



Service Configuration Objects

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diameter2 Configuration Objects

RequestReject

RequestReject service configuration can be used to send an error code to reject a session during initial attach or update when certain condition (such as, APN-RAT combination) is met.



Note The RequestReject service configuration functionality remains the same whether the policy configuration is CRD based or not.

For explanation purposes, CRD based functionality is described in this section.

This configuration has two attributes, ErrorCode and IsExperimentalErrorCode and values to these two attributes gets populated using result column of STG (output columns of CRD).



Note Error-Code is a Number type column and IsExperimentalErrorCode is a Boolean type column.

CRD table gets evaluated with retrievers/request bindings (such as, APN, RAT-TYPE, Cmd-Code, application-id, Request-Type) done at CRD level and gives ErrorCode and IsExperimentalErrorCode as

derived output. Based on this ErrorCode, CPS sends the response message. If no Error-Code is derived, then CPS behaves normally.

CPS logs a counter for each request rejection. For this a new statistics, `<InterfaceName>_<RequestType>_policy_driven_rejection_<ResultCode>` has been added.

Table 1: RequestReject Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Error Code	<p>Value of this field is pulled from the CRD output column which is of type Number (need to configure pull value from column to map to a result column of the CRD table), which represents the error code that needs to be sent in response.</p> <p>Default value of Error Code is 0.</p> <p>Note If application detects an error and decides to reject the request, the Error Code value configured in the service configuration object takes precedence over any other Result-Code that the application would have normally sent (for example, DIAMETER_UNKNOWN_SESSION_ID (5002), DIAMETER_PENDING_TRANSACTION (4144)).</p>
Is Experimental Error Code	<p>Value of this field is pulled from the CRD output column which is of type Boolean (need to configure pull value from column to map to a result column of the CRD table), which represents how CPS has to send the Error Code in response either through Result-Code AVP or 'Experimental-Result-Code' grouped AVP.</p> <p>Default value is false that means CPS sends an error code in response through Result-Code AVP.</p>

ResetDiameterSession

ResetDiameterSession service configuration is used to release the primary Gx session of the subscriber when primary Gx session has released all the other secondary sessions gracefully.

Table 2: ResetDiameterSession Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Protocol	<p>Currently, GX_TGPP is the only protocol supported.</p> <p>Note You can configure other interfaces but they are not supported by CPS.</p>

Parameter	Description
Release Cause	Reason for aborting Gx session. Default value is UNSPECIFIED_REASON(0). The following release causes are supported: <ul style="list-style-type: none"> • Default: UNSPECIFIED_REASON(0) • UE_SUBSCRIPTION_REASON(1) • INSUFFICIENT_SERVER_RESOURCES(2) • IP_CAN_SESSION_TERMINATION(3) • UE_IP_ADDRESS_RELEASE(4)

Gx Service Configuration Objects

ActionBasedOnGxEventTrigger

The ActionBasedOnGxEventTrigger service configuration object allows CPS to make policy decisions based on the following event triggers received over Gx:

- OUT_OF_CREDIT
- REALLOCATION_OF_CREDIT
- CREDIT_MANAGEMENT_SESSION_FAILURE
- CISCO_EVENT_TRIGGER

Table 3: ActionBasedOnGxEventTrigger Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	

Parameter	Description
Event Trigger Stg	<p>StgNameReferencePair:</p> <ul style="list-style-type: none"> • Stg Name (Optional): This can be left blank • Stg Reference (Mandatory): This is the reference to the CRD table • List Of Input Column Avp Pairs (Mandatory): Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG. <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP that is used as input for CRD table evaluation. Supported values are Cisco-CC-Failure-Type, Charging-Rule-Name, and Rule-Failure-Code. • Column: The reference to the CRD column for the input AVP. • List Of Output Column Avp Pairs (Mandatory): Defines the mapping between the AVP Names and the output columns defined in the selected STG. These mappings indicate how the output columns' values are mapped to AVPs after the CRD is evaluated. <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP to which the value of the output column is mapped. Supported values are Remove-Rx-Rule, Terminate-Session, and Reinitiate-Session. • Column: The reference to the CRD column for the output AVP.

ActionOnDefaultBearerQoSChange

Table 4: RxAppQoSInformation Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Collapse Dedicated Bearer	If this value is set to true, then on Default Bearer QoS uplift, a check is done to see if any of the existing dedicated bearers have the same QoS as the uplifted QoS (specifically same QCI and ARP). CPS then installs those rules and flows on the default bearer associated with existing dedicated bearer. This is due to the fact that PGW removes the dedicated bearer when QCI and ARP matches with the default bearer. With the removal of the dedicated bearer all the flows and rules associated with that bearers are removed.
Evaluate Static Rules	Reserved for future use.
Evaluate QoS Group Rules	Reserved for future use.

ADTMAttributeStagePriority

ADTMAttributeStagePriority configuration object is used to provide stage and priority values for the Active Traffic Management (ADTM) attribute.

The following table describes the service configuration parameters:

Table 5: ADTMAttributeStagePriority Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
Input Column Binding (List)	<p>Input parameters in terms of CRD column name and mapped AVP Code.</p> <p>ColumnAndAvpPair</p> <ul style="list-style-type: none"> • Avp Name: Supported custom input AVP names are: <ul style="list-style-type: none"> • Message: This represents the incoming or outgoing message type. Supported values are CCR-I, CCA-I, GX-RAR and RX-AAR. • APNString: This represents the existing active APNs for the subscriber. Various names are separated by colon in an alphabetical order. For example, Hotspot:IMS:SOS are in alphabetical order. • APNCount: APN count is the total count of existing active APNs for the subscriber. • Column: The key column in the STG that corresponds to the specified AVP.
Priority Level	<p>CRD table output column having the priority value. Value can be any positive integer. 0 is an invalid value.</p> <p>The maximum value is based on the bit length configured under Attribute Encode Table in Policy Builder. Lesser the number higher the priority.</p> <p>There is no default value.</p>
Stage	<p>CRD table output column having Stage column value. These is the stage column valid value present in Stage table under Attribute Encoding Table in Policy Builder.</p> <p>Valid value is any string.</p>

ADTMIMSServiceAction

ADTMIMSServiceAction configuration object is used to define IMS service action.

The following table describes the service configuration parameters:

Table 6: ADTMIMSServiceAction Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
Input Column Binding (List)	<p>Input parameters in terms of CRD column name and mapped AVP Code.</p> <p>ColumnAndAvpPair</p> <ul style="list-style-type: none"> • Avp Name: Supported custom input AVP names are: <ul style="list-style-type: none"> • Stage: Stage value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the stage of the incoming call which leads to deletion or pause of the existing bearer. • Priority: Priority value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteLogicalApn: APN value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the APN priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteFrontEndId: Front End Id value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the front end ID of the incoming call which leads to deletion or pause of the existing bearer. • MPS-Identifier: MPS identifier of the existing Rx session. • Reservation-Priority: Reservation priority of the existing Rx session. • MCPTT-Identifier: MCPTT identifier of the existing Rx session. • Media-Type: Media Type of the existing Rx session. • Column: The key column in the STG that corresponds to the specified AVP.

Parameter	Description
Priority Level	<p>CRD table output column having the priority value. Value can be any positive integer. 0 is an invalid value.</p> <p>The maximum value is based on the bit length configured under Attribute Encode Table in Policy Builder. Lesser the number higher the priority.</p> <p>There is no default value.</p>
Action	<p>CRD table output column for the action value. Valid values are DELETE and PAUSE.</p> <p>Configuring DELETE results in removal of the rules from gateway and termination on Rx.</p> <p>Currently, PAUSE is not supported for IMS service.</p> <p>There is no default value.</p>

ADTMMogServiceAction

ADTMMogServiceAction configuration object is used to define MOG service action.

The following table describes the service configuration parameters:

Table 7: ADTMMogServiceAction Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.

Parameter	Description
Input Column Binding (List)	<p>Input parameters in terms of CRD column name and mapped AVP Code.</p> <p>ColumnAndAvpPair</p> <ul style="list-style-type: none"> • Avp Name: Supported input AVP names are: <ul style="list-style-type: none"> • Stage: Stage value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the stage of the incoming call which leads to deletion or pause of the existing bearer. • Priority: Priority value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteLogicalApn: APN value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the APN priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteFrontEndId: Front End Id value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the front end ID of the incoming call which leads to deletion or pause of the existing bearer. • Service-Info-Status: Service Info Status of the existing Rx session. • Sponsor-Identity: Sponsor Identity of the existing Rx session. • DPCC-Name: DPCC Name of the existing Rx session. • DPCC-Value: DPCC Value of the existing Rx session. • Intention: Intent of the existing Rx session. • Media-Type: Media Type of the existing Rx session. • Column: The key column in the STG that corresponds to the specified AVP.
Priority Level	<p>CRD table output column having the priority value. Value can be any positive integer. 0 is an invalid value.</p> <p>The maximum value is based on the bit length configured under Attribute Encode Table in Policy Builder. Lesser the number higher the priority.</p> <p>There is no default value.</p>

Parameter	Description
Action	<p>CRD table output column for the action value. Valid values are DELETE and PAUSE.</p> <p>Configuring DELETE results in rule removal or QoS reversal and termination on Rx</p> <p>Configuring PAUSE results in rule removal or QoS reversal at gateway but no termination on Rx. The rules are re-installed or QoS is re-installed when the PAUSE condition is gone.</p> <p>There is no default value.</p>

ADTMSDServiceAction

ADTMSDServiceAction configuration object is used to define TDF Sd service action.

The following table describes the service configuration parameters:

Table 8: ADTMSDServiceAction Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.

Parameter	Description
Input Column Binding (List)	<p>Input parameters in terms of CRD column name and mapped AVP Code.</p> <p>ColumnAndAvpPair</p> <ul style="list-style-type: none"> • Avp Name: Supported custom input AVP names are: <ul style="list-style-type: none"> • Stage: Stage value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the stage of the incoming call which leads to deletion or pause of the existing bearer. • Priority: Priority value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteLogicalApn: APN value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the APN priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteFrontEndId: Front End Id value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the front end ID of the incoming call which leads to deletion or pause of the existing bearer. • TDF-App-Id: TDF application identifier of the existing Sd detected application. • Sponsor-Id: Sponsor identity of the existing Sd detected application. • Column: The key column in the STG that corresponds to the specified AVP.
Priority Level	<p>CRD table output column having the priority value. Value can be any positive integer. 0 is an invalid value.</p> <p>The maximum value is based on the bit length configured under Attribute Encode Table in Policy Builder. Lesser the number higher the priority.</p> <p>There is no default value.</p>
Action	<p>CRD table output column for the action value. Valid values are DELETE and PAUSE.</p> <p>When custom muting is enabled and PAUSE is configured, all the services are moved to default bearer and are custom muted.</p> <p>Configuring DELETE removes the services from the gateway.</p> <p>There is no default value.</p>

ADTMSPRBearerAction

ADTMSPRBearerAction configuration object is used to define SPR Bearer service action.

The following table describes the service configuration parameters:

Table 9: ADTMSPRBearerAction Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
Input Column Binding (List)	<p>Input parameters in terms of CRD column name and mapped AVP Code.</p> <p>ColumnAndAvpPair</p> <ul style="list-style-type: none"> • Avp Name: Supported input AVP names are: <ul style="list-style-type: none"> • Stage: Stage value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the stage of the incoming call which leads to deletion or pause of the existing bearer. • Priority: Priority value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteLogicalApn: APN value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the APN priority of the incoming call which leads to deletion or pause of the existing bearer. • RemoteFrontEndId: Front End Id value as received in Active Traffic Management (ADTM) Attribute notification from UDC FE. This is the front end ID of the incoming call which leads to deletion or pause of the existing bearer. • Attribute-Name: Name of the existing subscriber attribute. • Attribute-Value: Value of the same existing subscriber attribute. • Column: The key column in the STG that corresponds to the specified AVP.
Priority Level	<p>CRD table output column having the priority value. Value can be any positive integer. 0 is an invalid value.</p> <p>The maximum value is based on the bit length configured under Attribute Encode Table in Policy Builder. Lesser the number higher the priority.</p> <p>There is no default value.</p>

Parameter	Description
Action	<p>CRD table output column for the action value. Valid values are DELETE and PAUSE.</p> <p>When DELETE is configured, SPR attributes does not participate in the policy evaluation.</p> <p>When PAUSE is configured, SPR attribute does not participate in policy evaluation until PAUSE condition is valid.</p> <p>There is no default value.</p>

ApnMapping

The ApnMapping service configuration object pushes the configured Target APN in a CCA-I message by matching the incoming APN in a CCR-I message with the configured source APN.

Table 10: ApnMapping Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Source APN	The APN that will be mapped to the target APN.
Target APN	The APN that will be the used instead of the source APN.

BandwidthMonitor

The BandwidthMonitor service configuration object grants PCEF a specified amount/dosage and records the timestamp when it was granted.

Table 11: BandwidthMonitor Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Name	Any name can be specified.
Reporting Timeout	The number of minutes used to set the Revalidation-Time AVP so that the subscriber has a chance to get unthrottled before the allocated dosage is used.

Parameter	Description
Monitoring Key	<p>BaseUsageMonitoringKey</p> <p>For detailed descriptions of these parameters, see Common Parameter Descriptions, on page 88.</p> <ul style="list-style-type: none"> • Encoding Format • Monitoring Key • Dosage • Monitoring Level • Enabled
Bandwidth Threshold (List)	<p>BandwidthThreshold</p> <ul style="list-style-type: none"> • Lower Value – The minimum bandwidth value (in kbps) that you can specify for the corresponding Label. This value should be an integer. <p>When the computed bandwidth used is greater than this value, the corresponding Label is set to the subscriber for the particular application identified by the Name option.</p> <ul style="list-style-type: none"> • Label – The name of the label, which depends upon user requirements.

BearerControlMode

The BearerControlMode service configuration object sets the Bearer Control Mode to the specified value. If you do not specify a value, the value is derived. This value overwrites any previously specified value.

Table 12: BearerControlMode Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Mode Type	The type of mode that is being set explicitly.

CcGroup

The CcGroup service configuration object is used with entitlement to specify which credit-control-group the session should be associated with.



Note This configuration object requires custom properties be enabled in the qns.conf file.

Table 13: CcGroup Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Name	The name of the CC-Group value to be assigned to the user's session.

ChargingInformation

The ChargingInformation service configuration object sets the session charging information to the specified value.

Table 14: ChargingInformation Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Online	
Offline	
Primary O C S	The primary Online Charging System to be used.
Secondary O C S	The secondary Online Charging System to be used.
Primary O F C S	The primary Offline Charging System to be used.
Secondary O F C S	The secondary Offline Charging System to be used.

CiscoContentFilteringPolicy

The goal of Content Filtering is to provide support for content filtering within the network by use of Policy IDs. Policy identifiers (Policy IDs) are rules that are configured on the ASR 5000 platform and invoked by the CPS. Policy IDs are used to implement the required Content Filtering policies defined for the subscriber. The Policy IDs are selected at the ASR 5000 by provisioning their values through the Gx interface by the PCRF.

When a user initiates a session, the ASR5K communicates with the CPS to initialize the defined policies. CPS provides the Policy ID to the ASR5K to provide the necessary Content Filtering services for the user.

The primary purpose of this feature is for CPS to provide Policy IDs configured in the subscriber's service to the PCEF (ASR5K).

Table 15: CiscoContentFilteringPolicy Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Cisco Content Filtering Policy	The name of the policy being applied by this configuration.

CiscoEventTriggerType

The CiscoEventTriggerType service configuration object allows CPS to arm Cisco Custom event to get notified whenever a Gy failure occurs at PCEF. For arming event, 5 is sent and for disarming, 0 is sent.

