**3GPP TSG-SA5 Meeting #162 *S5-253985***

Goteborg, Sweden, 25 - 29 August 2025

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **28.532** | **CR** | **0392** | **rev** | **1** | **Current version:** | **19.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Rel-19 CR TS 28.532 Add missing examples for YANG operations |
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| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | SA5 |
|  |  |
| ***Work item code:*** | TEI19 |  | ***Date:*** | 2025-08-15 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-19 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | In YANG/Netconf-based solution set clause 12.1.3, there are examples for YANG Operation createMOI and Operation getMOIAttributes, however, examples for Operation modifyMOIAttributes, Operation changeMOIs and Operation deleteMOI are missing. |
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| ***Summary of change:*** | Add examples for YANG Operation modifyMOIAttributes, Operation changeMOIs and Operation deleteMOI. Some typos are also fixed in the example for YANG Operation createMOI. |
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| ***Consequences if not approved:*** | Incomplete collection of examples for YANG/Netconf-based SS. |
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| ***Clauses affected:*** | 12.1.3.1.2, 12.1.3.1.4, 12.1.3.1.4a, 12.1.3.1.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **1st Change** |

12.1.3 YANG/Netconf-based solution set

12.1.3.1 Mapping of operations

12.1.3.1.1 Introduction

The YANG/Netconf based solution set is based on the TS 32.160 [33] clause 6.2 and the IETF RFC 6241 [32] including the Xpath capability.

NOTE: The clauses below omit namespaces for brevity. In NETCONF operations namespaces are included following IETF RFC 7950 [34].

12.1.3.1.2 Operation createMOI

The operation is mapped to a NETCONF <edit-config> operation, with XML elements representing the DN path to the MOI, the MOI itself, its id/key and its attributes.

The NETCONF operation attribute on the list representing the newly created MOI should be set to ‘create’.

The default-operation parameter of the <edit-config> operation should be set to none.

The IS operation parameters are mapped to SS equivalents according to table 12.1.3.1.2-1 and table 12.1.3.1.2-2.

**Table 12.1.3.1.2-1: Mapping from IS** **createMOI input parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| managedObjectClass | config | M | XML element’s name inside the <config> element.  |
| managedObjectInstance | config | M | A sequence of embedded XML elements inside the <config> element. XML elements for all containing MOIs and their ids(keys) shall be included together wilt the XML elements representing the to be created MOI and its key. |
| attributeListIn | config | M | The key leaf, the “attributes container” and leaf, leaf-list or list entries of YANG models representing the attributes. |

**Table** **12.1.3.1.2-2: Mapping from IS** **createMOI output parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| attributeListOut | no corresponding SS parameter | M | Not supported. (note 1) |
| status | - | M | OperationSucceeded if NETCONF rpc-reply contains <ok> element.OperationFailed if NETCONF-reply contains <rpc-error>. |

NOTE 1: Successful Netconf <edit-config> operations only return an <ok> element. Therefore, the attributeListOut can be retrieved via a separate <get-config> operation.

**Examples**

Create ManagedElement=myNode, GNBDUFunction=1

<rpc message-id="101">

 <edit-config>

 <target>

 <running/>

 </target>

 <default-operation>none</default-operation>

 <config>

 <ManagedElement>

 <id>myNode</id>

 <GNBDUFunction operation="create">

 <id>1</id>

 <attributes>

 <gNBIdLength>25</gNBIdLength>

 <gNBId>357</gNBId>

 <priorityLabel>1</priorityLabel>

 <gNBDUName>du-south-1</gNBDUName>

 <!-- other attributes -->

 </attributes>

 </GNBDUFunction>

 </ManagedElement>

 </config>

 </edit-config>

</rpc>

<!-- createMO Response -->

<rpc-reply message-id="101" xmlns="urn:ietf:params:xml:ns:netconf:base:1.0">

 <ok/>

</rpc-reply>

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| **Next change** |

12.1.3.1.4 Operation modifyMOIAttributes

This IS operation modifies one or multiple managed object instances. It is mapped to the NETCONF <edit-config> operation. The NETCONF <edit-config> operation can modify attributes in a given MOI or set of MOIs but only indirectly supports scope or filtered sets of MOIs that are part of the modifyMOIAttributes 3GPP operation specification. <edit-config> needs a config block, containing the explicit config changes to be made for each MOI.

