**3GPP TSG-CT WG4 Meeting #111-eC4-224419**

**E-Meeting, 18th – 26th August 2022** *Revision of C4-224071*

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.500** | **CR** | **0337** | **rev** | **1** | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | URL Encoding of data | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc17 | | | | |  | ***Date:*** | | | 2022-07-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Clauses 5.2.10.2 and 5.2.10.3 in 3GPP TS 29.500 specify that specific set of the reserved characters shall be percent-encoded when used in URI components (e.g., path segments, values of query parameters, etc.) or in HTTP/2 request body with media type "application/x-www-form-urlencoded". These clauses however do not specify how percent-decoding shall be performed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | It is clarified The receiving entity shall percent-decode the received URI or HTTP/2 request body with media type "application/x-www-form-urlencoded" as specified in IETF RFC 3986 [14], section 2.4.  Also, a reference to a non-existent clause 5.13.13 in TS 29.501 is replaced by a correct one – 5.3.13. | | | | | | | | |
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| ***Consequences if not approved:*** | | Ambiguity may case systematic errors at the receiving entity. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.10.2, 5.2.10.3. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev1: All proposed changes are removed and new clarifications are added. Cover sheet is updated. | | | | | | | | |

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

#### 5.2.10.2 URL Encoding of URI components

When a URI is composed in the 3GPP 5G APIs, the different components (e.g., path segments, values of query parameters, etc.) shall percent-encode (see IETF RFC 3986 [14], section 2.1) the following "reserved" characters:

- EXCLAMATION MARK (U+0021): **!**

- NUMBER SIGN (U+0023): #

- DOLLAR SIGN (U+0024): $

- AMPERSAND (U+0026): &

- APOSTROPHE (U+0027): '

- LEFT PARENTHESIS (U+0028): **(**

- RIGHT PARENTHESIS (U+0029): **)**

- ASTERISK (U+002A): \*

- PLUS SIGN (U+002B): +

- COMMA (U+002C): **,**

- SOLIDUS (U+002F): **/**

- COLON (U+003A): **:**

- SEMICOLON (U+003B): **;**

- EQUALS SIGN (U+003D): **=**

- QUESTION MARK (U+003F): **?**

- COMMERCIAL AT (U+0040): **@**

- LEFT SQUARE BRACKET (U+005B): **[**

- RIGHT SQUARE BRACKET (U+005D): **]**

The following characters (not listed as "reserved" in IETF RFC 3986 [14]) shall be percent-encoded:

- QUOTATION MARK (U+0022): **"**

- PERCENT SIGN (U+0025): %

SPACE (U+0020) character shall be escaped, either by percent-encoding it (as %20), or by replacing it with character PLUS SIGN (U+002B).

The encoding of query parameters consisting of arrays of strings shall follow the guidelines indicated in 3GPP TS 29.501 [5], clause 5.3.13, for the escaping of the COMMA (U+002C) characters.

In addition, implementations may percent-encode other characters, such as:

- LEFT CURLY BRACKET (U+007B): **{**

- RIGHT CURLY BRACKET (U+007D): **}**

The receiving entity shall percent-decode the received URI as specified in IETF RFC 3986 [14], section 2.4.

\* \* \* 2nd Change \* \* \* \*

#### 5.2.10.3 URL Encoding of HTTP/2 request bodies

When composing an HTTP/2 request body with media type "application/x-www-form-urlencoded", the OpenAPI Specification [9] requires that the encoding shall follow IETF RFC 1866 [48], section 8.2.1, which indicates:

a) the "reserved" character set described in IETF RFC 1738 [yy], section 2.2, shall be percent-encoded:

- AMPERSAND (U+0026): &

- SOLIDUS (U+002F): **/**

- COLON (U+003A): **:**

- SEMICOLON (U+003B): **;**

- EQUALS SIGN (U+003D): **=**

- QUESTION MARK (U+003F): **?**

- COMMERCIAL AT (U+0040): **@**

b) SPACE (U+0020) character shall be escaped by replacing it with character PLUS SIGN (U+002B).

The following characters (not listed as "reserved" in IETF RFC 1738 [yy]) shall be percent-encoded:

- QUOTATION MARK (U+0022): **"**

- PERCENT SIGN (U+0025): %

- COMMA (U+002C): **,**

- LEFT SQUARE BRACKET (U+005B): **[**

- RIGHT SQUARE BRACKET (U+005D): **]**

- LEFT CURLY BRACKET (U+007B): **{**

- RIGHT CURLY BRACKET (U+007D): **}**

In addition, implementations may also percent-encode any of the characters listed in clause 5.2.10.2.

The receiving entity shall percent-decode the received HTTP/2 request body with media type "application/x-www-form-urlencoded", as specified in IETF RFC 3986 [14], section 2.4.

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