- 0 - NO_CISCO_EVENT_TRIGGERS
- 5 - CREDIT_CONTROL_FAILURE

Table 16: CiscoEventTriggerType Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Event Trigger	

CiscoOverrideControl

CPS supports Override-Control specific AVPs in CCA-i and CCA-u responses to the PCEF on the Gx Interface and Gx RAR message. These AVPs are used to override charging parameters for predefined and static rules on the PCEF.

Table 17: CiscoOverrideControl Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Override Rule (List)	Specifies the name of the rule (predefined or static) for which override values are sent.
Override Charging Action Exclude Rule (List)	Exclude Rule – Defines the rule name where the override will not be applied. <ul style="list-style-type: none"> • Rule Name – the name of the rule to be excluded.

Parameter	Description
Override Service Identifier	Used to override the value of Service Identifier configured in the charging action.
Override Rating Group	Defines the value of the rating group configured for a static/predefined rule.
Override Reporting Level	Used to override the value of reporting level configured in the charging action.
Override Online	See Common Parameter Descriptions, on page 88 .
Override Offline	
Override Metering Method	Used to override the value of Metering Method configured in the charging action.
Override QoS	Used to Override QoS-Information for a predefined rule or charging action.
Override-Max-Requested-Bandwidth-UL	Defines the maximum bit rate allowed for the uplink direction.
Override-Max-Requested-Bandwidth-DL	Defines the maximum bit rate allowed for the downlink direction.
Override-Guaranteed-Bitrate-UL	Defines the guaranteed bit rate allowed for Uplink direction. This AVP should be included only for rules on dedicated bearers.
Override-Guaranteed-Bitrate-DL	Defines the guaranteed bit rate allowed for downlink direction. This AVP should be included only for rules on dedicated bearers.
Override-Allocation-Retention-Priority	Used to override the pre-configured value of ARP.
Override Merge Wildcard	Used to merge override control charging/policy parameters between override control with specific charging action and wildcard override control.

CiscoQoSGroupRule

The CiscoQoSGroupRule service configuration object defines QoS Group Rules (and their sub-rules), on which CRD Driven rules depend.

Table 18: CiscoQoSGroupRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	

Parameter	Description
Qos Group Rule Name	The name of the QoS group rule to which the policy is being applied.
Flow Status	See Common Parameter Descriptions, on page 88 .
Encoding Format	
Monitoring Key	
Redirect Server	RedirectServer <ul style="list-style-type: none"> • Address Type • Server Type
Cisco Qos Information	CiscoQoSInformation For detailed information about these parameters, see Common Parameter Descriptions, on page 88 . <ul style="list-style-type: none"> • Qci • Max Req Bandwidth U L • Max Req Bandwidth D L • Guaranteed Bit Rate U L • Guaranteed Bit Rate D L • APN Agg Max Bit Rate U L • APN Agg Max Bit Rate D L • Arp

CSGReporting

The CSG-Information-Reporting AVP is sent from the PCRF to the PCEF to request the PCEF to report the user CSG information change to the OFCS.

Table 19: CSGReporting Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
CSG-Information-Reporting AVP value	AVP values are 0, 1, or 2. 0 = CHANGE_CSG_CELL 1 = CHANGE_CSG_SUBSCRIBED_HYBRID_CELL 2 = CHANGE_CSG_UNSUBSCRIBED_HYBRID_CELL

DefaultBearerQoS

The DefaultBearerQoS service configuration object configures the QoS attributes for the default bearer.

Table 20: DefaultBearerQoS Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	
Qci	
Max Req Bandwidth U L	
Max Req Bandwidth D L	
Guaranteed Bit Rate U L	
Guarnateed Bit Rate D L	
Apn Agg Max Bit Rate U L	
Apn Agg Max Bit Rate D L	
Arp	
ConditionalApnAggregateMaxBitrate	

DefaultBearerQoSActions

The DefaultBearerQoSActions service configuration object sets the values for the various DBQ Attributes based on Policy or the configured DBQ object. There are three types of DefaultBearerQoSActions:

- Mirror: The value requested is granted.
- Enforce: (Default) The default bearer qos value is granted.
- Bound: A min between the two is granted.

Table 21: DefaultBearerQoSActions Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	
Qci	
Max Req Bandwidth U L	
Max Req Bandwidth D L	
Guaranteed Bit Rate U L	
Guarnateed Bit Rate D L	
Apn Agg Max Bit Rate U L	
Apn Agg Max Bit Rate D L	
Arp	

DefaultBearerQciArpOverride

The DefaultBearerQciArpOverride service configuration object is used to override the calculated default bearer Qci and ARP attributes.

Table 22: DefaultBearerQciArpOverride Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	
Qci	
Allocation Retention Priority	
Priority Level	Priority Level AVP value.
Preemption Capability	Pre-emption Capability AVP value.
Preemption Vulnerability	Pre-emption Vulnerability AVP value.

DelayBearerCreation

The DelayBearerCreation service configuration object is used to decide whether to delay the bearer creation or not. Delay value can be configured in the service (or) can be pulled from CRD. Using this configuration CPS holds the CCA-I and Gx-RAR messages for the configured delay time. This service configuration gets added to policy state based on specific use case initiators.

Table 23: DelayBearerCreation Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	
Default Bearer Delay In Milliseconds	Based on this value CPS initiates delay timer for holding the CCA-I message. Default value is zero which indicates that there is no delay.
Dedicated Bearer Delay In Milliseconds	Based on this value CPS initiates delay timer for holding the Gx-RAR message. Default value is zero which indicates that there is no delay.

DetectedAppDefaultBearerQos

The DetectedAppDefaultBearerQos service configuration object is used to apply the Default Bearer QoS based on the TDF-Application-Identifier received in Sd CCR-U and Gx CCR-U. This can be used for both Gx and Sd detected applications.

Table 24: DetectedAppDefaultBearerQos Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Search Table Group	Name of the CRD table used in the service configuration.
Apply Prev Applied T D F Id Qos	By default, the value is set to false that indicates CPS considers QoS derived from Rx and default bearer QoS service for missing QoS attributes. If set to true, CPS considers QoS derived from previously applied TDF ID QoS for missing QoS attributes.
Input Column Binding (List)	Input parameters in terms of CRD column name and mapped AVP Code. Supported AVP code is TDF-Application-Identifier.
Output Column Binding (List)	Output parameters in terms of CRD column name and mapped AVP Code. Supported AVP codes are: QoS-Class-Identifier, Priority-Level, Preemption Capability, Preemption Vulnerability, APN-Aggregate-Max-Bitrate-UL, APN-Aggregate-Max-Bitrate-DL, Max-Requested-Bandwidth-UL, Max-Requested-Bandwidth-DL, Guaranteed-Bitrate-UL, and Guaranteed-Bitrate-DL.

DetectedAppPriorityDeafaultBearerQoS

The DetectedAppPriorityDeafaultBearerQoS to populate 'Priority' and 'CC-Time' by taking TDF-Application-Identifier as input. This can be used for both Gx and Sd detected applications.

Table 25: DetectedAppPriorityDeafaultBearerQoS Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Default T D F App Id Priority	When default value for the TDF Id is not configured, CPS considers this by default value is -1, which takes high precedence and if multiple TDF-APP-Id's does not have priority then both will have same priority then CPS may not process in order so behavior would vary every time CPS evaluate this table.
Default C C Time In Seconds	Default CC-Time when not received in Sd_CCR-U.
Stg Name	Name of the CRD table used in this service configuration.
List Of Input Column Avp Pairs (List)	Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG. <ul style="list-style-type: none"> • Avp Name - The name of the AVP that is used as input for CRD table evaluation. Supported value is TDF-Application-Identifier. • Column - The reference to the CRD column for the input AVP.
TDF App Id priority Column	Priority Configured for TDF-Application-Identifier.
C C Time Output Column	CC-Time Configured for the TDF-Application-Identifier.



- Note**
- TDF Application Identifier must be unique.
 - Priority must be mandatory and it should be unique.

DynamicTrafficSteering

The DynamicTrafficSteering service configuration object is not used.

EMPS

The EMPS (Enhanced Multimedia Priority System) service configuration object defines the MPS EPS Priority MPS Priority Level and IMS Signaling Priority level. This is required for Always on MPS.

Table 26: EMPS Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Mps Eps Priority Enabled	When selected, invokes the Priority EPS Service. <ul style="list-style-type: none"> • 1: Enable • 0: Disable
Mps Priority Level	Indicates the priority level (Integer range 1-15).
Ims Signaling Priority	IMS signaling priority level (Integer range 1-15).

EventTrigger

The EventTrigger service configuration object specifies the event to be sent.

Table 27: EventTrigger Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Event Trigger	

EventTrigger 48

The PresenceReportingAreaConfiguration service configuration object indicates the maximum number of PRA identifiers supported.

Table 28: EventTrigger 48 Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Event Trigger	Indicates value of the event trigger.

GxDynamicRuleReference

The GxDynamicRuleReference configuration object is used only when the ADC (Application Detection & Control) Feature is enabled at PCEF and new dynamic rules need to be installed over the Gx interface based on Application Detection on the Gx interface by the PCEF.

Table 29: GxDynamicRuleReference Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
STG Table	The name of the Search Table group table that is being referenced.
List Of Input Column Avp Paris (List)	See Common Parameter Descriptions, on page 88 .
List Of Output Column Avp Paris (List)	
Retry Pcc Rules On Failure	Can be set to true or false. Default: false

IntermediateRulesParamOnFailure

The IntermediateRulesParamOnFailure service configuration is used to send Flow-Status, Rating-Group, Service-Id when Retry Profile is configured with interval.

The following table describes the service configuration parameters:

Table 30: IntermediateRulesParamOnFailure Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Stg Name	References the Search table group containing the CRD table. This is a mandatory parameter.
List of Input Column Avp Pairs (List)	<p>Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG.</p> <ul style="list-style-type: none"> • Avp Name – The name of the AVP that is used as input for CRD table evaluation. Supported values are Charging-Rule-Name, Rule-Failure-Code, Cisco-CC-Failure-Type, TDF-Application-Identifier, Application-Service-Provider-Identity, DPCC-Name, DPCC-Value, AF-Application-Identifier, and Sponsor-Identity. • Column – The reference to the CRD column for the input AVP.

Parameter	Description
List of Output Column Avp Pairs (List)	<p>List of Output AVPs for the CRD.</p> <ul style="list-style-type: none"> • Avp Name – The name of the AVP that is used as input for CRD table evaluation. Supported values are Service-Identifier, Rating-Group, Flow-Status, Online, Offline, Metering-Method, Reporting-Level, Precedence, Redirect-Support, Redirect-Address-Type and Redirect-Server-Address. • Column – The reference to the CRD column for the output AVP.

MaxQos

The MaxQoS service configuration object authorizes the requested QoS against the maximum-allowed QoS.

Table 31: MaxQoS Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Qci	
Max Req Bandwidth U L	
Max Req Bandwidth D L	
Guaranteed Bit Rate U L	
Guaranteed Bit Rate D L	
Apn Agg Max Bit Rate U L	
Apn Agg Max Bit Rate D L	
Arp	

ModifyChargingRules

Table 32: ModifyChargingRules Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Stg Name	References the Search table group containing the CRD tables that define the QoS Action.

Parameter	Description
List Of Input Column Avp Pairs (List)	<p>Defines the mapping between the 'AVP Names' and the key 'Columns' defined in the selected STG. These AVPs will be the inputs while evaluating the CRD table in STG.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none">• Avp Name – The name of the diameter AVP (received in Media Component Description AVP of the AAR message) that will be used as input for CRD table evaluation. Supported list of AVPs are: QoS-Class-Identifier, TDF-Application-Identifier, Sponsor-Identity, Application-Service-Provider-Identity, Priority-Level, Pre-emption-Capability, Pre-emption-Vulnerability. <p>DPCC_NAME - Used to derive the Dynamic PCC rule from CRD tables.</p> <p>DPCC_VALUE - Used to derive the Dynamic PCC rule from CRD tables.</p> <ul style="list-style-type: none">• Column – References the key column defined in the selected STG.

Parameter	Description
List of Output Column Avp Pairs (List)	<p>Defines the mapping between the 'AVP Names' and the output columns defined in the selected STG. These mappings indicate how the output column values are mapped to AVPs after the CRD is evaluated.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the diameter AVP (attribute from Qos-Information) to which the value of the output column should be mapped while setting the Qos-Information for the dedicated bearer on Gx. Supported values are: <ul style="list-style-type: none"> • Rating-Group • Reporting-Level • Service-Identifier • Online • Offline • Flow-Status • Metering-Method • Precedence • Allow-Usage-Monitoring (Map to corresponding crd column which is of type boolean). <p>Note CPS sends Monitoring key for pre-configured rules only when 'CC-Total-Octets' is sent in Rx-AAR request (granted service units) and Allow-Usage-Monitoring is configured as true.</p> <p>The values for 'AVP name' must be exactly the same as those used while defining the input columns.</p> <ul style="list-style-type: none"> • Column – References the output column defined in the selected STG.

OverrideQoS

Override QoS service configuration is used to allow configuring override for Gx default bearer QoS APN AMBR UL/DL values.

CPS first evaluates the derived QoS values for default bearer. CPS then evaluates the table provided in Override QoS service configuration by using the key values and determine the result APN AMBR UL/DL values. If the "Condition to Override" is "LT", then CPS limits the derived QoS values with these override values. If the "Condition to Override" is "GT", then CPS selects the maximum UL/DL among the derived and override values.

Table 33: OverrideQoS Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Stg Reference	This is the reference to the STG that contains the QoS reference and the QoS parameter values (QCI, APN-MBR-UL, and so on).
List Of Input Column Avp Pairs (List)	<p>Defines the list to specify the mapping for input (key) columns for determining their values for querying the STG.</p> <ul style="list-style-type: none"> • ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: Specify the AVP name whose value is used to map to the corresponding key Column for querying the STG. • Column: The key column in the STG that corresponds to the specified AVP.
Apn Agg Max Bit Rate UL	Reference to the STG output column that gives the "APN-Aggregate-Max-Bitrate-UL" value for limiting QoS. This value and the corresponding value derived after QoS actions are compared to determine the final value for APN-Aggregate-Max-Bitrate-UL.
Apn Agg Max Bit Rate DL	Reference to the STG output column that gives the "APN-Aggregate-Max-Bitrate-DL" value for limiting QoS. This value and the corresponding value derived after QoS actions are compared to determine the final value for APN-Aggregate-Max-Bitrate-DL.
Condition to Override	<p>The condition to compare the values. Only two values are supported "LT" and "GT".</p> <p>If LT is selected, CPS picks the lowest QoS parameter value from the two QoS references.</p> <p>If GT is selected, CPS picks the highest QoS parameter value from the two QoS references.</p> <p>Possible Values:</p> <ul style="list-style-type: none"> • LT: Less than (Default) • GT: Greater than

PreConfiguredRule

The PreConfiguredRule service configuration object configures a dynamic rule; these values are then used in the charging rule definition.

Table 34: PreConfigurationRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Rule Group	
Rule Name	
Enable Resource Allocation Notification	
Dual Stack Session	
Framed I P Type	
ToD Schedule	
Scheduled Hour	
Retry Profile	
Online	
Offline	
Flow Status	
Rating Group	
Service Identifier	The identity of the service or service component that the service data flow in a PCC rule relates to.

