

Dynamic QoS Flow-based ADC Support

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Products or Functional Area	PCF
Applicable Platform(s)	SMI
Feature Default Setting	Enabled
Related Documentation	Not Applicable

Revision history

Table 2: Revision History

Revision Details	Release
First introduced.	2023.02.0

Feature Description

For providing the bandwidth allocation dynamically, the PCF interacts with the SMF (N7) and LDAP to provide the ADC policy on subscriber application detection. The ADC feature applies the detection and enforcement policy actions for the specified application.

PCF verifies the support feature (suppFeat) attributes received in the N7_CREATE request from the SMF to check if the SMF supports ADC. The PCF also checks for ADC support validation among PCF feature lists and sends an LDAP query to validate the ADC support per subscriber. If all the validations are successful, PCF includes ADC in the support feature (suppFeat) of the N7_CREATE response.

PCF subscribes to SMF for the following events:

- APP_STA (Application Start)—Installs the application enforcement rules for the dedicated bearer for the detected application flows.
- APP_STO (Application Stop)—Uninstalls the application enforcement rules on the dedicated bearer for the detected application flows.

For the installed predefined rules, SMF reports the information about the detected application traffic to PCF, and PCF provides the corresponding ADC enforcement rules.

The SMF notifies the application start and detects the application flow with the following information:

- Application ID
- Instance ID
- SDF

Table 3: Enforcement Rules for Application Flows Detected

With SDF Deduced	Without SDF Deduced
• PCF creates unique Application Enforcement rule name using application ID and Instance ID. • The SMF verifies that the application ID-instance ID pair only experiences one trigger of the application detection notification. • PCF responds with the Derived rule from the CRD without any Application ID. • Application Stop event—PCF maps to the corresponding PCC rule using appId + instanceId and delete the corresponding enforcement rule.	• If the UPF can't deduce the SDF, Application Start only contains the application ID. • The SMF doesn't send any SDFs, the PCF responds without using a pccRule and logs the same information in the KPI.

How It Works

This section describes how Dynamic QoS Flow-Based ADC Support feature works.

Feature Configuration

This section describes how to configure the ADC Support.

Ops Center Configuration for ADC Support

To configure the Ops Center Configuration for ADC support, use the following configuration:

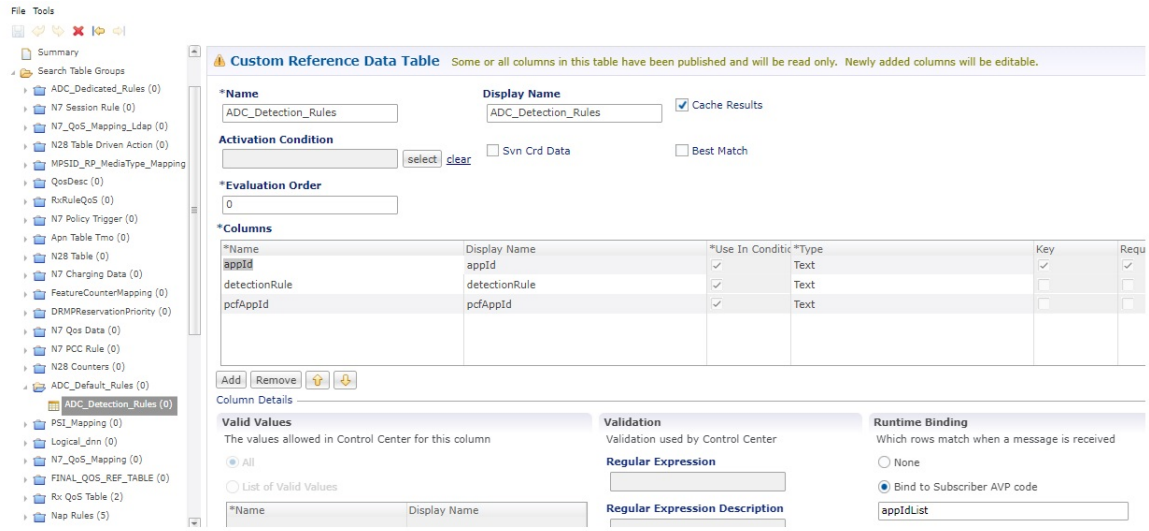
```
config
   engine pcf-green properties adcSupportAttribute value adcSupport [value]
end
```

