**3GPP TSG- WG3 Meeting #C3-240157**

**Online, 22 - 24 January, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.549** | **CR** |  | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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 |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Slice-specific application performance analytics | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Lenovo | | | | | | | | | |
| ***Source to TSG:*** | C3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ADAES | | | | |  | ***Date:*** | | | 2023-12-04 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS 23.436 adds stage 2 for slice specific application performance analytics for the ADAE service which is a SEAL service. Stage 3 of slice-specific application performance analytics needs to be defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The added changes are:   * Added new SEAL service in the table. * Added SS\_ADAE\_SlicePerformanceAnalytics API | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 3 of SS\_ADAE\_SlicePerformanceAnalytics API does not exist. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1, 5.11.2 (new), 5.11.2.1 (new), 5.11.2.1.1 (new), 5.11.2.2 (new), 5.11.2.2.1 (new), 5.11.2.2.2 (new), 5.11.2.2.2.1 (new), 5.11.2.2.2.2 (new), 5.11.2.2.3 (new), 5.11.2.2.3.1 (new), 5.11.2.2.3.2 (new), 5.11.2.2.4 (new), 5.11.2.2.4.1 (new), 5.11.2.2.4.2 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

## 5.1 Introduction of SEAL services

The table 5.1-1 lists the SEAL server APIs below the service name. A service description clause for each API gives a general description of the related API.

Table 5.1-1: List of SEAL Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| SS\_LocationReporting | Create\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Fetch\_Location\_Report\_Trigger | Request/Response | VAL server |
| Update\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Cancel\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| SS\_LocationInfoEvent | Subscribe\_Location\_Info | Subscribe/Notify | VAL server |
| Unsubscribe\_Location\_Info | VAL server |
| Notify\_Location\_Info | VAL server |
| SS\_LocationInfoRetrieval | Obtain\_Location\_Info | Request/ Response | VAL server |
| SS\_LocationAreaInfoRetrieval | Obtain\_UEs\_Info | Request/ Response | VAL server |
| SS\_LocationMonitoring | Subscribe\_Location\_Monitoring | Subscribe/Notify | VAL server |
| Unsubscribe\_Location\_Monitoring |
| Notify\_Location\_Monitoring\_Events |
| SS\_LocationAreaMonitoring | Subscribe\_Location\_Area\_Monitoring | Subscribe/Notify | VAL server |
| Notify\_Location\_Area\_Monitoring\_Events |
| Update\_Location\_Area\_Monitoring\_Subscribe |
| Unsubscribe\_Location\_Area\_Monitoring |
| SS\_VALServiceAreaConfiguration | Configure\_VAL\_Service\_Area | Request/Response | VAL server |
| Obtain\_VAL\_Service\_Area | Request/Response | VAL server |
| Update\_VAL\_Service\_Area | Request/Response | VAL server |
| Delete\_VAL\_Service\_Area | Request/Response | VAL server |
| SS\_GroupManagement | Query\_Group\_Info | Request/ Response | VAL server |
| Update\_Group\_Info | Request/ Response | VAL server |
| Create\_Group | Request/ Response | VAL server |
| Delete\_Group | Request/Response | VAL server |
| SS\_GroupManagementEvent | Subscribe\_Group\_Info\_Modification | Subscribe/Notify | VAL server |
| Notify\_Group\_Info\_Modification | VAL server |
| Notify\_Group\_Creation | VAL server |
| SS\_UserProfileRetrieval | Obtain\_User\_Profile | Request/ Response | VAL server |
| SS\_VALServiceData | Obtain\_VAL\_Service\_Data | Request/Response | SEAL server |
| SS\_UserProfileEvent | Subscribe\_User\_Profile\_Update | Subscribe/Notify | VAL server |
| Notify\_User\_Profile\_Update | VAL server |
| SS\_NetworkResourceAdaptation  (NOTE 3) | Reserve\_Network\_Resource | Request/Response | VAL server |
| Request\_Unicast\_Resource | Request/Response | VAL server |
| Update\_Unicast\_Resource | Request/Response | VAL server |
| Request\_Multicast\_Resource | Request/Response | VAL server |
| Notify\_UP\_Delivery\_Mode | Subscribe/Notify | VAL server |
| Discover\_TSC\_Stream\_Availability | Request/Response | VAL server |
| Create\_TSC\_Stream | Request/Response | VAL server |
| Delete\_TSC\_Stream | Request/Response | VAL server |
| Create\_MBS\_Resource | Request/Response | VAL server |
| Update\_MBS\_Resource | Request/Response | VAL server |
| Delete\_MBS\_Resource | Request/Response | VAL server |
| Activate\_MBS\_Resource | Request/Response | VAL server |
| Deactivate\_MBS\_Resource | Request/Response | VAL server |
| SS\_EventsMonitoring | Subscribe\_Monitoring\_Events | Subscribe/Notify | VAL server |
| Notify\_Monitoring\_Events |
| SS\_Events | Subscribe\_Event | Subscribe/Notify | VAL server |
| Notify\_Event | VAL server |
| Unsubscribe\_Event | VAL server |
| Update\_Subscription | VAL server |
| SS\_KeyInfoRetrieval | Obtain\_Key\_Info | Request/Response | VAL server |
| SS\_NetworkSliceAdaptation | Request\_Network\_Slice\_Adaptation | Request/Response | VAL server |
| SS\_NetworkResourceMonitoring | Subscribe\_Unicast\_QoS\_Monitoring\_Data | Subscribe/Notify | VAL server |
| Unsubscribe\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Notify\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Obtain\_Unicast\_QoS\_Monitoring\_Data | Request/Response | VAL server |
| Update\_Unicast\_QoS\_Monitoring\_Subscription | VAL server |
| SS\_IdmParameterProvisioning | Provide\_Configuration | Request/Response | VAL server |
| SS\_ADAE\_SlicePerformanceAnalytics API | Subscribe\_Slice\_Performance\_Analytics | Subscribe/Notify | VAL server |
| Notify\_Slice\_Performance\_Analytics |
| Unsubscribe\_Slice\_Performance\_Analytics |
| NOTE 1: The service operations of SS\_Events API are reused by the SS\_LocationInfoEvent, SS\_LocationMonitoring, SS\_LocationAreaMonitoring, SS\_GroupManagementEvent, SS\_UserProfileEvent and SS\_EventsMonitoring for events related services.  NOTE 2: The service APIs exposed by the SEALDD Server and the corresponding service operations, operation semantics and service consumers are specified in clause 5 of 3GPP TS 29.548 [35].  NOTE 3: The "Create\_MBS\_Resource", "Update\_MBS\_Resource", "Delete\_MBS\_Resource", "Activate\_MBS\_Resource" and "Deactivate\_MBS\_Resource" service operations correspond to the stage 2 "Request\_Multicast/Broadcast\_Resource", "Update\_Multicast/Broadcast\_Resource", "Delete\_Multicast/Broadcast\_Resource", "Activate\_Multicast\_Resource" and "Deactivate\_Multicast\_Resource" service operations defined in clause 14.4.2 of 3GPP TS 23.434 [2]. | | | |