The default-operation parameter should be set to none.

The Netconf operation attribute on the list representing modified MOI(s) should be set to create, replace or delete according to the ENUM in the modificationList.

The IS operation parameters are mapped to SS equivalents according to table 12.1.3.1.4-1 and table 12.1.3.1.4-2.

**Table 12.1.3.1.4-1: Mapping of IS** **modifyMOIAttributes input parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| baseObjectInstance | config | M | A sequence of embedded XML elements inside the <config> element. XML elements for all containing MOIs and their ids(keys) shall be included together with the XML elements representing the to be modified MOI and its key. |
| scopeType | config | M | BASE\_ONLY supported as default. Multiple MOIs can be specified in the same operation, emulating other scopes. |
| scopeLevel | config | M |
| filter | config | M | Multiple MOIs can be specified in the same operation, emulating filtering. |
| modificationList | config | M | The “attributes container” and leaf, leaf-list or list entries representing the attributes. |

**Table** **12.1.3.1.4-2: Mapping of IS modifyMOIAttributes output parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| modificationListOut | no corresponding SS parameter | M | Not supported. (note 1) |
| status | - | M | rpc-reply or rpc-error indicates general status. The following elements give detailed error information:<error-tag><error-path> |

Note 1: Successful Netconf <edit-config> operations only return an <ok> element. Therefore, the attributeListOut can be retrieved via a separate <get-config> operation.

**Example 1**

Replace all properties of ManagedElement=myNode, GNBDUFunction=1, including gNBIdLength, gNBId, priorityLabel, and gNBDUName.

<rpc message-id="101">

 <edit-config>

 <target>

 <running/>

 </target>

 <default-operation>none</default-operation>

 <config>

 <ManagedElement>

 <id>myNode</id>

 <GNBDUFunction operation="replace">

 <id>1</id>

 <attributes>

 <gNBIdLength>25</gNBIdLength>

 <gNBId>357</gNBId>

 <priorityLabel>2</priorityLabel>

 <gNBDUName>du-south-1</gNBDUName>

 <!-- other attributes -->

 </attributes>

 </GNBDUFunction>

 </ManagedElement>

 </config>

 </edit-config>

</rpc>

**Example 2**

Merge ManagedElement=myNode, GNBDUFunction=1, updating only its priorityLabel=1, while keeping other attributes unchanged.

<rpc message-id="101">

 <edit-config>

 <target>

 <running/>

 </target>

 <default-operation>none</default-operation>

 <config>

 <ManagedElement>

 <id>myNode</id>

 <GNBDUFunction operation="merge">

 <id>1</id>

 <attributes>

 <priorityLabel>1</priorityLabel>

 </attributes>

 </GNBDUFunction>

 </ManagedElement>

 </config>

 </edit-config>

</rpc>

12.1.3.1.4a Operation changeMOIs

The operation is mapped to a NETCONF <edit-config> operation, with XML elements representing the DN path to the MOI and any attributes or attribute fields.

The default-operation parameter of the <edit-config> operation should be set to none.

The IS operation parameters are mapped to SS equivalents according to table 12.1.3.1.4a-1 and table 12.1.3.1.4a-2.

The detailed semantics is specified by the Netconf protocol and the related YANG models.

