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| CHANGE REQUEST |
| Meeting ID:\* |  SDS #49 |
| Source:\* | Rahul Kumar, krahul@cdot.inPoornima, poornima@cdot.in Anupama Chopra anupama@cdot.in |
| Date:\* | 2021-02-01 |
| Reason for Change/s:\* | Changes for CSE-ID attribute in <remoteCSE> resource |
| CR against: Release\* | Release 4 |
| CR against: WI\* | [ ]  Active WI-xxxx[x]  MNT maintenance / < Work Item number(optional)>Is this a mirror CR? Yes [ ]  No [ ] mirror CR number: (Note to Rapporteur - use latest agreed revision)[ ]  STE Small Technical Enhancements / < Work Item number (optional)>Only ONE of the above shall be ticked |
| CR against: TS/TR\* | TS-0001, V4.10.0 |
| Clauses \* | 9.6.4, 10.2.2.7 |
| Type of change: \* | [ ]  Editorial change[x]  Bug Fix or Correction[ ]  Change to existing feature or functionality[ ]  New feature or functionalityOnly ONE of the above shall be ticked |
| Impacted other TS/TR(s) | TS-0004 |
| Post Freeze checking:\* | This CR contains only essential changes and corrections? YES [x]  NO [ ] This CR may break backwards compatibility with the last approved version of the TS? YES [ ]  NO [x]  |
| Template Version: January 2017 (Do not modify) |

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GUIDELINES for Change Requests:

Provide an informative introduction containing the problem(s) being solved, and a summary list of proposals.

Each CR should contain changes related to only one particular issue/problem.

In case of a correction, and the change apply to previous releases, a separate “mirror CR” should be posted at the same time of this CR

Mirror CR: applies only when the text, including clause numbering are exactly the same.

Companion CR: applies when the change means the same but the baselines differ in some way (e.g. clause number).

Follow the principle of completeness, where all changes related to the issue or problem within a deliverable are simultaneously proposed to be made E.g. A change impacting 5 tables should not only include a proposal to change only 3 tables. Includes any changes to references, definitions, and acronyms in the same deliverable.

Follow the drafting rules.

All pictures must be editable.

Check spelling and grammar to the extent practicable.

Use Change bars for modifications.

The change should include the current and surrounding clauses to clearly show where a change is located and to provide technical context of the proposed change. Additions of complete clauses need not show surrounding clauses as long as the proposed clause number clearly shows where the new clause is proposed to be located.

Multiple changes in a single CR shall be clearly separated by horizontal lines with embedded text such as, start of change 1, end of change 1, start of new clause, end of new clause.

When subsequent changes are made to content of a CR, then the accepted version should not show changes over changes. The accepted version of the CR should only show changes relative to the baseline approved text.

Introduction

The CR proposes to change RW/WO/RO column value of *CSE-ID* attribute of <*remoteCSE*> resource to RO from WO.

Issue observed in INTEROP#7

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| During INTEROP#7, one party sent a <remoteCSE> registration request with FROM set to “/MNCSE1” and CSE-ID attribute in <remoteCSE> resource set to value “/CSE1” (pc). The <remoteCSE> resource was created successfully at registrar CSE.It created problem at the time of forwarding of requests as CSE-ID attribute is being used for forwarding. Refer TS-0004 clause 7.3.2.6 |

***From*** parameter is validated at the time of CSE registration request while *CSE-ID* attribute is not validated.

By changing CSE-ID attribute type to RO, the registrar CSE shall set its value to ***From*** request parameter at the time of CSE registration request. This change will ensure that CSE-ID attribute is same as ***From*** parameter and hence no issues shall be faced at the time of forwarding of the request.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### 9.6.4 Resource Type *remoteCSE*

A *<remoteCSE>* resource shall represent a Registree CSE that is registered to the Registrar CSE. *<remoteCSE>* resources shall be located directly under the *<CSEBase>* resource of Registrar CSE.

Similarly *<remoteCSE>* resource shall also represent a Registrar CSE. *<remoteCSE>* resource shall be located directly under the *<CSEBase>* resource of Registree CSE.

For example, when CSE1 (Registree CSE) registers with CSE2 (Registrar CSE), there will be two *<remoteCSE>* resources created: one in CSE1: *<CSEBase1>/<remoteCSE2>* and one in CSE2: *<CSEBase2>/<remoteCSE1>.*

Note that the creation of the two resources does not imply mutual registration. The *<CSEBase1>/<remoteCSE2>* does not mean CSE2 registered with CSE1 in the example above.