Parameter	Description
Reporting Level	<p>The Reporting-Level AVP is of type Enumerated and it defines on what level the PCEF reports the usage for the related PCC rule. There are three types of reporting levels:</p> <ul style="list-style-type: none"> • SERVICE_IDENTIFIER_LEVEL (0): Usage will be reported on service id and rating group combination level and is applicable when the Service-Identifier and Rating-Group have been provisioned within the Charging-Rule-Definition AVP, and Rating-Group AVP have been provisioned within the Charging-Rule-Definition AVP. Applicable for offline charging. • RATING_GROUP_LEVEL (1): Usage will be reported on rating group level and is applicable when the Rating-Group has been provisioned within the Charging-Rule-Definition AVP, and Rating-Group AVP have been provisioned within the Charging-Rule-Definition AVP. Applicable for offline charging. • SPONSORED_CONNECTIVITY_LEVEL (2): Usage will be reported on sponsor identity and rating group combination level and is applicable when the Sponsor-IdentityAVP Application-Service-Provider-Identity AVP and Rating-Group AVP have been provisioned within the Charging-Rule-Definition AVP. Applicable for offline charging.
Precedence	<p>Determines the order in which the service data flow templates are applied at service data flow detection at the PCEF. A PCC rule with the Precedence AVP having a lower value will be applied before a PCC rule with the Precedence AVP having a higher value.</p>
Metering Method	<p>The Metering-Method AVP (AVP code 1007) is of type Enumerated and it defines what parameters will be metered for offline charging. The PCEF may use the AVP for online charging in case of decentralized unit determination. There are three types of metering method:</p> <ul style="list-style-type: none"> • DURATION (0): The duration of the service data flow will be metered. • VOLUME (1): The volume of the service data flow traffic will be metered. • DURATION_VOLUME (2): The duration and the volume of the service data flow traffic will be metered.
Monitoring Key	<p>See Common Parameter Descriptions, on page 88.</p>
Flow Information (List)	<p>FlowInformation</p> <ul style="list-style-type: none"> • Flow Description • Tos Traffic Class • Flow Direction

Parameter	Description
QoS Information	<p>QoSInformation</p> <p>For detailed information about these parameters, see Common Parameter Descriptions, on page 88.</p> <ul style="list-style-type: none"> • Qci • Max Req Bandwidth U L • Max Req Bandwidth D L • Guaranteed Bit Rate U L • Guaranteed Bit Rate D L • Apn Agg Max Bit Rate U L • Apn Agg Max Bit Rate D L • Arp
Redirect Information	<p>RedirectInformation</p> <p>For detailed information about these parameters, see Common Parameter Descriptions, on page 88.</p> <ul style="list-style-type: none"> • Redirect Support • Redirect Address Type • Redirect Server Address
Mirror Default Bearer QCI/ARP	<p>When set to true, CPS mirrors the QCI and ARP from the command level to the rule level, and enforces the rule level MBR values from the Policy Builder configuration for the rule level.</p> <p>Default: false.</p>
Provision Default Bearer QoS	See Common Parameter Descriptions, on page 88 .
Tdf Application Identifier	
Mute Notification	
Use in Rule Status Condition	<p>Controls whether or not the PCC rule reported status AVPs are created.</p> <p>Default: true</p>
Use in Rule Install Condition	<p>Controls whether or not the PCC rule installed AVPs are created.</p> <p>Default: false</p>
Encoding Format	<p>When set to true, indicates monitoring key is encoded.</p> <p>When set to false, indicates no encoding is required. By default, CPS does not do any encoding for monitoring key.</p> <p>Default: false</p>

PreDefinedRule

The PreDefinedRule service configuration object creates static rules that will be mapped to the charging rules that will be installed.

Table 35: PreDefinedRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Rule Group	
Rule Name	
Enable Resource Allocation Notification	
Dual Stack Session	
Framed I P Type	
ToD Schedule	
Scheduled Hour	
Retry Profile	

PreDefinedRuleBase

The PreDefinedRuleBase service configuration object creates static rules that will be mapped to the charging rule base name.

Table 36: PreDefinedRuleBase Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Rule Group	
Rule Name	
Enable Resource Allocation Notification	
Dual Stack Session	
Framed I P Type	
ToD Schedule	
Scheduled Hour	
Retry Profile	

PresenceReportingAreaConfiguration

The PresenceReportingAreaConfiguration service configuration configures the PRA identifiers supported.

Table 37: PresenceReportingAreaConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Sd Auto Subscribe	<p>When this flag is "false", the PCRF forwards PRA status when available to TDF, if TDF has subscribed with Event Trigger <code>CHANGE_OF_UE_PRESENCE_IN_PRESENCE_REPORTING_AREA_REPORT</code> (48).</p> <p>When this flag is "true" and the PRA status is available it is forwarded to TDF without waiting for the Event Trigger 48 subscription from TDF.</p>
Presence Reporting Area Identifier List	This list contains the PRA identifier names which PCRF needs, to subscribe to PCEF with Event Trigger <code>CHANGE_OF_UE_PRESENCE_IN_PRESENCE_REPORTING_AREA_REPORT</code> .



Note Add Event Trigger CHANGE_OF_UE_PRESENCE_IN_PRESENCE_REPORTING_AREA_REPORT (48) in the service configurations for the PRA identifiers to be subscribed towards PCEF.

ReleaseBearerDelayMessage

The ReleaseBearerDelayMessage service configuration object is used to release CCA-I /Gx-RAR messages which is held based on delay bearer creation configuration. For more information on Delay Bearer Creation service configuration object, refer to [DelayBearerCreation, on page 19](#).

Table 38: ReleaseBearerDelayMessage Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	

ReprovisionObjects

The ReprovisionObjects service configuration object forces the Policy Charging Control (PCC) rules to be reprovisioned when the flag is set to true.

Table 39: ReprovisionObjects Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
PCC Rules	Can be set to true or false. When set to true, the PCC rules will be reprovisioned. Default: false
Default Bearer QoS	Can be set to true or false. When set to true, the Default Bearer QoS will be reprovisioned. Default: false
Override Control	Can be set to true or false. When set to true, the AVP Override Control is reprovisioned during handoff. Default: false

RevalidationTime

The RevalidationTime service configuration object populates the revalidation time AVP at the message level; the PCEF will come back to the PCRF when that timestamp is hit.



Note The Revalidation Time and the Health Check Time Interval (**Diameter Configuration > PolicyDRA Health Check > Binding Db**) should not be configured with the same value.

Table 40: RevalidationTime Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Absolute Time Flag	This flag can be set to true or false. true – The next revalidation time is set using the absolute values specified for the following three revalidation attributes (Hour Minute, and Sec). false – The next revalidation time is derived by adding the values specified for the following three revalidation attributes to the system time.
Revalidation Time in Hour	The hour the revalidation will occur. Specify this value using 24-hour format.
Revalidation Time in Minute	The minutes setting in the revalidation timestamp.
Revalidation Time in Sec	The seconds setting in the revalidation timestamp.

SupressRxMessage

The SupressRxMessage service configuration object is used to suppress the Rx ASR message. CPS evaluates the STG configured in this service and derives the information whether to suppress Rx ASR or not.

Table 41: SupressRxMessage Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
Input Column Binding (List)	ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP that is used as input for CRD table evaluation. • Column: The key column in the STG that corresponds to the specified AVP.

Parameter	Description
Is Message Suppressed Output Column	References to the output column defined in the CRD.

TableDrivenChargingRule

The TableDrivenChargingRule service configuration object represents a charging rule in stored CRD format; there can be multiple charging rules.

Table 42: TableDrivenChargingRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Logical Grouping	No longer used.
Search Table	The name of the table from which to perform a lookup.
Search Group	A constant value that CPS uses to search within the Search Table Group indicated by “Search Table” element.
Search Column	Must be bound to the key column of the STG. The data contained in the STG column is of type Text.
Best Match Excludes Star Match	By default, the parameter is set to true. When set to true, the best match result records with exact match and if the exact match records are not found then it return records with star and pattern match. When set to false, then the result includes exact match as well as star and pattern match.
Rule Name Source	A key column that must be bound to the Rule Name column within the STG. The data in the STG column is of type Text.
Flow Status Source	Must be bound to the Flow Status column in the Search Table Groups (STG). The data contained in the STG column is of type Text.
Monitoring Key Source	Must be bound to the Monitoring Key column in the STG. The data contained in the STG column is of type Text.

Parameter	Description
Redirect Address Table	The name of the Redirect Address Table. This table contains redirected attributes, such as these (described in the following four rows): <ul style="list-style-type: none"> • Redirect Enabled Source • Redirect Address Type Source • Redirect Address Source • Redirect Support Source
Redirect Enabled Source	Must be bound to the Redirect Enabled column in the STG. The data contained in the STG column is of type True/False.
Redirect Address Type Source	Must be bound to the Redirect Address Type column in the STG. The data contained in the STG column is of type Text.
Redirect Address Source	Must be bound to the Redirect Address column in the STG. The data contained in the STG column is of type Text.
Redirect Support Source	Must be bound to the Redirect Support column in the STG.
Online Source	Must be bound to the Online column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Offline Source	Must be bound to the Offline column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Rating Group Source	Must be bound to the Rating Group column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Service Id Source	Must be bound to the Service ID column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Reporting Level Source	Must be bound to the Reporting Level column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Precedence Source	Must be bound to the Precedence column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Metering Method Source	Must be bound to the Metering Method column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.

Parameter	Description
Flow Information Source	<p>Must be bound to the Flow Information column in the STG. The data contained in the STG column is of type Text.</p> <p>Note A particular format should be used when adding Flow Information Source parameter so that CPS can perform proper Flow Information grouped AVP mapping. A wrongly formatted Flow Information Source can result in missing AVPs under Gx Flow Information AVP. Here is the format: <Flow-Description>;<Flow-Direction>;<Decimal value of first octet of ToS-Class-AVP>;<Decimal value of second octet of ToS-Class-AVP></p>
Use Override Server Address	<p>Must be bound to the Override Server Address column in the STG. The data contained in the STG column is of type True/False.</p> <p>If set to true, the address is taken from the service option. If set to false, the redirect server address will not be overridden.</p>
Override Server Address	Must be bound to the corresponding column within the STG.
Qci Source	Must be bound to the QCI column in the STG. The data contained in the STG column is of Type Number. For more information, see Common Parameter Descriptions, on page 88 .
Max Req Bandwidth U L Source	Must be bound to the Max Req Bandwidth UL column in the STG. The data contained in the STG column is of Type Number. For more information about Max Req Bandwidth U L, see Common Parameter Descriptions, on page 88 .
Max Req Bandwidth D L Source	Must be bound to the Max Req Bandwidth DL column in the STG. The data contained in the STG column is of Type Number. For more information about Max Req Bandwidth D L Source, see Common Parameter Descriptions, on page 88 .
Guaranteed Bit Rate U L Source	Must be bound to the Guaranteed Bit Rate UL column in the STG. The data contained in the STG column is of Type Number. For more information about Guaranteed Bit Rate U L see Common Parameter Descriptions, on page 88 .
Guaranteed Bit Rate D L Source	Must be bound to the Guaranteed Bit Rate DL column in the STG. The data contained in the STG column is of Type Number. For more information about Guaranteed Bit Rate D L, see Common Parameter Descriptions, on page 88 .
ARP Priority Level Source	Must be bound to the ARP Priority Level column in the STG. The data contained in the STG column is of Type Number. For more information about Priority Levels, see Common Parameter Descriptions, on page 88 .

Parameter	Description
ARP Preemption Capability Source	Must be bound to the ARP Preemption Capability column in the STG. The data contained in the STG column is of Type Number. For more information about Preemption Capability, see Common Parameter Descriptions, on page 88 .
ARP Preemption Vulnerability Source	Must be bound to the ARP Preemption Vulnerability column in the STG. The data contained in the STG column is of Type Number. For more information about Preemption Vulnerability, see Common Parameter Descriptions, on page 88 .
Apn Agg Max Bit Rate U L	See Common Parameter Descriptions, on page 88 .
Apn Agg Max Bit Rate D L	
Rule Retry Profile Name	Must be bound to the Rule Retry Profile column in the STG. The data contained in the STG column is of type Text.
Mirror Default Bearer QCI/ARP	When set to true, CPS mirrors the QCI and ARP from the command level to the rule level, and enforces the rule level MBR values from the Policy Builder configuration for the rule level. Default: false.
Provision Default Bearer QoS	See Common Parameter Descriptions, on page 88 .
Tdf Application Identifier Source	References the application detection filter (for example, its value may represent an application such as a list of URLs, etc.) to which the PCC rule for application detection and control in the PCEF applies. Tdf Application Identifier Source must be bound to the appropriate column in the STG, and Type should be Text. For more information about Tdf Application Identifier, see Common Parameter Descriptions, on page 88 .
Mute Notification Source	Must be bound to the Mute Notification column in the STG. The data contained in the STG column is of Type Number or Decimal. For more information about Mute Notification, see Common Parameter Descriptions, on page 88 .
Enable Resource Allocation Notification Source	Must be bound to the Enable Resource Allocation Notification column in the STG. The data contained in the STG column is of Type Number. The possible values are mentioned in 3GPP specification 29.212.
Input List (List)	InputColumnObject: <ul style="list-style-type: none"> • Crd Column – Is bound to the appropriate key column in the STG for those AVPs that are inputs to this table. • Referenced Output Column – Reserved for future use. • Column Value – The value of the AVP that is bound to the Crd Column and has a single value. • Referenced MultiValue AVP Name – The name of the attribute that is bound to the Crd Column and has multiple values.

Parameter	Description
Use in Rule Status Condition	Controls whether or not the PCC rule reported status AVPs are created. By default, this parameter is set to true.
Use in Rule Install Condition	Controls whether or not the PCC rule installed AVPs are created. By default, this parameter is set to false.
Encoding Format Source	The parameter is used to pull the value from a CRD column of type Boolean. When set to true, CRD value indicates monitoring key is encoded. When set to false, CRD value indicates no encoding is required. By default, CPS does not do any encoding for monitoring key. Default: false

TableDrivenChargingRuleRefresh

The TableDrivenChargingRuleRefresh service configuration object forces a rule revalidation based on the rule reporting status.

Table 43: TableDrivenChargingRuleRefresh Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table	The name of the table from which to perform a lookup.
Input Rule Name Column	The input column for the Search Table Group (STG), which contains the rule name.
Input Rule Status Column	The input column for the STG, which contains the rule status against which new rules are to be added.
Output Rule Group Column	The output column for the STG, which contains the rule group used as a group to search the TableDrivenChargingRule.
Output Search Table	If there are multiple TableDrivenChargingRules mapped with multiple Search Tables, and if we want to use only one table to be looked at for new rules installation on rule failure, we can give the table as Output Search Table so that only one TableDrivenChargingRule object, which has the 'Search Table' matching the 'Output Search Table' in TableDrivenChargingRuleRefresh, is evaluated for refresh rules.

TableDrivenCiscoQosGroupRules

The TableDrivenChargingRuleRefresh service configuration option forces a rule revalidation based on the rule reporting status.

Table 44: TableDrivenCiscoQosGroupRules Service Configuration Parameters

Parameter	Discription
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Logical Grouping	No longer used.
Search Table	The name of the table from which to perform a lookup.
Search Group	A constant value that CPS uses to search within the STG indicated by “Search Table” element.
Search Column	Must be bound to the key column of the STG. The data contained in the STG column is of type Text.
Best Match Excludes Star Match	By default, the parameter is set to true. When set to true, the best match result records with exact match and if the exact match records are not found then it return records with star and pattern match. When set to false, then the result includes exact match as well as star and pattern match.
Rule Name Source	A key column that must be bound to the Rule Name column within the STG. The data contained in the STG column is of type Text.
Monitoring Key Source	Must be bound to the Monitoring Key column within the STG. The data contained in the STG column is of type Text.
Encoding Format Source	Must be bound to the Encoding format column within the STG. The data contained in the STG column is of type True/False.
Redirect Address Table	The name of the Redirect Address Table. This table contains redirected attributes, such as these (described below): <ul style="list-style-type: none"> • Redirect Enabled Source • Redirect Address Type Source • Redirect Address Source
Redirect Enabled Source	Must be bound to the Redirect Enabled column within the STG. The data contained in the STG column is of type True/False.
Redirect Address Type Source	Must be bound to the Redirect Address Type column within the STG. The data contained in the STG column is of type Text.
Redirect Address Source	Must be bound to the Redirect Address column within the STG. The data contained in the STG column is of type Text.

