**3GPP TSG-CT WG1 Meeting #126-eC1-20xxxx**

**Electronic meeting, 15-23 October 2020 Revision of C1-206132**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **24.526** | **CR** |  | **rev** | **1** | **Current version:** | **17.0.0** |  |
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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 |  |

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| ***Title:***  | The correction on the process of URSP handling |
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| ***Source to WG:*** | China Mobile |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5GProtoc17 |  | ***Date:*** | 2020-10-20 |
|  |  |  |  |  |
| ***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 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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)* |
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| ***Reason for change:*** | An editorial in the case II)-2)-ii) need to be corrected in 4.2.2.3 in the current version of TS 24.526. |
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| ***Summary of change:*** | Correct an editorial in the case II)-2)-ii) in 4.2.2.3.  |
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| ***Consequences if not approved:*** | The referred processing step for the case II)-2)-ii) in 4.2.2.3 is wrong. |
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| ***Clauses affected:*** | 4.2.2.3 |
|  |  |
|  | **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 ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** | Remove the part about the clarification of “URSP handling layer”. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* NEXT CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 4.2.2.3 Association between an application and a PDU session by a 5G-RG or a W-AGF acting on behalf of FN-RG

The 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed in the following order:

a) the 5G-RG or the W-AGF acting on behalf of the FN-RG shall evaluate the URSP rules, except the default URSP rule, with a traffic descriptor matching the application information in increasing order of their precedence values, if any. If the traffic descriptor contains more than one component, all of them shall be matched. A URSP rule is determined not to be applicable when for any given component in the traffic descriptor no corresponding information from the application is available or the corresponding information from the application does not match any of the values in the traffic descriptor component as specified in subclause 6.6.2.1 of 3GPP TS 23.503 [2].

 If the 5G-RG or the W-AGF acting on behalf of the FN-RG finds the traffic descriptor in a non-default URSP rule matching the application information, and:

I) if there is one or more PDU sessions:

1) matching at least one of the route selection descriptors of the URSP rule except the preferred access type and the multi-access preference, if any, wherein a route selection descriptor with PDU session type IPv4v6 matches also with PDU session type IPv4 if the network has sent 5GSM cause value #50 "PDU session type IPv4 only allowed" in the PDU SESSION ESTABLISHMENT ACCEPT message, and a route selection descriptor with PDU session type IPv4v6 matches also with PDU session type IPv6 if the network has sent 5GSM cause value #51 "PDU session type IPv6 only allowed" in the PDU SESSION ESTABLISHMENT ACCEPT message; and

2) established without requesting any parameter, except the preferred access type and the multi-access preference, for which the matching route selection descriptor of the URSP rule does not provide a route selection descriptor component,

 the 5G-RG or the W-AGF acting on behalf of the FN-RG shall provide information on the PDU session that matches the route selection descriptor of the lowest precedence value to the upper layers;

NOTE 1: It is up to the 5G-RG or the W-AGF acting on behalf of the FN-RG implementation which PDU session to select if there exist multiple PDU sessions matching the same route selection descriptor of the lowest precedence value.

II) otherwise:

1) the 5G-RG or the W-AGF acting on behalf of the FN-RG shall select a route selection descriptor with the next smallest precedence value which has not yet been evaluated;

2) if:

i) the selected route selection descriptor contains a non-seamless non-3GPP offload indication, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

ii) the selected route selection descriptor includes a PDU session type which is not supported by the 5G-RG or the W-AGF acting on behalf of the FN-RG, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

iii) the selected route selection descriptor contains a time window but the time does not match the time window, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

iv) the selected route selection descriptor contains location criteria but location of the 5G-RG or the W-AGF acting on behalf of the FN-RG does not match the location criteria, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

v) the selected route selection descriptor includes the multi-access preference but the 5G-RG or the W-AGF acting on behalf of the FN-RG does not support ATSSS, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

va) the selected route selection descriptor includes an SSC mode which either has been rejected by the network with 5GSM cause value #68 "not supported SSC mode" for the same DNN (or no DNN, if no DNN was indicated by the 5G-RG or the W-AGF acting on behalf of the FN-RG) and the same S-NSSAI associated with (if available in roaming scenarios) a mapped S-NSSAI (or no S-NSSAI, if no S-NSSAI was indicated by the 5G-RG or the W-AGF acting on behalf of the FN-RG) or was not included in the Allowed SSC mode IE following a rejection with 5GSM cause value #68 "not supported SSC mode" for the same DNN (or no DNN, if no DNN was indicated by the 5G-RG or the W-AGF acting on behalf of the FN-RG) and the same S-NSSAI associated with (if available in roaming scenarios) a mapped S-NSSAI (or no S-NSSAI, if no S-NSSAI was indicated by the 5G-RG or the W-AGF acting on behalf of the FN-RG), the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4); or

vi) the URSP handling layer requests NAS layer of the 5G-RG or the W-AGF acting on behalf of the FN-RG to establish a PDU session providing at least one of the following PDU session attributes:

