**3GPP TSG-SA5 Meeting #141-e *S5-221442rev3***

**e-meeting, 17 -26 January 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **28.536** | **CR** | 0042 | **rev** | 0 | **Current version:** | 17.1.0 |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Add support for pause | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo, Motorola Mobility | | | | | | | | | |
| ***Source to TSG:*** | S5 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eCOSLA | | | | |  | ***Date:*** | | | 2022-01-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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 can be 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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Addition of pause point use case reassures the operator to know how the ACCL performs. Hence the NRM is modified to support pause points. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add pause for a sepecific MOI DN attribute list to ACCL NRM. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Approved draft CR TS28.535 use case is not supported. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1.2.3.1.1; 4.1.2.3.1.1, x(new); 4.1.2.4.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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/28.535 CR 221445 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

#### Start of changes

#### 4.1.2.3 Class definitions

##### 4.1.2.3.1 AssuranceClosedControlLoop

4.1.2.3.1.1 Definition

This class represents the information for controlling and monitoring an assurance closed control loop associated with a NetworkSlice or NetworkSliceSubnet. It can be name-contained by SubNetwork or ManagedElement.

To express the assurance closed control loop requirements, the MnS consumer needs to request MnS producer to create an AssuranceClosedControlLoop on the MnS producer. The MnS producer may trigger to create the AssuranceClosedControlLoop as well, for example, when an instance of NetworkSlice or NetworkSliceSubnet is created, MnS producer may create an instance of AssuranceClosedControlLoop associated to the instance of NetworkSlice or NetworkSliceSubnet to assure the target described in ServiceProfile or SliceProfile. For ultimate deletion of assurance closed control loop, the MnS consumer needs to request the MnS producer to delete the AssuranceClosedControlLoop to free up resources on the MnS producer. MnS producer also can trigger to delete AssuranceClosedControlLoop to free up resources by itself.

For temporary deactivation of assurance closed control loop, the MnS consumer can manipulate the value of the administrative state attribute to “LOCKED”. The MnS producer may disable assurance closed control loop as well, for example in conflict situations. This situation is indicated by the MnS producer with setting the operational state attribute to “disabled”. When closed control loop is enabled by the MnS producer the operational state is set again to “enabled”. For activation of assurance closed control loop, the MnS consumer can manipulate the value of the administrative state attribute to “UNLOCKED”.

An AssuranceClosedControlLoop can name-contain multiple instances of AssuranceGoal which represents the assurance goal and corresponding observed or predicted goal fulfilment information (see clause 4.1.2.3.2).

The attribute “controlLoopLifeCyclePhase” is used to keep track of the lifecycle of an AssuranceClosedControlLoop

The attribute “pausedOperationAttributeMap” is used to keep track of ManagedElement and derived IoC attributes for which the ACCL is *pause point is enabled*. See clause 6.X of TS 28.535. Before the ACCL modifies, as part of the execute step, the ManagedElement attribute present in the “pausedOperationAttributeMap” a notification is issued, and the operation is not executed. Disabling all pause points results in “pausedOperationAttributeMap” being set to NULL

4.1.2.3.1.2 Attributes

The AssuranceClosedControlLoop IOC includes attributes inherited from Top IOC (defined TS 28.622[5]) and the following attributes:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| operationalState | M | T | F | F | T |
| administrativeState | M | T | T | F | T |
| controlLoopLifeCyclePhase | M | T | T | F | T |
| pausedOperationAttributeMap | M | T | T | F | T |

4.1.2.3.1.3 Constraints

No constraints have been defined for this document.

4.1.2.3.1.4 Notifications

The common notifications defined in clause 4.1.2.5 are valid for this IOC, without exceptions or additions.

#### Second change

##### 4.1.2.3.X “pausedOperationAttributeMap”<<datatype>>

4.1.2.3.X.1 Definition

The first entity “ManagedEntityIdentifier” identifies the DN of the SubNetwork or managedElement, the second “ a list of attributeNames of the Subnetwork or managedElement. .

4.1.2.3.X.2 Attributes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Support Qualifier | isReadable | isWritable | isInvariant | isNotifyable |
| ManagedEntityIdentifier | M | T | T | F | T |
| attributeNameList | M | T | T | F | T |

#### Third change

#### 4.1.2.4 Attribute definitions

##### 4.1.2.4.1 Attribute properties

The following table defines the properties of attributes that are specified in the present document.