Parameter	Discription
Use Override Server Address	Must be bound to the Override Server Address column within the STG. The data contained in the STG column is of type True/False. If set to true, the address is taken from the service option. If set to false, the redirect server address will not be overridden.
Override Server Address	Must be bound to the corresponding column within the STG.

TableDrivenPredefinedChargingRule

The TableDrivenPredefinedChargingRule service configuration object represents a charging rule in stored CRD format; there can be multiple charging rules.

Table 45: TableDrivenPredefinedChargingRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Logical Grouping	No longer used.
Search Table	The name of the table from which to perform a lookup.
Search Group	A constant value that CPS uses to search within the Search Table Group indicated by “Search Table” element.
Search Column	Must be bound to the key column of the STG. The data contained in the STG column is of type Text.
Best Match Excludes Star Match	By default, the parameter is set to true. When set to true, the best match result records with exact match and if the exact match records are not found then it return records with star and pattern match. When set to false, then the result includes exact match as well as star and pattern match.
Rule Name Source	A key column that must be bound to the Rule Name column within the STG. The data in the STG column is of type Text.

Parameter	Description
Input List (list)	InputColumnObject: <ul style="list-style-type: none"> • Crd Column – Is bound to the appropriate key column in the STG for those AVPs that are inputs to this table. • Referenced Output Column – Reserved for future use. • Column Value – The value of the AVP that is bound to the Crd Column and has a single value. • Referenced MultiValue AVP Name – The name of the attribute that is bound to the Crd Column and has multiple values.
Use In Rule Status Condition	Controls whether or not the PCC rule reported status AVPs are created. By default, this parameter is set to false.
Use In Rule Install Condition	Controls whether or not the PCC rule installed AVPs are created. By default, this parameter is set to false.

TableDrivenRuleNameSupport

The TableDrivenRuleNameSupport service configuration object allows CPS to perform a UNION operation on two sets of rule lists. This operation uses the rules that are common to both lists obtained from two different Search Table Groups (STGs).

Table 46: TableDrivenRuleNameSupport Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Logical Grouping	No longer used.
Search Table	The name of the table from which to perform a lookup.
Search Group	A constant value that CPS uses to search within the STG indicated by “Search Table” element.
Search Column	Must be bound to the key column of the STG. The data contained in the STG column is of type Text.
Best Match Excludes Star Match	By default, the parameter is set to true. When set to true, the best match result records with exact match and if the exact match records are not found then it return records with star and pattern match. When set to false, then the result includes exact match as well as star and pattern match.

Parameter	Description
Rule Name Source	A key column that must be bound to the Rule Name column within the STG. The data contained in the STG column is of type Text.

TDFServerInformation

The TDFServerInformation service configuration object is used to configure TDF-Server-Information based on Gx APN, GX-MCCMNC and LDAP attribute SUB_TYPE. Based on the service configuration, CRD look up is done to obtain the TDF-Server-Information and TSR would be initiated towards Sd interface.

Table 47: TDFServerInformation Service Configuration Parameters

Parameter	Description
Priority	The priority of the message for processing. The higher the number, the higher the priority. Default: 0 For more information, see Common Parameter Descriptions, on page 88 .
Diameter Client	The client configuration is used to apply different policies based on PCEF type. This is optional parameter. For more information, see Common Parameter Descriptions, on page 88 .
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
List Of Input Column Avp Pairs (List)	Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG. ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP that is used as input for CRD table evaluation. • Column: The key column in the STG that corresponds to the specified AVP.
List Of Output Column Avp Pairs (List)	Defines the mapping between the AVP Names and the output columns defined in the STG selected. These mapping indicate how the output column's values are mapped to AVPs after the CRD is evaluated. ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP to which the value of the output column is mapped. • Column: The reference to the CRD column for the output AVP.

UsageMonitoringKey

The UsageMonitoringKey service configuration object allows scheduled monitoring in the Monitoring Schedule (List) parameter.

Table 48: UsageMonitoringKey Service Configuration Parameters

Parameter	Description
Priority	Not Supported
Diameter Client	See Common Parameter Descriptions, on page 88 .
Encoding Format	
Monitoring Key	
Dosage	
Monitoring Level	
Enabled	Can be set to true or false. <ul style="list-style-type: none"> • True – Monitoring information will flow to PCEF. • False – Monitoring information will not flow to PCEF.
Balance Code	See Common Parameter Descriptions, on page 88 .
Validity Period Minutes	The number of minutes that the balance code representing the quota is valid. The default value is 60 minutes. This parameter is deprecated.
Reporting Threshold	Not used.
Dosage Override (List)	Default dosage override based on remaining balance on the selected account. <ul style="list-style-type: none"> • Remaining Balance Below Megabytes • Dosage Override Megabytes
Monitoring Schedule (List)	UsageMonitoringSchedule: <ul style="list-style-type: none"> • Start Time – Enter the time in 24-hour format (00:00 to 23:59). • End Time – Enter the time in 24-hour format (00:00 to 23:59). • Balance Code – See Common Parameter Descriptions, on page 88. • Dosage – See Common Parameter Descriptions, on page 88. • Rate – Enter the numeric value which to charge usage.
Target Balance Code	Indicates a text input for the balance code name to be mapped to the specific target balance.

UsageMonitoringKeyDual

The UsageMonitoringKeyDual service configuration object allows time usage monitoring (The UsageMonitoringKey is supported for Volume Usage monitoring). This service configuration object provides a way to configure usage monitoring for both time and volume (independently as well as together under single monitoring key). To monitor usage under one key for Volume and Time, both the balance codes need to be provided in the Service Configuration. For independent monitoring, only the relevant type of fields can be set. For example, for only Volume monitoring, fields related to time monitoring can be left blank/null and vice versa. Multiple instances of UsageMonitoringKeyDual can also be included in the service configuration each corresponding to a unique monitoring key.

Table 49: UsageMonitoringKeyDual Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Encoding Format	
Monitoring Key	
Dosage	
Monitoring Level	
Enabled	Can be set to true or false. <ul style="list-style-type: none"> • True – Monitoring information will flow to PCEF. • False – Monitoring information will not flow to PCEF.
Validity Period Minutes	The number of minutes that the balance code representing the quota is valid. The default value is 60 minutes. This parameter is deprecated.
Volume > UsageMonitoringBucket > Balance Code	This value indicates the Volume type balance with which the key is associated.
Time > UsageMonitoringBucket > Balance Code	This value indicates the Time type balance with which the key is associated.
Target Balance Code	Indicates a text input for the balance code name to be mapped to the specific target balance.
Inactivity Detection Time	The time interval in seconds after which the time measurement shall stop for the Monitoring Key, if no packets are received belonging to the corresponding Monitoring Key. Corresponds to Quota-Consumption-Time AVP

Gy Service Configuration Objects

This section describes the parameters for the following Gy Service Configuration Objects:

ExternalRatingGroup

The ExternalRatingGroup service configuration object is used to identify if a rating group status is indicated by an external component. If the status is invalid, the final unit actions are applied as specified in this object.

The rating group for this object is list of values identifying all external rating groups.

Table 50: ExternalRatingGroup Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Rating Group	Corresponds to a value configured on the ASR5000 that represents which data should be monitored.
Ocs State	Indicates the status of the external rating group as notified by the external component. The possible values are VALID/INVALID. Default: VALID
Final Unit Action	Can be set to one of the following options: <ul style="list-style-type: none"> • TERMINATE – Send a CCR-u with the final usage for the rating group. • NONE – No action taken. • RESTRICT_ACCESS – Send a Restriction Filter Rule and Filter ID. • REDIRECT – Send a Redirect Address of Redirect Address Type. Default: TERMINATE
Redirect Address Type	See Common Parameter Descriptions, on page 88 .
Redirect Address	
Filter ID	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters identified by Filter-id AVP.
Restriction Filter Rule	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters defined in the Restriction-Filter-Rule AVP.

GySessionWallet

Please configure the GySessionWallet service configuration object only with the help of Cisco Advanced Services or the Cisco Technical Assistance Center (TAC).

RatingGroup

CPS uses the RatingGroup Service Configuration Object to hold the configuration parameters for Gy towards OCS. The RatingGroup object can be added to a service upon a CCR-i request from the PCEF with a Gx rule or QoS. This object is used if the RatingGroupServiceID object is not used.

Table 51: RatingGroup Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Rating Group	Corresponds to a value that represents which data should be monitored.
Rg Type	Rating Group Type. The value can be set to either Volume or Time.
Dosage	See Common Parameter Descriptions, on page 88 .
Balance Code	
Final Unit Action	<p>Can be set to one of the following options:</p> <ul style="list-style-type: none"> • TERMINATE – Send a CCR-u with the final usage for the rating group. • NONE – No action taken. • RESTRICT_ACCESS – Send a Restriction Filter Rule and Filter ID. • REDIRECT – Send a Redirect Address of Redirect Address Type. <p>Default: TERMINATE</p>
Redirect Address Type	See Common Parameter Descriptions, on page 88 .
Redirect Address	
Restriction Filter Rule	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters defined in the Restriction-Filter-Rule AVP.
Filter ID	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters identified by Filter-id AVP.
Tariff Change Time	<p>Outside the scope of this document.</p> <p>Default: 0</p>

Parameter	Description
Tariff Switch Model	Outside the scope of this document. Default: SINGLE_COUPON
Validity Time	Sets a session timer for the Gy quota grant; even if quota is not exhausted, the PCEF must check back in at the end of the validity time (in seconds). Default: 3600
Volume Quota Threshold	PCEF will check back in with OCS when the Volume Quota Threshold has been reached. The value must be set to less than the overall Dosage (in bytes). Default: 0
Time Quota Threshold	PCEF will check back in with OCS when the Time Quota Threshold has been reached. The value must be set to less than the overall Dosage (in seconds). Default: 0
Quota Holding Time	The amount of time the quota should be available on the PCEF without activity from the user (in seconds). Default: 0
Quota Consumption Time	Idle traffic threshold time (in seconds); only used with time quota rating groups. Default: 0
Use Shared Bucket	Used in a shared quota use case in which the same account balance and rating group can be used within a shared group of users. Default: false

RatingGroupServiceId

The RatingGroupServiceId service configuration object identifies a set of services that are identified by Service-Identifier and subject to the same cost and rating type. The service identifier is provisioned along with the rating group this object is used.

Table 52: RatingGroupServiceId Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Rating Group	Corresponds to a value configured on the ASR5000 that represents which data should be monitored.
Service Identifier	Identifies a set of services subject to the same cost and rating type.
Rg Type	Rating Group Type. The value can be either Volume or Time.

Parameter	Description
Dosage	See Common Parameter Descriptions, on page 88 .
Balance Code	
Final Unit Action	<p>Can be set to one of the following options:</p> <ul style="list-style-type: none"> • TERMINATE – Send a CCR-u with the final usage for the rating group. • NONE – No action taken. • RESTRICT_ACCESS – Send a Restriction Filter Rule and Filter ID. • REDIRECT – Send a Redirect Address of Redirect Address Type. <p>Default: TERMINATE</p>
Redirect Address Type	See Common Parameter Descriptions, on page 88 .
Redirect Address	
Restriction Filter Rule	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters defined in the Restriction-Filter-Rule AVP.
Filter ID	When the Final Unit Action is RESTRICT_ACCESS, the access device must restrict the user access to the IP packet filters identified by Filter-id AVP.
Tariff Change Time	<p>Outside the scope of this document.</p> <p>Default: 0</p>
Tariff Switch Model	<p>Outside the scope of this document.</p> <p>Default: SINGLE_COUPON</p>
Validity Time	Sets a session timer for the Gy quota grant; even if quota is not exhausted, the PCEF must check back in at the end of the validity time (in seconds).
Volume Quota Threshold	PCEF will check back in with OCS when the Volume Quota Threshold has been reached; value must be set as less than the overall Dosage (in bytes).
Time Quota Threshold	The threshold value in seconds and can be provisioned by OCS when granted service units include cc-time. The PCEF shall seek re-authorization from OCS for the quota when the quota contents fall below the supplied threshold.
Quota Holding Time	The amount of time the quota should be available on the PCEF without activity from the user (in seconds).
Quota Consumption Time	Idle traffic threshold time (in seconds); only used with time quota rating groups.
Rate 1	When tariff time is provisioned by OCS, PCEF reports usage before and after tariff change time when reporting after tariff change time. Rate 1 indicates at what rate usage before tariff change time is charged.

Parameter	Description
Rate2	When tariff time is provisioned by OCS, PCEF reports usage before and after tariff change time when reporting after tariff change time. Rate2 indicates at what rate usage after tariff change time is charged.
Use Shared Bucket	Used in a shared quota use case in which the same account balance and rating group can be used within a shared group of users. Default: false

LDAP Service Configuration Objects

LdapAddProfile



Attention In CPS 13.1.0 and higher releases, LdapAddProfile service configuration has been deprecated. Instead of using LdapAddProfile, you can use *LdapAddEntries*.

LdapAddProfile service configuration can be used to define an LDAP profile (list of attributes) that can be written to an external LDAP server.

Table 53: LdapAddProfile Service Configuration Parameters

Parameter	Description
Ldap Server Set	The parameter is used to define the target server set to which the add request is sent.
Dn	This is the LDAP Distinguished Name for the new entry that is added via the add request.
Dn Replacement Rules (List)	This parameter is used to specify the replacement rules (one for each Dn parameter) that helps to resolve the parameters provided as part of Dn. ReplacementMapping: <ul style="list-style-type: none"> • Replacement String: This is used to specify the variable (one for each parameter) used in the DN. • Replacement Source: This is a policy-state retriever that can be used to retrieve the required value for replacement.

Parameter	Description
Ldap Add Attribute (List)	<p>This parameter is used to specify the list of attributes (name/value pairs) that are to be included in the new profile added using add request.</p> <p>LdapSynchAttribute:</p> <ul style="list-style-type: none"> • Type: This is the LDAP attribute name. • Value: This is the LDAP attribute value which can be dynamically set by using the Pull value from... field to get its value from CRD output, subscriber AVP, and so on.
Controls (List)	<p>This parameter is used to specify the LDAP controls that needs to be send in the LDAP modifyRequest. Control is a way to specify extension information to the LDAP server.</p> <p>Control: A control is a way to specify extension information. Controls which are sent as part of a request apply only to that request and are not saved.</p> <ul style="list-style-type: none"> • Control Type: This field MUST be a UTF-8 encoded dotted-decimal representation of an OBJECT IDENTIFIER which uniquely identifies the control. This prevents conflicts between control names. • Criticality: Currently, not supported. • Control Value: Currently, not supported. <p>These above mentioned configuration fields are added as per the LDAP controls defined in RFC-2251.</p>

LdapAddEntries

LdapAddEntries service configuration allows you to define multiple LDAP entries (DNs) to add on external server in specified order (sequential in synchronous mode).

