**3GPP TSG-WG SA4 #126 meeting *-231897***

**Chicago, US, 13 – 17 November 2023 Revision of S4-231745**

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| *CR-Form-v12.2* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.113** | **CR** |  | **rev** | **0** | **Current version:** | **0.7.0** |  |
|  | | | | | | | | |
| *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 | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | [iRTCW] Updates of APIs to 26.113 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Samsung Electronics, Co., LTD, [Qualcomm] | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | iRTCW | | | | |  | ***Date:*** | | | 7 Nov. 2023 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | We propose the updated definition of a set of APIs to TS 26.113. All the clauses affected are new. (Currently they are all empty) | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  |  | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  |  | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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| **First Change** |

# 4 Procedures for real-time media communication

## 4.1 General

This clause defines all procedures for real-time media communication using the different RTC reference points. Table 4.1-1 summarises the APIs used to provision and use RTC features specified in TS 26.506 [x].

Table 4.1‑1: Summary of APIs relevant to RTC features

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RTC  feature | Abstract | Relevant APIs | | |
| Interface | API name | Clause |
| Content configuration | Content delivery is configured according to Configuration Provisioning associated with a Provisioning Session. | RTC-1 | Provisioning Sessions API |  |
| Configuration Provisioning API |  |
| RTC-5 | Configuration API |  |
| Service Configuration Information API |  |
| Metrics reporting | The RTC endpoint uploads metrics reports to the RTC AF according to a provisioned Metrics Reporting Configuration it obtains from the Service Configuration Information for its Provisioning Session. | RTC-1 | Provisioning Sessions API |  |
| Metrics Reporting Provisioning API |  |
| RTC-5 | Service Configuration Information API |  |
| Metrics Reporting API |  |
| Consumption reporting | The RTC endpoint provides feedback reports on currently consumed content according to a provisioned Consumption Reporting Configuration it obtains from the Service Configuration Information for its Provisioning Session. | RTC-1 | Provisioning Sessions API |  |
| Consumption Reporting Provisioning API |  |
| RTC-5 | Service Configuration Information API |  |
| Consumption Reporting API |  |
| Dynamic Policy invocation | The RTC endpoint activates different traffic treatment policies selected from a set of Policy Templates configured in its Provisioning Session. | RTC-1 | Provisioning Sessions API |  |
| Policy Templates Provisioning API |  |
| RTC-5 | Service Configuration Information API |  |
| Dynamic Policies API |  |
| Network Assistance | The RTC enpoint requests bit rate recommendations and delivery boosts from the RTC AF. | RTC-5 | Service Configuration Information API |  |
| Network Assistance API |  |
| Edge content processing | Edge resources are provisioned for processing content in RTC sessions. | RTC-1 | Provisioning Sessions API |  |
| Edge Resources Provisioning API |  |
| RTC-5 | Service Configuration Information API |  |

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| **Second Change** |

# 5 Provisioning interface (RTC-1)

## 5.1 General

This clause defines provisioning API used by the Application Provider to provision resources for their real-time communication sessions. The Provisioning API is an extension of the Provisioning API as defined in TS 26.512 clause 7 and TS 26.510 clause 8.

Table 5.1-1 specifies the relevant APIs for RTC sessions in comparison with those in TS 26.512:

Table 4.1‑1: List of APIs relevant to RTC-1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| API | Inherited | Extended | Not Relevant | New |
| Provisioning Sessions API |  | X |  |  |
| Server Certificates Provisioning API |  |  | X (but can be reused) |  |
| Content Preparation Templates API |  |  | X |  |
| Content Protocols Discovery API |  |  | X |  |
| Content Hosting Provisioning API |  |  | X |  |
| Consumption Reporting Provisioning API | X |  |  |  |
| Metrics Reporting Provisioning API |  | X |  |  |
| Policy Templates Provisioning API |  | X (RTCQoSSpecification) |  |  |
| Edge Resources Provisioning API | X |  |  |  |
| Event Data Processing Provisioning API |  |  | X (but can be reused) |  |
| Configuration Provisioning API |  |  |  | X |

## 5.2 Provisioning Sessions API

The Provisioning Sessions API is used by RTC Application Provider to instantiate and manipulate Provisioning Sessions in the RTC System. The resource structure and the data model are specified in clause 8.3 of TS 26.510. When Provisioning Session API is used in RTC, the provisionedConfigurationIds object shall be present.

[Editor’s Note: The following table should be included in clause 8.3 of TS 26.510;

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| provisionedConfigurationIds | Array(ResourceId) | 0..1 | C: - R: RO | A list of the provisioned configuration identifiers that are currently associated with this Provisioning Session. | rtc |

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## 5.3 Configuration Provisioning API

The Configuration Provisioning API is used by the Application Provider to provision configuration that will be relayed to the RTC MSH for usage with RTC sessions of that Application Provider. The resource structure and the data model are specified in clause 8.xx of TS 26.510.

