**SA WG2 Meeting #137ES2-2002033r01**

**February 24 - 27, 2020 Electronic meeting (revision of S2-20xxxx)**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.503** | **CR** | **0411** | **rev** | **-** | **Current version:** | **15.8.0** |  |
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| *For* ***HE******LP*** *on using this form: comprehensive instructions can be found at  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:*** | Clarifications on the OSId and AppId in the URSP rule | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | SA2 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GS\_Ph1 | | | | |  | ***Date:*** | | | 2020-02-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | *Rel-15* |
|  | *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. | | | | | | | | *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)* | |
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| ***Reason for change:*** | | There are no standardized values of the OSid and AppId, this contribution proposes to clarify this in the URSP rule definition. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Clarify that there are no standarized values of the OSid and AppId in the URSP values, and then including them in the URSP rule is possible if the UE vendor, the application provider and the MNO reach an agrement. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Unclear in which scenarios the AppId and OSid can be included in the URSP rule | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.6.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

#### 6.6.2.1 Structure Description

The UE Route Selection Policy (URSP) includes a prioritized list of URSP rules.

Table 6.6.2.1-1: UE Route Selection Policy

| Information name | Description | Category | PCF permitted to modify in a URSP | Scope |
| --- | --- | --- | --- | --- |
| URSP rules | 1 or more URSP rules as specified in table 6.6.2.1-2 | Mandatory | Yes | UE context |

The structure of the URSP rules is described in Table 6.6.2.1-2 and Table 6.6.2.1-3.

Table 6.6.2.1-2: UE Route Selection Policy Rule

| Information name | Description | Category | PCF permitted to modify in a UE context | Scope |
| --- | --- | --- | --- | --- |
| Rule Precedence | Determines the order the URSP rule is enforced in the UE. | Mandatory (NOTE 1) | Yes | UE context |
| **Traffic descriptor** | *This part defines the Traffic descriptor components for the URSP rule.* | Mandatory (NOTE 3) |  |  |
| Application descriptors | It consists of OSId and OSAppId(s). (NOTE 2) (NOTE x) | Optional | Yes | UE context |
| IP descriptors  (NOTE 5) | Destination IP 3 tuple(s) (IP address or IPv6 network prefix, port number, protocol ID of the protocol above IP). | Optional | Yes | UE context |
| Domain descriptors | Destination FQDN(s) | Optional | Yes | UE context |
| Non-IP descriptors  (NOTE 5) | Descriptor(s) for destination information of non-IP traffic | Optional | Yes | UE context |
| DNN | This is matched against the DNN information provided by the application. | Optional | Yes | UE context |
| Connection Capabilities | This is matched against the information provided by a UE application when it requests a network connection with certain capabilities. (NOTE 4) | Optional | Yes | UE context |
| **List of Route Selection Descriptors** | A list of Route Selection Descriptors. The components of a Route Selection Descriptor are described in table 6.6.2.1-3. | Mandatory |  |  |
| NOTE 1: Rules in a URSP shall have different precedence values.  NOTE 2: The information is used to identify the Application(s) that is(are) running on the UE's OS. The OSId does not include an OS version number. The OSAppId does not include a version number for the application.  NOTE 3: At least one of the Traffic descriptor components shall be present.  NOTE 4: The format and some values of Connection Capabilities, e.g. "ims", "mms", "internet", etc., are defined in TS 24.526 [19]. More than one connection capabilities value can be provided.  NOTE 5: A URSP rule cannot contain the combination of the Traffic descriptor components IP descriptors and Non-IP descriptors.  NOTE x: The OSid and the OSAppId values may need agreement between the OSid provider, i.e. the UE vendor, the OSAppId provider, i.e. the Application owner and the MNO. | | | | |

Table 6.6.2.1-3: Route Selection Descriptor

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Information name | Description | Category | PCF permitted to modify in URSP | Scope |
| Route Selection Descriptor Precedence | Determines the order in which the Route Selection Descriptors are to be applied. | Mandatory (NOTE 1) | Yes | UE context |
| **Route selection components** | *This part defines the route selection components* | Mandatory (NOTE 2) |  |  |
| SSC Mode Selection | One single value of SSC mode.  (NOTE 5) | Optional | Yes | UE context |
| Network Slice Selection | Either a single value or a list of values of S-NSSAI(s). | Optional  (NOTE 3) | Yes | UE context |
| DNN Selection | Either a single value or a list of values of DNN(s). | Optional | Yes | UE context |
| PDU Session Type Selection | One single value of PDU Session Type | Optional  (NOTE 8) | Yes | UE context |
| Non-Seamless Offload indication | Indicates if the traffic of the matching application is to be offloaded to non-3GPP access outside of a PDU Session. | Optional  (NOTE 4) | Yes | UE context |
| Access Type preference | Indicates the preferred Access Type (3GPP or non-3GPP or Multi-Access) when the UE establishes a PDU Session for the matching application. | Optional | Yes | UE context |
| **Route Selection Validation Criteria**  (NOTE 6) | *This part defines the Route Validation Criteria components* | Optional |  |  |
| Time Window | The time window when the matching traffic is allowed. The RSD is not considered to be valid if the current time is not in the time window. | Optional | Yes | UE context |
| Location Criteria | The UE location where the matching traffic is allowed. The RSD rule is not considered to be valid if the UE location does not match the location criteria. | Optional | Yes | UE context |
| NOTE 1: Every Route Selection Descriptor in the list shall have a different precedence value.  NOTE 2: At least one of the route selection components shall be present.  NOTE 3: When the Subscription Information contains only one S-NSSAI in UDR, the PCF needs not provision the UE with S-NSSAI in the Network Slice Selection information. The "match all" URSP rule has one S-NSSAI at most.  NOTE 4: If this indication is present in a Route Selection Descriptor, no other components shall be included in the Route Selection Descriptor.  NOTE 5: The SSC Mode 3 shall only be used when the PDU Session Type is IP.  NOTE 6: The Route Selection Descriptor is not considered valid unless all the provided Validation Criteria are met.  NOTE 7: In this Release of specification, inclusion of the Validation Criteria in Roaming scenarios is not considered.  NOTE 8: When the PDU Session Type is "Ethernet" or "Unstructured", this component shall be present. | | | | |