Table 54: LdapAddEntries Service Configuration Parameters

Parameter	Description
Ldap Server Set	The parameter is used to define the target server set to which the add request is sent.
Entries (List)	<p>Multiple attributes can be defined to be added under each LDAP entry (which are added under the specified DN). If an entry already exists or add operation for an entry returns an error, CPS continues sequentially adding other entries in the list as long as the connection is usable.</p> <p>LdapEntries: For more information, refer to Table 55: LdapEntries, on page 52.</p>

Table 55: LdapEntries

Parameter	Description
Dn	This is the LDAP Distinguished Name for the new entry that is added via the add request.
Dn Replacement Rules (List)	This parameter is used to specify the replacement rules (one for each Dn parameter) that helps to resolve the parameters provided as part of Dn. ReplacementMapping: <ul style="list-style-type: none"> • Replacement String: This is used to specify the variable (one for each parameter) used in the DN. • Replacement Source: This is a policy-state retriever that can be used to retrieve the required value for replacement.
Modify If Exists	If the "Modify If Exists" flag is set to true for the entry that already exists, CPS attempts a LDAP modify operation with "change type: replace" for each included attribute for which the "Add Only" flag is false ("Add Only" = true attributes are not included in the modify operation). This modify operation is executed in parallel to the other add operations (for other DN's).
Ldap Attributes (List)	This parameter is used to specify the list of attributes (name/value pairs) that are to be included in the new profile added using add request. LdapSynchAttribute: <ul style="list-style-type: none"> • Type: This is the LDAP attribute name. • Value: This is the LDAP attribute value which can be dynamically set by using the Pull value from... field to get its value from CRD output, subscriber AVP, and so on. • Add Only: The default value is false. • Statistic Name: If Statistic Name parameter is configured with a value, then a counter is created with this name to track the success or failure of LDAP operations for this attribute. If the value is not provided, counters are not generated for the attribute.

Parameter	Description
Controls (List)	<p>This parameter is used to specify the LDAP controls that needs to be send in the LDAP modifyRequest. Control is a way to specify extension information to the LDAP server.</p> <p>Control: A control is a way to specify extension information. Controls which are sent as part of a request apply only to that request and are not saved.</p> <ul style="list-style-type: none"> • Control Type: This field MUST be a UTF-8 encoded dotted-decimal representation of an OBJECT IDENTIFIER which uniquely identifies the control. This prevents conflicts between control names. • Criticality: Currently, not supported. • Control Value: Currently, not supported. <p>These above mentioned configuration fields are added as per the LDAP controls defined in RFC-2251.</p>



Note If both LdapAddEntries and LdapSynchProfile are found in policy, CPS consolidates the LDAP add (from LdapAddEntries) and LDAP modify (from LdapSynchProfile) operations into a single LDAP add operation if any of the LDAP DN's provided under LdapAddEntries matches the DN provided under LdapSynchProfile. If a match is found, all attributes under LdapSynchProfile are copied into the LDAP add operation (and the "Modify If Exists" flag is overridden to "true" for that DN entry). If a DN match is not found, both operations execute separately in parallel.

LdapSynchProfile

LdapSynchProfile service configuration can be used to define a LDAP profile (list of attributes) that is updated on the external LDAP server. CPS calculates the values and tracks the LDAP attributes (included in the profile) for any changes through the lifetime of the session. If changes are detected, the server is updated with the new version of the profile.

Table 56: LdapSynchProfile Service Configuration Parameters

Parameter	Description
Ldap Server Set	A reference to the LdapServerSet configured in the reference-data. It links to the LDAP Plugin Configuration to identify the LDAP server configuration parameters.
Dn	This is the Distinguished Name for identifying the subscriber to be updated on the LDAP directory.

Parameter	Description
Dn Replacement Rules (List)	<p>This gives the option to dynamically replace the variables (identified with \$) defined in DN.</p> <p>ReplacementMapping:</p> <ul style="list-style-type: none"> • Replacement String: This is used to specify the variable used in the DN. • Replacement Source: This is a policy-state retriever that can be used to retrieve the required value for replacement.
Modified Date Attribute Name	Specifies the LDAP attribute name for storing the date when the LDAPModify request is triggered.
Ldap Synch Attribute (List)	<p>Specifies the list of attributes that should be updated on the LDAP server through the modify request.</p> <p>LdapSynchAttribute:</p> <ul style="list-style-type: none"> • Type: This is the LDAP attribute name. • Value: This is the LDAP attribute value which can be dynamically set by using the Pull value from... field to get its value from CRD output, subscriber AVP, and so on. • Add Only: The default value is false. • Statistic Name: If Statistic Name parameter is configured with a value, then a counter is created with this name to track the success or failure of LDAP operations for this attribute. If the value is not provided, counters are not generated for the attribute.
Controls (List)	<p>Specifies the LDAP controls that needs to be send in the LDAP modifyRequest. Control is a way to specify extension information to the LDAP server.</p> <p>Control: A control is a way to specify extension information. Controls which are sent as part of a request apply only to that request and are not saved.</p> <ul style="list-style-type: none"> • Control Type: This field MUST be a UTF-8 encoded dotted-decimal representation of an OBJECT IDENTIFIER which uniquely identifies the control. This prevents conflicts between control names. • Criticality: Currently, not supported. • Control Value: Currently, not supported. <p>These above mentioned configuration fields are added as per the LDAP controls defined in RFC-2251.</p>

Rx Service Configuration Objects

This section describes the parameters for the following Rx Service Configuration Objects:

ActionBasedOnSyPolicyCounters

ActionBasedOnSyPolicyCounters Service Configuration is used to pull CRD data from the STG.

The input parameters are: The Sy Policy Counter Identifier and Status in the format Identifier:Status. For multiple Policy Counters, each set of identifiers and counters are separated with semi-colons, for example: Identifier1:Status1;Identifier2:Status

When CPS receives Rx AAR or Sy SLA/SNR messages, CPS performs a one-time query on the CRD Table with the Sy Policy Counter Status as the input Key. Based on the output parameters, CPS sets SyCounterActions Object in Policy State with output parameters to handle in triggerAdditionalMessages method.

The output parameters are:

- Specific Action : The Specific Action to be sent in Rx-RAR
- Restricted-Media Type : The media types mapped. For multiple media types, each type is separated by a comma.
- Rx-Action : Action to be taken on Rx. Possible values are Continue (no action), Reject, and Terminate.
- Sy-Action : Possible values are Continue (no action), Terminate.
- Gx-Action : Rule-Group name in TableDrivenChargingRule STG which has Gx Rules for Flow-Status, Service-Id, Rating-Group , offline/online Metering method
- Sponsored-Identity : Sponsor Identity of session. For multiple Sponsor Identities, each is separated by a comma.
- Application-Service-Provider-Identity : Application-Service-Provider-Identity of session. For multiple Application-Service-Provider-Identity, each is separated by a comma.

The following table describes the service configuration parameters:

Table 57: ActionBasedOnSyPolicyCounters Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	Should not be configured.
Policy Counter Name (List)	Enter the Policy Counter Names in the order in which the CRD Input Column 'Policy-Counter-Status' is configured. Expected format is PolicyCounterIdentifier1:PolicyCounterStatus1; PolicyCounterIdentifier2:PolicyCounterStatus2
Stg Name	References the Search table group containing the CRD table.
List of Input Column Avp Pairs (List)	Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG. <ul style="list-style-type: none"> • Avp Name – The Avp name. Only supported value is Policy-Counter-Status. • Column – The reference to the CRD column for the input AVP.

Parameter	Description
List of Output Column Avp Pairs (List)	<p>List of Output AVPs for the CRD.</p> <ul style="list-style-type: none"> • Avp Name: The Avp name. Only values supported are 'Rx-Action', 'Gx-Action', 'Sy-Action', 'Application-Service-Provider-Identity', 'Sponsor-Identity', 'Specific-Action' and 'Restricted-Media-Type'. • Column: The reference to the CRD column for the output AVP.



Important You must configure a table search initiator to the Search Table Group mapped in ActionBasedOnSyPolicyCounters with the condition "a customer reference data AVP exists", which ensures that the table is not evaluated every time on any event by the policy engine. In the Table Search Initiator, enter a name for the initiator and add code as "CRD-CODE" and set the value to True.

ModifyRxDynamicRule

Rx Dynamic Rules can be modified by configuring ModifyRxDynamicRule service configuration and the modification can be based on Default Bearer QoS, Media-Type, AF-Application-identifier, Sponsor-Id and Application-Service-Provider-Identity.

The following table describes the service configuration parameters:

Table 58: ModifyRxDynamicRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Stg Name	References the Search table group containing the CRD table.

Parameter	Description
List of Input Column Avp Pairs (List)	<p>Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG.</p> <ul style="list-style-type: none"> Avp Name – The name of the AVP that is used as input for CRD table evaluation. Supported values are QoS-Class-Identifier, Priority-Level, Pre-emption-Capability, Pre-emption-Vulnerability, Media-Type, AF-Application-Identifier, Sponsor-Identity, Application-Service-Provider-Identity, Flow-Status, Flow-Usage, and MCPTT-Identifier. <p>DPCC_NAME - Used to derive the Dynamic PCC rule from CRD tables.</p> <p>DPCC_VALUE - Used to derive the Dynamic PCC rule from CRD tables.</p> <p>Note All input values should be configured as Key in Policy Builder. For custom fields, runtime binding should be set to None.</p> <ul style="list-style-type: none"> Column – The reference to the CRD column for the input AVP.
List of Output Column Avp Pairs (List)	<p>List of Output AVPs for the CRD.</p> <ul style="list-style-type: none"> Avp Name – The name of the AVP that is used as input for CRD table evaluation. Supported values are QoS-Class-Identifier, Qci, Priority-Level, Priority Level, Pre-emption-Capability, Preemption Capability, Pre-emption-Vulnerability, Preemption Vulnerability, Guaranteed-Bitrate-UL, Guaranteed Bit Rate U L, Guaranteed-Bitrate-DL, Guaranteed Bit Rate D L, Max-Requested-Bandwidth-UL, Max Req Bandwidth U L, Max-Requested-Bandwidth-DL, and Max Req Bandwidth D L. Column – The reference to the CRD column for the output AVP.
Ignore Existing Rule	This flag is used to ignore modification of existing Rx dedicated bearer which needs to be true to avoid existing rule modification on default bearer boost.
Disable Make N Break Rule on Qos Change	<p>When set to true, modified QCI/ARP are sent under same rule instead of generating new rule.</p> <p>When set to false, make and break functionality for Rx Dynamic Rule works. A new rule gets generated when QCI/ARP gets changed for current rule.</p> <p>Default: false</p>
Retain Modification On Boost Termination	<p>When set to true, existing dedicated bearer is not modified and boost/throttle is terminated.</p> <p>Default: false</p> <p>Type: Boolean</p>



Important The AVP Names Qci, Priority Level, Preemption Capability, Preemption Vulnerability, Guaranteed Bit Rate U L, Guaranteed Bit Rate D L, Max Req Bandwidth U L, and Max Req Bandwidth D L support QoS Action Mirror, Enforce or Bound.

For more details on QoS Action, refer to [Programmatic CRD \(QoS Action\)](#).

RxAppQoSInformation

The RxAppQoSInformation service configuration option defines the QoS to be used for Rx dedicated bearer based on the application ID and media type.

Table 59: RxAppQoSInformation Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Qci	
Max Req Bandwidth U L	
Max Req Bandwidth D L	
Guaranteed Bit Rate U L	
Guaranteed Bit Rate D L	
Arp	
Af Application Id	The AF-Application-Id for which the QoS values should be applied.
Media Type	The Media-Type for which the QoS values should be applied. (Use an Integer value as per 3GPP specifications).

For more information, refer to [RxAppQoSInformation Service Configuration](#).

RxAuthorizationSTGConfiguration

RxAuthorizationSTGConfiguration service configuration can be used to evaluate Rx Authorization table and obtain the output values configured. The RxAuthorizationSTGConfiguration supports chained evaluation of STGs which means multiple Search Table Groups can be configured hierarchically in the RxAuthorizationSTGConfiguration and outputs of one table can be used as input keys for another table. The Rx Authorization table from which Bearer Authorization and Error Cause output values are received needs to be configured as the last table in the list of chained STGs configured under RxAuthorizationSTGConfiguration.



-
- Note**
- Rx Authorization in AAR messages is supported for only new bearers, and not modification of existing bearers.
 - Rx_RAR on failure of Rx Authorization is sent only if Specific-Action=INDICATION_OF_FAILED_RESOURCES_ALLOCATION is armed in AAR message.
-

The following table describes the service configuration parameters:

Table 60: RxAuthorizationSTGConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	

Parameter	Description
Stg Details (List)	<p data-bbox="678 289 935 317">StgNameReferencePair:</p> <ul data-bbox="716 338 1484 596" style="list-style-type: none"> <li data-bbox="716 338 1484 401">• Stg Name (Optional): References the Search table group containing the CRD table. STG names configured have to be unique. <li data-bbox="716 422 1435 449">• Stg Reference (Mandatory): This is the reference to the CRD table <li data-bbox="716 470 1484 596">• List Of Input Column Avp Pairs (Mandatory): Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG. <ul data-bbox="764 617 1484 772" style="list-style-type: none"> <li data-bbox="764 617 1484 772">• Avp Name: In case the Input AVP is a standard AVP, then the AVP Name can be configured to the name of the diameter AVP (received in Media Component Description AVP of the AAR message) which is to be used as input for CRD table evaluation. (For example, AF-Application-Identifier, Media-Type and so on). <p data-bbox="889 793 1484 919">Note AVPs present at Media-Sub-Component level are not supported. In case of chained evaluation of STGs, the AVP Name must be exactly the same as the Output AVP which it is being mapped to.</p> <ul data-bbox="764 951 1435 978" style="list-style-type: none"> <li data-bbox="764 951 1435 978">• Column: The reference to the CRD column for the input AVP. <ul data-bbox="716 1020 1484 1146" style="list-style-type: none"> <li data-bbox="716 1020 1484 1146">• List Of Output Column Avp Pairs (Mandatory): Defines the mapping between the AVP Names and the output columns defined in the selected STG. These mappings indicate how the output columns' values are mapped to AVPs after the CRD is evaluated. <ul data-bbox="764 1167 1484 1230" style="list-style-type: none"> <li data-bbox="764 1167 1484 1230">• Avp Name: The name of the AVP to which the value of the output column is mapped. <p data-bbox="781 1251 1484 1398">The final STG from which you want to derive the output must have its output columns named Bearer-Authorization and Error-Message. The intermediate STGs used for chained evaluation can have any AVPs standard/non-standard. Supported values for Bearer-Authorization are Accept/Reject.</p> <p data-bbox="781 1419 1484 1566">In case the output column is not a standard AVP, then you can use any AVP Name (for example, Bearer-Throttling). But if this output column is chained into another STG's input column (for example, STG B's input column), then the AVP name for STG B's input column should also be Bearer-Throttling.</p> <ul data-bbox="764 1598 1451 1625" style="list-style-type: none"> <li data-bbox="764 1598 1451 1625">• Column: The reference to the CRD column for the output AVP.

RxChargingParameterSTGConfiguration

The RxChargingParameterSTGConfiguration service configuration object sets the charging parameters for dedicated bearers created for IMS session (non-sponsored data case).

Table 61: RxChargingParametersSTGConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Chargingparameterstg Name	References the Search table group containing the CRD tables that define the Qos Action.
List Of Input Column Avp Pairs (List)	See Common Parameter Descriptions, on page 88 . The following is the list of supported AVP Names under Input Column: <ul style="list-style-type: none"> • AF-Application-Identifier • Media-Type • Flow-Status • Reservation-Priority • Flow-Number • Flow-Usage • AF-Signalling-Protocol • DPCC_NAME - Used to derive the Dynamic PCC rule from CRD tables. • DPCC_VALUE - Used to derive the Dynamic PCC rule from CRD tables.
List Of Output Column Avp Pairs (List)	See Common Parameter Descriptions, on page 88 . The following is the list of supported AVP Names under Output Column: <ul style="list-style-type: none"> • Metering-Method • Offline • Online • Rating-Group • Service-Identifier • Reporting-Level • Precedence

RxDelayedMCDProcessing

RxDelayedMCDProcessing service configuration is used to delay the processing of media reported in AAR until it receives response for Gx RAR triggered based on Event-Triggers enabled based on [RxTableDrivenEventTriggers, on page 73](#).