Table 5.1-2 summarizes the corresponding APIs defined in this specification.

Table 5.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
| SS\_LocationReporting | 7.1 | Report Location Information Service. | TS29549\_SS\_LocationReporting.yaml | ss-lr | A.2 |
| SS\_GroupManagement | 7.2 | Group Management Service | TS29549\_SS\_GroupManagement.yaml | ss-gm | A.3 |
| SS\_UserProfileRetrieval | 7.3 | User Profile Retrieval Service | TS29549\_SS\_UserProfileRetrieval.yaml | ss-upr | A.4 |
| SS\_NetworkResourceAdaptation | 7.4 | Network Resource Adaptation Service | TS29549\_SS\_NetworkResourceAdaptation.yaml | ss-nra | A.5 |
| SS\_Events | 7.5 | Events Notify Service | TS29549\_SS\_Events.yaml | ss-events | A.6 |
| SS\_KeyInfoRetrieval | 7.6 | Key Information Retrieval Service | TS29549\_SS\_KeyInfoRetrieval.yaml | ss-kir | A.7 |
| SS\_LocationAreaInfoRetrieval | 7.1 | Location Area Info Retrieval Service | TS29549\_SS\_LocationAreaInfoRetrieval.yaml | ss-lair | A.8 |
| SS\_NetworkSliceAdaptation | 7.7 | Network Slice Adaptation Service | TS29549\_SS\_NetworkSliceAdaptation.yaml | ss-nsa | A.9 |
| SS\_NetworkResourceMonitoring | 7.4 | Network Resource Monitoring | TS29549\_SS\_NetworkResourceMonitoring.yaml | ss-nrm | A.10 |
| SS\_VALServiceData | 7.3 | VAL Service Data Service | TS29549\_SS\_VALServiceData.yaml | ss-vsd | A.11 |
| SS\_VALServiceAreaConfiguration | 7.1 | VAL Service Area Configuration Service | TS29549\_SS\_VALServiceAreaConfiguration.yaml | ss-vsac | A.12 |
| SS\_ADAE\_SlicePerformanceAnalytics | 7.10 | ADAE slice specific application performance analytics service | TS29549\_SS\_ADAE\_SlicePerformanceAnalytics.yaml | ss-adae-spa | A.15 |
| NOTE: The APIs exposed by the SEALDD Server are specified in clause 5 of 3GPP TS 29.548 [35]. | | | | | |

\* \* \* Next Change \* \* \* \*

### 5.11.2 SS\_ADAE\_SlicePerformanceAnalytics API

#### 5.11.2.1 Service Description

##### 5.11.2.1.1 Overview

The SS\_ ADAE\_SlicePerformanceAnalytics API, as defined 3GPP TS 23.436 [38], allows the VAL server via ADAE-S reference point to subscribe to slice specific application performance analytics event to the ADAES.

