**3GPP TSG CT WG3 Meeting #135 *C3-243xxx***

**Hyderabad, IN, 27 - 31 May, 2024 was C3-243241**

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| --- |
| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.512** | **CR** | **1246** | **rev** | **1** | **Current version:** | **18.5.0** |  |
|  |
| *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:***  | eNS\_Ph3 relared corrections |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eNS\_Ph3 |  | ***Date:*** | 2024-05-31 |
|  |  |  |  |  |
| ***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 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | There are some eNS\_Ph3 related corrections (e.g., wrong attribute name) that need to be applied. |
|  |  |
| ***Summary of change:*** | This CR proposes to:* Correct the "altSliceInfo" attribute name in clause 4.2.4.2 and additional corrections.
 |
|  |  |
| ***Consequences if not approved:*** | * eNS\_Ph3 related provisions continue to contain errors.
 |
|  |  |
| ***Clauses affected:*** | 4.2.4.2, 5.6.3.6, 5.8 |
|  |  |
|  | **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 does not impact the OpenAPI descriptions of the APIs defined in this specification. |
|  |  |
| ***This CR's revision history:*** |  |

\* \* \* \* Start of changes \* \* \* \*

#### 4.2.4.2 Requesting the update of the Session Management related policies



Figure 4.2.4.2-1: Requesting the update of the Session Management related policies

When the NF service consumer detects that one or more policy control request triggers are met, the NF service consumer shall send a POST request to the PCF to update an Individual SM Policy resource. The {smPolicyId} in the URI identifies the Individual SM Policy resource to be updated. The NF service consumer include SmPolicyUpdateContextData data structure in the content of the HTTP POST to request a update of representation of the "Individual SM Policy" resource. The NF service consumer shall include the met policy control request trigger(s) within the "repPolicyCtrlReqTriggers" attribute and applicable updated value(s) in the corresponding attribute(s).

The NF service consumer shall include (if the corresponding policy control request trigger is met and the applicable information is available) in the SmPolicyUpdateContextData data structure:

- type of access within the "accessType" attribute;

- type of the radio access technology within the "ratType" attribute;

- the new allocated UE Ipv4 address within the "ipv4Address" attribute and/or the UE Ipv6 prefix within the "ipv6AddressPrefix" attribute;

- an additional new allocated UE Ipv6 prefix within the "addIpv6AddrPrefixes" attribute, if the "MultiIpv6AddrPrefix" feature is supported;

- multiple new allocated UE Ipv6 prefixes within the "multiIpv6Prefixes" attribute, if the "UnlimitedMultiIpv6Prefix" feature is supported;

- the released UE Ipv4 address within the "relIpv4Address" attribute and/or the UE Ipv6 prefix within the "relIpv6AddressPrefix" attribute;

- an additional released UE Ipv6 prefix within the "addRelIpv6AddrPrefixes" attribute, if the "MultiIpv6AddrPrefix feature" is supported;

- multiple released UE Ipv6 prefixes within the "multiRelIpv6Prefixes" attribute, if the "UnlimitedMultiIpv6Prefix feature" is supported;

- the UE MAC address within the "ueMac" attribute;

- the released UE MAC address within the "relUeMac" attribute;

- the indication of UE supporting reflective QoS within the "refQosIndication" attribute;

- access network charging identifier within the "accNetChIds" attribute;

- the 3GPP PS data off status within the "3gppPsDataOffStatus" attribute, if the "3GPP-PS-Data-Off" feature is supported;

- the UE time zone information within the "ueTimeZone" attribute;

- the UDM subscribed Session-AMBR or, if the "DN-Authorization" feature is supported, the DN-AAA authorized Session-AMBR within the "subsSessAmbr" attribute;

NOTE 1: When both, the UDM subscribed Session-AMBR and the DN-AAA authorized Session-AMBR are available in the NF service consumer, the NF service consumer includes the DN-AAA authorized Session-AMBR.

- if the "VPLMN-QoS-Control" feature is supported, the highest Session-AMBR and the default QoS supported in the VPLMN within the "vplmnQos" attribute, if available;

NOTE 2: In home routed roaming, the H-SMF may provide the QoS constraints received from the VPLMN (defined in 3GPP TS 23.502 [3] clause 4.3.2.2.2) to the PCF.

- if the "DN-Authorization" feature is supported, the DN-AAA authorization profile index within the "authProfIndex" attribute;

- subscribed Default QoS Information within the "subsDefQos" attribute;

- detected application information within the "appDetectionInfos" attribute;

- if the "UMC" feature is supported, the accumulated usage reports within the "accuUsageReports" attribute;

- if the "PRA" feature is supported, the reported presence reporting area information within the "repPraInfos" attribute;

- the QoS flow usage required of the default QoS flow within the "qosFlowUsage" attribute;

- indication whether the QoS targets of one or more SDFs are not guaranteed or guaranteed again within the "qncReports" attribute;

- user location(s) information within the "userLocationInfo" attribute;

NOTE 3: The SMF encodes both 3GPP and non-3GPP access UE location in the "userLocationInfo" attribute when they are both received from the AMF.

- if the "GroupIdListChange" feature is supported, the Internal Group Identifier(s) of the served UE within the "interGrpIds " attribute;

- if the "SatBackhaulCategoryChg" feature is supported, the satellite backhaul category or non-satellite backhaul and, when the "EnSatBackhaulCatChg" feature is supported, also the dynamic satellite backhaul category, within the "satBackhaulCategory" attribute;

- if the "AMInfluence" feature is supported, the PCF for the UE callback URI and, if received, SBA binding information within the "pcfUeInfo" attribute;

- serving network function identifier within the "servNfId" attribute;

- identifier of the serving network within the "servingNetwork" attribute;

- when the "URSPEnforcement" feature is supported, the URSP rule enforcement information provided by the UE within the "urspEnfInfo" attribute. In this case, the NF service consumer shall also include, if they were not previously provided, the SSC mode within the "sscMode" attribute, the UE requested DNN (if available and different from the selected DNN) within the "ueReqDnn" attribute, and/or if the PDU session is redundant, the RSN and the PDU session pair ID within the "redundantPduSessionInfo" attribute. The NF service consumer shall also provide the "accessType" attribute, if changed compared to the latest reported value;

- if the "EnTSCAC" feature is supported, the BAT offset and the optionally adjusted periodicity within the "batOffsetInfo" attribute;

- when the "EneNA" feature is supported, the list of NWDAF instance IDs used for the PDU Session within the "nwdafInstanceId" and their associated Analytic ID(s) within "nwdafEvents" updated with the new values included within the "nwdafDatas" attribute;

NOTE 4: The NF service consumer provides the complete updated list of NWDAF instance IDs and associated Analytic ID(s) used for the PDU session. If all NWDAF data is deleted an empty list is included.

- for HR-SBO scenario, if the "HR-SBO" feature is supported, the H-SMF may include the HR-SBO support indication within the "hrsboInd" attribute; and

- when the "NetSliceRepl" feature is supported:

- if the NF service consumer reports a change from the initial S-NSSAI of the PDU Session to the Alternative S-NSSAI, the corresponding trigger and the Alternative S-NSSAI for the PDU Session within the "altSliceInfo" attribute; and

- if the NF service consumer reports a change back from the Alternative S-NSSAI to the initial S-NSSAI of the PDU Session, only the corresponding trigger with no additional information.