The following table describes the service configuration parameters:

Table 62: RxDelayedMCDProcessing Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	

Restrictions

RxDelayedMCDProcessing service configuration also requires defining the RxTableDrivenEventTriggers to determine the Event-Triggers to be sent on the dummy Gx RAR message.

When CPS evaluates the RxDelayedMCDProcessing and determines that a dummy Gx RAR is required to be triggered then CPS skips the Rx Authorization processing. No need to add specific condition on RxAuthorizationSTGConfiguration template to disable it when dummy RAR needs to be triggered.

A policy with policy-action "Create Sy Service Session" is required to be configured for selectively triggering Sy SLR only after dummy RAR response is received. But if the CPS service does not have "Balance Service" check-box enabled and selective Sy needs to be triggered after dummy RAR response is received then "Calculate service configuration - on demand" policy-action is required to be added before the policy-action for triggering the "Create Sy Service Session".

RxDRMPSTGConfiguration

The RxDRMPSTGConfiguration service configuration object sets the priority of the Gx-RAR diameter message using the DRMP AVP in the circumstance of high priority traffic (for example, Multimedia Priority Service (MPS)) from the Rx interface. The DRMP AVP value is derived based on the Reservation-Priority AVP and MPS-Identifier AVP. Both, Reservation-Priority AVP and MPS-Identifier AVP, must present in the AAR message.



Note Reservation-Priority AVP present at the message level in the AAR is only used. Reservation-Priority AVP present at Media-Component-Description level is not used.

Table 63: RxDRMPSTGConfiguration Service Configuration Parameters

Parameter	Description
D R M P Reservation Priority Table	The name of the STG that is referenced.
Drmp Output Column	The output column of the STG, whose value on evaluation of the table, sets the DRMP AVP to set the priority of the Gx-RAR diameter message.

Parameter	Description
List Of Input Column Avp Pairs (List)	<p>Defines the mapping between the AVP names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in the STG.</p> <ul style="list-style-type: none"> • Avp Name – The name of the AVP that is used as input for the CRD table evaluation. <p>The following is the list of supported AVP names under Input Column:</p> <ul style="list-style-type: none"> • Reservation-Priority • MPS-Identifier <ul style="list-style-type: none"> • Column – The key column in the STG that corresponds to the specified AVP.

RxGuaranteedBitRateOverride

The RxGuaranteedBitRateOverride service configuration object overrides the GBR, and sets it from the MBR value.

Table 64: RxGuaranteedBitRateOverride Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Set Guaranteed Bit Rate from Max Requested	<p>This configuration is applicable when CPS is not able to derive guaranteed bit rate values based on the QoS derivation algorithm defined in 3GPP 29.213 specification. So if GBR is not derived and this service option is configured, then CPS copies the values derived for Max Requested Bitrates into Guranteed Bitrates (applicable for both UL and DL).</p> <p>Default: true</p>
Set Guaranteed Bit Rate from Max Requested (Qos-Action)	<p>Set this flag to true for copying the Max-Requested-Bitrate values into Guaranteed-Bitrate after QoS-Actions (RxSTGConfiguration) are applied. The bit rate values are copied only if the new QCI is < 5 and the Qos-Action on Guaranteed Bitrates (UL/DL) is Mirror.</p> <p>Default: false</p>

For more information, refer to [RxGaranteedBitRateOverride Service Configuration](#).

RxQoSInformation

The RxQoSInformation service configuration option sets QoS values for Rx dedicated bearer.

Table 65: RxQoSInformation Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Qci	
Max Req Bandwidth U L	
Max Req Bandwidth D L	
Guaranteed Bit Rate U L	
Guaranteed Bit Rate D L	
Arp	

For more information, refer to [RxQoSInformation Service Configuration](#).

RxSponsoredDataChargingParameterSTGConfiguration

The RxSponsoredDataChargingParameterSTGConfiguration service configuration object configures the CRD details for setting charging parameters for dedicated bearers that are created for sponsored data.

Table 66: RxSponsoredDataChargingParameterSTGConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Sponsored Datachargingparameterstg Name	References the Search table group containing the CRD tables that define the Qos Action.
List Of Input Column Avp Pairs (List)	See Common Parameter Descriptions, on page 88. DPCC_NAME - Used to derive the Dynamic PCC rule from CRD tables. DPCC_VALUE - Used to derive the Dynamic PCC rule from CRD tables.
List Of Output Column Avp Pairs (List)	See Common Parameter Descriptions, on page 88.

RxSTGConfiguration

The following parameters can be configured under RxSTGConfiguration service configuration:

Table 67: RxSTGConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Stg Name	References the Search table group containing the CRD tables that define the Qos Action for Rx specific dynamic rules (dedicated bearer).
List Of Input Column Avp Pairs (List)	<p>Define the mapping between the 'AVP Names' and the key 'Columns' defined in the selected STG. These AVPs will be the inputs while evaluating the CRD table in STG.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the Diameter AVP (received in Media Component Description AVP of the AAR message) that are used as input for CRD table evaluation. For example: Flow-Number, Media-Component-Number, MCPTT-Identifier, and so on. <p>DPCC_NAME - Used to derive the Dynamic PCC rule from CRD tables.</p> <p>DPCC_VALUE - Used to derive the Dynamic PCC rule from CRD tables.</p> <ul style="list-style-type: none"> • Column – References the key column defined in the selected STG.

Parameter	Description
List of Output Column Avp Pairs (List)	<p>Define the mapping between the AVP Names and the output columns defined in the STG selected. These mapping indicate how the output column's values are mapped to AVPs after the CRD is evaluated.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – Name of the diameter AVP (attribute from Qos-Information) to which the value of the output column should be mapped to while setting the Qos-Information for the dedicated bearer on Gx. (for example, “Qos-Class-Identifier”) <p>Similarly for Qos-Actions on the attribute the AVP Name specifies the qos-action for a specific Qos-Information attribute (for example, “Qci”).</p> <p>To support WPS Handling with Dynamic ARP, output AVPs that allow the dynamic value expression and their ranges to be defined are defined in Table 68: WPS Handling with Dynamic ARP - Output AVPs, on page 67.</p> <ul style="list-style-type: none"> • Column – References the key column defined in the selected STG. <p>For more information on output column AVP pairs, refer to RxSTGConfiguration Service Configuration.</p>
Input Codec Data	See Table 69: Input Codec Data Parameters, on page 68 .
Arp Precedence	Determines which RxSTGConfiguration to use for the new ARP eMPS feature.
Qos Precedence	Determines which RxSTGConfiguration to use for QCI lookup.
Disable Qos Change	<p>When set to true, CPS disables modification of Dedicated bearer QoS.</p> <p>Default: false</p>

Table 68: WPS Handling with Dynamic ARP - Output AVPs

Output AVP	Description
Dynamic-QoS-ARP-Priority-Level	<p>(Mandatory if WPS Handling with Dynamic ARP is enabled): This AVP can be bound to the new dynamic expression Priority-Level (PL) column. If value is null/not configured, then the Dynamic QoS ARP feature is disabled.</p> <p>If the value is configured, it overrides the integer PL value (if configured).</p> <p>The dynamic PL expression is either expected to match the Java regular expression (<code>^[dD](\s*([+ / *]) \s*([0 - 9]+))?\$</code>) or must be an offset value (of syntax: <code>[+ -][0 - 9]+</code>).</p> <p>In case the value is provided in the offset form, the “D” is implicit. Thus “+8” corresponds to “D+8” in expression form, “-5” corresponds to “D-5” and similarly, “0” corresponds to “D”.</p>
Dynamic-QoS-ARP-Priority-Level- Default	<p>(Optional) In case the default bearer does not have a Priority-Level, this value is used as dedicated bearer PL. If the value is null/not configured, the default value (15) is used.</p>
Dynamic-QoS-ARP-Priority-Level-Min	<p>(Optional) This output AVP provides upper/lower bound for the calculated PL value using the dynamic expression provided under Dynamic-QoS-ARP-Priority-Level. If the value is null/ not configured, the default value (1) is used.</p>
Dynamic-QoS-ARP-Priority-Level-Max	<p>(Optional) The upper end of the valid PL range. If the value is null/not configured, the default value (15) is used.</p>
Dynamic-QoS-Update-On-Change	<p>(Optional) This AVP controls whether the Rx rules must be updated on change in the dynamic PL value (for example, due to change in default bearer PL value). If the value is null/not configured, the Rx rules are not updated with new dynamic PL value once installed.</p>
Dynamic-QoS-ARP-Preemption-Capability	<p>(Optional): This AVP can be bound to the new dynamic Pre-Emption Capability (PC) column. If value is null/not configured, then the Dynamic QoS ARP PC handling is disabled.</p> <p>If the value is configured “D”, it overrides the PC value of the dedicated bearer with the Default Bearer PC.</p>

Output AVP	Description
Dynamic-QOS-ARP-Preemption-Vulnerability	<p>(Optional): This AVP can be bound to the new dynamic Pre-Emption Vulnerability (PV) column. If value is null/not configured, then the Dynamic QoS ARP PV handling is disabled.</p> <p>If the value is configured "D", it overrides the PV value of the dedicated bearer with the Default Bearer PV.</p>

**Note**

- Using the offset form may have minor performance gains as compared to full expression.
- Range limits are not applied for default dynamic values.
- Dynamic expression has an implicit "Enforce" QoS action. The Action column value is ignored.
- If the dynamic expression configured for Priority-Level is invalid, CPS ignores the expression and does not include the ARP parameters (since PL is set as null) in the rule install. This is true even if absolute PL value is configured (absolute value is ignored).

Table 69: Input Codec Data Parameters

Parameter	Description
Prefer Answer	<p>Supported values are:</p> <ul style="list-style-type: none"> • true – CPS uses the first Codec-Data AVP with "answer" on the second line, or the first Codec-Data AVP with "offer" if there is no Codec-Data AVP with "answer". • false – CPS uses the first Codec-Data AVP with "offer" or "answer" on the second line if AAR request has multiple 'Codec-Data' AVPs.

Parameter	Description
Input Columns Media Format	<p data-bbox="816 296 1182 321">InputCodecMediaFormatColumns</p> <ul data-bbox="850 342 1523 1339" style="list-style-type: none"> <li data-bbox="850 342 1523 499">• Column Encoding Name – Column from a Search Table Group and a corresponding Custom Reference Data Table for QoS information. The encoding name extracted from the a:rtpmap line is used to match the column in the Search Table Group and the corresponding Custom Reference Data Table. <li data-bbox="850 520 1523 678">• Column Clock Rate – Column from a Search Table Group and a corresponding Custom Reference Data Table for QoS information. The clock rate extracted from the a:rtpmap line is used to match the column in the Search Table Group and the corresponding Custom Reference Data Table. <li data-bbox="850 699 1523 856">• Column Encoding Parameters – Column from a Search Table Group and a corresponding Custom Reference Data Table for QoS information. The encoding parameters extracted from the a:rtpmap line is used to match the column in the Search Table Group and the corresponding Custom Reference Data Table. <li data-bbox="850 877 1523 1339">• List of Input Column Parameter Pairs <ul data-bbox="902 926 1523 1339" style="list-style-type: none"> <li data-bbox="902 926 1523 1024">• Parameter – Media Specific Parameter name in the a:fmt line to extract the value from. For example, mode-set, octet-align. <li data-bbox="902 1045 1523 1144">• Default – Optional default parameter value. If Codec-Data AVP does not include the SDP parameter, the default value is used. <li data-bbox="902 1165 1523 1339">• Column – Column from a Search Table Group and a corresponding Custom Reference Data Table for QoS information. The parameter value extracted from the standalone line or the default value is used to match the column in the Search Table Group and the corresponding Custom Reference Data Table.
List of Input Columns Sdp Pairs	<p data-bbox="816 1402 1182 1428">InputCodecParameterColumnPair</p> <ul data-bbox="850 1449 1523 1833" style="list-style-type: none"> <li data-bbox="850 1449 1523 1518">• Parameter – SDP parameter name in the standalone line to extract the value from. For example, "a=ptime". <li data-bbox="850 1539 1523 1617">• Default – Optional default parameter value. If Codec-Data AVP does not include the SDP parameter, the default value is used. <li data-bbox="850 1638 1523 1833">• Column – Column from a Search Table Group and a corresponding Custom Reference Data Table for QoS information. The parameter value extracted from the standalone line or the default value is used to match the column in the Search Table Group and the corresponding Custom Reference Data Table.

Parameter	Description
Media Comp Rtpmap Payload Type Index	<p>Indicates which RTP map line to be used for codec matching. For example, index 2 indicates that the second rtp-map/fmtp line in codec AVP is used for configuration matching.</p> <p>To disable this parameter, the value must be less than 1.</p> <p>Restriction If Media Component Description AVP comes with multiple codec-data AVP (offer and answer), then in order to select the codec-data with answer, "prefer_answer" configuration has to be enabled under service option. If the configuration is not enabled, first codec-data is used for configuration matching, which means offer is expected to be first codec-data.</p>



- Note**
- CPS supports default values for media specific parameters in `a=fmtp` line and SDP standalone lines.
 - CPS supports SDP standalone lines in the form of `<char>=<name>:<value>`.

For more information, see [Basic Options](#).

RxSTGDefaultBearerConfiguration

RxSTGDefaultBearerConfiguration service configuration is used for CRD evaluation of default bearer QoS on receiving Rx AAR with Dynamic-PCC-Requested-QoS AVP. The same service configuration can also be used to support modification of default bearer based on MPS-Identifier, MCPTT-Identifier, and Reservation-Priority received in AAR from P-CSCF.

The following parameters can be configured under RxSTGDefaultBearerConfiguration service configuration for both use cases:

Table 70: RxSTGDefaultBearerConfiguration Service Configuration Parameters (Use Case - Rx AAR having Dynamic-PCC-Requested-QoS AVP)

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Stg Name	References the Search table group containing the CRD tables that define the QoS Action for Rx specific dynamic rules (dedicated bearer).

Parameter	Description
List Of Input Column Avp Pairs (List)	<p>Defines the mapping between the 'AVP Names' and the key 'Columns' defined in the selected STG. These AVPs are the inputs while evaluating the CRD table in STG.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the Diameter AVP (received in Media Component Description AVP of the AAR message) that is used as input for CRD table evaluation. Supported input AVPs are: <ul style="list-style-type: none"> • AF-Application-Identifier • Flow-Number • Flow-Usage • Intention • QoS-Class-Identifier • Priority-Level • Pre-emption-Capability • Pre-emption-Vulnerability • DPCC_NAME • DPCC_VALUE • Application-Service-Provider-Identity • Media-Type • Sponsor-Identity • Service-Info-Status <p>The value of AVP names must be exact same as per specifications while defining input columns.</p> <ul style="list-style-type: none"> • Column – References the key column defined in the selected STG.

Parameter	Description
List of Output Column Avp Pairs (List)	<p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the diameter AVP (attribute from QoS-Information) to which the value of the output column should be mapped while setting the QoS-Information for the dedicated bearer on Gx. Supported list of output AVPs are: QoS-Class-Identifier, APN-Aggregate-Max-Bitrate-DL, APN-Aggregate-Max-Bitrate-UL, Max-Requested-Bandwidth-DL, Max-Requested-Bandwidth-UL, Guaranteed-Bitrate-DL, Guaranteed-Bitrate-UL, Priority-Level, Pre-emption-Capability, and Pre-emption-Vulnerability <p>Similarly, for QoS-Actions on the attribute, the AVP Name specifies the qos-action for a specific QoS-Information attribute; supported corresponding action AVPs are: Qci, Apn Agg Max Bit Rate U L, Apn Agg Max Bit Rate D L, Priority Level, Preemption Capability, and Preemption Vulnerability</p> <p>Actions for Max-Requested-Bandwidth and Guaranteed-Bitrate AVPs is always be enforced. If value is present and is not null in CRD then that value is enforced otherwise CPS takes no action and does not change the Max-Requested-Bandwidth and Guaranteed-Bitrate.</p> <ul style="list-style-type: none"> • Column – References the output column defined in the selected STG.

