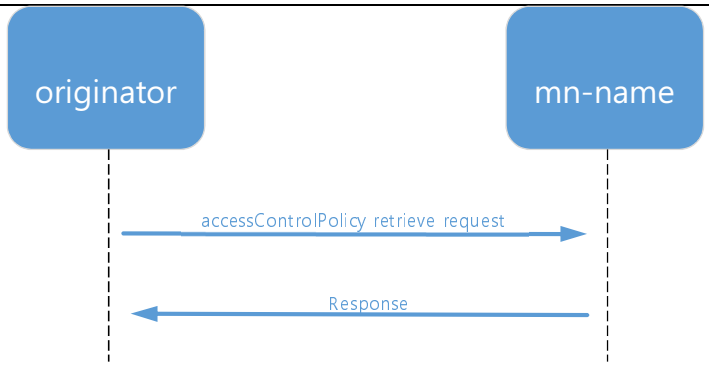
```
POST /mn-name?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=1
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:acp" : {
      "rn": "accessControlPolicy",
      "et" : "20201221T064952",
      "pv" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "CAE1", "CAE2" ]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acco" : [],
               "acop" : 63,
               "acor" : [ "all" ]
            }
         ]
      }
   }
}
```

HTTP Response:

```
201 Created
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:rce": {
      "m2m:acp": {
         "rn": "accessControlPolicy",
         "ty": 1,
         "ri": "ACP503720698362418574",
         "pi": "mnID",
         "ct": "20180308T115922",
         "lt": "20180308T115922",
         "et": "20201221T064952",
         "pv": {
            "acr": [
               {
                  "acco": [],
                  "acop": 63,
                  "acor": [
                     "CAE1",
                     "CAE2"
                  ]
               }
```

```
            ]
        },
        "pvs": {
            "acr": [
                {
                    "acco": [],
                    "acop": 63,
                    "acor": [
                        "all"
                    ]
                }
            ]
        }
        "m2m:uri": "mn-name/accessControlPolicy"
    }
  }
}
```


6.2.12.2 API-ACP-RET

API Id	API/ACP/RET/001 API/ACP/RET/001_RCN1
API Name	<accessControlPolicy> resource RETRIEVE with resultContent parameter
Target Resource	<CSEBase> of the requested <accessControlPolicy> resource
Description	The interface is used to send a <accessControlPolicy> RETRIEVE request attached with resultContent set to 1 to the Registrar CSE and sends back a response.
Resource Structure before Sending Request	
Call Flow	
HTTP Header Information	

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of request originator
X-M2M-RVI	Release Version Indicator

Example with no RCN or RCN=1

API/ACP/RET/001
API/ACP/RET/001_RCN1

HTTP Request:

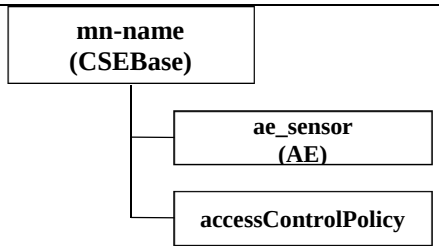
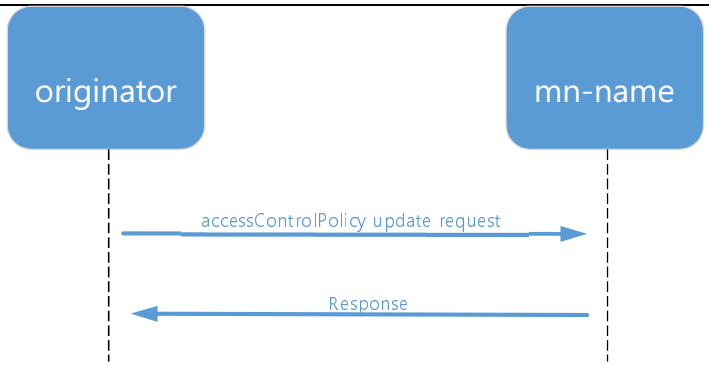
```
GET /mn-name/accessControlPolicy?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
200 OK
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2000
```

```
{
   "m2m:acp": {
      "rn": "accessControlPolicy",
      "ty": 1,
      "ri": "ACP503720698362418574",
      "pi": "mnID",
      "ct": "20180308T115922",
      "lt": "20180308T115922",
      "et": "20201221T064952",
      "pv": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE1",
                  "CAE2"
               ]
            }
         ]
      },
      "pvs": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "all"
               ]
            }
         ]
      }
   }
}
```

6.2.12.3 API-ACP-UPD

<table>
<tr><td>API Id</td><td>API/ACP/UPD/001
API/ACP/UPD/001_RCN0
API/ACP/UPD/001_RCN1</td></tr>
<tr><td>API Name</td><td><accessControlPolicy> resource UPDATE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><accessControlPolicy> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <accessControlPolicy> UPDATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <accessControlPolicy> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/ACP/UPD/001_RCN0

HTTP Request:

PUT /mn-name/accessControlPolicy?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

<table>
<tr><td></td><td>

<pre>
{
   "m2m:acp" : {
      "pv" : {
         "acr" : [
            {
               "acor" : ["CAE_A", "CAE_B"]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acor" : ["CAE_C", "CAE_D"]
            }
         ]
      }
   }
}
</pre>

HTTP Response:

200 OK
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004

</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>

API/ACP/UPD/001
API/ACP/UPD/001_RCN1

HTTP Request:

PUT /mn-name/accessControlPolicy?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

<pre>
{
   "m2m:acp" : {
      "pv" : {
         "acr" : [
            {
               "acor" : ["CAE_A", "CAE_B"]
            }
         ]
      },
      "pvs" : {
         "acr" : [
            {
               "acor" : ["CAE_C", "CAE_D"]
            }
         ]
      }
   }
}
</pre>

HTTP Response:

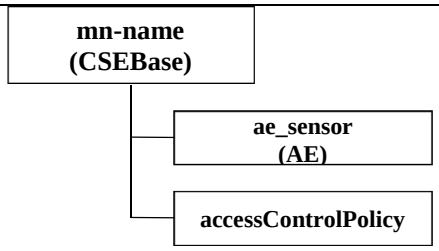
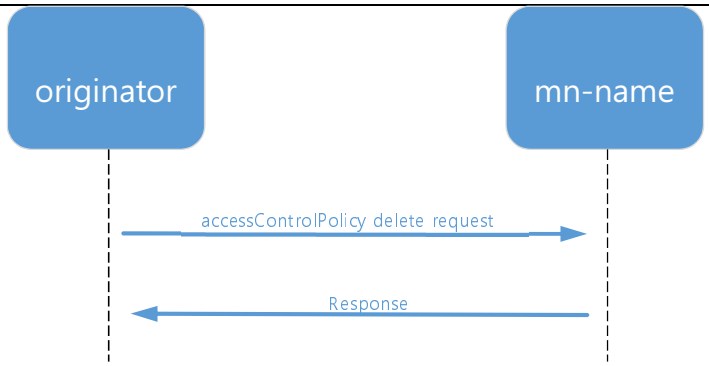
200 OK

</td></tr>
</table>

Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004


```
{
   "m2m:acp": {
      "rn": "accessControlPolicy",
      "ty": 1,
      "ri": "ACP503720698362418574",
      "pi": "mnID",
      "ct": "20180308T115922",
      "lt": "20180308T115922",
      "et": "20201221T064952",
      "pv": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE_A",
                  "CAE_B"
               ]
            }
         ]
      },
      "pvs": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE_C",
                  "CAE_D"
               ]
            }
         ]
      }
   }
}
```

6.2.12.4 API-ACP-DEL

<table>
<tr><td>API Id</td><td>API/ACP/DEL/001
API/ACP/DEL/001_RCN0
API/ACP/DEL/001_RCN1</td></tr>
<tr><td>API Name</td><td><accessControlPolicy> resource DELETE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><accessControlPolicy> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <accessControlPolicy> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <accessControlPolicy> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=0</td><td>
API/ACP/DEL/001
API/ACP/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/accessControlPolicy?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002
</td></tr>
</table>