The NF service consumer may include in "SmPolicyUpdateContextData" data structure the IPv4 address domain identity within the "ipDomain" attribute.

In case of a successful update, "200 OK" response shall be returned. The PCF shall include in the "200 OK" response the representation of the updated policies within the SmPolicyDecision data structure. Detailed procedures related to the provisioning and enforcement of the policy decisions within the SmPolicyDecision data structure are contained in clause 4.2.6.

NOTE 5: An empty SmPolicyDecision data structure is included in the "200 OK" response when the PCF decides not to update policies.

If the PCF received a new list of NWDAF instance IDs used for the PDU Session in "nwdafInstanceId" attribute and their associated Analytic IDs in "nwdafEvents" attribute included within the "nwdafDatas" attribute the PCF may select those NWDAF instances based on this new list as described in 3GPP TS 29.513 [7].

If the "HR-SBO" feature is supported and if the PCF received information related to the HR-SBO support, the PCF may provide the "vplmnOffload" attribute indicating the new/updated/removed Specific Offloading Policy for the VPLMN as described in clause 4.2.4.32.

If errors occur when processing the HTTP POST request, the PCF shall send an HTTP error response as specified in clause 5.7.

If the feature "ES3XX" is supported, and the PCF determines the received HTTP POST request needs to be redirected, the PCF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

If the PCF is, due to incomplete, erroneous or missing information (e.g. QoS, RAT type, subscriber information) not able to provision a policy decision as response to the request for PCC rules by the NF service consumer, the PCF may reject the request and include in an HTTP "400 Bad Request " response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_INITIAL\_PARAMETERS".

If the PCF receives the set of session information which is sent in the message originated due to a trigger being met is incoherent with the previous set of session information for the same session (E.g. trigger met was RAT changed, and the RAT notified is the same as before), the PCF may reject the request and include in an HTTP "400 Bad Request" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_TRIGGER\_EVENT".

If the PCF detects that the packet filters in the request for new PCC rules received from the NF service consumer is covered by the packet filters of outstanding PCC rules that the PCF is provisioning to the NF service consumer, the PCF may reject the request and include in an HTTP "403 Forbidden" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_CONFLICTING\_REQUEST".

If the PCF does not accept one or more of the traffic mapping filters provided by the NF service consumer in an HTTP POST request (e.g. because the PCF does not allow the UE to request enhanced QoS for services not known to the PCF), the PCF shall reject the request and include in an HTTP "403 Forbidden" response message the "cause" attribute of the ProblemDetails data structure set to "ERROR\_TRAFFIC\_MAPPING\_INFO\_REJECTED".

If the NF service consumer receives HTTP response with these codes, the NF service consumer shall reject the PDU session modification that initiated the HTTP Request.

The PCF shall not combine a rejection with provisioning of PCC rule operations in the same HTTP response message.

\* \* \* \* Next changes \* \* \* \*

#### 5.6.3.6 Enumeration: PolicyControlRequestTrigger

Table 5.6.3.6-1: Enumeration PolicyControlRequestTrigger

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| PLMN\_CH | PLMN Change. |  |
| RES\_MO\_RE | A request for resource modification has been received by the NF service consumer. (NOTE) |  |
| AC\_TY\_CH | Access Type Change. It also indicates the addition or removal of Access Type for MA PDU session. |  |
| UE\_IP\_CH | UE IP address change. (NOTE) |  |
| UE\_MAC\_CH | A new UE MAC address is detected or a used UE MAC address is inactive for a specific period. |  |
| AN\_CH\_COR | Access Network Charging Correlation Information. |  |
| US\_RE | The PDU Session or the Monitoring key specific resources consumed by a UE either reached the threshold or needs to be reported for other reasons. | UMC |
| APP\_STA | The start of application traffic has been detected. | ADC |
| APP\_STO | The stop of application traffic has been detected. | ADC |
| AN\_INFO | Access Network Information report. | NetLoc |
| CM\_SES\_FAIL | Credit management session failure. |  |
| PS\_DA\_OFF | The NF service consumer reports when the 3GPP PS Data Off status changes. (NOTE) | 3GPP-PS-Data-Off |
| DEF\_QOS\_CH | Default QoS Change. (NOTE) |  |
| SE\_AMBR\_CH | Session-AMBR Change. (NOTE) |  |
| QOS\_NOTIF | The NF service consumer notify the PCF when receiving notification from RAN that QoS targets of the QoS Flow cannot be guaranteed or can be guaranteed. |  |
| NO\_CREDIT | Out of credit. |  |
| REALLO\_OF\_CREDIT | Reallocation of credit | ReallocationOfCredit |
| PRA\_CH | Change of UE presence in Presence Reporting Area. | PRA |
| SAREA\_CH | Location Change with respect to the Serving Area. |  |
| SCNN\_CH | Location Change with respect to the Serving CN node. |  |
| RE\_TIMEOUT | Indicates the NF service consumer generated the request because there has been a PCC revalidation timeout (i.e. Enforced PCC rule request defined in table 6.1.3.5.-1 of 3GPP TS 23.503 [6]). |  |
| RES\_RELEASE | Indicates that the NF service consumer can inform the PCF of the outcome of the release of resources for those rules that require so. | RAN-NAS-Cause |
| SUCC\_RES\_ALLO | Indicates that the NF service consumer shall inform the PCF of the successful resource allocation for those rules that requires so. |  |
| RAT\_TY\_CH | RAT type change. |  |
| REF\_QOS\_IND\_CH | Reflective QoS indication Change. |  |
| NUM\_OF\_PACKET\_FILTER | Indicates that the NF service consumer shall report the number of supported packet filter for signalled QoS rules. (NOTE) Only applicable to the interworking scenario as defined in Annex B. |  |
| UE\_STATUS\_RESUME | Indicates that the UE's status is resumed. Only applicable to the interworking scenario as defined in Annex B. | PolicyUpdateWhenUESuspends |
| UE\_TZ\_CH | UE Time Zone Change. |  |
| AUTH\_PROF\_CH | Indicates that the DN-AAA authorization profile index has changed. (NOTE) | DN-Authorization |
| TSN\_BRIDGE\_INFO | Indicates the NF service consumer has detected information about new TSC user plane node port(s), and/or new/updated UMIC and/or PMIC(s). | TimeSensitiveNetworking |
| QOS\_MONITORING | Indicates that the NF service consumer notifies the PCF of the QoS Monitoring information. | QosMonitoring |
| SCELL\_CH | Location Change with respect to the Serving Cell. |  |
| USER\_LOCATION\_CH | Indicates that user location has changed, applicable to serving area change and serving cell change. | AggregatedUELocChanges |
| EPS\_FALLBACK | EPS Fallback report is enabled in the NF service consumer. Only applicable to the interworking scenario as defined is Annex B. | EPSFallbackReport |
| MA\_PDU | Indicates that the NF service consumer notifies the PCF of the MA PDU session request. Only applicable to the interworking scenario as defined in Annex B. (NOTE) | ATSSS |
| 5G\_RG\_JOIN | The 5G-RG has joined to an IP Multicast Group. | WWC |
| 5G\_RG\_LEAVE | The 5G-RG has left an IP Multicast Group. | WWC |
| DDN\_FAILURE | Indicates that the NF service consumer requests policies from PCF if it received an event subscription for DDN Failure event. | DDNEventPolicyControl |
| DDN\_DELIVERY\_STATUS | Indicates that the NF service consumer requests policies from PCF if it received an event subscription for DDN Delievery Status event. | DDNEventPolicyControl |
| GROUP\_ID\_LIST\_CHG | UE Internal Group Identifier(s) has changed: the NF service consumer reports that UDM provided list of group Ids has changed. (NOTE) | GroupIdListChange |
| DDN\_FAILURE\_CANCELLATION | Indicates that the event subscription for DDN Failure event is cancelled. | DDNEventPolicyControl2 |
| DDN\_DELIVERY\_STATUS\_CANCELLATION | Indicates that the event subscription for DDD STATUS is cancelled. | DDNEventPolicyControl2 |
| VPLMN\_QOS\_CH | Indicates that the NF service consumer has detected the change of the QoS supported in the VPLMN, the change from the case where the QoS constraints are applicable to the case where the QoS constraints are not applicable (e.g. the UE moves back from the home routed to the non-roaming scenario) or vice versa. (NOTE) | VPLMN-QoS-Control |
| SUCC\_QOS\_UPDATE | Indicates that the NF service consumer notifies the PCF of the successful update of the QoS for MPS.  | MPSforDTS |
| SAT\_CATEGORY\_CHG | Indicates that the SMF has detected a change between different satellite category, or non-satellite backhaul. | SatBackhaulCategoryChg |
| PCF\_UE\_NOTIF\_IND | Indicates the SMF has detected the AMF forwarded the PCF for the UE indication to receive/stop receiving notifications of SM Policy association established/terminated events.(NOTE) | AMInfluence |
| NWDAF\_DATA\_CHG | Indicates that the NWDAF instance IDs used for the PDU session and/or associated Analytics IDs have changed. (NOTE) | EneNA |
| UE\_POL\_CONT\_IND | Indicates that the NF service consumer has received a new UE policy container from the UE in EPC over a PDN connection. Only applicable to the interworking scenario as defined in Annex B. (NOTE) | EpsUrsp |
| URSP\_ENFORCEMENT\_INFO | Indicates that the NF service consumer has detected a report of URSP rule enforcement information. | URSPEnforcement |
| HR\_SBO\_IND\_CHG | Indicates the HR-SBO support indication has changed. (NOTE) | HR-SBO |
| L4S\_SUPP | Indicates whether the ECN marking for L4S support is not available or available again in 5GS. | L4S |
| NET\_SLICE\_REPL | Indicates network slice replacement, i.e., a change between the initial S-NSSAI of the PDU Session and the Alternative S-NSSAI.(NOTE) | NetSliceRepl |
| BAT\_OFFSET\_INFO | Indicates that the NF service consumer has detected the information about the BAT offset and optionally adjusted periodicity. | EnTSCAC |
| NOTE: The NF service consumer always reports to the PCF. |