Editor’s Note: The data model for this API, as provided in S4-231711 should be included in clause 8.xx of TS 26.510

## 5.4 Consumption Reporting Provisioning API

The Consumption Reporting Provisioning API is a RESTful API that allows a RTC Application Provider to configure the Consumption Reporting Procedure for a particular RTC Provisioning Session at interface RTC-1. The resource structure and the data model are specified in clause 8.11 of TS 26.510.

## 5.5 Edge Resources Provisioning API

The Edge Resources Provisioning API is used by the RTC Application Provider to provision edge resource usage for RTC sessions associated with the parent Provisioning Session. The information serves as a template to select or instantiate the appropriate EAS instance that will serve the media session to the UE. The resource structure and the data model are specified in clause 8.6 of TS 26.510.

## 5.6 Policy Templates Provisioning API

The Policy Templates Provisioning API allow a RTC Application Provider to configure a set of Policy Templates within the scope of a Provisioning Session that can subsequently be applied to RTC sessions belonging to that Application Provider using the Dynamic Policies API specified in clause 8.7 of TS 26.510.

[Editor’s Note: The following text should be included in clause 8.7 of TS 26.510;

When the Policy Template is used for QoS Flows, the qoSSpecification object shall be present and its type shall be set to RTCQoSSpecification, as specified in Table 5.6-1 below.

Table 5.6‑1: Definition of type RTCQoSSpecification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| serviceDataFlowDescription | ServiceDataFlowDescription | 1..1 |  | The 5-Tuple that identifies the service data flow for which the QoS dynamic policy is requested. |
| mediaIdentifier | String | 1..1 |  | Provides an identifier for the media stream to associate with the corresponding service component in the QoS Policy. |
| marBwDlBitRate | BitRate | 1..1 |  | Maximum requested bit rate for the Downlink. |
| marBwUlBitRate | BitRate | 1..1 |  | Maximum requested bit rate for the Uplink. |
| minDesBwDlBitRate | BitRate | 0..1 |  | Minimum desired bit rate for the Downlink. |
| minDesBwUlBitRate | BitRate | 0..1 |  | Minimum desired bit rate for the Uplink. |
| mirBwDlBitRate | BitRate | 1..1 |  | Minimum requested bit rate for the Downlink. |
| mirBwUlBitRate | BitRate | 1..1 |  | Minimum requested bandwidth for the Uplink. |
| desLatency | Integer | 0..1 |  | Desire Latency. |
| desLoss | Integer | 0..1 |  | Desired Loss Rate. |
| pduSetMarking | PDUSetMarking | 0..1 |  | A description of the PDU Set and End of Burst marking configuration for the session.  In release-18, this shall only be present in the case of an RTP stream. |

The object pduSetMarking is defined in Table 5.6-2.

Table 5.6‑1: Definition of pduSetMarking

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Property name | Data type | Cardinality | Usage | Description |
| serviceDataFlowDescription | ServiceDataFlowDescription | 1..1 |  | The 5-Tuple that identifies the service data flow for which the QoS dynamic policy is requested. |
| headerExtensionVersion | Integer | 1..1 |  | The RTP header extension version. |
| localIdentifier | Integer | 1..1 |  | A unique identifier of the RTP header extension in the scope of the media session. |
| format | Boolean | 0..1 |  | Indicates if a short or a long header extension format is used. When set to false, a short 1-byte header extension format is being used. |
| pduSetSizeActive | Boolean | 0..1 |  | A flag to indicate if the PDU Set size in bytes is present in the RTP header extension. |
| eobMarkingActive | Boolean | 0..1 |  | A flag to indicate if the End of Burst signaling is activated for this RTP stream. |

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## 5.4 Metrics Reporting Provisioning API

The Metrics Reporting Provisioning API allows a RTC Application Provider to configure the Metrics Collection and Reporting procedure for a particular RTC session at reference point RTC-1. The resource structure and the data model are specified in clause 8.10 of TS 26.510.

Editor’s Note:.Context in S4-231849, if agreeable, should be included in clause 8.10 of TS 26.510

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| **3rd Change** |

# 9 Control transport interface (RTC-5)

## 9.1 General

This clause defines Control Transport API used by the RTC Media Session Handler to access resources exposed by the RTC AF at interface RTC-5. The Control Transport API is a profile of the Network Media Session Handling API defined in TS 26.510 clause 9.

