**3GPP TSG-SA5 Meeting #156 *S5-244993***

**Maastricht, Netherlands, 19 – 23 August 2024**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **28.532** | **CR** | **0337** | **rev** | **1** | **Current version:** | **16.18.0** |  |
|  |
| *For* [***HELP***](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-16 CR TS 28.532 Correcting the TLS component in the protocol stack diagram |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** | S5 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** | 2024-08-08 |
|  |  |  |  |  |
| ***Category:*** | **A** |  | ***Release:*** | Rel-16 |
|  | *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)* |
|  |  |
| ***Reason for change:*** | The protocol diagram of streaming service depicting TLS as an optional component in the protocol, but TLS is mandatory to be supported. Therefore the protocol diagram need to be changed.The streaming MnS APIs uses TLS protocol for security and this has not been specifically mentioned. |
|  |  |
| ***Summary of change:*** | Protocol diagram has been changed to depict TLS as mandatory. The streaming MnS description updated indicating it uses TLS for security and TLS specifications from SA3 (33.501 and 33.210) are referred. |
|  |  |
| ***Consequences if not approved:*** | Incorrect protocol diagram |
|  |  |
| ***Clauses affected:*** | 2, 12.5.1.1.1, 12.5.1.1.4 |
|  |  |
|  | **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:*** |  |

***Start of first Change***

# 2 References

- The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] Void

[3] 3GPP TS 28.541: "Management and orchestration ; 5G Network Resource Model (NRM); Stage 2 and stage3".

[4] ITU-T Recommendation X.733 (02/92): "Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function".

[5] 3GPP TS 28.531: "Management and orchestration ; Provisioning; ".

[6] 3GPP TS 28.554: "Management and orchestration ; 5G end to end Key Performance Indicators (KPI)".

[7] Void

[8] Void

[9] Void

[10] Void

[11] 3GPP TS 28.622: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS)".

[12] Void

[13] 3GPP TS 28.533: "Management and orchestration; Architecture framework"

[14] Void

[15] 3GPP TS 32.158: "Management and orchestration; Design rules for REpresentational State Transfer (REST) Solution Sets (SS)".

[16] Void

[17] Void

[18] 3GPP TS 28.552: "Management and orchestration; 5G performance measurements".

[19] 3GPP TS 32.401: "Telecommunication management; Perfomance Measurement (PM); Concept and requirements".

[20] ISO 8601:2004: "Data elements and interchange formats – Information interchange – Representation of dates and times".

[21] Void.

[22] Void.

[23] Void.

[24] Void.

[25] 3GPP TS 32.300: "Telecommunication management; Configuration Management (CM); Name convention for Managed Objects ".

[26] W3C REC-xmlschema-0-20010502: "XML Schema Part 0: Primer".

[27] W3C REC-xmlschema-1-20010502: "XML Schema Part 1: Structures".

[28] W3C REC-xmlschema-2-20010502: "XML Schema Part 2: Datatypes".

[29] W3C REC-xml-names-19990114: "Namespaces in XML".

[30] Void.

[31] 3GPP TS 32.111-2: " Telecommunication management; Fault Management; Part 2: Alarm Integration Reference Point (IRP): Information Service (IS)".

[32] IETF RFC 6241 "Network Configuration Protocol (NETCONF)".

[33] 3GPP TS 32.160 " Management and orchestration; Management service template ".

[34] IETF RFC 7950 "The YANG 1.1 Data Modeling Language".

[35] Void

[36] IETF RFC 6902: "JavaScript Object Notation (JSON) Patch".

[37] IETF RFC 7396: "JSON Merge Patch".

[38] 3GPP TS 32.422: "Telecommunication management; Subscriber and equipment trace; Trace control and configuration management".

[39] 3GPP TS 32.423: "Telecommunication management; Subscriber and equipment trace; Trace data definition and management".

[40] IETF RFC 6455: "The WebSocket Protocol".

[41] IETF RFC 793: "Transmission Control Protocol".

[42] 3GPP TS 28.550: "Management and orchestration; Performance assurance".

[43] Void

[44] 3GPP TS 28.623: "Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions".

[45] Text Attribution: Creator: ONAP, under Creative Commons Attribution 4.0 International License, https://creativecommons.org/licenses/by/4.0/, URI to access the text: <https://github.com/onap/vnfrqts-requirements/blob/05f26fac2b941513a7d0e856b99fd8c61d688299/docs/Chapter8/ves7_1spec.rst#resource-structure>.