The *<remoteCSE>* resource shall contain the child resources specified in table 9.6.4-1.

Table 9.6.4-1: Child resources of *<remoteCSE>* resource

| Child Resources of *<remoteCSE>* | Child Resource Type | Multiplicity | Description | *<remoteCSEAnnc>* Child Resource Types |
| --- | --- | --- | --- | --- |
| *[variable]* | *<container>* | 0..n | See clause 9.6.6 | *<container>*  |
| *[variable]* | *<containerAnnc>* | 0..n | Announced variant of <*container>.* See clause 9.6.6 | *<containerAnnc>* |
| *[variable]* | *<flexContainer>* | 0..n | See clause 9.6.35 | *<flexContainer>* |
| *[variable]* | *<flexContaineAnnc>* | 0..n | Announced variant of <flexC*ontainer>.* See clause 9.6.35 | *<flexContainerAnnc>* |
| *[variable]* | *<group>* | 0..n | See clause 9.6.13 | *<group>* |
| *[variable]* | *<groupAnnc>* | 0..n | Announced variant of <*group>.* See clause 9.6.13 | *<groupAnnc>* |
| *[variable]* | *<accessControlPolicy>* | 0..n | See clause 9.6.2 | *<accessControlPolicy>* |
| *[variable]* | *<accessControlPolicyAnnc>* | 0..n | Announced variant of <*accessControlPolicy>.* See clause 9.6.2 | *<accessControlPolicyAnnc>* |
| *[variable]* | *<subscription>* | 0..n | See clause 9.6.8 | *<subscription>* |
| *[variable]* | *<pollingChannel>* | 0..1 | See clause 9.6.21. If *requestReachability* is FALSE, the CSE that created this *<remoteCSE>* resource should create a *<pollingChannel>* resource and perform long polling. The <*pollingChannel*> shall be utilized by the parent resource. | *None* |
| *[variable]* | *<nodeAnnc>* | 0..n | Announced variant of <*node>.* This announced resource is associated with a <node> resource that is hosted on a CSE which is represented by the parent <*remoteCSE*> or <*remoteCSEAnnc*> resource. See clause 9.6.18 for *<node>*. | *<nodeAnnc>* |
| *[variable]* | *<dynamicAuthorizationConsultation>* | 0..n | See clause 9.6.40 |  |
| *[variable]* | *<timeSeries>* | 0..n | See clause 9.6.36 | *<timeSeries>* |
| *[variable]* | *<timeSeriesAnnc>* | 0..n | Announced variant of <*timeSeries>.* See clause 9.6.36 | *<timeSeriesAnnc>* |
| *[variable]* | *<AEAnnc>* | 0..n | Announced variant of <*AE>.* See clause 9.6.5 | <*AEAnnc>* |
| *[variable]* | *<locationPolicyAnnc>* | 0..n | Announced variant of <*locationPolicy>.* See clause 9.6.10 | <*locationPolicyAnnc>* |
| *[variable]* | *<transactionMgmt>* | 0..n | See clause 9.6.47 | *<transactionMgmt>* |
| *[variable]* | *<transaction>* | 0..n | See clause 9.6.48 | *<transaction>* |
| *[variable]* | *<ontologyRepositoryAnnc>* | 0..1 | Announced variant of <*ontologyRepository>.* See clause 9.6.50 | <*ontologyRepositoryAnnc>* |
| *[variable]* | *<ontologyMappingAnnc>* | 0..n | Announced variant of <ontologyMapping>. See clause 9.6.70 | *<ontologyMappingAnnc>* |
| *[variable]* | *<ontologyMappingAlgorithmRepositoryAnnc>* | 0..n | Announced variant of <ontologyMappingAlgorithmRepository>. See clause 9.6.71 | *<ontologyMappingAlgorithmRepositoryAnnc>* |
| *[variable]* | *<semanticMashupJobProfile>* | 0..n | See clause 9.6.53 | *<semanticMashupJobProfile>* |
| *[variable]* | *<semanticMashupJobProfileAnnc>* | 0..n | Announced variant of <*semanticMashupJobProfile>.* See clause 9.6.53 | *<semanticMashupJobProfileAnnc>* |
| *[variable]* | *<semanticMashupInstance>* | 0..n | See clause 9.6.54 | *<semanticMashupInstance>* |
| *[variable]* | *<semanticMashupInstanceAnnc>* | 0..n | Announced variant of <*semanticMashupInstance >.* See clause 9.6.54. | *<semanticMashupInstanceAnnc>* |
| *[variable]* | *<action>* | 0..n | See clause 9.6.61 | *<actionAnnc>* |
| *[variable]* | *<e2eQosSession>* | 0..1 | See clause 9.6.63 | <*e2eQosSession*> |
| *[variable]* | *<nwMonitoringReq>* | 0..n | See clause 9.6.64 | *<nwMonitoringReq>* |
| *[variable]* | <*softwareCampaign*> | 0..n | See clause 9.6.76 | <*softwareCampaignAnnc*> |