Table 71: RxSTGDefaultBearerConfiguration Service Configuration Parameters (Use Case - Getting MPS Identifier and Reservation Priority AVP in AAR for Emergency Services)

Parameter	Description
Priority	See Common Parameter Descriptions , on page 88.
Diameter Client	
Stg Name	References the Search table group containing the CRD tables that define the Qos Action for Rx specific dynamic rules (dedicated bearer).

Parameter	Description
List Of Input Column Avp Pairs (List)	<p>Defines the mapping between the 'AVP Names' and the key 'Columns' defined in the selected STG. These AVPs are the inputs while evaluating the CRD table in STG.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the Diameter AVP (received in AAR message) that is used as input for CRD table evaluation. Supported input AVPs are: <ul style="list-style-type: none"> • Reservation-Priority • MPS_Identifier • MCPTT-Identifier <p>The value of AVP names must be exact same as per specifications while defining input columns.</p> <ul style="list-style-type: none"> • Column – References the key column defined in the selected STG.
List of Output Column Avp Pairs (List)	<p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the diameter AVP (attribute from Qos-Information) to which the value of the output column should be mapped while setting the Qos-Information for the dedicated bearer on Gx. Supported list of output AVPs are: <ul style="list-style-type: none"> • QoS-Class-Identifier • Priority-Level • Pre-emption-Capability • Pre-emption-Vulnerability <p>Actions for QoS-Class-Identifier, Priority-Level, Pre-emption-Vulnerability, and Pre-emption-Capability AVPs is always enforced. If value is present and is not null in CRD then that value is enforced otherwise CPS takes no action and does not change the QoS-Class-Identifier, Priority-Level, Pre-emption-Vulnerability, and Pre-emption-Capability.</p> <ul style="list-style-type: none"> • Column – References the output column defined in the selected STG.

RxTableDrivenEventTriggers

RxTableDrivenEventTriggers service configuration is used to derive a list of event-triggers that CPS should subscribe based on table evaluation. The input columns to this table are the Media-Component-Description AVP values or any other input parameters (derived from gx-session) and the output columns give the list of

applicable event-triggers. Based on the selection logic user can configure any AVP received at MCD level to the input columns. In the CRD table, output columns can give an event-trigger number. So, there can be multiple output columns depending upon the number of event-triggers that are to be supported. You need to configure all these output columns that derive the event-trigger number in the service configuration.

This service configuration is also used for configuring the STG used to specify the event-triggers to be sent in dummy GxRAR. In this case, the same service option needs to be linked to two separate CRD tables (Rx-Table or dummy RAR Event-Trigger table). So, these service-options are created by modifying the RxTableDrivenEventTriggers Use Case Template with Use Case Initiator conditions that checks for triggering dummy RAR. This avoids enabling both the service option at the same time.

The following table describes the service configuration parameters:

Table 72: RxTableDrivenEventTriggers Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Stg Name	References the Search table group containing the CRD tables that define the Qos Action for Rx specific dynamic rules (dedicated bearer).
List Of Input Column Avp Pairs (List)	<p>Defines the mapping between the 'AVP Names' and the key 'Columns' defined in the selected STG. These AVPs are the inputs while evaluating the CRD table in STG.</p> <p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the diameter AVP that is used as input for CRD table evaluation. • Column – References the key column defined in the selected STG.
List of Output Column Avp Pairs (List)	<p>ColumnAndAvpPair:</p> <ul style="list-style-type: none"> • Avp Name – The name of the diameter AVP to which the value of the output column should be mapped. <p>The output AVP name mapping indicates how the output column's values are mapped to AVPs after the CRD is evaluated.</p> <ul style="list-style-type: none"> • Column – References the output column defined in the selected STG.

Restrictions

When using RxTableDrivenEventTriggers for both Rx-Table event-triggers and dummy RAR event-triggers, the template must be configured with modify conditions to have two service options that can be linked to the two STG tables. The condition to modify the template for dummy RAR event-triggers must be set as per the requirement to trigger the dummy Gx RAR message.

If dummy RAR Event-Trigger table indicates no new Event-Triggers are required then the actual RAR with bearer installation will not have the correct subscription based on the Rx Table (since the Rx table event-triggers will not get evaluated). Therefore, a limitation would be that whatever entries having event-trigger subscription

in Rx-Table for specific media-type that media-type will also have corresponding event-triggers enabled for dummy RAR event-trigger table also.

EvaluateRxDedicatedBearer

The EvaluateRxDedicatedBearer service configuration object evaluates the Rx dedicated bearer depending on the trigger for the policy evaluation.

Table 73: EvaluateRxDedicatedBearer Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Stg Name	
List Of Input Column Avp Pairs (List)	
List Of Output Column Avp Pairs	

EvaluateRxDedicatedBearerCreate

The EvaluateRxDedicatedBearerCreate service configuration object evaluates media sub-components from AAR's Initial request and uses it to determine if dedicated bearer needs to be created based on CRD lookup.

Table 74: EvaluateRxDedicatedBearer Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Stg Name	
List Of Input Column Avp Pairs (List)	
List Of Output Column Avp Pairs	

ThrottleRxBasedOnBearer

The ThrottleRxBasedOnBearer service configuration object enables you to throttle default bearer.

Table 75: ThrottleRxBasedOnBearer Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Qci	
Allocation Retention Priority	
Max Required Bandwidth U L	
Max Required Bandwidth D L	

ThrottleRxBasedOnMediaType

The ThrottleRxBasedOnMediaType service configuration object enables you to throttle Rx calls based on media type.

Table 76: ThrottleRxBasedOnMediaType Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
Q O S Allocation Parameters (List)	<p>List of parameters that can be configured to enable you to throttle Rx calls with the media type as follows:</p> <ul style="list-style-type: none"> • Media Type - Type of Media. • Bandwidth Allocation For Media Type - Allocated bandwidth for the selected media type. • Percentage Allocation For R T P - Corresponding percentage of the bandwidth that needs to allocated for RTP. • Percentage Allocation For R T C P - Corresponding percentage of the bandwidth that needs to allocated for RTPC.

RxClient Service Configuration Objects

BindingDbHealthCheck

The BindingDbHealthCheck service configuration object is used to configure PCRF to initiate a message that results in sending dummy AAR to PolicyDRA to check if binding is available at PolicyDRA and allowing the PCRF to take corrective action based on the response.

Table 77: BindingDbHealthCheck Service Configuration Parameters

Parameter	Description
Enable Health Check	This field is used to enable the feature for a particular APN. This field can be read from a CRD table which has mapping to an APN name.
Destination Realm	This field notifies the destination realm of the Policy DRA or Rx peer.



Note The dummy AAR sent by PCRF for PolicyDRA binding database health check is routed back to PCRF. This dummy AAR has to be ignored/rejected. To identify the dummy (health-check) AAR the diameter session ID is appended with **BindingDbCheck** keyword. When PCRF receives an AAR with session ID ending with **BindingDbCheck** keyword, it needs to be replied by using RequestReject configuration that must be enabled using the condition that makes use of session ID having **BindingDbCheck** keyword. For configuration, refer to [RequestReject](#), on page 1.



Note To improve the performance when PolicyDRA Health Check is enabled, you must configure 'RxClientSessionKey' key as the Lookaside Key Prefix so that memcache is used and full database scan is avoided. This is highly recommended for higher capacity systems.

Sd Service Configuration Objects

This section describes the parameters for the following Sd Service Configuration Objects:

ADCPreconfiguredRule

The ADCPreconfiguredRule service configuration object configures a dynamic application detection rule.

Table 78: ADCPreconfiguredRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Rule Group	Not used
Rule Name	Not used
Adc Rule Name	The name of the ADC rule.
Tdf Application Identifier	See Common Parameter Descriptions, on page 88 .
Flow Status	
Mute Notification	
Monitoring Key	
QoS Information	<p>QoSInformation</p> <p>For detailed information about the following parameters, see Common Parameter Descriptions, on page 88.</p> <ul style="list-style-type: none"> • Max Req Bandwidth U L • Max Req Bandwidth D L • Guaranteed Bit Rate U L • Guaranteed Bit Rate D L • Apn Agg Max Bit Rate U L • Apn Agg Max Bit Rate U L • Arp
Redirect Information	<p>RedirectInformation</p> <p>For detailed information about the following parameters, see Common Parameter Descriptions, on page 88.</p> <ul style="list-style-type: none"> • Redirect Address Type • Redirect Support • Redirect Server Address

ADCPredefinedRule

The ADCPredefinedRule object configures a static ADC rule.

Table 79: ADCPredefinedRule Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Rule Group	
Rule Name	

ADCPredefinedRuleBase

The ADCPredefinedRuleBase object configures a predefined group of ADC rules. The group can contain predefined, pre-configured, dynamic, and predefined rule base rules.

Table 80: ADCPredefinedRuleBase Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Rule Group	
Rule Name	

EventTrigger

The EventTrigger service configuration object specifies the event to be sent.

Table 81: EventTrigger Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Event Trigger	

SdDynamicRuleReference

The SdDynamicRuleReference service configuration object is used to define the CRD table and column details for determining the rule-name and charging-parameters for the Sd Sponsored Data Dynamic PCC Rule.

Table 82: SdDynamicRuleReference Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	
STG Table	The name of the Search Table group table that is being referenced.
List Of Input Column Avp Pairs (List)	See Common Parameter Descriptions, on page 88.
List Of Output Column Avp Pairs (List)	
Retry Pcc Rules On Failure	Can be set to true or false. Default: false

SdDefaultBearerQosADCRuleConfiguration

The SdDefaultBearerQosADCRuleConfiguration service configuration object is used to derive ADC rules.

The following Query Table Input/Output can be used:

- Inputs:
 - LDAP Attributes
 - Sy-Counter-Id and Sy-Counter-Status
 - Gx-Attributes: APN, Roaming-Status (RMS Table) and so on
- Output: ADC-Rule-Name, TDF-Application-Identifier, Event-Trigger

Table 83: SdDefaultBearerQosADCRuleConfiguration Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88.
Diameter Client	

Parameter	Description
Crd Tables (List)	<p>QueryTable</p> <p>Each Query Table represents a Customer Reference Data table. The application references the Input List and selects parameters and values along with it to query the table.</p> <p>Provide the input and output parameters according to your requirements.</p> <ul style="list-style-type: none"> • Table name – Click the ... button, and select a table name from the list. • Input List (List) – Click the arrow to expand the contents. <ul style="list-style-type: none"> InputColumnObject – Click the arrow to expand the contents. <ul style="list-style-type: none"> • Crd Column – Click the ... button, and select a CRD column from the list. • Referenced Output Column – Click the ... button, and select an output column from the list. • Column Value – Enter the column value. • Referenced MultiValue AVP Name – Enter the referenced multi-value AVP name. • Output List (List) – Gives the application relevant hints on how to use the query results. <ul style="list-style-type: none"> OutputColumnObject <ul style="list-style-type: none"> • Crd Column – Click the ... button, and select a CRD column from the list. • Target Avp Name – Enter the target AVP name. • Query Order – Enter a numeric value. (The default is 0.) QPS determines the Query Table that needs to be queried based on the Query Order. The Query Order is based on the ascending order of precedence, that is, 0 > 1 > 2 > 3 and so on. <p>Restriction All inputs to CRD table must be through retrievers only.</p>
Realm	<p>See Common Parameter Descriptions, on page 88.</p> <p>This value provides the information on the TDF node to which the Sd Diameter Interface connects.</p>

SdToggleMonitoringKey

The SdToggleMonitoringKey service configuration object defines the monitoring-key to be used for the Sponsored Data Dynamic PCC Rule.

Table 84: SdToggleMonitoringKey Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Monitoring Key	

Service Configuration Objects

This section describes the parameters for the following Service Configuration Objects:

ServiceNotification

ServiceNotificationservice configuration under the "service" section needs to be configured for the subscriber service to trigger notifications.

Table 85: ServiceNotification Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Enable Rx Service	If this is set to false, no device indicator notification will be sent for Rx event. Possible values are true or false.
Enable Sd Service	If this is set to false, no device indicator notification will be sent for Sd event. Possible values are true or false.
Enable Sy Service	If this is set to false, no device indicator notification will be sent for Sy event. Possible values are true or false.
Enable Dscp Service	If this is set to false, no device indicator notification is sent for DSCP event. Default: false
Rx Service Crd Column	Resultcolumn of the CRD table. Value in this column specifies whether to send device notification or not for Rx event. To send device notification the value in the column should be "ON". Value other than "ON" will result in no device notification.

Parameter	Description
Sy Service Crd Column	<p>Result column of the CRD table. Value in this column specifies whether to send device notification or not for Sy event.</p> <p>To send device notification the value in the column should be "ON". Value other than "ON" will result in no device notification.</p>
Sd Service Crd Column	<p>Result column of the CRD table. Value in this column specifies whether to send device notification or not for Sd event.</p> <p>To send device notification the value in the column should be "ON". Value other than "ON" will result in no device notification.</p>
Dscp Service Crd Column	<p>Result column of the CRD table. Value in this column specifies whether to send device notification or not for Dscp event.</p> <p>To send device notification the value in the column should be "ON". Value other than "ON", results in no device notification.</p>
Sy Service STG	<p>ServiceSTGConfiguration: STG Configuration for Sy Event.</p> <ul style="list-style-type: none"> • Search Table Group: CRD table to decide whether to send device notification for the Sy event. • List of Input Column Avp pair (List): This is the list of column and AVP pair and is used as input to the CRD table. <p>ColumnAndAvpPair: In the column and AVP pair, column is the column in the CRD table and AVP name is AVP received in SNR on Sy. While searching the table the values of the AVPs are populated for the corresponding table column. AVP name can have Policy-Counter-Identifier or Policy-Counter-Status as values.</p>
Sd Service STG	<p>ServiceSTGConfiguration: STG Configuration for Sd Event.</p> <ul style="list-style-type: none"> • Search Table Group: CRD table to decide whether to send device notification for the Sd event. • List of Input Column Avp pair (List): This is the list of column and AVP pair and is used as input to the CRD table. <p>ColumnAndAvpPair: In the column and AVP pair, column is the column in the CRD table and AVP name is AVP received in CCR-U on Sd. While searching the table the values of the AVPs are populated for the corresponding table column. AVP name can have TDF-Application-Identifier or Sponsor-Identity as values.</p>
Initial Off On C C R I	Default: true
Initial Off On Sy S L A	Default: false

Parameter	Description
Dscp Service STG	<p>ServiceSTGConfiguration: STG Configuration for DSCP Event.</p> <ul style="list-style-type: none"> • Search Table Group: CRD table to decide whether to send device notification for the DSCP event. • List of Input Column Avp pair (List): This is the list of column and AVP pair and is used as input to the CRD table.

Sy Service Configuration Objects

This section describes the parameters for the following Sy Service Configuration Object:

SpendingLimitReport

The SpendingLimitReport service configuration object is used for the 3GPP Sy interface. The Sy reference point is located between the Policy and Charging Rules Function (PCRF) and the Online Charging System (OCS). The Sy reference point enables transfer of policy counter status information relating to subscriber spending from OCS to PCRF and supports the following functions:

- Request of policy counter status reporting from PCRF to OCS, and subscribe to or unsubscribe from spending limit reports (notifications of policy counter status changes).
- Notification of spending limit reports from OCS to PCRF.
- Cancellation of spending limit reporting from PCRF to OCS.