Each URSP rule contains a Traffic descriptor (containing one or more components described in Table 6.6.2.1-2) that determines when the rule is applicable. A URSP rule is determined to be applicable when every component in the Traffic descriptor matches the corresponding information from the application. 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.

NOTE 1: It is recommended to avoid listing more than two components in the Traffic descriptor of a URSP rule.

If a URSP rule is provided that contains a Traffic descriptor with two or more components, it is recommended to also provide URSP rule(s) with lower precedence and a Traffic descriptor with less components, in order to increase the likelihood of URSP rule matching for a particular application.

Each URSP rule contains a list of Route Selection Descriptors containing one or multiple Route Selection Descriptors each having a different Route Selection Descriptor Precedence value. A Route Selection Descriptor contains one or more of the following components:

- Session and Service Continuity (SSC) Mode: Indicates that the traffic of the matching application shall be routed via a PDU Session supporting the included SSC Mode.

- Network Slice Selection: Indicates that the traffic of the matching application shall be routed via a PDU Session supporting any of the included S-NSSAIs, see clause 5.15.4 in TS 23.501 [2]. It includes one or more S-NSSAI(s).

- DNN Selection: Indicates that the traffic of the matching application shall be routed via a PDU Session supporting any of the included DNNs. It includes one or more DNN(s). When DNN is used in Traffic descriptor, corresponding Route Selection Descriptor of the rule shall not include DNN Selection component.

- PDU Session Type Selection: Indicates that the traffic of matching application shall be routed via a PDU session supporting the included PDU Session Type. The possible PDU Session Types are defined in clause 5.6.10 in TS 23.501 [2].

- Non-Seamless Offload indication: Indicates that traffic of the matching application is to be offloaded to non-3GPP access outside of a PDU Session when the rule is applied. If this component is present in a Route Selection Descriptor, no other components shall be included in the Route Selection Descriptor.

- Access Type Preference: If the UE needs to establish a PDU Session when the rule is applied, this indicates the Access Type (3GPP or non-3GPP or multi-access) on which the PDU Session should be established. The type "Multi-Access" indicates that the PDU Session should be established as a MA PDU Session, using both 3GPP access and non-3GPP access.

- Time Window: The Route Selection Descriptor is not be considered valid unless the UE is in the time window.

- Location Criteria: The Route Selection Descriptor is not be considered valid unless the UE's location matches the Location Criteria.

NOTE 2: The structure of the URSP does not define how the PCF splits the URSP when URSP cannot be delivered to the UE in a single NAS message.

NOTE 3: It is expected that UE applications will not be able to change or override the PDU Session parameters in the URSP rules. A UE application can express preferences when it requests a network connection (e.g. certain Connection Capabilities), which can be mapped into specific PDU Session parameters by the URSP rules.

NOTE 4: When one Route Selection Descriptor in a URSP rule contains a Time Window or Location Criteria, all Route Selection Descriptors in the URSP rule must contain a Time Window or Location Criteria.

In the case of network rejection of the PDU Session Establishment Request, the UE may trigger a new PDU Session establishment based on the rejection cause and the URSP policy.

When the PCF provisions URSP rules to the UE, one URSP rule with a "match all" Traffic descriptor may be included.

NOTE 5: When URSP rules containing NSSP are available to the UE and the URSP rule with the "match all" Traffic descriptor is not part of them, a UE application that has no matching URSP rule and no UE Local Configuration cannot request a network connection.

The URSP rule with the "match all" Traffic descriptor is used to route the traffic of applications which do not match any other URSP rules and shall therefore be evaluated as the last URSP rule, i.e. with lowest priority. There shall be only one Route Selection Descriptor in this URSP rule. The Route Selection Descriptor in this URSP rule includes at most one value for each Route Selection Component.

NOTE 6: How to set the URSP rule with the "match all" Traffic descriptor as the URSP rule with lowest priority is defined in TS 24.526 [19].

\* \* \* \* End of changes \* \* \* \*