**Table 4.1.2.4.1.1**

| Attribute Name | Documentation and Allowed Values | Properties |
| --- | --- | --- |
| controlLoopLifeCyclePhase | It indicates the lifecycle phase of the AssuranceClosedControlLoop instance.  AllowedValues: Preparation, Commissioning, Operation and Decommissioning. | type: Enum  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: NULL  isNullable: False |
| assuranceTargetName | The name of the attribute which is part of AssuranceTarget.  The assuranceTargetName shall be equal to the name of an attribute in the relevant ServiceProfile or SliceProfile. The relevant ServiceProfile or SliceProfile is identified by the attribute serviceProfileId or sliceProfileId in the AssuranceGoal. | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceTargetValue | The value of the attribute which is part of AssuranceTarget | type: String  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceTargetList | This is an attribute containing a list of AssuranceTarget(s) that are part of an AssuranceGoal | type: AssuranceTarget  multiplicity: 1..\*  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| observationTime | It indicates the observation period of assuranceGoalStatusObserved and assuranceGoalStatusPredicted.  The assurance goal will be observed from the start of each observation period, then at the end of each observation period, the value for assuranceGoalStatusObserved and assuranceGoalStatusPredicted will be derived and configured.  The observation time is expressed in seconds. | type: Integer  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceGoalStatusObserved | It holds the status of the observed goal fulfilment to the assuranceGoal. The value is FULFILLED only if all the constituent assuranceTargetStatusObserved are FULFILLED.  allowedValues: “FULFILLED”, “NOT\_FULFILLED | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceGoalStatusPredicted | It holds the status of the predicted future goal fulfilment to the assuranceGoal . The value is FULFILLED only if all the constituent assuranceTargetStatusPredicted are FULFILLED.  allowedValues: “FULFILLED”, “NOT\_FULFILLED” | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceTargetStatusObserved | It holds the status of the observed target fulfilment to the assuranceGoal.  allowedValues: “FULFILLED”, “NOT\_FULFILLED | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| assuranceTargetStatusPredicted | It holds the status of the predicted future target fulfilment to the assuranceGoal  allowedValues: “FULFILLED”, “NOT\_FULFILLED” | type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| networkSliceRef | It holds the reference to the NetworkSlice instance subject to assurance requirements | type: Dn  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| networkSliceSubnetRef | It holds the reference to the NetworkSliceSubnet instance subject to assurance requirements | type: Dn  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: None  isNullable: False |
| operationalState | It indicates the operational state of the AssuranceClosedControlLoop instance. It describes whether the resource is installed and partially or fully operable (Enabled) or the resource is not installed or not operable (Disabled).  Allowed values; Enabled/Disabled  allowedValues: “ENABLED”, “DISABLED”.  The meaning of these values is as defined in 3GPP TS 28.625 [14] and ITU-T X.731 [15]. | Type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: Disabled  allowedValues: Enabled, Disabled  isNullable: False |
| administrativeState | It indicates the administrative state of the AssuranceClosedControlLoop instance. It describes the permission to use or the prohibition against using the AssuranceClosedControlLoop instance. The administrative state is set by the MnS consumer.  Allowed values; Locked/Unlocked  allowedValues: “LOCKED”, “UNLOCKED”.  The meaning of these values is as defined in 3GPP TS 28.625 [14] and ITU-T X.731 [15]. | Type: ENUM  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: Locked  allowedValues: Locked, Unlocked  isNullable: False |
| assuranceScope | It indicates the target for assurance goal in terms of a particular location.  Allowed values: Not Applicable | type: AssuranceScope  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: NA  allowedValues: NA  isNullable: False |
| ManagedEntityIdentifier | The DN of a managed entity  Allowed values: DN for the specific instance | Type: DN  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: NA  allowedValues: NA  isNullable: True |
| attributeNameList | This parameter identifies the attributes of the ManagedEntityIdentifier for which the pause is enabled. A NULL value implies all attributes of the respective ManagedEntityIdentifier.  Allowed values: Attribute Names (String), NULL. | Type: List of attributNames  multiplicity: 1  isOrdered: N/A  isUnique: N/A  defaultValue: NA  allowedValues: NA  isNullable: True |
| NOTE 1: Void  NOTE 2: Void | | |

#### End of changes