Example with RCN=1

API/ACP/DEL/001_RCN1

HTTP Request:

```
DELETE /mn-name/accessControlPolicy?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
200 OK
Content-Location: mn-name/accessControlPolicy
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002

{
   "m2m:acp": {
      "rn": "accessControlPolicy",
      "ty": 1,
      "ri": "ACP503720698362418574",
      "pi": "mnID",
      "ct": "20180308T115922",
      "lt": "20180308T115922",
      "et": "20201221T064952",
      "pv": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE_A",
                  "CAE_B"
               ]
            }
         ]
      },
      "pvs": {
         "acr": [
            {
               "acco": [],
               "acop": 63,
               "acor": [
                  "CAE_C",
                  "CAE_D"
               ]
            }
         ]
      }
   }
}
```

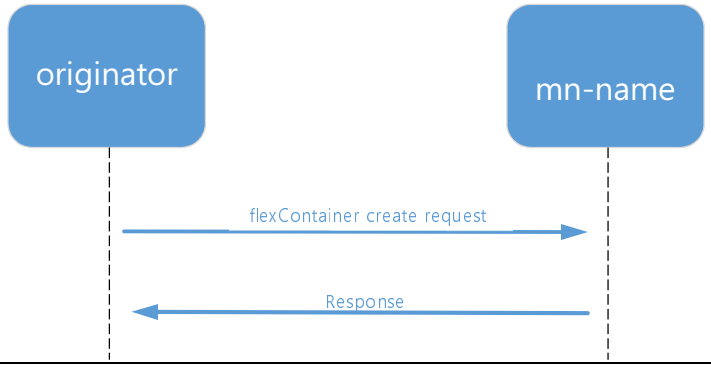
6.2.14 Resource Type *flexContainer*

6.2.14.0 Introduction

The <flexContainer> resource type is a customizable container for data instances. While <contentInstance> save the data in content attribute, <flexContainer> resource type directly contains the data in the attribute. Since it can have any attribute name, it may be a solution for saving custom data which is defined by the developer or manufacturer.

The CRUD examples in this clause are written based on the parking lot implementation. As custom attributes, availableSpotNumber, totalSpotNumber are made to save data for the parking lot.

6.2.14.1 API-FLX-CRE

<table>
<tr><td>API Id</td><td>API/FLX/CRE/001
API/FLX/CRE/001_RCN0
API/FLX/CRE/001_RCN1
API/FLX/CRE/001_RCN2
API/FLX/CRE/001_RCN3</td></tr>
<tr><td>API Name</td><td><flexContainer> resource CREATE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><CSEBase> of the requested <flexContainer> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <flexContainer> CREATE request attached with resultContent to the Registrar CSE, and the Registrar CSE creates a <flexContainer> resource, and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td>mn-name
(CSEBase)</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=28</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>API/FLX/CRE/001_RCN0

HTTP Request:

POST /mn-name?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE563028321602645866 5
Content-Type: application/json;ty=28
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

<table>
<tr><td></td><td>

<pre>
{
   "m2m:sc_offLot": {
      "rn": "yt_lot_1",
      "lbl": [
         "sc"
      ],
      "cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
      "type": "OffStreetParking",
      "category": "lot_1",
      "geolocation": [
          37.4114423,
          127.1293735
      ],
      "name": "parkingLot_1",
      "availableSpotNumber": "3",
      "totalSpotNumber": "110"
   }
}
</pre>

HTTP Response:

<pre>
201 Created
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
</pre>

</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>

API/FLX/CRE/001
API/FLX/CRE/001_RCN1

HTTP Request:

<pre>
POST /mn-name?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=28
X-M2M-RI: 1234
X-M2M-RVI: 2a
</pre>

<pre>
{
   "m2m:sc_offLot": {
      "rn": "yt_lot_1",
      "lbl": [
         "sc"
      ],
      "cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
      "type": "OffStreetParking",
      "category": "lot_1",
      "geolocation": [
          37.4114423,
          127.1293735
      ],
      "name": "parkingLot_1",
      "availableSpotNumber": "3",
      "totalSpotNumber": "110"
   }
}
</pre>

HTTP Response:

<pre>
201 Created
</pre>

</td></tr>
</table>

<table>
<tr><td></td><td>
<pre>
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
   "m2m:sc_offLot": {
      "pi": "CAE5630283216026458665",
      "ri": "FLX37696264720673421",
      "ty": 28,
      "ct": "20181019T045127",
      "st": 15878,
      "rn": "yt_lot_1",
      "lt": "20181207T002422",
      "et": "20211019T045127",
      "lbl": [
         "sc"
      ],
      "cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
      "type": "OffStreetParking",
      "category": "lot_1",
      "geolocation": [
          37.4114423,
          127.1293735
      ],
      "name": "parkingLot_1",
      "availableSpotNumber": "3",
      "totalSpotNumber": "110"
   }
}
</pre>
</td></tr>
<tr><td>Example with RCN=2</td><td>
<h2>API/FLX/CRE/001_RCN2</h2>
HTTP Request:
<pre>
POST /mn-name?rcn=2 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=28
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sc_offLot": {
      "rn": "yt_lot_1",
      "lbl": [
         "sc"
      ],
      "cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
      "type": "OffStreetParking",
      "category": "lot_1",
      "geolocation": [
          37.4114423,
          127.1293735
      ],
      "name": "parkingLot_1",
      "availableSpotNumber": "3",
      "totalSpotNumber": "110"
   }
}
</pre>
HTTP Response:
<pre>
201 Created
</pre>
</td></tr>
</table>

<table>
<tr><td></td><td>Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001

{
"m2m:uri": "mn-name/yt_lot_1"
}</td></tr>
<tr><td>Example with RCN=3</td><td>API/FLX/CRE/001_RCN3

HTTP Request:

POST /mn-name?rcn=3 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=28
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:sc_offLot": {
"rn": "yt_lot_1",
"lbl": [
"sc"
],
"cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
"type": "OffStreetParking",
"category": "lot_1",
"geolocation": [
37.4114423,
127.1293735
],
"name": "parkingLot_1",
"availableSpotNumber": "3",
"totalSpotNumber": "110"
}
}

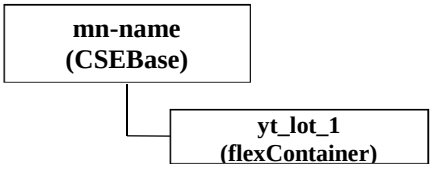
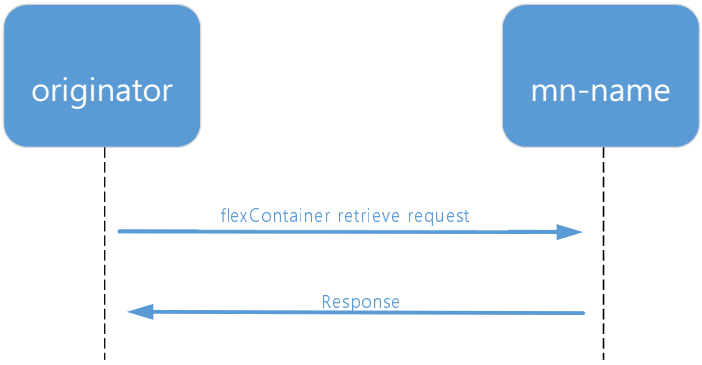
HTTP Response:

201 Created
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

X-M2M-RSC: 2001


```
{
    "m2m:rce":{
        "m2m:sc_offLot":{
            "pi":"CAE56302832160264586 65",
            "ri":"FLX37696264720673421",
            "ty":28,
            "ct":"20181019T045127",
            "st":15878,
            "rn":"yt_lot_1",
            "lt":"20181207T002422",
            "et":"20211019T045127",
            "lbl":[
                "sc"
            ],
            "cnd":"http://developers.iotocean.org/schema/offStreetParking.xsd",
            "type":"OffStreetParking",
            "category":"lot_1",
            "geolocation":[
                37.4114423,
                127.1293735
            ],
            "name":"parkingLot_1",
            "availableSpotNumber":"3",
            "totalSpotNumber":"110"
        }
    },
    "m2m:uri":"mn-name/yt_lot_1"
}
```