[46] Void

[47] 3GPP TS 32.404: "Performance Management (PM); Performance measurements; Definitions and template".

[48] IETF RFC 6901: "JavaScript Object Notation (JSON) Pointer".

[49] IETF RFC 6243: "With-defaults Capability for NETCONF".

[50] IETF RFC 3339: "Date and Time on the Internet: Timestamps".

[51] 3GPP SA5 FORGE OpenAPI definitions: <https://forge.3gpp.org/rep/sa5>

[x] 3GPP TS 33.210: "Network Domain Security (NDS); IP network layer security"

***Start of next Change***

### 12.5.1 RESTful HTTP-based solution set

#### 12.5.1.1 Mapping of operations

##### 12.5.1.1.1 Introduction

The IS operations are mapped to SS equivalents according to table 12.5.1.1.1-1. The Streaming data reporting MnS shall use TLS as specified in TS 33.210 [x].

Table 12.5.1.1.1-1: Mapping of IS operations to SS equivalents

|  |  |  |  |
| --- | --- | --- | --- |
| **IS operation** | **Method/frame** | **Resource/URI** | **S** |
| establishStreamingConnection | HTTP POST (see NOTE) | /connections | M |
| HTTP GET (Upgrade, see NOTE) | /connections/{connectionId} | M |
| terminateStreamingConnection | WebSocket Close frame sent (frame with opcode of 0x8), andWebSocket Close frame received (frame with opcode of 0x8 for successful case) | /connections/{connectionId} | M |
| reportStreamData  | WebSocket Data frame sent (frame with opcode of 0x2) | /connections/{connectionId} | M |
| addStream | HTTP POST | /connections/{connectionId}/streams | M |
| deleteStream | HTTP DELETE | /connections/{connectionId}/streams | M |
| getConnectionInfo | HTTP GET | /connections | M |
| HTTP GET | /connections/{connectionId} | M |
| getStreamInfo | HTTP GET | /connections/{connectionId}/streams | M |
|  | HTTP GET | /connections/{connectionId}/streams/{streamId} | M |
| Note: the establishStreamingConnection is mapped to a HTTP POST operation followed by a HTTP GET operation. The HTTP POST operation is to provide the information in streamInfoList parameter to the consumer and receive the connectionId assigned by the consumer, while the HTTP GET (Upgrade) operation is to establish the WebSocket connection. |

***Start of next Change***

##### 12.5.1.1.4 Operation "reportStreamData"

The IS operation parameters are mapped to SS equivalents according to the tables 12.5.1.1.4-1 and 12.5.1.1.4-2.

Table 12.5.1.1.4-1: Mapping of IS operation input parameters to SS equivalents (WebSocket Data frame sent with Opcode of 0x2)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter location** | **SS parameter name** | **SS parameter type** | **S** |
| connectionId | n/a | -- | n/a | n/a |
| -- | Opcode (see clause 5 of IETF RFC 6455 [40]) | -- | Constant value: 0x2 ("binary") | M |
| streamingData | Payload data | Streaming Trace Payloadorstreaming performance data payloadorstreaming analytics payloadorproprietary data payload | See clause 5 of 3GPP TS 32.423 [39] for detailed definition of the Streaming Trace Payload format and Annex G of 3GPP TS 28.550 [40] for detailed definition of the streaming performance data payload format. | M |

The protocol stack with Streaming Trace Payloads formatted as per clause 5 of 3GPP TS 32.423 [39] carried by WebSocket binary data frames (see clause 5.6 of IETF RFC 6455 [40]) is illustrated on Figure 12.5.1.1.4-1.

The protocol stack with streaming performance data payloads formatted as per Annex G of 3GPP TS 28.550 [42] carried by WebSocket binary data frames (see clause 5.6 of IETF RFC 6455 [40]) is illustrated on Figure 12.5.1.1.4-2.

Table 12.5.1.1.4-2: Mapping of IS operation output parameters to SS equivalents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **IS operation parameter name** | **SS parameter location** | **SS parameter name** | **SS parameter type** | **S** |
| status | n/a | --See Note 1. | n/a | n/a |
| NOTE 1: The delivery of WebSocket Data frame is taken care of by the underlying TCP (see IETF RFC 793 [41]) which provides reliable data transmission and ensures the data delivery. There is no mechanism at WebSocket protocol level to report the delivery status for WebSocket Data frame. |



Figure 12.5.1.1.4-1: Protocol stack for streaming trace data reporting



Figure 12.5.1.1.4-2: Protocol stack for streaming performance data reporting

***End of Changes***