The PCF may provision the values of policy control request trigger which are not always reported by the NF service consumer as defined in clause 4.2.6.4.

When the NF service consumer detects the corresponding policy control request trigger(s), the NF service consumer shall report the detected trigger(s) to the PCF as defined in clause 4.2.4.1 with the additional information for different independent policy control request triggers as follows:

If the "PLMN\_CH" is provisioned, when the NF service consumer detects a change of the serving network (a PLMN or an SNPN), the NF service consumer shall include the "PLMN\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current identifier of the serving network within the "servingNetwork" attribute.

NOTE 1: Handover between non-equivalent SNPNs, and between SNPN and PLMN is not supported. When the UE is operating in SNPN access mode, the trigger reports changes of equivalent SNPNs.

When the NF service consumer receives the resource modification request from the UE, the NF service consumer shall include the "RES\_MO\_RE" within the "repPolicyCtrlReqTriggers" attribute and the information for requesting the PCC rule as defined in clause 4.2.4.17.

If the "AC\_TY\_CH" is provisioned, when the NF service consumer detects a change of access type, the NF service consumer shall include the "AC\_TY\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current access type within the "accessType" attribute. The RAT type encoded in the "ratType" attribute shall also be provided when applicable to the specific access type. Specific attributes for the EPC interworking case are described in Annex B. If the ATSSS feature is supported, when the NF service consumer detects an access is added or released for MA PDU session, the NF service consumer shall include the added Access Type or released Access type encoded as "accessType" attribute within the AdditionalAccessInfo data structure. The RAT type encoded in the "ratType" attribute shall also be provided within the AdditionalAccessInfo data structure when applicable to the added access type or released access type.

When the NF service consumer detects an IPv4 address and/or an IPv6 prefix is allocated or released, the NF service consumer shall include the "UE\_IP\_CH" within the "repPolicyCtrlReqTriggers" attribute and new allocated UE Ipv4 address within the "ipv4Address" attribute and/or the UE Ipv6 prefix within the "ipv6AddressPrefix" attribute or the released UE Ipv4 address within the "relIpv4Address" attribute and/or the UE Ipv6 prefix within the "relIpv6AddressPrefix" attribute. If the "MultiIpv6AddrPrefix" feature is supported, and if an additional allocated or released IPv6 prefix is detected, the NF service consumer shall include the new allocated UE Ipv6 prefix within the "addIpv6AddrPrefixes" attribute and the released UE Ipv6 prefix within the "addRelIpv6AddrPrefixes" attribute. If the "UnlimitedMultiIpv6Prefix" feature is supported, and if multiple allocated or released IPv6 prefixes are detected, the NF service consumer shall include the new allocated UE Ipv6 prefixes within the "multiIpv6Prefixes" attribute and the released UE Ipv6 prefixes within the "mutliRelIpv6Prefixes" attribute.

When the NF service consumer detects a new UE MAC address or a used UE MAC address is not used any more, the NF service consumer shall include the "UE\_MAC\_CH" within the "repPolicyCtrlReqTriggers" attribute and new detected UE MAC address within the "ueMac" attribute or the not used UE MAC address within the "relUeMac" attribute.

If the "AN\_CH\_COR" is provisioned, when the NF service consumer is provisioned with the PCC rule as defined in clause 4.2.6.5.1, the NF service consumer shall notify the PCF of access network charging identifier associated with the PCC rules as defined in clause 4.2.4.13.

If the "US\_RE" is provisioned, when the NF service consumer receives the usage report from the UPF, the NF service consumer shall notify the PCF of the accumulated usage as defined in clause 4.2.4.10. Applicable to functionality introduced with the UMC feature as described in clause 5.8.

If the "APP\_STA" is provisioned, when the NF service consumer receives the application start report from the UPF, the NF service consumer shall notify the PCF of the application start report as defined in clause 4.2.4.6. Applicable to functionality introduced with the ADC feature as described in clause 5.8.