6.2.14.2 API-FLX-RET

<table>
<tr><td>API Id</td><td>API/FLX/RET/001
API/FLX/RET/001_RCN1</td></tr>
<tr><td>API Name</td><td><flexContainer> resource RETRIEVE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><CSEBase> of the requested <flexContainer> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <flexContainer> RETRIEVE request attached with resultContent set to 1 to the Registrar CSE and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=1</td><td>
API/FLX/RET/001
API/FLX/RET/001_RCN1

HTTP Request:

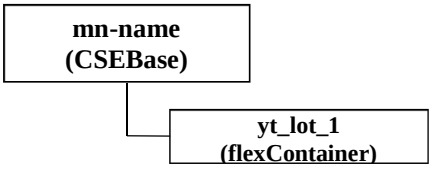
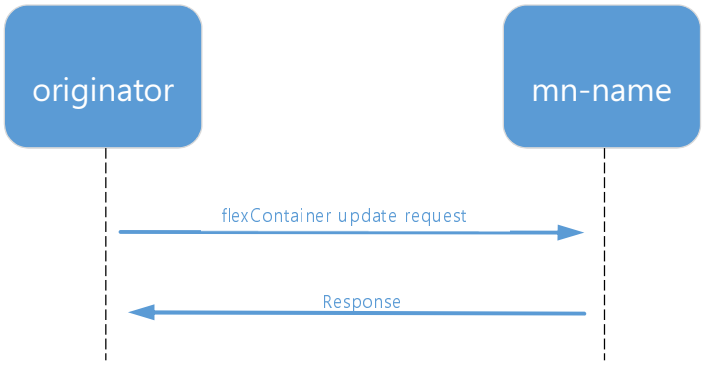
GET /mn-name/yt_lot_1?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2000
	
	{
	"m2m:sc_offLot": {
	"pi": "CAE56302832160264586 65",
	"ri": "FLX37696264720673421",
	"ty": 28,
	"ct": "20181019T045127",
	"st": 15878,
	"rn": "yt_lot_1",
	"lt": "20181207T002422",
	"et": "20211019T045127",
	"lbl": [
	"sc"
	],
	"cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
	"type": "OffStreetParking",
	"category": "lot_1",
	"geolocation": [
	37.4114423,
	127.1293735
	],
	"name": "parkingLot_1",
	"availableSpotNumber": "3",
	"totalSpotNumber": "110"
	}
	}

6.2.14.3 API-FLX-UPD

<table>
<tr><td>API Id</td><td>API/FLX/UPD/001
API/FLX/UPD/001_RCN0
API/FLX/UPD/001_RCN1</td></tr>
<tr><td>API Name</td><td><flexContainer> resource UPDATE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><flexContainer> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <flexContainer> UPDATE request attached with resultContent to the Registrar CSE, and the Registrar CSE updates a <flexContainer> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>Content-Type</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with RCN=0</td><td>
API/FLX/UPD/001_RCN0

HTTP Request:

PUT /mn-name/yt_lot_1?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
"m2m:sc_offLot" : {
"availableSpotNumber": "40",
}

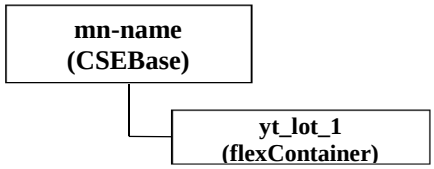
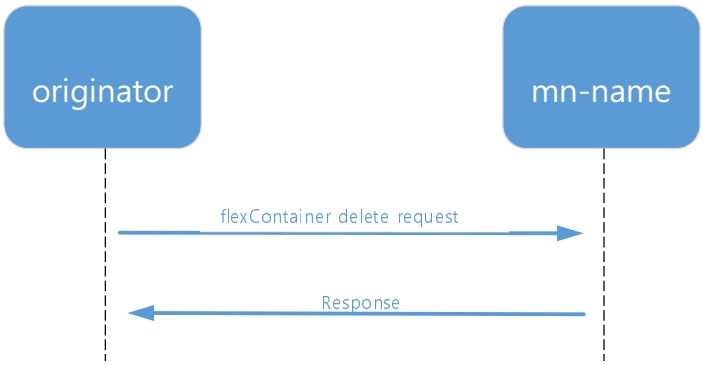
HTTP Response:

200 OK
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

	X-M2M-RSC: 2004

Example with no RCN or RCN=1	**API/FLX/UPD/001**
	API/FLX/UPD/001_RCN1
	
	HTTP Request:
	
	PUT /mn-name/yt_lot_1?rcn=1 HTTP/1.1
	Host: 192.168.0.10:8282
	X-M2M-Origin: CAE5630283216026458665
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	
	{
	"m2m:sc_offLot" : {
	"availableSpotNumber": "40",
	}
	
	HTTP Response:
	
	200 OK
	Content-Location: mn-name/yt_lot_1
	Content-Type: application/json
	X-M2M-RI: 1234
	X-M2M-RVI: 2a
	X-M2M-RSC: 2004
	
	{
	"m2m:sc_offLot": {
	"pi": "CAE5630283216026458665",
	"ri": "FLX37696264720673421",
	"ty": 28,
	"ct": "20181019T045127",
	"st": 15878,
	"rn": "yt_lot_1",
	"lt": "20181207T052435",
	"et": "20211019T045127",
	"lbl": [
	"sc"
	],
	"cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
	"type": "OffStreetParking",
	"category": "lot_1",
	"geolocation": [
	37.4114423,
	127.1293735
	],
	"name": "parkingLot_1",
	"availableSpotNumber": "40",
	"totalSpotNumber": "110"
	}
	}

6.2.14.4 API-FLX-DEL

<table>
<tr><td>API Id</td><td>API/FLX/DEL/001
API/FLX/DEL/001_RCN0
API/FLX/DEL/001_RCN1</td></tr>
<tr><td>API Name</td><td><flexContainer> resource DELETE with resultContent parameter</td></tr>
<tr><td>Target Resource</td><td><flexContainer> resource</td></tr>
<tr><td>Description</td><td>The interface is used to send a <flexContainer> DELETE request attached with resultContent to the Registrar CSE, and the Registrar CSE deletes a <flexContainer> resource and sends back a response.</td></tr>
<tr><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of request originator</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example with no RCN or RCN=0</td><td>
API/FLX/DEL/001
API/FLX/DEL/001_RCN0

HTTP Request:

DELETE /mn-name/yt_lot_1?rcn=0 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002
</td></tr>
</table>

Example with RCN=1

API/FLX/DEL/001_RCN1

HTTP Request:

```
DELETE /mn-name/yt_lot_1?rcn=1 HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

```
200 OK
Content-Location: mn-name/yt_lot_1
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2002