#### 5.11.2.2 Service Operations

##### 5.11.2.2.1 Introduction

The service operation defined for SS\_ ADAE\_SlicePerformanceAnalytics API is shown in the table 5.11.2.2.1-1.

Table 5.11.2.2.1-1: Operations of the SS\_ADAE\_SlicePerformanceAnalytics API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_Slice\_Performance\_Analytics | This service operation is used by VAL server to subsribe to the event of the slice-specific application performance analytics. | VAL Server |
| Notify\_Slice\_Performance\_Analytics | This service operation is used by ADAES to notify about the slice-specific application performance analytics. | ADAES |
| Unsubscribe\_Slice\_Performance\_Analytics | This service operation is used by VAL server to unsubsribe from the event of the slice-specific application performance analytics. | VAL server |

##### 5.11.2.2.2 Subscribe\_Slice\_Performance\_Analytics

###### 5.11.2.2.2.1 General

This service operation is used by the VAL server for slice-specific application performance analytics event subscription to the ADAES.

###### 5.11.2.2.2.2 Subscribing to slice-specific application performance analytics event using Subscribe\_Slice\_Performance\_Analytics service operation

To subscribe to slice specific application performance analytics event, the VAL server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance" and with a body containing data type SliceAppPerfSub as defined in clause 7.10.2.4.2.2.

Upon receipt of the HTTP POST request, the ADAES shall:

1. verify the identity of the VAL server and determine if the VAL server is authorized to subscribe to the slice-specific application performance analytics event; and

2. if the VAL server:

a. is not authorized, the ADAES shall respond to the VAL server with an appropriate error status code; or

b. is authorized, the ADAES shall create a new "Individual application performance event subscription" resource and respond to the VAL server with an HTTP "201 Created" status code, including a Location header field containing the URI for the created "Individual application performance event subscription" and the response body including the SliceAppPerfSub data structure containing a representation of the created resource as defined in clause 7.10.2.2.

##### 5.11.2.2.3 Notify\_Slice\_Performance\_Analytics

###### 5.11.2.2.3.1 General

This service operation is used by the ADAES to send notification to the VAL server with the slice-specific application performance analytics event subscription to the ADAES.

###### 5.11.2.2.3.2 Notifying slice-specific application performance analytics event using Notify\_Slice\_Performance\_Analytics service operation

To notify slice-specific application performance analytics event, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance and with a body containing data type SliceAppPerfNotif as defined in clause 7.10.2.4.2.3.

Upon receipt of the HTTP POST request, the VAL server shall respond to the ADAES with:

1. if the request is successfully processed, a "204 No Content" status code and process the event notification; or

2. if errors occur when processing the request, an appropriate error response as specified in clause 7.10.2.5.

##### 5.11.2.2.4 Unsubscribe\_Slice\_Performance\_Analytics

###### 5.11.2.2.4.1 General

This service operation is used by the VAL server to unsubscribe from the slice-specific application performance analytics event.

###### 5.11.2.2.4.2 Unsubscribing from slice-specific application performance analytics event using Unsubscribe\_Slice\_Performance\_Analytics service operation

To unsubscribe from slice-specific application performance analytics event, the VAL server shall send an HTTP DELETE request to the resource representing the event in the ADAES as specified in clause 7.10.2.2.3.2, i.e. "{apiRoot}/ss-adae-sspa/<apiVersion>/application-performance/{ssAppPerfId}.

Upon receiving the HTTP DELETE request:

1. the ADAES shall verify the identity of the VAL server and check if the VAL server is authorized to unsubscribe from the slice-specific application performance analytics event associated with the resource URI "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance/{ssAppPerfId}";

2. if the VAL server is authorized to unsubscribe from the slice-specific application performance analytics event, the ADAES shall delete the resource pointed by the resource URI "{apiRoot}/ss-adae-sspa/<apiVersion>/slice-specific-application-performance/{ssAppPerfId}";

3. if the request is successfully processed, the ADAES shall respond to the VAL server with a "204 No Content" status code; and

4. if errors occur when processing the request, the ADAES shall respond to the VAL Server with an appropriate error response as specified in clause 7.10.2.5.

\* \* \* End of Changes \* \* \* \*