A) SSC mode if there is a SSC mode in the route selection descriptor;

NOTE 2: The SSC mode 3 is only used when the PDU session type is IPv4, IPv6 or IPv4v6.

B) one S-NSSAI if the S-NSSAI is in the route selection descriptor; and the S-NSSAI is in the allowed NSSAI. If none of the S-NSSAI(s) in the route selection descriptor is in the allowed NSSAI, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4);

NOTE 3: If there are multiple S-NSSAIs in the route selection descriptor, an S-NSSAI is chosen among the S-NSSAIs based on implementation of the 5G-RG or the W-AGF acting on behalf of the FN-RG.

C) one DNN, if the DNN in the route selection descriptor; and if the DNN is an LADN DNN and the 5G-RG is in the service area of that LADN;

NOTE 3A: The LADN service does not apply for either 5G-RG connected to 5GC via wireline access or the W-AGF acting on behalf of the FN-RG.

NOTE 4: If one or more DNNs are included in the traffic descriptor of a URSP rule, the existing DNNs in the route selection descriptor for the application are ignored.

NOTE 5: If there is no DNN in the traffic descriptor and there are multiple DNNs in the route selection descriptor, a DNN is chosen based on implementation of the 5G-RG or the W-AGF acting on behalf of the FN-RG.

D) the PDU session type of the route selection descriptor;

E) preferred access type or multi-access preference, if the preferred access type or the multi-access preference is in the route selection descriptor; and

NOTE 6: If a preferred access type or a multi-access preference is included in the traffic descriptor of a URSP rule, it is recommended that the 5G-RG or the W-AGF acting on behalf of the FN-RG establishes a PDU session based on the preferred access type or the multi-access preference.

 the NAS layer of the 5G-RG or the W-AGF acting on behalf of the FN-RG indicates the result of the PDU session establishment. Upon successful completion of the PDU session establishment, the NAS layer of the 5G-RG or the W-AGF acting on behalf of the FN-RG shall additionally indicate the attributes of the established PDU session (e.g. PDU session identity, SSC mode, S-NSSAI, DNN, PDU session type, access type, PDU address) to the URSP handling layer, and shall provide information (e.g. PDU address) of the successfully established PDU session to the upper layers. The 5G-RG or the W-AGF acting on behalf of the FN-RG shall stop selecting a route selection descriptor matching the application information. If the PDU session establishment is unsuccessful, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 3);

3) Based on the rejection cause and if there is another value which can be used for the rejected component in the same route selection descriptor, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall select another combination of values in the currently selected route selection descriptor by using this value of the rejected component and proceed to step 2), otherwise the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 4); and

4) if there is any route selection descriptor which has not yet been evaluated, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step 1). If all route selection descriptors for the matching non-default URSP rule have been evaluated and there is one or more non-default matching URSP rule which has not yet been evaluated, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall proceed to step a). If all non-default matching URSP rules have been evaluated, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall inform the upper layers of the failure.

b) if no non-default matching URSP rule can be found:

1) by the 5G-RG and local configuration of the 5G-RG for the application is available, the 5G-RG shall perform the association of the application to a PDU session accordingly. If no matching PDU session exists, the NAS layer of the 5G-RG shall attempt to establish a PDU session using local configuration of the 5G-RG.

NOTE 7: Any missing information in local configuration of the 5G-RG needed to build the PDU session establishment request can be the appropriate corresponding component from the default URSP rule with the "match-all" traffic descriptor.