If the "APP\_STO" is provisioned, when the NF service consumer receives the application stop report from the UPF, the NF service consumer shall notify the PCF of the application stop report as defined in clause 4.2.4.6. Applicable to functionality introduced with the ADC feature as described in clause 5.8.

If the "AN\_INFO" is provisioned, when the NF service consumer receives the reported access network information from the access network, the NF service consumer shall notify the PCF of the access network information as defined in clause 4.2.4.9. Applicable to functionality introduced with the NetLoc feature as described in clause 5.8.

If the "CM\_SES\_FAIL" is provisioned, when the NF service consumer receives a detected transient/permanent failure from the CHF, the NF service consumer shall include the "CM\_SES\_FAIL" within the "repPolicyCtrlReqTriggers" attribute. If the failure does not apply to all PCC Rules, the affected PCC Rules are indicated within the "ruleReports" attribute, with the "ruleStatus" attribute set to value ACTIVE and the "failureCode" attribute set to the corresponding value as reported by the CHF; otherwise if the failure applies to the session, the "creditManageStatus" shall be set to the corresponding value as reported by the CHF.

If the "PS\_DA\_OFF" is provisioned, when the NF service consumer receives a change of 3GPP PS Data Off status from the UE, the NF service consumer shall notify the PCF as defined in clause 4.2.4.8. Applicable to functionality introduced with the 3GPP-PS-Data-Off feature as described in clause 5.8.

When the NF service consumer detects a change of subscribed default QoS, the NF service consumer shall include the "DEF\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new subscribed default QoS within the "subsDefQos" attribute.

When the NF service consumer detects a change of Session-AMBR, the NF service consumer shall include the "SE\_AMBR\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new Session-AMBR within the "subsSessAmbr" attribute.

If the "QOS\_NOTIF" is provisioned, when the NF service consumer receives a notification from access network that QoS targets of the QoS Flow cannot be guaranteed or can be guaranteed again, the NF service consumer shall send the notification as defined in clause 4.2.4.20.

If the "NO\_CREDIT" is provisioned, when the NF service consumer detects the credit for the PCC rule(s) is no longer available, the NF service consumer shall include the "NO\_CREDIT" within the "repPolicyCtrlReqTriggers" attribute, the termination action the NF service consumer applies to the PCC rules as instructed by the CHF within the "finUnitAct" attribute and the affected PCC rules within the "ruleReports" attribute.

When the "ReallocationOfCredit" feature is supported, if the "REALLO\_OF\_CREDIT" is provisioned, when the NF service consumer detects the credit for the PCC rule(s) is reallocated, the NF service consumer shall include the "REALLO\_OF\_CREDIT" within the "repPolicyCtrlReqTriggers" attribute and include the affected PCC rules for which credit has been reallocated after credit was no longer available and the "ruleStatus" attribute set to value ACTIVE within the "ruleReports" attribute.

If the "PRA\_CH" is provisioned, to detect when the UE enters/leaves certain presence reporting areas, the NF service consumer is provisioned the presence reporting area information as defined in clause 4.2.6.5.6. When the NF service consumer receives the presence reporting area information from the serving node, the NF service consumer shall notify the PCF of the reported presence area information as defined in clause 4.2.4.16. This report includes reporting the initial status at the time the request for reports is initiated. Applicable to the functionality introduced by the PRA or ePRA feature as described in clause 5.8.

If the "SAREA\_CH" is provisioned, when the NF service consumer detects a change of serving area (i.e. tracking area, or if the feature "2G3GIWK" is supported routing area), the NF service consumer shall include the "SAREA\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current TAI within the "userLocationInfo" attribute in either the "eutraLocation" or "nrLocation", or the current Routing Area within the "userLocationInfo" attribute in the "utraLocation" attribute when UTRAN access, or in the "geraLocation" attribute when GERAN access, as applicable. Non-3GPP access user location is reported in the "n3gaLocation" attribute when applicable. The attributes used in case of EPC interworking are described in Annex B.

If the "SCNN\_CH" is provisioned, when the NF service consumer detects a change of serving Network Function (i.e. the AMF, ePDG, S-GW or if the feature "2G3GIWK" is supported SGSN), the NF service consumer shall include the "SCNN\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current serving Network Function in the "servNfId" attribute if available. When the serving Network Function is an AMF, the NF service consumer shall include the AMF Network Function Instance Identifier within the "servNfInstId" attribute and the Globally Unique AMF Identifier within the "guami" attribute. The attributes included in case of EPC interworking are described in Annex B.

NOTE 1: In the home-routed roaming case, if the AMF change is unknown to the H-SMF, then the AMF change is not reported.

If the "RE\_TIMEOUT" is provisioned, when the NF service consumer is provisioned with the revalidation time by the PCF, the NF service consumer shall request the policy before the indicated revalidation time is reached as defined in clause 4.2.4.3.

If the "RES\_RELEASE" is provisioned, when the NF service consumer receives the request of PCC rule removal as defined in clause 4.2.6.5.2, the NF service consumer shall report the outcome of resource release as defined in clause 4.2.4.12. Applicable to functionality introduced with the RAN-NAS-Cause feature as described in clause 5.8.

When "SUCC\_RES\_ALLO" is provisioned and PCC rules are provisioned according to clause 4.2.6.5.5, the NF service consumer shall inform the PCF of the successful resource allocation as defined in clause 4.2.4.14.

If the feature "2G3GIWK" is supported, and if the "RAI\_CH" is provisioned, when the NF service consumer detects a change of routing area, the NF service consumer shall include the "RAI\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current RAI within the "userLocationInfo" attribute as described in Annex B.

If the "RAT\_TY\_CH" is provisioned, when the NF service consumer detects a change of the RAT type, the NF service consumer shall include the "RAT\_TY\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current RAT type within the "ratType" attribute. For MA PDU session, the NF service consumer shall include the current RAT type at the SmPolicyUpdateContextData data type level or AdditionalAccessInfo data type level. If the RAT type is provided at the SmPolicyUpdateContextData data type level, the NF service consumer shall also provide the associated access type within the SmPolicyUpdateContextData data structure.

If the "REF\_QOS\_IND\_CH" is provisioned, when the NF service consumer receives a change of reflective QoS indication from the UE, the NF service consumer shall include the "REF\_QOS\_IND\_CH" within the "repPolicyCtrlReqTriggers" attribute and the indication within the "refQosIndication" attribute.

When the NF service consumer receives the number of supported packet filter for signalled QoS rules for the PDU session from the UE during the PDU Session Modification procedure after the first inter-system change from EPS to 5GS for a PDU Session established in EPS and transferred from EPS with N26 interface, the NF service consumer shall include the "NUM\_OF\_PACKET\_FILTER" within the "repPolicyCtrlReqTriggers" attribute and the number of supported packet filter for signalled QoS rules within the "numOfPackFilter" attribute. Only applicable to the interworking scenario as defined in Annex B.

If the "UE\_STATUS\_RESUME" is provisioned, when the NF service consumer detected the UE's status is resumed from suspend state, the NF service consumer shall inform the PCF of the UE status including the "UE\_STATUS\_RESUME" within "repPolicyCtrlReqTriggers" attribute. The PCF shall after this update the NF service consumer with PCC Rules or session rules if necessary. Applicable to functionality introduced with the PolicyUpdateWhenUESuspends feature as described in clause 5.8.