The <remoteCSE> resource shall contain the attributes specified in table 9.6.4-2.

Table 9.6.4-2: Attributes of *<remoteCSE>* resource

| Attributes of *<remoteCSE>* | Multiplicity | RW/RO/WO | Description | *<remoteCSEAnnc>* Attributes |
| --- | --- | --- | --- | --- |
| *resourceType* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceID* | 1 | RO | See clause 9.6.1.3. | NA |
| *resourceName* | 1 | WO | See clause 9.6.1.3. | NA |
| *parentID* | 1 | RO | See clause 9.6.1.3. | NA |
| *creationTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *lastModifiedTime* | 1 | RO | See clause 9.6.1.3. | NA |
| *expirationTime* | 1 | RW | See clause 9.6.1.3. | MA |
| *accessControlPolicyIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *labels* | 0..1 (L) | RW | See clause 9.6.1.3. | MA |
| *announceTo* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announcedAttribute* | 0..1 (L) | RW | See clause 9.6.1.3. | NA |
| *announceSyncType* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *dynamicAuthorizationConsultationIDs* | 0..1 (L) | RW | See clause 9.6.1.3. | OA |
| *location* | 0..1 | RW | See clause 9.6.1.3. | OA |
| *holder* | 0..1 | RW | See clause 9.6.1.3 | NA |
| *cseType* | 0..1 | WO | Indicates the type of CSE represented by the created resource.* Mandatory for an IN-CSE, hence multiplicity (1).
* Its presence is subject to SP configuration in case of an ASN-CSE or a MN-CSE.
 | OA |
| *pointOfAccess* | 0..1 (L) | RW | For request-reachable remote CSE it represents the list of physical addresses to be used to connect to it (e.g. IP address, FQDN). If this information is not provided and <pollingChannel> resource does exist, the CSE should use *<pollingChannel>* resource. Then the Hosting CSE can forward a request to the CSE without using the PoA. | OA |
| *CSEBase* | 1 | WO | The address of the <*CSEBase>* resource represented by this *<remoteCSE>* resource. | OA |
| *CSE-ID* | 1 | RO | The CSE identifier of the remote CSE represented by this <*remoteCSE*> resource in SP-relative CSE-ID format (clause 7.2). | OA |
| *M2M-Ext-ID* | 0..1 | RW | See clause 7.1.8 where this attribute is described. This attribute is used only for the case of dynamic association of M2M-Ext-ID and CSE-ID. | NA |
| *Trigger-Recipient-ID* | 0..1 | RW | See clause 7.1.10 where this attribute is described. This attribute is used only for the case of dynamic association of M2M‑Ext-ID and CSE-ID. | NA |
| *requestReachability* | 1 | RW | This attribute is an indication of static capability of the CSE that created this *<remoteCSE>* resource. If the CSE can receive requests originated at or forwarded by its registar CSE, this attribute is set to "TRUE" otherwise "FALSE" (see note). | OA |
| *nodeLink* | 0..1 | RW | The *resource identifier* of a *<node>* resource that stores the node specific information of the node on which the CSE represented by this *<remoteCSE>* resource resides. | OA |
| *contentSerialization* | 0..1 (L) | RW | The list of supported serializations of the ***Content*** primitive parameter for receiving a request (e.g. XML, JSON). The list shall be ordered so that the most preferred format comes first. | OA |
| *e2eSecInfo* | 0..1 | RW | See clause 9.6.1.3. | MA |
| *triggerReferenceNumber* | 0..1 | RW | This is to identify device trigger procedure request. This attribute is used only for device trigger and assigned by the CSE.  | NA |
| *descendantCSEs* | 0..1(L) | RW | This attribute contains a list of identifiers of descendent CSEs of the Registree CSE represented by this <remoteCSE> resource. A descendant CSE is a CSE that either registers to the CSE represented by this <remoteCSE>, or registers to another CSE which is a descendant CSE of this <remoteCSE>.  The Registree CSE represented by this <remoteCSE> shall configure this attribute with a list of descendent CSEs upon creation of the <remoteCSE> resource.  The Registree CSE shall update this attribute whenever a new descendent CSE either registers or de-registers. The Registree CSE shall detect when a descendent CSE registers or de-registers by monitoring its <remoteCSE> resources and the descendentCSEs attribute(s) of these <remoteCSE> resources.  For a <remoteCSE> resource representing a Registrar CSE this attribute shall not be set. | OA |
| *multicastCapability* | 0..1 | RW | Indicates the oneM2M node multicast Capability, pre-defined values are:* MBMS
* IP
 | OA |
| *externalGroupID* | 0..1 | RW | It is used by an M2M Service Provider (M2M SP) when services targeted to a group of M2M Devices are requested from the Underlying Network. It is assumed to be a globally unique ID exposed by the underlying network to identify a group of M2M Devices (e.g. ASN, MN) for group related services. | OA |
| *triggerEnable* | 0..1 | RW | When set to “TRUE”, trigger requests may be sent to the CSE represented by this <*remoteCSE*> resource. When set to “FALSE” trigger requests shall not be sent to this CSE.  | OA |
| *activityPatternElements* | 0..1(L) | RW | This attribute describes the anticipated availability of the CSE for communications. See further description below and table 9.6.4-3. | OA |
| *supportedReleaseVersions* | 0..1(L) | RW | The oneM2M release versions supported by the CSE represented by this <*remoteCSE*> resource. Starting with Release 2, this attribute is mandatory for a CSE. For CSEs compliant to older releases, this attribute is optional. For CSEs that do not include this attribute, the default release version shall be Release 1.  | MA |
| *enableTimeCompensation* | 0..1 | RW | Enables time offset compensation functionality. When set to TRUE, the Registrar CSE peforms time offset compensation for the Registree CSE. If FALSE, the Registrar CSE does not perform time offset compensation. See clause 10.2.24.Default value is FALSE.  | NA |
| NOTE-1: Even if this attribute is set to "FALSE", it is not meant that the CSE is always unreachable by its registrees. E.g. if the CSE and its registrees are behind the same NAT, then the CSE can receive requests from its registrees. See also *pollingChannel* description in clause 9.6.21.NOTE-2: For the case of a response, this attribute is applicable if the corresponding request does not contain the serialization format of the *Content* request parameter to allow a CSE to determine the proper serialization format to use in the response. |