 If the PDU session establishment is successful, the NAS layer of the 5G-RG shall provide information (e.g. PDU address) of the successfully established PDU session to the upper layers. Otherwise, the 5G-RG shall go to step c); or

2) by the W-AGF acting on behalf of the FN-RG, the W-AGF acting on behalf of the FN-RG shall go to step c); and

c) if no non-default matching URSP rule can be found:

1) by the 5G-RG and if either local configuration of the 5G-RG for the application is not available or the PDU session establishment based on local configuration of the 5G-RG for the application was unsuccessful, the 5G-RG shall perform the association of the application to a PDU session according to the default URSP rule with the "match-all" traffic descriptor, if any. If the association is unsuccessful, the 5G-RG shall inform the upper layers of the failure; or

2) by the W-AGF acting on behalf of the FN-RG, the W-AGF acting on behalf of the FN-RG shall perform the association of the application to a PDU session according to the default URSP rule with the "match-all" traffic descriptor, if any. If the association is unsuccessful, and local configuration of the W-AGF acting on behalf of the FN-RG for the application is available, the W-AGF acting on behalf of the FN-RG shall perform the association of the application to a PDU session accordingly. If no matching PDU session exists, the NAS layer of the W-AGF acting on behalf of the FN-RG shall attempt to establish a PDU session using local configuration of the W-AGF acting on behalf of the FN-RG. If the PDU session establishment is successful, the NAS layer of the W-AGF acting on behalf of the FN-RG shall provide information (e.g. PDU address) of the successfully established PDU session to the upper layers. Otherwise, the W-AGF acting on behalf of the FN-RG shall inform the upper layers of the failure.

The HPLMN may pre-configure the 5G-RG or the W-AGF acting on behalf of the FN-RG with URSP or may provide URSP to the 5G-RG or the W-AGF acting on behalf of the FN-RG by signalling as described in annex D of 3GPP TS 24.501 [11]. In the 5G-RG, the pre-configured URSP and the signalled URSP shall be stored in a non-volatile memory in the ME together with the SUPI from the USIM. If the 5G-RG or the W-AGF acting on behalf of the FN-RG has both pre-configured URSP and signalled URSP, the 5G-RG or the W-AGF acting on behalf of the FN-RG shall only use the signalled URSP. The pre-configured URSP shall be stored until a new URSP is configured by HPLMN or the USIM is removed from the 5G-RG. The signalled URSP may be modified by the procedures defined in annex D of 3GPP TS 24.501 [11] and shall be stored until USIM is removed from the 5G-RG or until W-AGF acting on behalf of the FN-RG deregisters on behalf of the FN-RG. In the 5G-RG, the URSP can only be used if the SUPI from the USIM matches the SUPI stored in the non-volatile memory of the ME. In the 5G-RG, if the SUPI from the USIM does not match the SUPI stored in the non-volatile memory of the ME, the 5G-RG shall delete the URSP.

The 5G-RG or the W-AGF acting on behalf of the FN-RG may re-evaluate the URSP rules, to check if the change of the association of an application to a PDU session is needed, when:

NOTE 8: The time when the 5G-RG or the W-AGF acting on behalf of the FN-RG performs the re-evaluation is up to implementation of the 5G-RG or the W-AGF acting on behalf of the FN-RG. It is recommended that the 5G-RG or the W-AGF acting on behalf of the FN-RG performs the re-evaluation in a timely manner.

a) the 5G-RG or the W-AGF acting on behalf of the FN-RG performs periodic URSP rules re-evaluation based on implementation of the 5G-RG or the W-AGF acting on behalf of the FN-RG;

b) the NAS layer of the 5G-RG or the W-AGF acting on behalf of the FN-RG indicates that an existing PDU session used for routing traffic of an application based on a URSP rule is released;

c) the URSP is updated by the PCF;

d) the NAS layer of the 5G-RG indicates that the 5G-RG performs inter-system change from S1 mode to N1 mode;

e) the NAS layer of the 5G-RG indicates that the 5G-RG is successfully registered in N1 mode over 3GPP access;

f) the allowed NSSAI is changed; or

g) the LADN information is changed for the 5G-RG.

If the re-evaluation leads to a change of the association of an application to a PDU session, the 5G-RG or the W-AGF acting on behalf of the FN-RG may enforce such change immediately or when the 5G-RG or the W-AGF acting on behalf of the FN-RG returns to 5GMM-IDLE mode.

NOTE 9: The time when the 5G-RG or the W-AGF acting on behalf of the FN-RG enforces the change of the association of an application to a PDU Session is up to implementation of the 5G-RG or the W-AGF acting on behalf of the FN-RG. It is recommended that the 5G-RG or the W-AGF acting on behalf of the FN-RG performs the enforcement in a timely manner.

The URSP handling layer may request the NAS layer of the 5G-RG or the W-AGF acting on behalf of the FN-RG to release an existing PDU session after the re-evaluation.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* END of CHANGE \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*