{
   "m2m:sc_offLot": {
      "pi": "CAE5630283216026458665",
      "ri": "FLX37696264720673421",
      "ty": 28,
      "ct": "20181019T045127",
      "st": 15878,
      "rn": "yt_lot_1",
      "lt": "20181207T052435",
      "et": "20211019T045127",
      "lbl": [
         "sc"
      ],
      "cnd": "http://developers.iotocean.org/schema/offStreetParking.xsd",
      "type": "OffStreetParking",
      "category": "lot_1",
      "geolocation": [
          37.4114423,
          127.1293735
      ],
      "name": "parkingLot_1",
      "availableSpotNumber": "40",
      "totalSpotNumber": "110"
   }
}
```

Annex A:
Example of notification

A.1 Notification API

A.1.0 Introduction

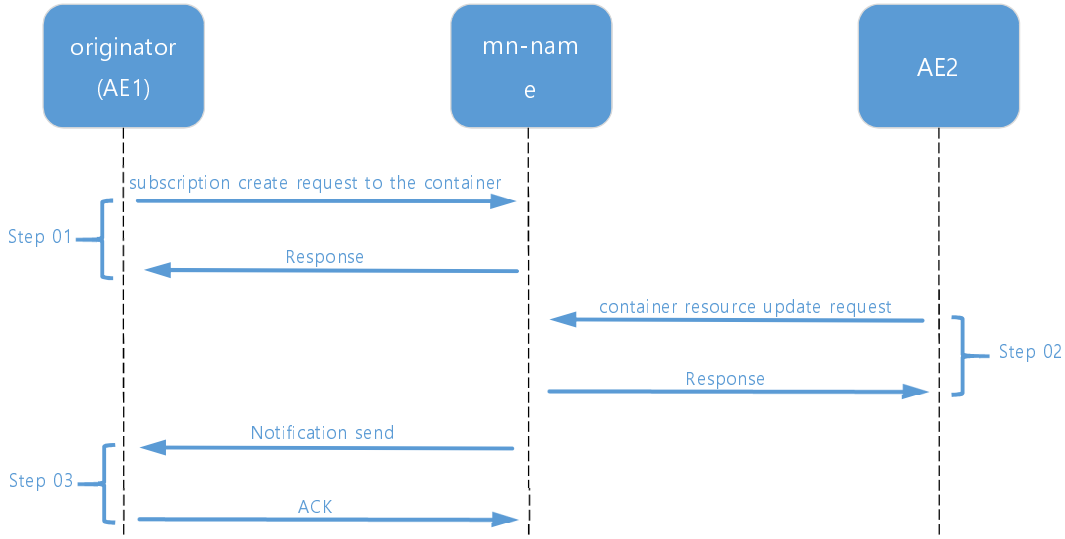
The notify operation is used for notify any event. AE or CSE which has privilege to make a <subscription> resource as a child resource of the subscribed-to resource. The <subscription> resource includes notification policies that specify which, when, and how notifications are sent.

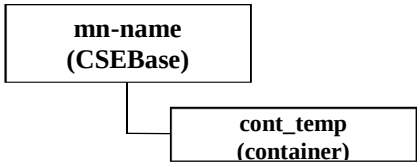
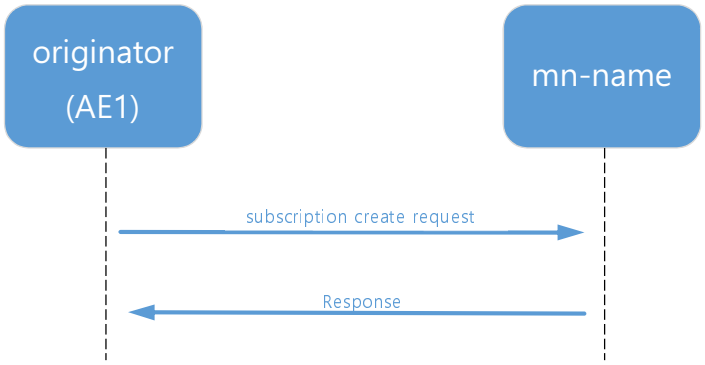
In this clause, notification examples are provided for the understanding of notification procedure. Especially, examples have different notificationEnentType in the eventNotificationCriteria. The notificationEventType value is specified in table A.1.0-1 and set when notification is sent.

Table A.1.0-1: Interpretation of notificationEventType

Value	Interpretation	Note
1	Update_of_Resource	Default
2	Delete_of_Resource	
3	Create_of_Direct_Child_Resource	
4	Delete_of_Direct_Child_Resource	

A.1.1 API-NOTI-NET1

API Id	API/NOTI/NET1/STEP01 API/NOTI/NET1/STEP02 API/NOTI/NET1/STEP03
API Name	Notification procedure when the <subscription> resource has notificationEventType set to 1(Hosting CSE sends notification when the subscribed-to resource has been updated)
Target Resource	Update Target: Requested <container> resource Notification Target: originator
Description	Figure below depicts the procedure for notification.  Initial condition: MN(Hosting CSE) has a <container> resource. The originator is AE1 in this clause, but can be CSE.

<table>
<tr><td></td><td colspan="2">Step 01: The originator sends a <subscription> resource CREATE request to the <container> resource on the Registrar CSE. In the request, notificationEventType set to 1 and notificationURI attribute set to originator. The Registrar CSE creates a <subscription> resource and sends back a response.
Step 02: An AE2 sends an UPDATE request to the <container> resource. The Registrar CSE updates a <container> resource and sends back a response.
Step 03: The Hosting CSE sends notification as soon as update succeed. The originator sends back an ACK message.</td></tr>
<tr><td rowspan="4">Step 01</td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>Content-Type</td><td>application/json;ty=23</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
<tr><td>Example</td><td>API/NOTI/NET1/STEP01

HTTP Request:

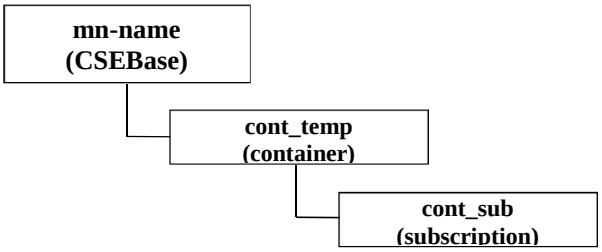
POST /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a</td></tr>
</table>

<table>
<tr><td></td><td></td><td>

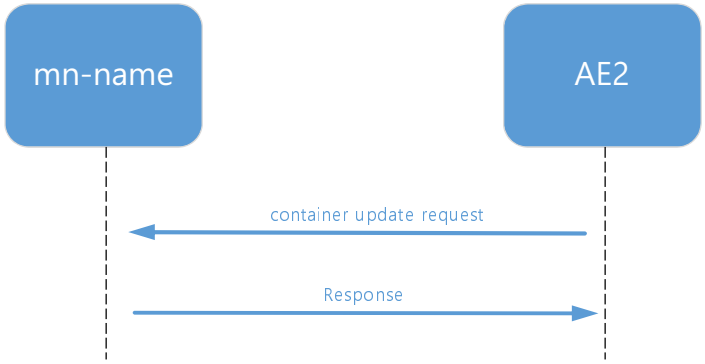
<pre>
{
   "m2m:sub": {
      "enc": {
         "net": [1]
      },
      "nu": ["AE1"],
      "rn": "cont_sub"
   }
}
</pre>

HTTP Response:

201 Created
Content-Location: mn-name/cont_temp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
</td></tr>
<tr><td rowspan="4">Step 02</td><td>Resource Structure before Sending Request</td><td>



</td></tr>
<tr><td>Call Flow</td><td>



</td></tr>
<tr><td>HTTP Header Information</td><td>

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

</td></tr>
<tr><td>Example</td><td>

API/NOTI/NET1/STEP02

HTTP Request:

PUT /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T08463114
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
</td></tr>
</table>

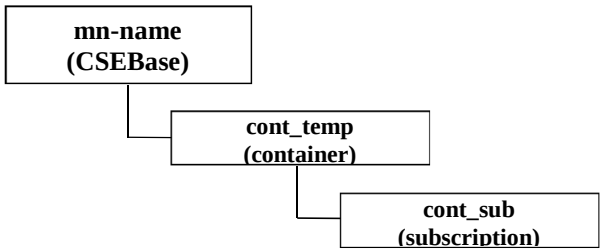
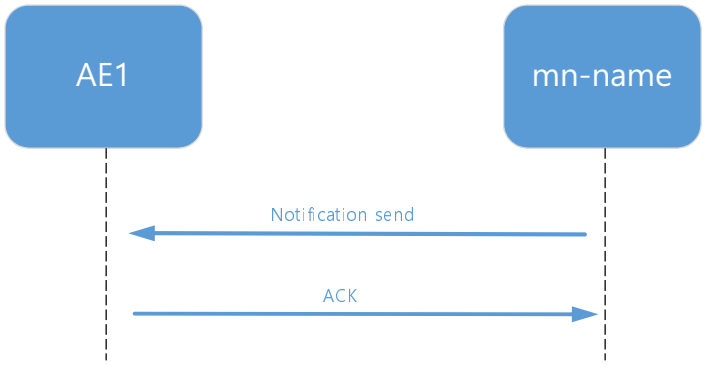
<table>
<tr><td></td><td></td><td>

<pre>{
   "m2m:cnt": {
      "mni": "300"
   }
}</pre>

HTTP Response:

200 OK
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004

<pre>{
   "m2m:cnt": {
      "cbs": 10,
      "cni": 0,
      "ct": "20180406T125807",
      "et": "99991231T235959",
      "lbl": [
         "indoor_temp"
      ],
      "lt": "20180406T130109",
      "mbs": 60000000,
      "mia": 1600,
      "mni": 300,
      "pi": "CAE0120180406T0846311405855351047680_cse01",
      "ri": "cnt20180406T1258071405855183193603_cse01",
      "rn": "cont_temp",
      "st": 1,
      "ty": 3
   }
}</pre>

</td></tr>
<tr><td></td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td></td><td>Call Flow</td><td> 
</td></tr>
</table>

Step 03

HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET1/STEP03

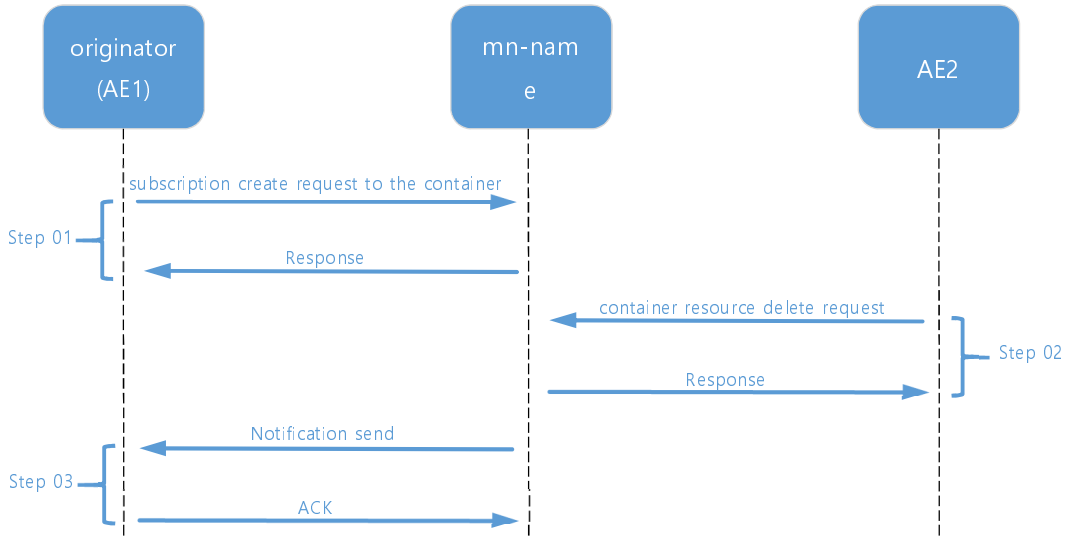
HTTP Request:

```
POST HTTP/1.1
Accept: application/json
Host: 192.168.0.10:8282
X-M2M-Origin: mn-name
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sgn": {
      "sur": " mn-name/cont_temp/cont_sub",
      "nev": {
         "net":1,
         "rep": {
            "m2m:cnt": {
               "cbs": 10,
               "cni": 0,
               "ct": "20180406T125807",
               "et": "99991231T235959",
               "lbl": [
                  "indoor_temp"
               ],
               "lt": "20180406T130109",
               "mbs": 60000000,
               "mia": 1600,
               "mni": 300,
               "pi": "CAE0120180406T0846311405855351047680_cse01",
               "ri": "cnt20180406T1258071405855183193603_cse01",
               "rn": "cont_temp",
               "st": 1,
               "ty": 3
            }
         }
      }
   }
}
```

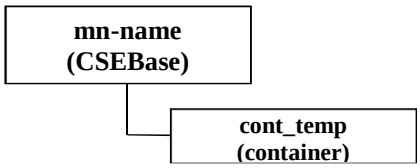
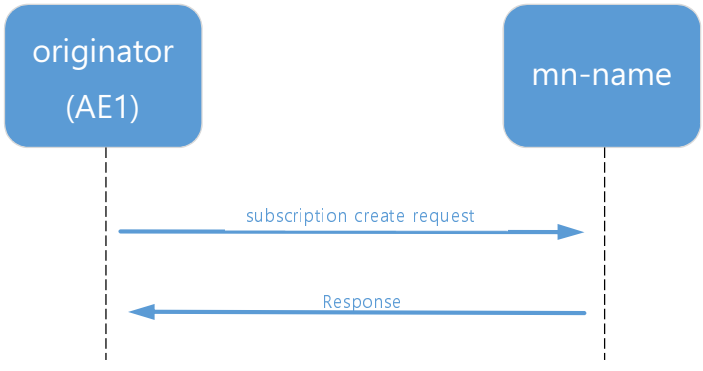
HTTP Response:

```
200 OK
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2000
```

A.1.2 API-NOTI-NET2

<table>
<tr><td>API Id</td><td>API/NOTI/NET2/STEP01
API/NOTI/NET2/STEP02
API/NOTI/NET2/STEP03</td></tr>
<tr><td>API Name</td><td>Notification procedure when the <subscription> resource has notificationEventType set to 2(Hosting CSE sends notification when the subscribed to resource has been deleted)</td></tr>
<tr><td>Target Resource</td><td>Delete Target: Requested <container> resource
Notification Target: originator</td></tr>
<tr><td>Description</td><td>Figure below depicts the procedure for notification.
 

Initial condition: MN(Hosting CSE) has a <container> resource. The originator is AE1 in this clause, but can be CSE.

Step 01: The originator sends a <subscription> resource CREATE request to the <container> resource on the Registrar CSE. In the request, notificationEventType set to 2 and notificationURI attribute set to originator. The Registrar CSE creates a <subscription> resource and sends back a response.
Step 02: An AE2 sends a DELETE request to the <container> resource. The Registrar CSE deletes a <container> resource and sends back a response.
Step 03: The Hosting CSE sends notification as soon as delete succeed. The originator sends back an ACK message.</td></tr>
<tr><td></td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td></td><td>Call Flow</td><td> 
</td></tr>
</table>

Step 01

HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json;ty=**23**
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET2/STEP01

HTTP Request:

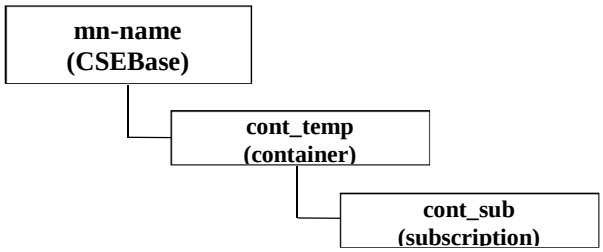
```
POST /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sub": {
      "enc": {
         "net": [2]
      },
      "nu": ["AE1"],
      "rn": "cont_sub"
   }
}
```

HTTP Response:

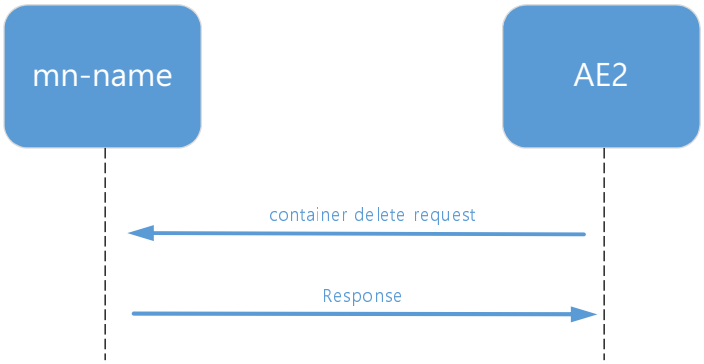
```
201 Created
Content-Location: mn-name/cont_temp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```