Notes:

- **engine pcf-green properties adcSupportAttribute value adcSupport [value]** —Configures the LDAP attribute for adcSupport. The specific default value is true.

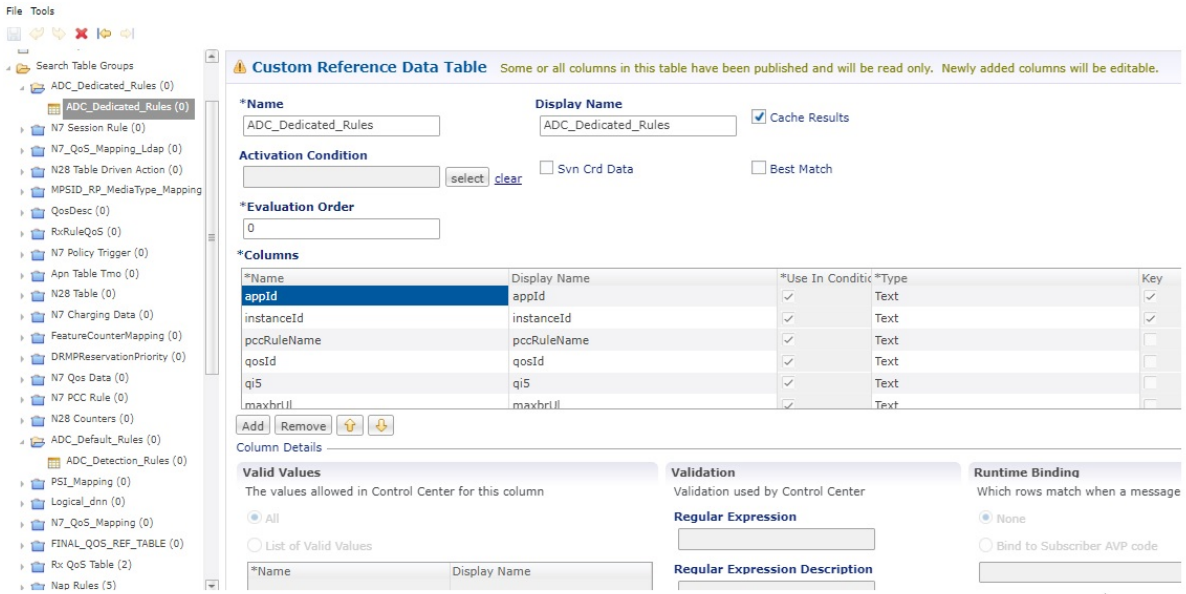
Policy Builder Configuration for ADC Support