Table 9.1-1 specifies the relevant APIs for RTC sessions in comparison with those in TS 26.512:

Table 9.1‑1: List of APIs relevant to RTC-5

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| API | Inherited | Extended/Modified | Not Relevant | New |
| Service Access Information API |  | X |  |  |
| Configuration Information API |  |  |  | X |
| Dynamic Policies API |  | X |  |  |
| Network Assistance API | X |  |  |  |
| Metrics Reporting API | X | X |  |  |
| Consumption Reporting API | X |  |  |  |

Editor’s Note: Service Access Information in 26.510 may be renamed, as access information has already exposed by Configuration Information

## 9.2 Service Access Information API

The Service Access Information API is used by the RTC Media Session Handler to acquire configuration information from the RTC AF that enables it to use the other Control Transport APIs in clause 9.3 *et seq*. The resource structure and the data model are specified in clause 9.2 of TS 26.510.

When the Service Access Information API is used in RTC, streamingAccess object in ServiceAccessInformation resource shall not be present.

## 9.3 Configuration Information API

The Configuration Information API is used by the RTC Media Session Handler to acquire the configuration information such as ICE candidates from the RTC AF. It is specified to relay the identical ProvisionedConfiguration resource from the RTC AF using the Configuration procedure, if requested by the Provisioning information. The resource structure and the data model are specified in clause 9.x of TS 26.510.

Editor’s Note: Context of this configuration information API should be included in clause 9.x of TS 26.510.

## 9.4 Dynamic Policies API

The Dynamic Policy API allows both the MSH and the trusted ICE or WebRTC Signalling Function AS to request a specific QoS and charging policy to be applied to the data flows of an RTC session. The resource structure and the data model are specified in clause 9.3 of TS 26.510.

When the Dynamic Policy is used for QoS Flow management, the qoSSpecification object shall be present and its type shall be set to RTCQoSSpecification, as specified in Table xx of TS 26.510.

## 9.5 Network Assistance API

If AF-based Network Assistance is supported, then the Network Assistance API component of interface RTC-5 is first used to provision a Network Assistance Session resource. The Network Assistance Resource can then be used to obtain bit rate recommendations and to issue delivery boost requests during the ongoing RTC session.

The Network Assistance API is defined in clause 9.4 of TS 26.510. When it is used, the qoSSpecification object shall be present and its type shall be set to RTCQoSSpecification, as specified in Table xx of TS 26.510.

## 9.6 Metrics Reporting API

The Metric Reporting API allows the RTC Media Session Handler to report QoE metrics to the RTC AF, as configured by the SerciveAccessInformation resource in clause 9.2. The report procedure and report format are defined in clause 9.5 of TS 26.510.

NOTE: When the trusted WebRTC signalling function is present in RTC session, the metric reporting may be reported to the signalling function in RTC AS.

## 9.7 Consumption Reporting API

The Metric Reporting API allows the RTC Media Session Handler to report media consumption to the RTC AF, as configured by the SerciveAccessInformation resource in clause 9.2. The report procedure and report format are defined in clause 9.5 of TS 26.510.

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| **4th Change** |

# 5 General aspects of APIs

## 5.1 Usage of HTTP

### 5.1.1 HTTP protocol version

#### 5.1.1.1 RTC AF

Implementations of the RTC AF shall comply with clause 7.1.1 of TS 26.510.

### 5.1.2 HTTP message bodies for API resources

The OpenAPI [23] specification of HTTP messages and their content bodies is contained in Annex X of the present document and in Annex A of TS 26.510.

### 5.1.3 Usage of HTTP headers

#### 5.1.3.1 General

Standard HTTP headers shall be used in accordance with clause 5.2.2 of TS 29.500 [21] for all versions of HTTP.

#### 5.1.3.2 Media Session Handler identification

The Media Session Handler in the RTC Client shall identify itself to the RTC AF at interface RTC-5 using a User-Agent request header (see section 5.3.3 of RFC 7231 [25]) in which the first element shall be a product identified by the token RTCMediaSessionHandler and optionally suffixed with a product-version.

The Media Session Handler may additionally supply a comment element in the User-Agent request header containing a vendor-specific identification string.

#### 5.1.3.3 RTC AF identification

The RTC AF shall identify itself using a Server response header (see section 7.4.2 of RFC 7231 [25]) of the following form:

RTCAF-{FQDN}/{implementationSpecificSuffix}

where {FQDN} shall be the Fully-Qualified Domain Name of the RTC AF exposed to the requesting client, and {implementationSpecificSuffix} shall be determined by the implementation.

#### 5.1.3.4 Support for conditional HTTP GET requests

All responses from the RTC AF that carry a resource message body shall comply with clause 7.1.4.2 of TS 26.510.

#### 5.1.3.5 Support for conditional HTTP POST, PUT, PATCH and DELETE requests

All API endpoints on the RTC AF that expose the HTTP POST, PUT, PATCH or DELETE methods shall comply with clause 7.1.4.3 of TS 26.510.