Step 02

Resource Structure before Sending Request



Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET2/STEP02

HTTP Request:

```
DELETE /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T08463114
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

HTTP Response:

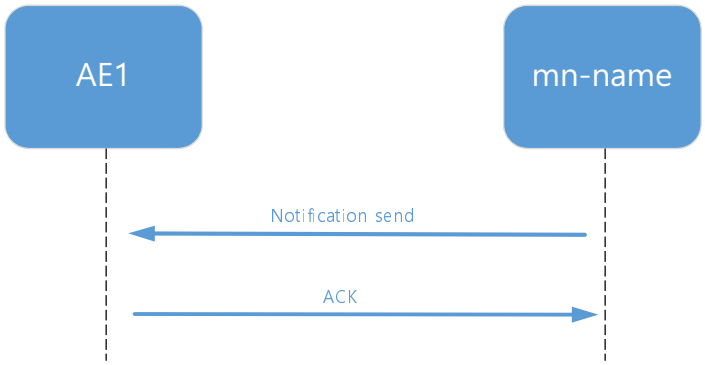
```
200 OK
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

X-M2M-RSC: 2004


```
{
   "m2m:cnt": {
      "cbs": 10,
      "cni": 0,
      "ct": "20180406T125807",
      "et": "99991231T235959",
      "lbl": [
         "indoor_temp"
      ],
      "lt": "20180406T130109",
      "mbs": 60000000,
      "mia": 1600,
      "mni": 300,
      "pi": "CAE0120180406T0846311405855351047680_cse01",
      "ri": "cnt20180406T1258071405855183193603_cse01",
      "rn": "cont_temp",
      "st": 1,
      "ty": 3
   }
}
```


Resource Structure before Sending Request

Call Flow

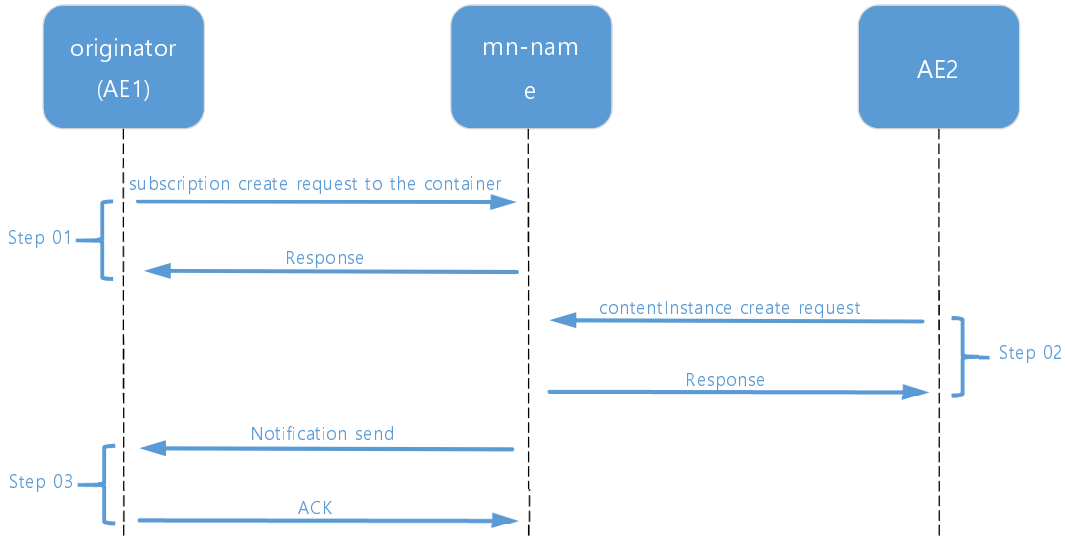


HTTP Header Information

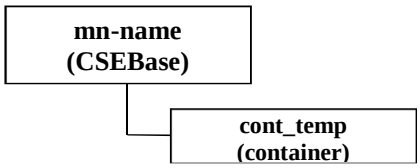
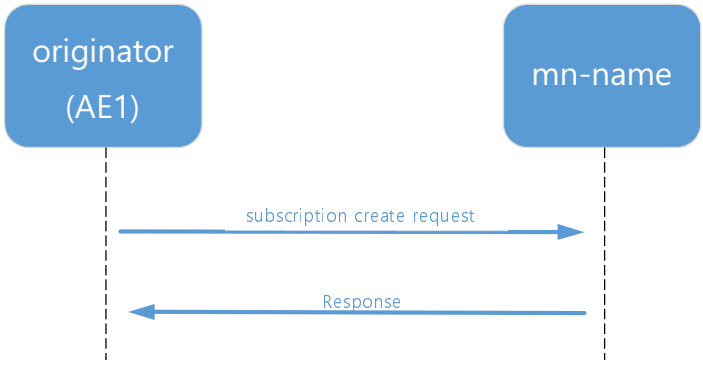
Header	Value
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Step 03	**Example**	**API/NOTI/NET2/STEP03**
		
		HTTP Request:
		
		POST HTTP/1.1
		Host: 192.168.0.10:8282
		X-M2M-Origin: mn-name
		Content-Type: application/json
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		
		{
		"m2m:sgn": {
		"sur": " mn-name/cont_temp/cont_sub",
		"nev": {
		"net":2,
		"rep": {
		"m2m:cnt": {
		"cbs": 10,
		"cni": 0,
		"ct": "20180406T125807",
		"et": "99991231T235959",
		"lbl": [
		"indoor_temp"
		],
		"lt": "20180406T130109",
		"mbs": 60000000,
		"mia": 1600,
		"mni": 300,
		"pi": "CAE0120180406T08463114058553510476 80_cse01",
		"ri": "cnt20180406T12580714058551831936 03_cse01",
		"rn": "cont_temp",
		"st": 1,
		"ty": 3
		}
		}
		}
		}
		}
		
		HTTP Response:
		
		200 OK
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		X-M2M-RSC: 2000

A.1.3 API-NOTI-NET3

<table>
<tr><td>API Id</td><td>API/NOTI/NET3/STEP01
API/NOTI/NET3/STEP02
API/NOTI/NET3/STEP03</td></tr>
<tr><td>API Name</td><td>Notification procedure when the <subscription> resource has notificationEventType set to 3 (Hosting CSE sends notification when the direct child resource has been created)</td></tr>
<tr><td>Target Resource</td><td>Create <contentIntance> target: Requested <container> resource
Notification Target: originator</td></tr>
<tr><td>Description</td><td>Figure below depicts the procedure for notification.
 

Initial condition: MN(Hosting CSE) has a <container> resource. The originator is AE1 in this clause, but can be CSE.