Figure 1: CRD – Detection Rules



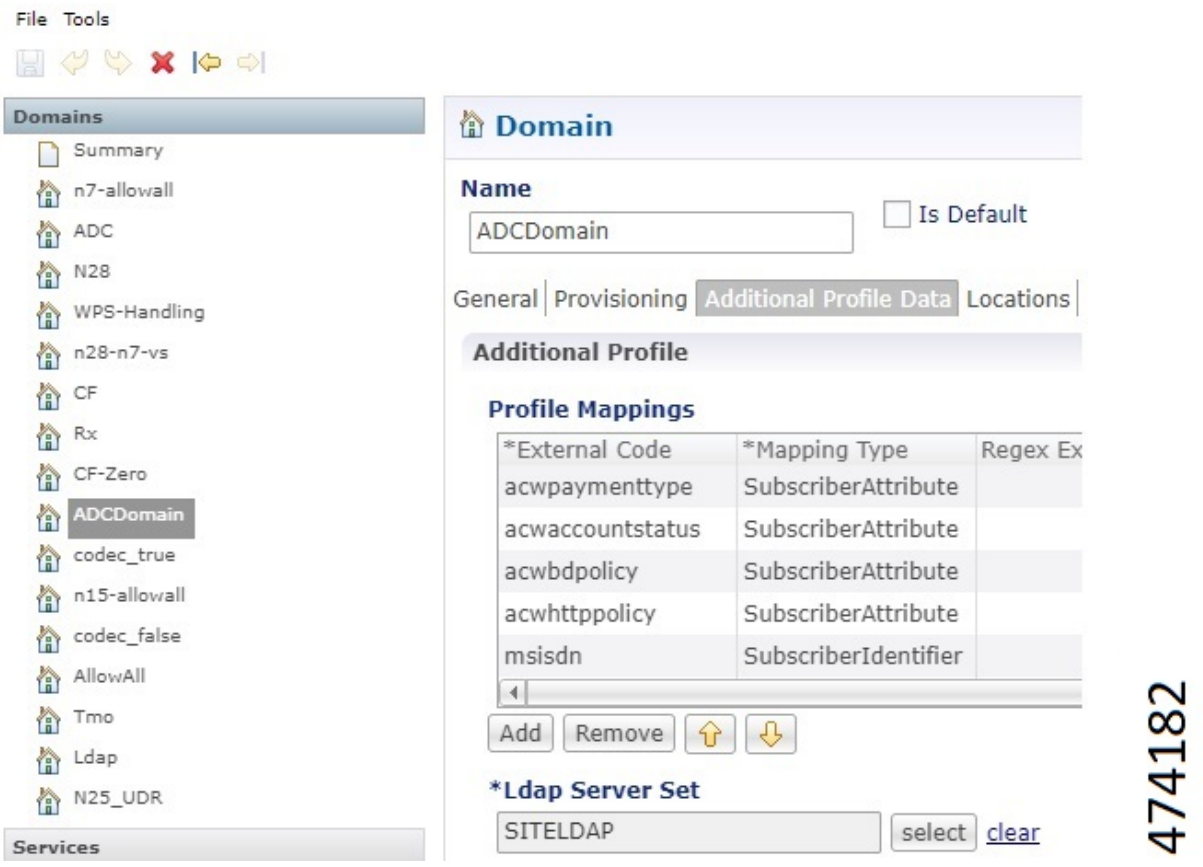
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Figure 2: CRD- Enforcement Rules



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Figure 3: Domain Configuration



