**3GPP TSG-SA5 Meeting #143-e *S5-223359***

**Online, , 9th May 2022 - 17th May 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **28.532** | **CR** | **0209** | **rev** | **-** | **Current version:** | **17.0.0** |  |
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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-17 CR 28.532 Correct notifyMOIChanges (stage 2) |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | SA5 |
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| ***Work item code:*** | REST\_SS, TEI17 |  | ***Date:*** | 2022-04-29 |
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| ***Category:*** | **F** |  | ***Release:*** | Rel-17 |
|  | *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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The notification "notifyMOIChanges" does not allow to report the addition and deletion of attributes. Furthermore, it does not allow to report additions, deletions or replacements of multi-value attribute elements. However, it is possible to create or delete attributes and create, delete and replace multi-value attribute elements. For that reason these NRM changes need to be reported as well. The existing notification "notifyMOIChanges" cannot do that. |
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| ***Summary of change:*** | The notification "notifyMOIChanges" is corrected to be able to report the addition and deletion of attributes, and the addition, deletion and replacement of multi-value attribute elements. |
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| ***Consequences if not approved:*** | It is not possible to report all NRM changes that are possible. |
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| ***Clauses affected:*** | 11.1.1.11.2 |
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|  | **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 28.532... CR 0210 |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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| **First modification** |

#### 11.1.1.11 Notification notifyMOIChanges

##### 11.1.1.11.1 Definition

This notification reports NRM updates to subscribed MnS consumers. It can report multiple NRM updates that happen at the same time. All possible NRM updates can be reported:

* Creation and deletion of an object
* Creation and deletion of an attribute, attribute field, attribute element and attribute field element
* Replacement of an attribute value, attribute field value, attribute element and attribute field element

The MnS producer decides whether to send notifications of type notifyMOICreation, notifyMOIDeletion or notifyMOIAttributesValueChange, or a single notifyMOIChanges reporting all changes in a single notification. The MnS producer should take subscription information into account when deciding the notification types to be sent, and not try to send notifications that the MnS consumer did not subscribe to.

The notification header includes a notificationId. This identifier shall not be used in the parameter correlatedNotifications potentially carried in other notifications. The notificationId in mOIChanges shall be used instead. This is because the latter notification id is associated to a single MOI only, whereas the former notification id can be associated to changes of multiple MOIs. The correlatedNotifications associates to a single MOI one or more notification ids identifying notifications reporting events for that MOI.

In this clause the following definitions apply.

*simple type*: A value defined by a simple type is a scalar.

*complex type*: A value defined by a complex type is either a set of multiple (sub-)values (of the same simple or complex type), or a value containing one or more attribute fields.

*attribute*: An information element composed of an attribute name and an attribute value.

*attribute name*: The name of an attribute.

*attribute value*: The value of an attribute. The value is defined by a simple type or a complex type.

*attribute field*: An attribute contained inside an (top-level) attribute. Attribute fields can contain attribute fields.

*attribute field name*: The name of an attribute field.

*attribute field value*: The value of an attribute field. The value is defined by a simple type or a complex type.

*simple attribute*: Attribute whose value is defined by a simple type.

*complex attribute*: Attribute whose value is defined by a complex type.

*structured attribute*: Special kind of complex attribute containing at least one attribute field, but usually multiple attribute fields with different data types.

*multi-value attribute*: Special kind of complex attribute with multiplicity greater than "1", i.e. an attribute whose value is composed of multiple (sub-)values (of the same simple or complex type).

*attribute element*: Single (sub-) value of the value of a multi-value attribute.

*attribute field element*: Single (sub-) value of the value of a multi-value attribute field.

##### 11.1.1.11.2 Input parameters

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| Parameter Name | S | Information Type / Legal Values | Comment |
| objectClass | M | See clause 11.1.1.7.2 | Identifies the classe name of a common ancestor object of the objects for which changes are reported. A MnS producer may set this parameter always to the class name of the parent of the local root object in the MIB. |
| objectInstance | M | See clause 11.1.1.7.2 | Identifies the instance of a common ancestor object of the objects for which changes are reported. A MnS producer may set this parameter always to the instance of the parent of the local root object in the MIB. |
| notificationId | M | See clause 11.1.1.7.2 | See clause 11.1.1.7.2 |
| notificationType | M | const string “notifyMOIChanges” | See clause 11.1.1.7.2 |
| eventTime | M | See clause 11.1.1.7.2 | See clause 11.1.1.7.2 |
| systemDN | M | See clause 11.1.1.7.2 | See clause 11.1.1.7.2 |
| moiChanges | M | SEQUENCE OF SET { notificationId (M), correlatedNotifications (O), additionalText (O), sourceIndicator (O), op (M), path (M), value (M), oldValue (O)} | This parameter describes the reported NRM updates. It is a list of items; each item reports a single NRM update. The "notificationId" identifies an item.The NRM update itself is described by the parameters "op", "path", "value" and "oldValue". The parameters "correlatedNotifications", "additionalText" and "sourceIndicator " provide context information.The parameter "op" specifies the type of operation reporting the NRM update. Valid values are "add", "remove" and "replace". The operation describes what has conceptually happened to the NRM on the MnS producer. The operation applied to the NRM by the MnS producer and causing the reported NRM update can be different."add" shall be used for reporting the creation of an object, attribute, attribute field or multi-value attribute element."remove" shall be used for reporting the deletion of an object, attribute, attribute field or multi-value attribute element."replace" shall be used for reporting the replacement of an existing attribute value, attribute field value or multi-value attribute element.The "path" and "objectInstance" identify the object, attribute, attribute field or multi-value attribute element, that was created, deleted or replaced.If an object creation is reported with "add", the "value" shall carry a complete representation of the created object. If an object deletion is reported with "remove", the "value" shall be absent. It may optionally carry a complete representation of the deleted object.If an attribute, attribute field or multi-value attribute element creation is reported with "add", the "value" shall carry the value of the created attribute, attribute field or multi-value attribute element.If an attribute, attribute field or multi-value attribute element deletion is reported with "remove", the "value" shall be absent. It may optionally carry the old value of the deleted attribute, attribute field or multi-value attribute element.If the replacement of an attribute, attribute field or multi-value attribute element value is reported with "replace", the "value" shall carry the new value of the attribute, attribute field or multi-value attribute element. The "oldValue" may optionally carry the old value of the attribute, attribute field or multi-value attribute element before the replacement.If multiple objects are created, the creation of parent objects shall be reported before the creation of the child objects. Vice versa, when the deletion of multiple objects is reported, the deletion of child objects shall be reported before the deletion of the parent objects. |

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| **End of modifications** |