The set of activity patterns represented in the *activityPatternElements* attribute describes the anticipated availability of the CSE for communications. The set provides the anticipated activity timing pattern, and may provide additional information about the anticipated mobility status and expected data size to be exchanged. Each *activityPatternElements* item is comprised of triples (*scheduleElement*, *stationaryIndication*, *dataSizeIndicator*) with parameters shown and described in table 9.6.4-3.

Table 9.6.4-3: Parameters in *activityPatternElements* triple

| Name | Description |
| --- | --- |
| *scheduleElement* | See clause 9.6.9. This parameter shall be composed from seven fields of second, minute, hour, day of month, month, day of week and year. This is a mandatory parameter in the triple. This parameter indicates the times when the entity is available to send and receive primitives. |
| *stationaryIndication* | It indicates the field node as 'Stationary (Stopping)' or 'Mobile (Moving)' for the traffic pattern. The default value is NULL, denoting that no *stationaryIndication* is provided |
| *dataSizeIndicator* | It indicates the expected data size for the traffic pattern. The default value is NULL, denoting that no *dataSizeIndicator* is provided.  |

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Start of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 10.2.2.7 Create *<remoteCSE>*

This procedure shall be used for creating a *<remoteCSE>* resource. It is part of the registration procedure for remote CSEs on the Registrar CSE (which is also the Hosting CSE), as described in this clause.