If the "UE\_TZ\_CH" is provisioned, when the NF service consumer detects a change of the UE Time Zone, the NF service consumer shall include the "UE\_TZ\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current UE Time Zone within the "ueTimeZone" attribute.

If the "DN-Authorization" feature is supported, when the NF service consumer detects a change of DN-AAA authorization profile index, the NF service consumer shall include the "AUTH\_PROF\_CH" within the "repPolicyCtrlReqTriggers" attribute and the new DN-AAA authorization profile index within the "authProfIndex" attribute.

If the "TimeSensitiveNetworking" or "TimeSensitiveCommunication" feature is supported and "TSN\_BRIDGE\_INFO" is provisioned, when the NF service consumer detects:

- there is information about new TSC user plane node port(s), e.g. a new manageable Ethernet port, the NF service consumer shall include the "TSN\_BRIDGE\_INFO" within the "repPolicyCtrlReqTriggers" attribute and the updated TSC user plane node information within the "tsnBridgeInfo" attribute; and/or

- the NF service consumer detects a UMIC or PMIC, the NF service consumer shall include the "TSN\_BRIDGE\_INFO" within the "repPolicyCtrlReqTriggers" attribute and the UMIC, if available, within the "tsnBridgeManCont" attribute, and/or the PMIC(s), if available, within the "tsnPortManContDstt" and the "tsnPortManContNwtts" attributes.

NOTE 2: When the NF service consumer detects updated Port Management Information of the NW-TT ports, the NF service consumer includes the PMIC within the "tsnPortManContNwtts" attribute of SmPolicyUpdateContextData data type.

If the "QoSMonitoring" feature and/or the "EnQoSMon" is supported and if the "QOS\_MONITORING" is provisioned, upon receiving the QoS Monitoring report from the UPF, the NF service consumer shall send the QoS monitoring report(s) for the concerned PCC rules to the PCF as defined in clause 4.2.4.24.

If the "SCELL\_CH" is provisioned, when the NF service consumer detects a change of serving cell, the NF service consumer shall include the "SCELL\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current cell Id within the "userLocationInfo" attribute either in the "eutraLocation" attribute when EPC/E-UTRAN access or "nrLocation" attribute when NR access or "geraLocation" attribute when GERAN access or "utraLocation" attribute when UTRAN access, as applicable.

NOTE 3: Location change of serving cell can increase signalling load on multiple interfaces. Hence, it is recommended that any such serving cell changes event trigger subscription is only applied for a limited number of subscribers.

If the "AggregatedUELocChanges" feature is supported and the "USER\_LOCATION\_CH" is provisioned, when the NF service consumer detects a change of serving cell and/or a change of serving area (i.e. tracking area), the NF service consumer shall include the "USER\_LOCATION\_CH" within the "repPolicyCtrlReqTriggers" attribute and the current serving area and/or cell Id within the "userLocationInfo" attribute in the "eutraLocation" attribute or "nrLocation" attribute or "geraLocation" attribute or "utraLocation" attribute, as applicable.

NOTE 4: The access network can be configured to report location changes only when transmission resources are established in the radio access network.

If the "EPSFallbackReport" feature is supported and the "EPS\_FALLBACK" is provisioned and there is a PCC rule installed that required the reporting, when the NF service consumer receives a PDU session modification response indicating the rejection of the establishment of the QoS flow with 5QI=1, the NF service consumer shall notify the PCF of EPS fallback as defined in clause B.3.4.6.

When the NF service consumer receives the MA PDU Request Indication or MA PDU Network-Upgrade Allowed Indication and ATSSS Capability from the UE during the PDU Session Modification procedure after the first inter-system change from EPS to 5GS for a PDU Session established in EPS and transferred from EPS with N26 interface, the NF service consumer shall include the "MA\_PDU" within the "repPolicyCtrlReqTriggers" attribute, the MA PDU session Indication in the "maPduInd" attribute, the ATSSS capability of the MA PDU session within the "atsssCapab" attribute. Only applicable to the interworking scenario as defined in Annex B.

If the "WWC" feature is supported and "5G\_RG\_JOIN" is provisioned and when the NF service consumer detects a 5G-RG has joined to an IP Multicast Group, the NF service consumer shall include the "5G\_RG\_JOIN" within the "repPolicyCtrlReqTriggers" attribute and the IP multicast addressing information within the "mulAddrInfos" attribute.

If the "WWC" feature is supported and "5G\_RG\_LEAVE" is provisioned and when the NF service consumer detects a 5G-RG has left an IP Multicast Group, the NF service consumer shall include the "5G\_RG\_LEAVE" within the "repPolicyCtrlReqTriggers" attribute and the IP multicast addressing information within the "mulAddrInfos" attribute.

If "DDNEventPolicyControl" feature is supported, and if "DDN\_FAILURE" is provisioned, when the NF service consumer receives an event subscription for DDN Failure event including the traffic descriptors, the NF service consumer shall include the "DDN\_FAILURE" within the "repPolicyCtrlReqTriggers" attribute and traffic descriptor(s) within the "trafficDescriptors" attribute.

If "DDNEventPolicyControl" feature is supported, and if "DDN\_DELIVERY\_STATUS" is provisioned, when the NF service consumer receives an event subscription for DDD Status event including the traffic descriptors, the NF service consumer shall include the "DDN\_DELIVERY\_STATUS" within the "repPolicyCtrlReqTriggers" attribute and traffic descriptor(s) within the "trafficDescriptors" attribute and the requested type(s) of notifications (notifications about downlink packets being buffered, and/or discarded).

If "GroupIdListChange" feature is supported, when the SMF receives the updated Internal Group Identifier(s) from the UDM, the SMF shall include the "GROUP\_ID\_LIST\_CHG" within the "repPolicyCtrlReqTriggers" attribute and the Internal Group Identifier(s) of the served UE within the "interGrpIds" attribute.

If "DDNEventPolicyControl2" feature is supported, and if "DDN\_FAILURE\_CANCELLATION" is provisioned, when the SMF receives a cancellation of event subscription for DDN Failure event, the SMF shall include the "DDN\_FAILURE\_CANCELLATION" within the "repPolicyCtrlReqTriggers" attribute and the PCC rule identifier of the PCC rule which is used for traffic detection of DDN failure event within the "pccRuleId" attribute.

If "DDNEventPolicyControl2" feature is supported, and if "DDN\_DELIVERY\_STATUS\_CANCELLATION" is provisioned, when the SMF receives a cancellation of event subscription for DDD Status event, the SMF shall include the "DDN\_DELIVERY\_STATUS\_CANCELLATION" within the "repPolicyCtrlReqTriggers" attribute and the PCC rule identifier of the PCC rule which is used for traffic detection of DDD status event within the "pccRuleId" attribute.

When the "VPLMN-QoS-Control" feature is supported and if the NF service consumer receives a new QoS value supported in the VPLMN, the NF service consumer shall include the "VPLMN\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the received QoS constraints within the "vplmnQos" attribute; if the NF service consumer detects that the UE moves from a VPLMN with QoS constraints to the HPLMN or to a VPLMN without QoS constraints, the NF service consumer shall include the "VPLMN\_QOS\_CH" within the "repPolicyCtrlReqTriggers" attribute and the "vplmnQosNotApp" attribute set to true.

