**3GPP TSG- Meeting #**

**, , - revision of S4-2401144**

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

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| ***Title:*** |  | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | TR 26.804 and TS 26.501 provides details on Service URL Handling. Specifications for the 3GPP Service Handler and URL including the necessary functions on UE and device to support automatic launch of 5G System services in the context of 5G Media Streaming based on the conclusions in clause 6.13 of TR26.804.  The work item objectives state  9) Specifications for the 3GPP Service Handler and URL including the necessary functions on UE and device to support automatic launch of 5G System services in the context of 5G Media Streaming based on the conclusions in clause 6.13 of TR 26.804. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Specify a concrete URL format for 3GPP services with individual host names registered in the 3GPP-managed domain launch.3gppservices.org as part of 3GPP specifications, and ensure that this can be used in the context of 3GPP-based services, namely:  - Specify a suitable website redirection mechanism in case a suitable 3GPP Service Handler is not already installed on the device to handle the URL.  The URL itself needs to be sufficiently unambiguous to resolve to the service entry point URL and may embed the service entry point URL as well. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Work item not fulfilled | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

## ===== 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".

[23501] 3GPP TS 23.501: "System architecture for the 5G System (5GS) ".

[23502] 3GPP TS 23.502: "Procedures for the 5G System (5GS); Stage 2".

[26501] 3GPP TS 26.501: "5G Media Streaming (5GMS); General description and architecture".

[26506] 3GPP TS 26.506: "5G Real-time Media Communication Architecture (Stage 2)".

[26512] 3GPP TS 26.512: "5G Media Streaming (5GMS); Protocols".

[26113] 3GPP TS 23.113: "Real-Time Media Communication; Protocols and APIs".

[26247] 3GPP TS 26.247: "Transparent end-to-end Packet-switched Streaming Service (PSS); Progressive Download and Dynamic Adaptive Streaming over HTTP (3GP-DASH)".

[29122] 3GPP TS 29.122: "T8 reference point for Northbound APIs".

[X.509] ITU-T Recommendation X.509 (2005) | ISO/IEC 9594-8:2005: "Information Technology – Open Systems Interconnection – The Directory: Public-key and attribute certificate frameworks".

[RFC5280] IETF RFC 5280: "Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile", May 2008.

[RFC7468] IETF RFC 7468: "Textual Encodings of PKIX, PKCS, and CMS Structures", April 2015.

[23558] 3GPP TS 23.558: "Architecture for enabling edge applications".

[24558] 3GPP TS 24.558: "Enabling Edge Applications; Protocol specification".

[29558] 3GPP TS 29.558: "Enabling Edge Applications; Application Programming Interface (API) specification; Stage 3".

[23503] 3GPP TS 23.503: "Policy and charging control framework for the 5G System (5GS); Stage 2".

[23003] 3GPP TS 23.003: "Numbering, addressing and identification".

[29514] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[29522] 3GPP TS 29.522: "5G System. Network Exposure Function Northbound APIs; Stage 3".

[27007] 3GPP TS 27.007: "AT Command set for User Equipment (UE)".

[38321] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification".

[36321] 3GPP TS 36.321: "Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification".

[HTTPsemantics] IETF RFC 9110: "HTTP Semantics", June 2022.

[HTTPcaching] IETF RFC 9111: "HTTP Caching", June 2022.

[HTTP11] IETF RFC 9112: "HTTP/1.1", June 2022.

[HTTP2] IETF RFC 9113: "HTTP/2", June 2022.

[HTTP3] Reserved for future use.

[TLS13] IETF RFC 8446: "The Transport Layer Security (TLS) Protocol Version 1.3", August 2018.

[29500] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[29501] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[OpenAPI300] OpenAPI: "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

[29571] 3GPP TS 29.571: "Common Data Types for Service Based Interfaces; Stage 3".

[RFC3339] IETF RFC 3339: "Date and Time on the Internet: Timestamps", July 2002.

[RFC3986] IETF RFC 3986: "URI Generic Syntax".

[ECMA262] Standard ECMA-262, 5.1 Edition: "ECMAScript Language Specification", June 2011.

[JSON] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format", December 2017.

[JSONSchema] IETF draft-bhutton-json-schema-validation: "JSON Schema Validation: A Vocabulary for Structural Validation of JSON", June 2022.