Step 01: The originator sends a <subscription> resource CREATE request to the <container> resource on the Registrar CSE. In the request, notificationEventType set to 3 and notificationURI attribute set to originator. The Registrar CSE creates a <subscription> resource and sends back a response.
Step 02: An AE2 sends a CREATE request of the <contentInstance> resource to the <container> resource. The Registrar CSE creates a <contentInstance> resource and sends back a response.
Step 03: The Hosting CSE sends notification as soon as create succeed. The originator sends back an ACK message.</td></tr>
<tr><td></td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td></td><td>Call Flow</td><td> 
</td></tr>
</table>

Step 01

HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json;ty=**23**
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET3/STEP01

HTTP Request:

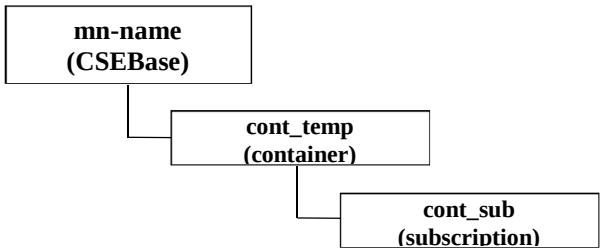
```
POST /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
    "m2m:sub": {
        "enc": {
            "net": [3]
        },
        "nu": ["AE1"],
        "rn": "cont_sub"
    }
}
```

HTTP Response:

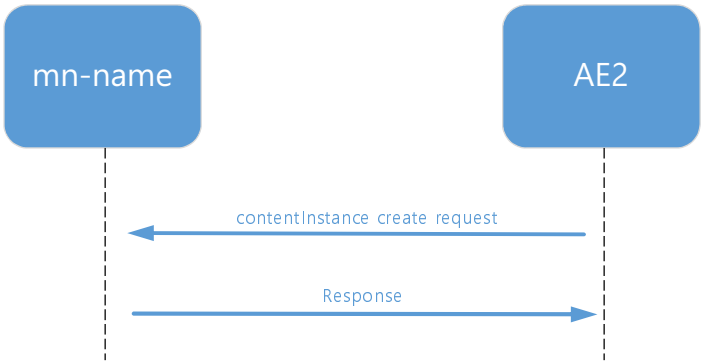
```
201 Created
Content-Location: mn-name/cont_temp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```

Step 02

Resource Structure before Sending Request



Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET3/STEP02

HTTP Request:

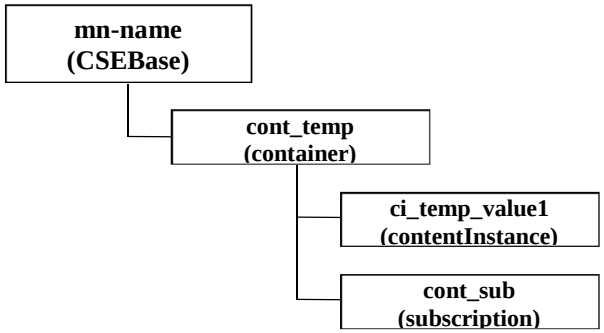
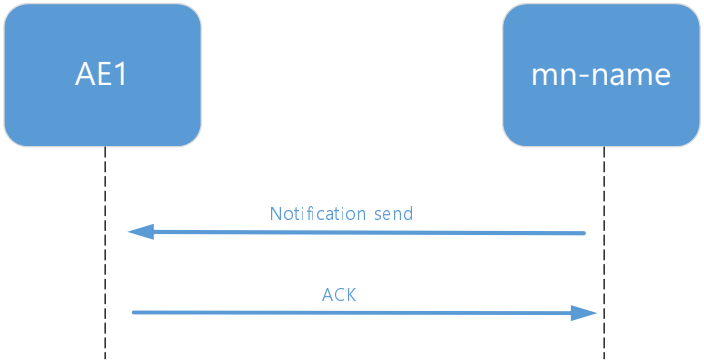
```
POST /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T08463114
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:cin": {
      "con": "20"
   }
}
```

HTTP Response:

```
201 Created
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
```

<table>
<tr><td></td><td></td><td>

```
X-M2M-RSC: 2004

{
   "m2m:cin": {
      "con": "20",
      "cs": 2,
      "ct": "20180406T135509",
      "et": "99991231T235959",
      "lt": "20180406T135509",
      "pi": "cnt20180406T1353041405855518901760_cse01",
      "ri": "cin20180406T1355091405855351047683_cse01",
      "rn": "cin20180406T1355091405855351047682_cse01",
      "st": 1,
      "ty": 4
   }
}
```

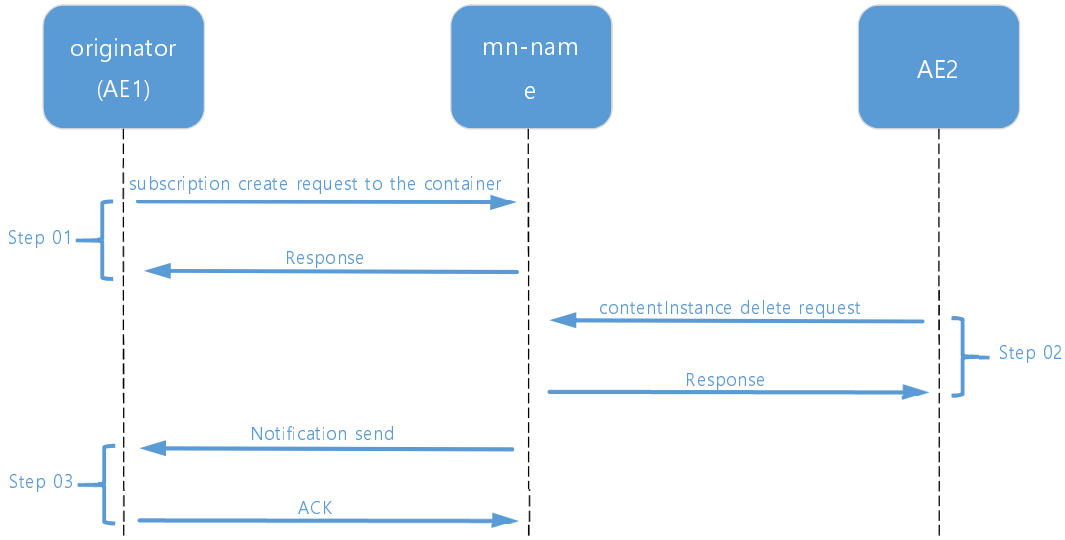
</td></tr>
<tr><td rowspan="3">Step 03</td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json
X-M2M-RVI	Release Version Indicator

</td></tr>
</table>

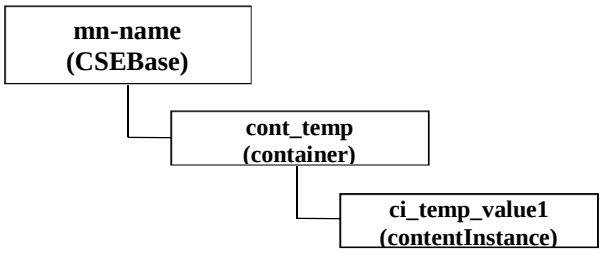
	Example	**API/NOTI/NET3/STEP03**
		
		HTTP Request:
		
		POST HTTP/1.1
		Host: 192.168.0.10:8282
		X-M2M-Origin: mn-name
		Content-Type: application/json
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		
		{
		"m2m:sgn": {
		"sur": " mn-name/cont_temp/cont_sub",
		"nev": {
		"net":3,
		"rep": {
		"m2m:cin": {
		"con": "20",
		"cs": 2,
		"ct": "20180406T135509",
		"et": "99991231T235959",
		"lt": "20180406T135509",
		"pi": "cnt20180406T1353041405855518901760_cse01",
		"ri": "cin20180406T1355091405855351047683_cse01",
		"rn": "cin20180406T1355091405855351047682_cse01",
		"st": 1,
		"ty": 4
		}
		}
		}
		}
		}
		
		HTTP Response:
		
		200 OK
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		X-M2M-RSC: 2000

A.1.4 API-NOTI-NET4

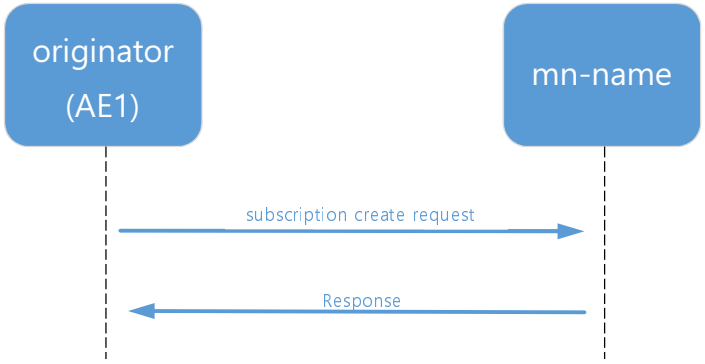
API Id	API/NOTI/NET4/STEP01 API/NOTI/NET4/STEP02 API/NOTI/NET4/STEP03
API Name	Notification procedure when the <subscription> resource has notificationEventType set to 4(Hosting CSE sends notification when the direct child resource has been deleted)
Target Resource	Delete <contentIntance> target: Requested <container> resource Notification Target: originator
Description	Figure below depicts the procedure for notification.  Initial condition: MN(Hosting CSE) has a <container> resource. At the same time, <container> resource has <contentInstance> resource as a direct child resource. The originator is AE1 in this clause, but can be CSE. Step 01: The originator sends a <subscription> resource CREATE request to the <container> resource on the Registrar CSE. In the request, notificationEventType set to 4 and notificationURI attribute set to originator. The Registrar CSE creates a <subscription> resource and sends back a response. Step 02: An AE2 sends a DELETE request of the <contentInstance> resource to the <container> resource. The Registrar CSE deletes a <contentInstance> resource and sends back a response. Step 03: The Hosting CSE sends notification as soon as delete succeed. The originator sends back an ACK message.

Step 01

Resource Structure before Sending Request



Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
Content-Type	application/json;ty=**23**
X-M2M-RVI	Release Version Indicator

Example

API/NOTI/NET4/STEP01

HTTP Request:

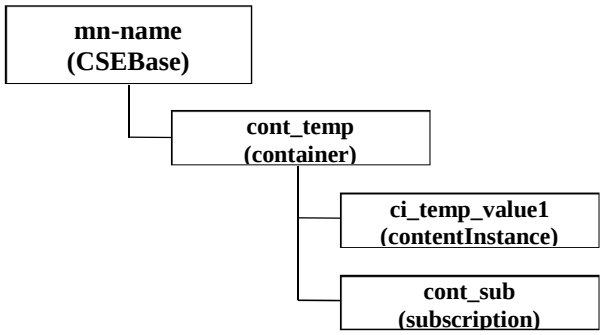
```
POST /mn-name/cont_temp? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE5630283216026458665
Content-Type: application/json;ty=23
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