If the "MPSforDTS" feature is supported, and if "SUCC\_QOS\_UPDATE" is provisioned, when the resources for the MPS for DTS invocation/revocation are successfully allocated for MPS for DTS, the NF service consumer shall include the "SUCC\_QOS\_UPDATE" within the "repPolicyCtrlReqTriggers" attribute.

If "SatBackhaulCategoryChg" is supported, and if "SAT\_CATEGORY\_CHG" is provisioned, the NF service consumer notifies the PCF when there is a change of the backhaul which is used for the PDU session between different satellite backhaul categories or between a satellite backhaul and a non-satellite backhaul. When the "EnSatBackhaulCatChg" feature is supported, the different dynamic satellite backhaul categories may also be reported. The NF service consumer shall include the satellite backhaul category or dynamic satellite backhaul category or non-satellite backhaul within the "satBackhaulCategory" attribute together with the "SAT\_CATEGORY\_CHG" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute.

NOTE 5: Only a single backhaul category can be indicated.

If the "AMInfluence" feature is supported, the NF service consumer notifies the PCF about the PCF for the UE request to be notified of PDU session established/terminated events and if applicable, about the PCF for the UE binding information in the initial reporting and when the PCF for the UE changes by forwarding within the "pcfUeInfo" attribute, the received PCF for the UE callback URI within the "callbackUri" attribute and, if received, SBA binding information within the "bindingInfo" attribute, together with the "PCF\_UE\_NOTIF\_IND" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute. The NF service consumer notifies the PCF about the PCF for the UE request to stop being notified about the PDU session established/terminated events by sending the "pcfUeInfo" attribute set to NULL together with the "PCF\_UE\_NOTIF\_IND" policy control request trigger within the "repPolicyCtrlReqTriggers" attribute.

If "EneNA" feature is supported, the NF service consumer notifies the PCF when there is a change in the list of NWDAF Instance IDs used for the PDU Session and/or associated Analytics IDs. The NF service consumer shall include within the "nwdafDatas" attribute the list of NWDAF instance IDs used for the PDU Session within the "nwdafInstanceId" attribute and their associated Analytic ID(s) within the "nwdafEvents" attribute, and the "NWDAF\_DATA\_CHG" within the "repPolicyCtrlReqTriggers" attribute.

If the "EpsUrsp" feature is supported, when the NF service consumer receives a new UE policy container from the UE in EPC over a PDN connection, the NF service consumer shall include the "UE\_POL\_CONT\_IND" within the "repPolicyCtrlReqTriggers" attribute and the received UE policy container within the "uePolCont" attribute. Only applicable to the interworking scenario as defined in Annex B.

If the "URSPEnforcement" feature is supported and "URSP\_ENFORCEMENT\_INFO" is provisioned, when the NF service consumer detects the UE includes URSP enforcement information in the PDU session modification request, the NF service consumer shall include the "URSP\_ENFORCEMENT\_INFO" within the "repPolicyCtrlReqTriggers" attribute and shall forward the received information from the UE within the "urspEnfInfo" attribute. In this case, the NF service consumer shall also include, if they were not previously provided, the SSC mode within the "sscMode" attribute, the UE requested DNN (if available and different from the selected DNN) within the "ueReqDnn" attribute, and if the PDU session is redundant, the RSN and the PDU session pair ID within the "redundantPduSessionInfo" attribute. The NF service consumer shall also include the access type within the "accessType" attribute, if changed compared with the latest provided value.

If "HR-SBO" feature is supported, the NF service consumer notifies the PCF when the HR-SBO support indication has changed. The NF service consumer shall include the "hrsboInd" attribute and set it to "true" if the HR-SBO is supported, otherwise set it to "false", and the "HR\_SBO\_IND\_CHG" within the "repPolicyCtrlReqTriggers" attribute.

When the "L4S" feature is supported and the "L4S\_SUPP" is provisioned, when the PCC rules are provisioned with the explicit indication of ECN marking for L4S according to clause 4.2.6.21.3, the NF service consumer shall inform the PCF of the unavailability or availability again in 5GS for ECN marking for L4S support as defined in clause 4.2.6.2.21.

If "NetSliceRepl" feature is supported, the NF service consumer notifies the PCF about network slice replacement, i.e., when there is a change between the initial S-NSSAI of the PDU Session and the Alternative S-NSSAI by including the "NET\_SLICE\_REPL" PCRT within the "repPolicyCtrlReqTriggers" attribute. When the NF service consumer reports a change from the initial S-NSSAI of the PDU Session to the Alternative S-NSSAI, it shall additionally include the Alternative S-NSSAI within the "altSliceInfo" attribute.

If "EnTSCAC" feature is supported, and if "BAT\_OFFSET\_INFO" is provisioned, when the SMF receives the notification on BAT offset and optionally adjusted periodicity, the SMF shall include the "BAT\_OFFSET\_INFO" within the "repPolicyCtrlReqTriggers" attribute and the BAT offset and optionally adjusted periodicity within the "batOffsetInfo" attribute.

Editor’s Note: It is FFS how the bat offset is indicated and reported per PCC rule.

\* \* \* \* Next changes \* \* \* \*

## 5.8 Feature negotiation

The optional features in table 5.8-1 are defined for the Npcf\_SMPolicyControl API. They shall be negotiated using the extensibility mechanism defined in clause 6.6 of 3GPP TS 29.500 [4].