Table 10.2.2.7-1: *<remoteCSE>* CREATE

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| *<remoteCSE>* CREATE  |
| Information in Request message | All parameters defined in table 8.1.2-3 apply with the specific details for:***From:*** Originator CSE-ID**Content**: The resource content shall provide the information as defined in clause 9.6.4 |
| Processing at Originator before sending Request | According to clause 10.2.2.7 |
| Processing at Receiver | According to clause 10.2.2.7 with the following specific processing:If the Receiver CSE has registered to another CSE, the Receiver CSE shall send an update request to its Registrar CSE to add the CSE-IDs of the Originator CSE and the Originator CSE’s descendants into the *descendantCSEs* attribute of the Receiver CSE’s <remoteCSE> hosted by the Registrar CSE.If the IN-CSE is the receiver and if the M2M SP policies do allow access to the CSEs across multiple domains, then the IN shall create the appropriate entry in the M2M SP's DNS for successfully registered CSE |
| Information in Response message | All parameters defined in table 8.1.3-1 apply with the specific details for:***Content***: Address of the created *<remoteCSE>* resource, according to clause 10.2.2.7 |
| Processing at Originator after receiving Response | The Originator upon receipt of successful CREATE response message, shall create <remoteCSE> resource locally and thereafter, it may issue a Retrieve request to its Registrar CSE’s <CSEBase> resource to update the optional attributes of locally created <remoteCSE> resource. |
| Exceptions | According to clause 10.2.2.7 |

The procedure for CSE Registration follows the procedure described in clause 10.1.2, but with some deviations. Below is the detailed description on how to perform the CSE Registration and which part of the procedure deviates from the one described in clause 10.1.2.

The Registration procedure requires the creation of two resources (a <remoteCSE> on the Receiver CSE and a <remoteCSE> on the Originator CSE) rather than one resource. The Registration procedure is always initiated by a CSE in the field domain except in the inter-domain case described in clause 6.5.

**Originator:** The Originator shall be the registering CSE.

**Receiver:** The Receiver shall create the <remoteCSE> resource.



Figure 10.2.2.7-1: Procedure for CREATEing a <remoteCSE> Resource

All the parameters of the request and steps that are not indicated do not deviate from clause 10.1.2.

**Step 001:** The Originator shall send mandatory parameters and may send optional parameters in Request message for CREATE operation as specified in clause 8.1.2.

**Step 002:** The Receiver shall:

1. The registrar CSE shall allow unknown remote CSE to attempt to ‘CREATE’ when it was authenticated by credential provided by the entity. See TS-0003[2] further detail about authentication for the CSE.
2. Perform sub-steps: 2)-8), from step 002 from clause 10.1.2 are applicable. The access control which is sub-step 1) is omitted. In step 6 of clause 10.1.2, the Receiver shall assign a value equal to the value carried in the ***From*** request parameter to CSE-ID attribute.

NOTE: Optionally, if the M2M Service Provider supports inter-domain communication, the Receiver could perform this step if the attribute *CSEBase* (part of the ***Content*** parameter of the request) contains the public domain of the CSE. The Receiver could construct the domain as described in clause 6.4 and 6.5. The Receiver could add an AAA or AAAA record in DNS with the public domain name of the Originator CSE and the IP address of the IN-CSE associated with the Originator.

**Step 003:** See clause 10.1.2.

**Step 004:** The Originator, upon receipt of the successful CREATE response message, shall create a <remoteCSE> resource locally under its <CSEBase> resource. This resource is representing the Receiver CSE. The Originator shall provide the appropriate values to all mandatory parameters as described in clause 9.6.4.

**Step 005:** The Originator may issue a RETRIEVE Request towards the Receiver (same ***To*** as for the CREATE request message) to obtain the optional attributes of the <remoteCSE> resource created at the Originator in step 004 (e.g. *labels*, *accessControlPolicyIDs* attributes). The RETRIEVE procedure is described in clause 10.1.3.

See clauses 8.1.2 for the information to be included in the Request message.

**Step 006:** The Receiver verifies that the Originator has the appropriate privileges to access the information.

**Step 007:** The Receiver sends a RETRIEVE response message, according to the procedure described in clause 10.1.3.

See clauses 8.1.3 for the information to be included in the Response message.

**Step 008:** The Originator shall update the created <remoteCSE> resource for the Receiver with the information obtained in step 007.

**General Exceptions:**

All exceptions from clause 10.1.2 are applicable; in addition the following exception may occur:

1. The Originator does not have the privileges to retrieve the attributes of the Receiver CSE. The Receiver responds with an error.

### \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change 2 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*