Table 86: SpendingLimitReport Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	

Parameter	Description
Subscriber Id (List)	<p>Identifier – The user identity, which is mapped to the Subscription-Id AVP. Based on your requirements, you can configure one or more identifiers. Possible values for identifiers include:</p> <ul style="list-style-type: none"> • Session MSISDN – The MSISDN value of the subscriber. • Session IMSI – The IMSI value of the subscriber. <p>Skip Subscriber Id in SLR Initial – Flag to skip configured Subscriber id in SLR initial. When set to true, skips configured subscriber id in SLR initial. When set to false, subscriber id is sent in SLR initial. Default value is false.</p> <p>Skip Subscriber Id in SLR Intermediate – Flag to skip configured subscriber id in SLR intermediate. When set to true, skips configured subscriber id in SLR intermediate. When set to false, subscriber id is sent in SLR intermediate. Default value is false.</p>
Asynchronous	<p>This parameter can be set to true or false.</p> <p>True – Use asynchronous mode for Sy interface (PCRF will not wait for SLA response from OCS before sending the message on another interface like Gx.)</p> <p>False – Use synchronous mode for Sy interface (PCRF waits for the SLA response from the OCS or SLA timeout before sending the message on another interface like Gx.)</p> <p>Asynchronous mode is preferred.</p>
Retry Time Seconds	Not used.
Realm	The Sy peer realm (OCS) where the message needs to be sent from PCRF.
Identifier (List)	<p>Identifier Name – The subscribed Sy Policy Counter Identifier list, which maps to the Policy-Counter-Identifier AVP. PCRF uses this list to send the Policy-Counter-Identifiers to the OCS in the SLR message.</p> <p>If this list is blank, the PCRF requests subscription to all available policy counters.</p>
Defaults On Failure (List)	<p>DefaultSpendingLimitReport – The default list of Policy Counter Identifiers that are subscribed to in case of failures. This parameter is optional.</p> <ul style="list-style-type: none"> • Failure Reason – One of the failure codes from the drop-down list for which the default identifier and it's status is given below. • Identifier – The policy counter identifier name. • Status – The policy counter identifier status.

Parameter	Description
Subscriber Id In S T R	This parameter can be set to true or false. It specifies whether to send subscriber-id AVP in the STR message. This is a custom feature, and is not as per 3GPP standards. Default: false
Subscriber Id In S N A	This parameter can be set to true or false. It specifies whether to send subscriber-id AVP in the SNA message. This is a custom feature, and is not as per 3GPP standards. Default: false
Force Create Session	This parameter can be set to true or false. When set to true, it initiates a new Sy session (if one does not already exist) irrespective of the policy event or the re-initiation count/time. Default: false
Resend Counter In SLR Inter Mediate	When this flag is set to true, CPS sends counter in SLR intermediate. Default value is false.
Receive Unknown Counter	When this flag is set to true, CPS honors the unknown counters received in SNR message. Default value is false.
Update Next Evaltime of session On Expiry	When this flag is set to true, CPS keeps sending check-alive SLR based on stale session configuration and does not extend time of check-alive SLR if SNR is received.

SyAction

The Sy Action service configuration object is used to send the SLR-U during policy counter-conflicts.

Table 87: SyAction Service Configuration Parameters

Parameter	Description
Priority	The priority of the message for processing. The higher the number, the higher the priority. Default for most settings: 0
Diameter Client	The client configuration is used to apply different policies based on OCS type. To filter a service based on the Diameter client, specify which Diameter client you want the service to be applied to. Diameter clients are configured in Policies > Diameter Clients . This parameter is optional.

Parameter	Description
Send SLR-Intermediate	When this parameter is set to true, CPS sends an SLR-U with a list of currently subscribed policy counter-identifiers. Default value is false.
SLR-Intermediate Max Retry	Number of retry attempts allowed on a non-successful SLR-Intermediate request. Default value is 1.

TableDrivenActionOverSy

TableDrivenActionOverSy service configuration is used to evaluate and retrieve action to be taken over Sy interface on receiving messages. On each policy evaluation (including Gx CCR-U), if TableDrivenActionOverSy is found in policy, CPS evaluates the referenced table and determine the Action to be executed on the Sy interface. If the Action value is **Update**, CPS then initiates a sync SLR-Inter message (provided Sy session exists). When the SLR-Inter response is received (Result Code 7000 if there is timeout), CPS reevaluates the TableDrivenActionOverSy configuration and determines the next Action. If that Action is **Reinitiate**, CPS terminates the existing session and initiates a new one (by sending an SLR-Initial).

When CPS terminates the existing session, if the **Standard Sy** flag is false, the STR message is not sent out and instead the session is cleaned up immediately. If the Standard Sy flag is true, then a sync Sy STR is sent out. On receiving response (can be success or failure or timeout), CPS cleans up the session.



Note To allow TableDrivenActionOverSy to be evaluated properly for timeouts, the Policy Director (LB) node must send back the 7000 response before the Sync action (for sending SLR-Inter message) times out. Also, CPS by default, retries the timed out request once directly from the Policy Director (LB) node.

Table 88: TableDrivenActionOverSy Service Configuration Parameters

Parameter	Description
Priority	See Common Parameter Descriptions, on page 88 .
Diameter Client	
Search Table Group	Search Table Group table that is being referenced. The STG (and the contained CRDs) can also contain key columns that do not directly refer to Diameter AVPs in the trigger message. For example, Outputs of other tables. These columns must be bound correctly.
Input Column Binding (List)	ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP that is used as input for CRD table evaluation. • Column: The key column in the STG that corresponds to the specified AVP.

Parameter	Description
Output Column Binding (List)	ColumnAndAvpPair <ul style="list-style-type: none"> • Avp Name: The name of the Diameter AVP to which the value of the output column is mapped. • Column: The reference to the CRD column for the output AVP. <p>Note The list of Output column to AVP bindings currently supports only one column/AVP binding for fixed AVP code Action-Over-Sy.</p>



- Note** TableDrivenActionOverSy service configuration only accepts trigger Diameter message AVPs for Input column binding. Thus, the AVP Code has to exactly match to what is received in the message. In addition to message AVPs, the following AVP codes can be used as input AVP codes:
- Command-Code: To use command code of trigger message as Input key.
 - Application-Id: The Diameter Application Identifier for the trigger message

UDC Client Service Configuration Objects

ADTMAttribute

The ADTMAttribute service configuration object is used to specify the attribute name which should be a LDAP attribute.

The following table describes the service configuration parameters:

Table 89: ADTMAttribute Service Configuration Parameters

Parameter	Description
Attribute Name	This parameter is used by CPS to inform UDC about the attribute update.
Logical Apn	Specifies the different Logical APN values for the encoded LDAP Attribute value.

For more information, refer to *ADTMAttribute Service Configuration Object* section in *CPS UDC Guide*.

Common Parameter Descriptions

These parameters are common between many service configuration objects. They are listed in alphabetical order.

Table 90: Common Service Configuration Object Parameters

Parameter	Description
Apn Agg Max Bit Rate DL	Defines the total bandwidth usage for the downlink direction of non-GBR QCI at the APN.
Apn Agg Max Bit Rate UL	Defines the total bandwidth usage for the uplink direction of non-GBR QCI at the APN.
Arp	AllocationRetentionPriority <ul style="list-style-type: none"> • Priority Level – Priority-Level AVP value. • Preemption Capability – Preemption-Capability AVP value • Preemption Vulnerability – Preemption-Vulnerability AVP value.
Balance Code	Indicates with which balance the quota is associated. You can subscribe to multiple balances, but the monitoring key is associated with one balance.
Diameter Client	The client configuration is used to apply different policies based on PCEF type. To filter a service based on the Diameter client, specify which Diameter client you want the service to be applied to. Diameter clients are configured in the Reference Data > Diameter Clients > Diameter Clients section of the interface. This parameter is optional.
Dosage	How much quota to initially give the client (in bytes). Default: 0
Dual Stack Session	Can be set to enabled or disabled. Default: disabled
Enable Resource Allocation Notification	Can be set to enabled or disabled. Default: disabled
Encoding Format	Can be set to true or false. If the Monitoring Key parameter is numeric, set this parameter to true. Default: false
Event Trigger	Used primarily to notify the starting and stopping of applications or to report usage. It is not used to rerequest rules.
Flow Status	Defines whether the service data flow is enabled or disabled.

Parameter	Description
Framed I P Type	<p>Can be set to one of the following options:</p> <ul style="list-style-type: none"> • ANY_ONE • BOTH • IPv4_ADDRESS • IPv6_ADDRESS <p>Default: ANY_ONE</p>
Guaranteed Bit Rate DL	Defines the guaranteed bit rate allowed for the downlink direction.
Guaranteed Bit Rate UL	Defines the guaranteed bit rate allowed for the uplink direction.
List of Input Column Avp Pairs (List)	<p>Defines the mapping between the AVP Names and the key columns defined in the selected STG. These AVPs are used as inputs while evaluating the CRD table in STG.</p> <ul style="list-style-type: none"> • Avp Name – The name of the Diameter AVP that is used as input for CRD table evaluation. For example: Flow-Number, Media-Component-Number, and so on. • Column – The key column in STG that corresponds to the specified AVP.
List Of Output Column Avp Pairs (List)	<p>Defines the mapping between the AVP Names and the output columns defined in the selected STG. These mappings indicate how the output columns' values are mapped to AVPs after the CRD is evaluated.</p> <ul style="list-style-type: none"> • Avp Name – The name of the Diameter AVP to which the value of the output column is mapped while setting the charging parameters on the dynamic rule (for the Dedicated Bearer). For example: Rating-Group Service-Identifier. • Column – The output column defined in the selected STG.
Max Req Bandwidth DL	Defines the maximum bit rate allowed for the downlink direction.
Max Req Bandwidth UL	Defines the maximum bit rate allowed for the uplink direction.
Monitoring Key	Identifies a usage monitoring control instance. You can specify any value.
Monitoring Level	<p>Can be set to one of the following values:</p> <ul style="list-style-type: none"> • SESSION_LEVEL (0) • PCC_RULE_LEVEL (1) • ADC_RULE_LEVEL (2)
Mute Notification	Indicates whether notifications for application starts and stops are muted for ADC Rule by the TDF.

Parameter	Description
New String Value	The new string value that is used to overwrite the “String Value” if the value of “String Value” field matches exactly with the value of “String Value To Override”.
Online	<p>Defines whether the online charging interface from the PCEF for the associated PCC rule is enabled. The default charging method provided by the CPS takes precedence over any preconfigured default charging method at the PCEF.</p> <ul style="list-style-type: none"> • Enable: Indicates that the online charging interface for the associated PCC rule is enabled. • Disable: Indicates that the online charging interface for the associated PCC rule is disabled.
Offline	<p>Defines whether the offline charging interface from the PCEF for the associated PCC rule is enabled. The default charging method provided by the CPS takes precedence over any preconfigured default charging method at the PCEF.</p> <ul style="list-style-type: none"> • Enable: Indicates that the offline charging interface for the associated PCC rule is enabled. • Disable: Indicates that the offline charging interface for the associated PCC rule is disabled.
Precedence	Defines the second level priority when the highest priority matches among the multiple generic service configurations.
Preemption Capability	<p>When provided within the QoS-Information AVP, the AVP defines whether a service data flow can get resources that were already assigned to another service data flow that has a lower priority level. If it is provided within the Default-EPS-Bearer-QoS AVP, the AVP defines whether the Default Bearer can get resources that were already assigned to another bearer with a lower priority level.</p> <ul style="list-style-type: none"> • 0: Indicates that the service data flow or bearer is allowed to get resources that were already assigned to another service data flow or bearer with a lower priority level. • 1: Indicates that the service data flow or bearer is not allowed to get resources that were already assigned to another service data flow or bearer with a lower priority level. This is the default value applicable if this AVP is not supplied.

Parameter	Description
Preemption Vulnerability	<p>When provided within the QoS-Information AVP, the AVP defines whether a service data flow can lose the resources assigned to it in order to admit a service data flow that has a higher priority level. If it is provided within the Default-EPS-Bearer-QoS AVP, the AVP defines whether the Default Bearer can lose the resources assigned to it in order to admit a pre-emption capable bearer with a higher priority level.</p> <ul style="list-style-type: none"> • 0: Indicates that the resources assigned to the service data flow or bearer can be pre-empted and allocated to a service data flow or bearer with a higher priority level. This is the default value applicable if this AVP is not supplied. • 1: Indicates that the resources assigned to the service data flow or bearer cannot be pre-empted and allocated to a service data flow or bearer with a higher priority level.
Priority	<p>The priority of the message for processing. The higher the number, the higher the priority.</p> <p>Default for most settings: 0</p>
Priority Levels	<p>Used to decide whether a bearer establishment or modification request can be accepted, or rejected due to resource limitations (typically used for admission control of GBR traffic). The AVP can also be used to decide which existing bearers to pre-empt during resource limitations. The priority level defines the relative importance of a resource request.</p> <p>Values 1 to 15 are defined, with value 1 as the highest level of priority.</p> <ul style="list-style-type: none"> • Values: 1 to 8 – Assigned for services that are authorized to receive prioritized treatment within an operator domain. • Values: 9 to 15 – Assigned to resources that are authorized by the Home network and thus applicable when a UE is roaming.
Provision Default Bearer QoS	<p>Must be bound to the appropriate column in the STG. The data contained in the STG column is of type True/False.</p> <p>If the value is True, the Default Bearer QoS information from the session is applied to the rule, while QoS information derived from the prior parameters in this STG is ignored.</p>

Parameter	Description
Qci	<p>The Quality of Service (QoS) Class Identifier.</p> <p>The QoS class identifier identifies a set of IP-CAN specific QoS parameters that define QoS, excluding the applicable bitrates and ARP. It is applicable both for uplink and downlink direction. The QCI values 0, 10 to 255 are divided for usage as follows:</p> <ul style="list-style-type: none"> • 0: Reserved • 10-127: Reserved • 128-254: Operator specific • 255: Reserved
Rating Group	The charging key for the PCC rule used for rating purposes.
Realm	The destination realm where the message is sent from PCRF.
Redirect Address	Indicates the target for redirected application traffic.
Redirect Address Type	<p>Defines the address type of the address given in the Redirect-Server-Address AVP.</p> <p>Default: IPV4_ADDRESS</p>
Redirect Server Address	Indicates the target for redirected application traffic.
Redirect Support	This value indicates that Redirection is enabled for a detected application's traffic.
Retry Profile	Indicates the Rule Retry Profile to be used. When CPS receives a Charging-Rule-Report indicating failure to install or to activate one or more rules, it evaluates the failed rules and takes further action.
Rule Group	<p>Used to classify rules at PCRF to change set of predefined rules based on policy.</p> <p>This parameter is optional.</p>
Rule Name	<p>A partial name configured in Policy Builder (as derived using AF-Application-Identifier and Media-Type values from the Custom dynamic rule name table in Gx Client).</p> <p>Default: AF</p>

Parameter	Description
Scheduled Hour	<p>Can be set to one of the following values:</p> <p>Default: Turns off the Hour Boundary RAR enhancement feature for look-ahead rules installation at hour boundary. This causes rules to be installed at hour boundary as applicable.</p> <p>CurrentHour: Rule activation time will be current time, deactivation time will be the next hour.</p> <p>NextHour: Rule activation time will be the next hour, and deactivation time will be next-next hour.</p>
Search Column	Must be bound to the Key column in the STG. The data contained in the STG column is of type Text.
Search Group	A constant value that CPS uses to search within the Search Table Group indicated by the Search Table parameter.
Search Table	The name of the table from which to perform a lookup.
String Value to Override	<p>Indicates whether overriding is required.</p> <p>For virtual services, if the value of “String Value” field matches exactly with the value of “String Value To Override”, then the value of “String Value” is over written with the “New String Value”.</p>
Tdf Application Identifier	References the application detection filter (for example, its value may represent an application such as a list of URLs) to which the PCC rule for application detection and control in the PCEF applies.
ToD Schedule	Identifies the schedule for rule activation and deactivation.