Table 5.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | TSC | This feature indicates support for traffic steering control in the (S)Gi-LAN, steering the 5G-LAN type of services or routing of the user traffic to a local Data Network identified by the DNAI per AF request. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.6. |
| 2 | ResShare | This feature indicates the support of service data flows that share resources. If the NF service consumer supports this feature, the PCF shall behave as described in clause 4.2.6.2.8. |
| 3 | 3GPP-PS-Data-Off | This feature indicates the support of 3GPP PS Data off status change reporting. |
| 4 | ADC | This feature indicates the support of application detection and control. |
| 5 | UMC | Indicates that the usage monitoring control is supported. |
| 6 | NetLoc | This feature indicates the support of the Access Network Information Reporting for 5GS. |
| 7 | RAN-NAS-Cause | This feature indicates the support for the detailed release cause code information from the access network.(NOTE) |
| 8 | ProvAFsignalFlow | This feature indicates support for the feature of IMS Restoration as described in clause 4.2.3.17. If NF service consumer supports this feature the PCF may provision AF signalling IP flow information. |
| 9 | PCSCF-Restoration-Enhancement | This feature indicates support of P-CSCF Restoration Enhancement. It is used for the NF service consumer to indicate if it supports P-CSCF Restoration Enhancement. |
| 10 | PRA | This feature indicates the support of presence reporting area change reporting. The support of the update of a UE Dedicated Presence Reporting Area is unspecified. |
| 11 | RuleVersioning | This feature indicates the support of PCC rule versioning as defined in clause 4.2.6.2.14. |
| 12 | SponsoredConnectivity | This feature indicates support for sponsored data connectivity feature. If the NF service consumer supports this feature, the PCF may authorize sponsored data connectivity to the subscriber. |
| 13 | RAN-Support-Info | This feature indicates the support of maximum packet loss rate value(s) for uplink and/or downlink voice service data flow(s). |
| 14 | PolicyUpdateWhenUESuspends | This feature indicates the support of report when the UE is suspended and then resumed from suspend state. Only applicable to the interworking scenario as defined in Annex B. |
| 15 | AccessTypeCondition | This feature indicates the support of access type conditioned authorized Session-AMBR as defined in clause 4.2.6.3.2.4. |
| 16 | MultiIpv6AddrPrefix | This feature indicates the support of additional new/removed (up to two) Ipv6 address prefixes reporting. |
| 17 | SessionRuleErrorHandling | This feature indicates the support of session rule error handling. |
| 18 | AF\_Charging\_Identifier | This feature indicates the support of long character strings as charging identifiers. |
| 19 | ATSSS | This feature indicates the support of the access traffic switching, steering and splitting functionality as defined in clauses 4.2.6.2.17 and 4.2.6.3.4. |
| 20 | PendingTransaction | This feature indicates support for the race condition handling as defined in 3GPP TS 29.513 [7]. |
| 21 | URLLC | This feature indicates support of Ultra-Reliable Low-Latency Communication (URLLC) requirements, i.e. AF application relocation acknowledgement requirement and UE address(es) preservation. The TSC feature shall be supported in order to support this feature. |
| 22 | MacAddressRange | Indicates the support of a set of MAC addresses with a specific range in the traffic filter. |
| 23 | WWC | Indicates support of wireless and wireline convergence access as defined in annex C. |
| 24 | QosMonitoring | Indicates support of QoS monitoring as defined in clause 4.2.3.25 and 4.2.4.24. Reporting of monitoring data applies to packet delay information when only this feature is supported. |
| 25 | AuthorizationWithRequiredQoS | Indicates support of policy authorization for the AF session with required QoS as defined in clause 4.2.3.22. |
| 26 | EnhancedBackgroundDataTransfer | Indicates the support of applying the Background Data Transfer Policy to a future PDU session. |
| 27 | DN-Authorization | This feature indicates the support of DN-AAA authorization data for policy control. |
| 28 | PDUSessionRelCause | Indicates the support of "PS\_TO\_CS\_HO" PDU session release cause. |
| 29 | SamePcf | This feature indicates the support of same PCF selection for the parameter's combination. |
| 30 | ADCmultiRedirection | This feature indicates support for multiple redirection information in application detection and control. It requires the support of ADC feature. |
| 31 | RespBasedSessionRel | Indicates support of handling PDU session termination functionality as defined in clause 4.2.4.22. |
| 32 | TimeSensitiveNetworking | Indicates that the 5G System is integrated within the external network as a TSN bridge. |
| 33 | EMDBV | This feature indicates the support of the ExtMaxDataBurstVol data type defined in 3GPP TS 29.571 [11]. The use of this data type is specified in clause 4.2.2.1. |
| 34 | DNNSelectionMode | This feature indicates the support of DNN selection mode. |
| 35 | EPSFallbackReport | This feature indicates the support of the report of EPS Fallback as defined in clauses B.3.3.2 and B.3.4.6. |
| 36 | PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule as defined in clause 4.2.3.26 and 4.2.4.26. |
| 37 | DDNEventPolicyControl | This feature indicates the support for policy control in the case of DDN Failure and Delivery Status events as defined in clause 4.2.4.27. |
| 38 | ReallocationOfCredit | This feature indicates the support of notifications of reallocation of credit. |
| 39 | BDTPolicyRenegotiation | This feature indicates the support of the BDT policy re-negotiation. |
| 40 | ExtPolicyDecisionErrorHandling | This feature indicates the support of the error report of a faulty SM policy decision parameter as defined in clause 4.2.3.26 and 4.2.4.26. It requires the support of PolicyDecisionErrorHandling feature. |
| 41 | ImmediateTermination | This feature indicates the support of the termination the PDU session when the NF service consumer cannot ensure the UE, RAN, AMF, or UPF can revert to the status before the PDU session modification occurred, as defined in clause 4.2.4.21. |
| 42 | AggregatedUELocChanges | This feature indicates the support of notifications of serving area (i.e. tracking area) and/or serving cell changes. |
| 43 | ES3XX | Extended Support for 3xx redirections. This feature indicates the support of redirection for any service operation, according to Stateless NF procedures as specified in clauses 6.5.3.2 and 6.5.3.3 of 3GPP TS 29.500 [4] and according to HTTP redirection principles for indirect communication, as specified in clause 6.10.9 of 3GPP TS 29.500 [4].  |
| 44 | GroupIdListChange | This feature indicates the support for the notification of changes in the list of internal group identifiers. |
| 45 | DisableUENotification | Indicates the support of disabling QoS flow parameters signalling to the UE when the SMF is notified by the NG-RAN of changes in the fulfilled QoS situation. This feature requires that the AuthorizationWithRequiredQoS featute is also supported. |
| 46 | OfflineChOnly | This feature enables the PCF to signal the "PDU Session with offline charging only" indication as defined in clause 4.2.2.3.3. |
| 47 | Dual-Connectivity-redundant-UP-paths | Indicates the support of policy authorization of end to end redundant user plane path using dual connectivity as described in clause 4.2.2.20. |
| 48 | DDNEventPolicyControl2 | This feature indicates the support for the policy control removal in the case of DDN Failure and/or Delivery Status event(s) is cancelled as defined in clause 4.2.4.27. The DDNEventPolicyControl feature shall be supported in order to support this feature. |
| 49 | VPLMN-QoS-Control | Indicates the support of QoS constraints from the VPLMN for the derivation of the authorized Session-AMBR and authorized default QoS. |
| 50 | 2G3GIWK | This feature indicates the support of GERAN and UTRAN access over N7 interface. |
| 51 | TimeSensitiveCommunication | Indicates that the 5G System is integrated within the external network as a TSC user plane node to enable the Time Sensitive Communications and Time Synchronization. This feature requires that the TimeSensitiveNetworking feature is also supported. |
| 52 | AF\_latency | This feature indicates the support of Edge relocation considering user plane latency. This feature requires that the TSC feature is also supported. |
| 53 | SatBackhaulCategoryChg | This feature indicates the support of notification of a change between different satellite backhaul categories, or between satellite backhaul and non-satellite backhaul. |