[26118] 3GPP TS 26.118: "Virtual Reality (VR) profiles for streaming applications".

[29517] 3GPP TS 29.517: "5G System; Application Function Event Exposure Service; Stage 3".

[26532] 3GPP TS 26.532: "Data Collection and Reporting; Protocols and Formats".

[26346] 3GPP TS 26.346: "Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs".

[26347] 3GPP TS 26.347: "Multimedia Broadcast/Multicast Service (MBMS); Application Programming Interface and URL".

[ISO3166-1] ISO 3166‑1: "Codes for the representation of names of countries and their subdivisions — Part 1: Country codes".

[ISO3166-2] ISO 3166‑2: "Codes for the representation of names of countries and their subdivisions — Part 2: Country subdivision code".

[RFC2474] IETF RFC 2474: "Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers".

[RFC2475] IETF RFC 2475: "An Architecture for Differentiated Services".

[RFC3246] IETF RFC 3246: "An Expedited Forwarding PHB (Per-Hop Behavior)".

[RFC2597] IETF RFC 2597: "Assured Forwarding PHB Group".

[RFC7230] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[29554] 3GPP TS 29.554: "5G System; Background Data Transfer Policy Control Service; Stage 3".

[29519] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository Service for Policy Data, Application Data and Structured Data for Exposure; Stage 3".

## ===== CHANGE =====

# 6 3GPP Service URL

## 6.1 General

This clause defines the syntax for 3GPP Service URLs used to launch media delivery sessions and the associated URL handling.

The 3GPP Service URL may be provided to the application via reference point M8 if it is a Media-aware Application. In another variant, the application may generate a 3GPP Service URL based on information in its own configuration.

## 6.2 3GPP Service URL syntax

3GPP Service URLs used to initiate media delivery sessions shall take the following form:

http[s]://launch.3gppservices.org/{service}/{service\_id}?{query\_parameters}

The structure of the 3GPP Service URL is as follows:

- The *prefix part* starts with the scheme-name http:// or https:// followed by a double-slash //, followed by the authority launch.3gppservices.org, a service type discriminator service, service identifier service\_id and an optional path, as defined for RFC 7230 [RFC7230] with the restriction that the prefix part shall not contain the character "&".

- The *suffix part* is optional and consists of the character "?" followed by a *query part* specifying additional service launch parameters formatted as a set of <key>=<value> pairs or flags that do not contain the equals character "=" and, optionally, a *fragment part*. The suffix is terminated by the end of the URL.

The formal ABNF of the 3GPP Service URL, following the generic syntax of URIs specified in RFC 3986 [RFC3986] is specified in listing 6.2.1‑1:

Listing 6.2-1: ABNF syntax of 3GPP Service URL for Media Delivery session launch

|  |
| --- |
| Service-URI = scheme ":" hier-part [ "?" query ] [ "#" fragment ]  scheme = "http:" / "https:"  hier-part = "//" 3gpp-domain "/" service [/ service\_id]  3gpp-domain = "launch.3gppservices.org"  service = service-label / "generic"  service-label = ALPHA \*( ALPHA / DIGIT )  service\_id = 1\*uchar  query = <query, see [RFC3986], Section 3>  fragment = <fragment, see [RFC3986], Section 3> |

## 6.3 Handling of 3GPP Service URLs by Media Client

Requests for 3GPP Service URLs from Media-aware Applications shall be handled by the Media Session Handler at reference point M6.

Requests for 3GPP Service URLs from other applications shall be handled by the Media Session Handler.

To cater for cases where a Media Session Handler is not yet present in a UE, the service provider offering the 3GPP Service URL shall provide a resolution of the 3GPP Service URL in the network that redirects the invoking application to a resource that the requesting application is able to process, for example a media file, URL to an MPD, etc. If this resolution yields a new URL, the service provider shall respond with an HTTP redirect to this new URL; otherwise an appropriate HTTP error response shall be returned.

The Media Session Handler performs decomposition of the URI into the prefixand suffix.

- If the URI handed to the Media Session Handler does not conform to a 3GPP Service URL, the Media Session Handler should return a proper error response to the invoking application.

- If the Media Session Handler does not support the service type discriminator service indicated in the prefix part, it should return a proper error response to the invoking application.

- Specific additional operations may be defined for each service.