**Table 12.1.3.1.4a-1: Mapping from IS changeMOIs input parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| baseObjectInstance | config | M | A sequence of embedded XML elements inside the <config> element. XML elements for all containing MOIs and their ids(keys) shall be included together wilt the XML elements representing the to be created MOI and its key. |
| modificationsIn | config | M | Path and nodeValue are represented by XML elements inside the <config> element. modifyOperator is represented by the Netconf operation parameter. |

**Table 12.1.3.1.4a-2: Mapping from IS changeMOIs output parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| attributeListOut | - | O | Not supported. (note 1) |
| status | - | M | SUCCEEDED if NETCONF rpc-reply contains an <ok> element.FAILED if NETCONF-reply contains an <rpc-error>.Support for PARTIALLY\_FAILED depends on the NETCONF error-option. It is recommended to always use the error-option=rollback-on-error as semantics for stop-on-error, and continue-on-error is not well defined. |

NOTE 1: The attributeListOut can be retrieved via a separate <get-config> operation.

**Example**

Example of changeMOIs, implementing the deletion of the old GNBDUFunction (ID=1) followed by the addition of a new object GNBDUFunction (ID=2).

<rpc message-id="101">

 <edit-config>

 <target>

 <running/>

 </target>

 <default-operation>none</default-operation>

 <config>

 <ManagedElement>

 <id>myNode</id>

 <!--Delete the old GNBDUFunction object -->

 <GNBDUFunction operation="delete">

 <id>1</id>

 </GNBDUFunction>

 <!--Add the new GNBDUFunction object -->

 <GNBDUFunction operation="create">

 <id>2</id>

 <attributes>

 <gNBIdLength>25</gNBIdLength>

 <gNBId>400</gNBId>

 <priorityLabel>1</priorityLabel>

 <gNBDUName>du-east-2</gNBDUName>

 <!-- other attributes -->

 </attributes>

 </GNBDUFunction>

 </ManagedElement>

 </config>

 </edit-config>

</rpc>

12.1.3.1.5 Operation deleteMOI

This IS operation deletes one or multiple managed object instances. It is mapped to the NETCONF <edit-config> operation. <edit-config> can delete one or more specific MOIs but only indirectly supports scope or filtered sets of MOIs that are part of the generic deleteMOI 3GPP operation specification. <edit-config> uses a config block, indicating the MOI(s) to be deleted.

The Netconf operation attribute on the list representing the baseObjectInstance should be set to delete or remove.

The default-operation parameter should be set to none.

The IS operation parameters are mapped to SS equivalents according to table 12.1.3.1.5-1 and table 12.1.3.1.5-2.

**Table 12.1.3.1.5-1: Mapping of IS** **deleteMOI input parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| baseObjectInstance | config | M | A sequence of embedded XML elements inside the <config> element. XML elements for all containing MOIs and their ids(keys) shall be included together wilt the XML elements representing the to be deleted MOI and its key. |
| scopeType | config | M | BASE\_ONLY supported as default. Multiple MOIs can be specified in the same operation, emulating other scopes. |
| scopeLevel | config | M |
| filter | config | M | Multiple MOIs can be specified in the same operation, emulating filtering. |

**Table** **12.1.3.1.5-2: Mapping of IS** **deleteMOI output parameters to SS equivalents**

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter name** | **S** | **Remark** |
| deletionList | no corresponding SS parameter | M | Not supported. (note 1) |
| status | - | M | rpc-reply or rpc-error indicates general status. The following elements give detailed error information:<error-tag><error-path> |

NOTE 1: Successful Netconf <edit-config> operations only return an <ok> element. Therefore, the deletionList can be retrieved via a separate <get-config> operation.

**Example**

Delete ManagedElement=myNode, GNBDUFunction=1

<rpc message-id="101">

 <edit-config>

 <target>

 <running/>

 </target>

 <default-operation>none</default-operation>

 <config>

 <ManagedElement>

 <id>myNode</id>

 <GNBDUFunction operation="delete">

 <id>1</id>

 </GNBDUFunction>

 </ManagedElement>

 </config>

 </edit-config>

</rpc>

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| **End of change** |