| 54 | CHFsetSupport | Indicates the support of CHF redundancy and failover mechanisms based on CHF instance availability within a CHF Set, as described in clause 4.2.2.3.1. |
| 55 | EnATSSS | Indicates the support of ATSSS enhancement. It requires the support of ATSSS feature. |
| 56 | MPSforDTS | Indicates support of the MPSfor DTS feature as described in clause 4.2.6.2.12.4. |
| 57 | RoutingInfoRemoval | Indicates the support of the removal of the "routeToLocs" attribute from the TrafficControlData instance. |
| 58 | ePRA | This feature indicates the support of presence reporting area change reporting. It additionally supports the update of the elements of a UE Dedicated Presence Reporting Area by the full replacement of the previously provided one comparing with the PRA feature.  |
| 59 | AMInfluence | Indicates the support of the delivery of the PCF for the UE request to be notified by the PCF for the PDU session about PDU session established/terminated events. |
| 60 | PvsSupport | This feature indicates the support of SNPN UE Remote Provisioning via User Plane as described in clause 4.2.2.21. |
| 61 | EneNA | This feature indicates the support of NWDAF data reporting. |
| 62 | BIUMR | This feature bit indicates whether the NF Service Consumer (e.g. SMF) and PCF supports Binding Indication Update for multiple resource contexts specified in clauses 6.12.1 and 5.2.3.2.6 of 3GPP TS 29.500 [4]. |
| 63 | EASIPreplacement | This feature indicates the support of EAS IP replacement. This feature requires that the TSC feature is also supported. |
| 64 | ExposureToEAS | This feature indicates the support of exposure of QoS monitoring results to local AF. This feature requires that QosMonitoring feature is also supported. |
| 65 | SimultConnectivity | This feature indicates the support of temporary simultaneously connectivity at edge relocation. This feature requires that the TSC feature is also supported.  |
| 66 | SGWRest | This feature indicates the support of SGW Restoration procedures. Only applicable to the interworking scenario as defined in Annex B. |
| 67 | ReleaseToReactivate | This feature indicates that the PCF can request the SMF for reactivation of a PDU session based on an SM Policy Association release cause. |
| 68 | EASDiscovery | This feature indicates the support of EAS (re)discovery. |
| 69 | AccNetChargId\_String | This feature indicates the support of long character strings as access network charging identifier. |
| 70 | WLAN\_Location | This feature indicates the support of the report of the WLAN location information received from the ePDG/EPC, if available. It is only applicable to EPS interworking scenarios as specified in Annex B. |
| 71 | PackFiltAllocPrecedence | This feature indicates the support of the control of the maximum number of packet filters in the EPS network in the EPS interworking scenarios as described in Annex B. |
| 72 | SatBackhaulCategoryChg\_v2 | This feature indicates the support of the indication of satellite backhaul categories, or the indication of non-satellite backhaul during the response to the update notify request. |
| 73 | PacketDelayFailureReport | Indicates the support of packet delay failure report as part of QoS Monitoring procedures. This feature requires that QosMonitoring feature is supported. |
| 74 | AltQoSProfilesSupportReport | This feature indicates the support of the report of whether Alternative QoS parameters are supported by NG-RAN. This feature requires that AuthorizationWithRequiredQoS feature is also supported. |
| 75 | Ext2PolicyDecisionErrorHandling | This feature indicates the support of the error report of the policy decision and/or condition data which is not referred by any PCC rule or session rule when no PCC rules and no session rules are provided and the handling of partial errors.It requires the support of ExtPolicyDecisionErrorHandling feature. |
| 76 | UEUnreachable | This feature indicates the support for the reporting of UE temporarily unavailable. |
| 77 | EnTSCAC | Indicates the support of extensions to TSCAC and the RAN feedback for BAT offset and adjusted periodicity.This feature requires that TimeSensitiveCommunication feature is also supported. |
| 78 | MTU\_Size | This feature indicates the support of the report of the MTU size of the device side port. This feature requires that the TimeSensitiveCommunication feature is also supported. |
| 79 | EnSatBackhaulCatChg | This feature indicates the support of notification of dynamic satellite backhaul categories.It requires the support of SatBackhaulCategoryChg and SatBackhaulCategoryChg\_v2 features. |
| 80 | SFC | This feature indicates support for application function influence on service function chaining(s).It requires the support of TSC feature. |
| 81 | EpsUrsp | This feature indicates the support of URSP provisioning in EPS. Only applicable to the interworking scenario as defined in Annex B. |
| 82 | CommonEASDNAI | This feature controls the support of the common EAS/DNAI selection. It requires the support of TSC feature. |
| 83 | UnlimitedMultiIpv6Prefix | This feature indicates the support of multiple Ipv6 address prefixes reporting. |
| 84 | NscSupportedFeatures | This feature indicates the support of provisioning of the Network Function Service Consumer features supported in Nsmf\_EventExposure service as described in 3GPP TS 29.508 [12]. |
| 85 | URSPEnforcement | This feature indicates the support of awareness of URSP rule enforcement |
| 86 | VBCforIMS | This feature indicates the support of provisioning of the caller and callee informations in volume based charging for IMS as defined in clause A.16 of 3GPP TS 29.214 [18] (replacing PCRF with PCF). |
| 87 | ExposureToTSC | This feature indicates the support of the direct event notification of TSC management information from the UPF to the TSCTSF or TSN AF in 5GC.This feature requires that TimeSensitiveCommunication feature is also supported. |
| 88 | NetSliceRepl | This feature indicates the support of the network slice replacement functionality introduced in this specification as part of the end-to-end network slicing functionality.The following functionalities are supported:- Support the reporting of the network slice replacement information to the PCF. |
| 89 | SessQoSModEnforcementFailure | This feature indicates the support of the report PDU session modification failure because the enforcement of the default QoS modification or session-AMBR modification of the active session rule failed.  |
| 90 | HR-SBO | This feature indicates the support of VPLMN specific Offloading policy in Home Routed deployments with Session Breakout (HR-SBO). |
| 91 | EnATSSS\_v2 | Indicates the support of ATSSS enhancements which includes REDUNDANT steering mode, MPQUIC steering functionality and MA PDU session interworking enhancements. It requires the support of the EnATSSS features. |
| 92 | NetSliceUsageCtrl | This feature indicates the support of the network slice usage control functionality introduced in this specification as part of the end-to-end network slicing functionality.The following functionalities are supported:- Support the provisioning by the PCF of the network slice usage control information (e.g., slice PDU session inactivity timer value). |
| 93 | VPLMN-5QIPrioLevel | Indicates the support of the indication of the VPLMN supported 5QI priority level when the required 5QI Priority Level is different from the standardized Default Priority Level value in the QoS characteristics Table 5.7.4-1 in 3GPP TS 23.501 [2].This feature requires that VPLMN-QoS-Control feature is also supported. |
| 94 | PDUSetHandling | This feature indicates the support of PDU Set handling. This feature may be used for eXtended Reality (XR) and interactive media services. |
| 95 | RTLatency | This feature indicates the support of Round-Trip latency. This feature may be used for eXtended Reality (XR) and interactive media services |
| 96 | EnQoSMon | This feature indicates the support of enhanced QoS monitoring functionality, i.e. the report of the congestion information, and/or, the data rate information monitoring.This feature requires that QosMonitoring feature is supported. |
| 97 | PowerSaving | This feature indicates the PCC support for UE Power Saving management.The following functionalities are supported:- Policy provisioning of Periodicity and N6 Traffic Parameters to be measured.- End of Data Burst Handling.. |
| 98 | L4S | This feature indicates the support of the PCF indication of ECN marking for L4S support. |
| 99 | UPEAS | This feature indicates the support of UPF enhancements for exposure related to the identification of QoS monitoring event exposure subscription. |
| NOTE: 5GS and EPS release cause code information is supported. The EPS release cause code information from the access network is only applicable to EPS interworking scenarios as specified in Annex B. |

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