{
   "m2m:sub": {
      "enc": {
         "net": [4]
      },
      "nu": ["AE1"],
      "rn": "cont_sub"
   }
}
```

HTTP Response:

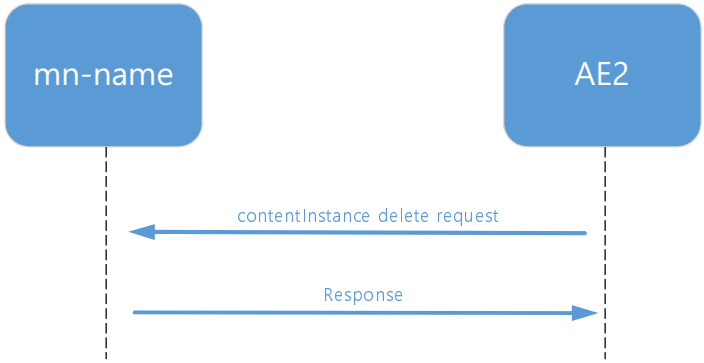
```
201 Created
Content-Location: mn-name/cont_temp
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2001
```

Step 02

Resource Structure before Sending Request



Call Flow



HTTP Header Information

Header	Value
Accept	application/json
X-M2M-RI	Request ID
X-M2M-Origin	AE-ID of Originator
X-M2M-RVI	Release Version Indicator

Example

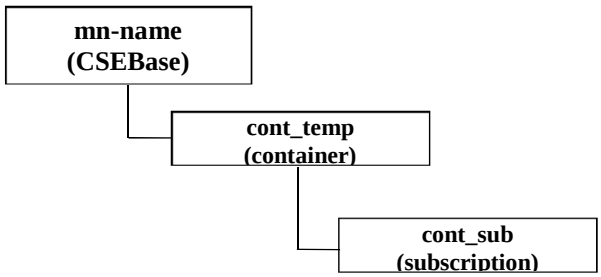
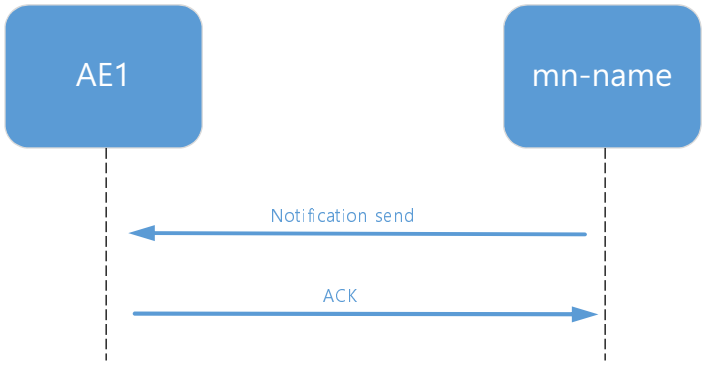
API/NOTI/NET4/STEP02

HTTP Request:

DELETE /mn-name/cont_temp/ci_temp_value1? HTTP/1.1
Host: 192.168.0.10:8282
X-M2M-Origin: CAE0120180406T08463114
Content-Type: application/json
Accept: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a

HTTP Response:

200 OK
Content-Type: application/json
X-M2M-RI: 1234
X-M2M-RVI: 2a
X-M2M-RSC: 2004

<table>
<tr><td></td><td></td><td>
<pre>
{
   "m2m:cin": {
      "con": "20",
      "cs": 2,
      "ct": "20180406T135509",
      "et": "99991231T235959",
      "lt": "20180406T135509",
      "pi": "cnt20180406T1353041405855518901760_cse01",
      "ri": "cin20180406T1355091405855351047683_cse01",
      "rn": "cin20180406T1355091405855351047682_cse01",
      "st": 1,
      "ty": 4
   }
}
</pre>
</td></tr>
<tr><td rowspan="3">Step 03</td><td>Resource Structure before Sending Request</td><td> 
</td></tr>
<tr><td>Call Flow</td><td> 
</td></tr>
<tr><td>HTTP Header Information</td><td>
<table>
<tr><th>Header</th><th>Value</th></tr>
<tr><td>Accept</td><td>application/json</td></tr>
<tr><td>X-M2M-RI</td><td>Request ID</td></tr>
<tr><td>X-M2M-Origin</td><td>AE-ID of Originator</td></tr>
<tr><td>Content-Type</td><td>application/json</td></tr>
<tr><td>X-M2M-RVI</td><td>Release Version Indicator</td></tr>
</table>
</td></tr>
</table>

	Example	**API/NOTI/NET4/STEP03**
		
		HTTP Request:
		
		POST HTTP/1.1
		Host: 192.168.0.10:8282
		X-M2M-Origin: mn-name
		Content-Type: application/json
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		
		{
		"m2m:sgn": {
		"sur": " mn-name/cont_temp/cont_sub",
		"nev": {
		"net":4,
		"rep": {
		"m2m:cin": {
		"con": "20",
		"cs": 2,
		"ct": "20180406T135509",
		"et": "99991231T235959",
		"lt": "20180406T135509",
		"pi": "cnt20180406T1353041405855518901760_cse01",
		"ri": "cin20180406T1355091405855351047683_cse01",
		"rn": "cin20180406T1355091405855351047682_cse01",
		"st": 1,
		"ty": 4
		}
		}
		}
		}
		}
		
		HTTP Response:
		
		200 OK
		X-M2M-RI: 1234
		X-M2M-RVI: 2a
		X-M2M-RSC: 2000

Annex B: Bibliography

- ETSI TS 118 109: "oneM2M; HTTP Protocol Binding HTTP Protocol Binding (oneM2M TS-0009)".
- ETSI TS 118 011: "Common Terminology (oneM2M TS-0011)".

History

Document history		
V2.0.0	November 2020	Publication