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Figure 4: ADC Domain

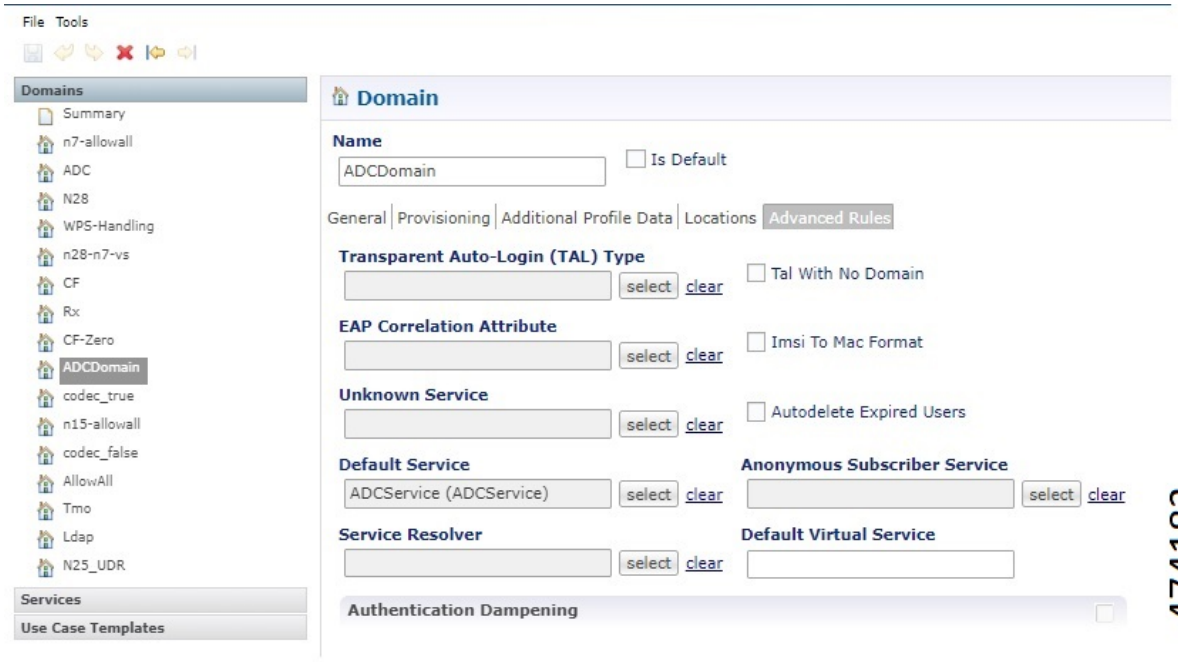


Figure 5: Service

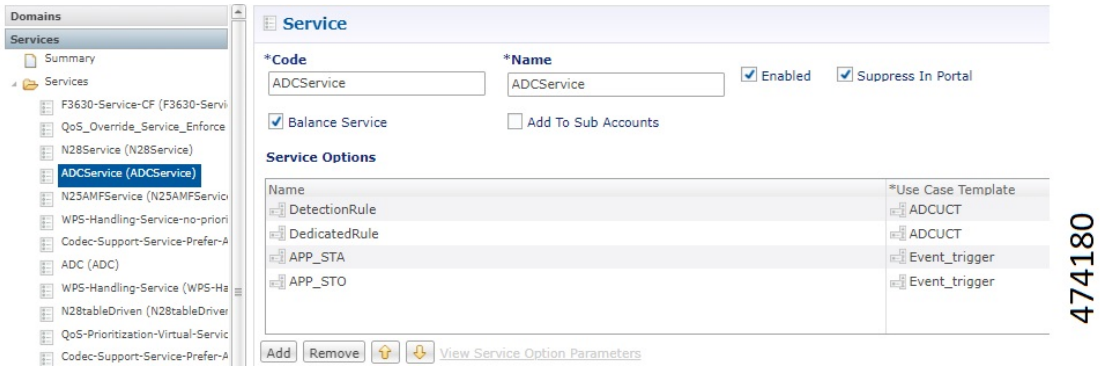
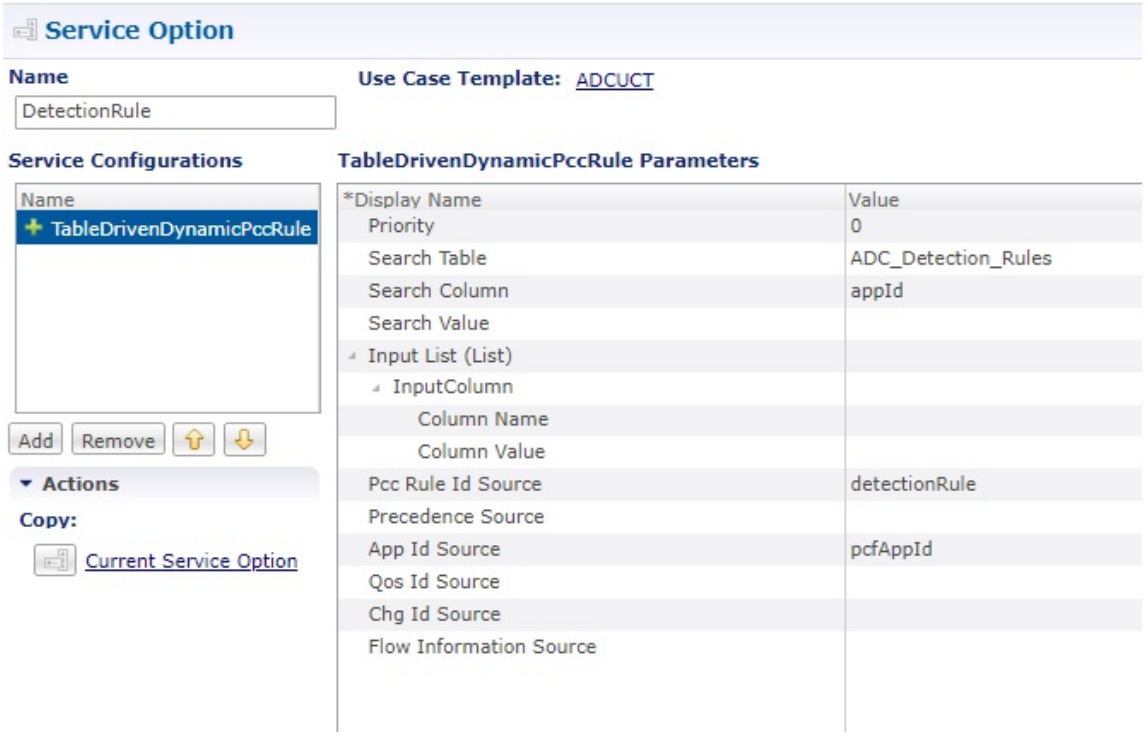
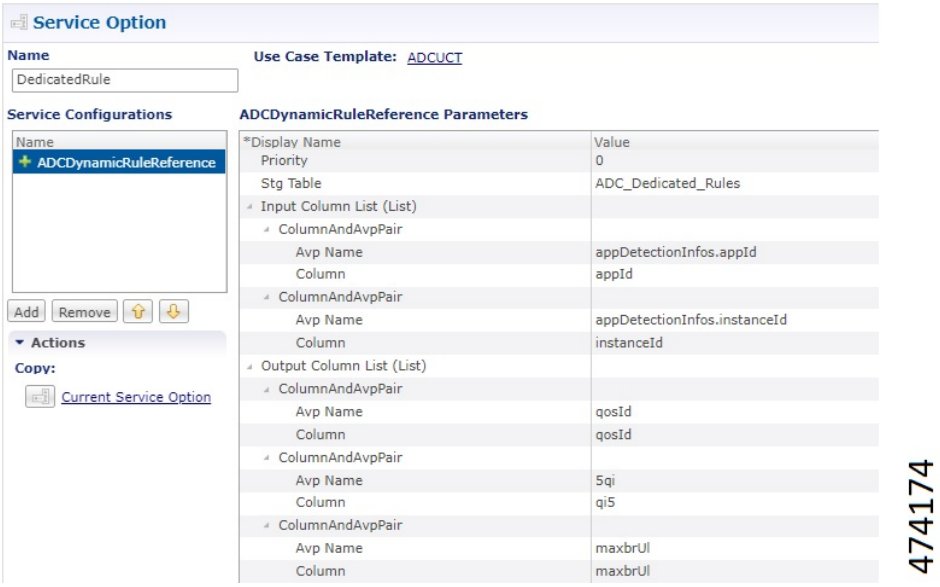


Figure 6: Service Configuration – Detection Rules



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Figure 7: Service Configuration – Enforcement Rules



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Call Flows

This section describes the call flows for this feature.

Dynamic QoS Flow-Based ADC Support Call Flow

This section describes the Dynamic QoS Flow-Based adcSupport call flow.

Figure 8: Basic Flow for LDAP - ADC Support Call Flow

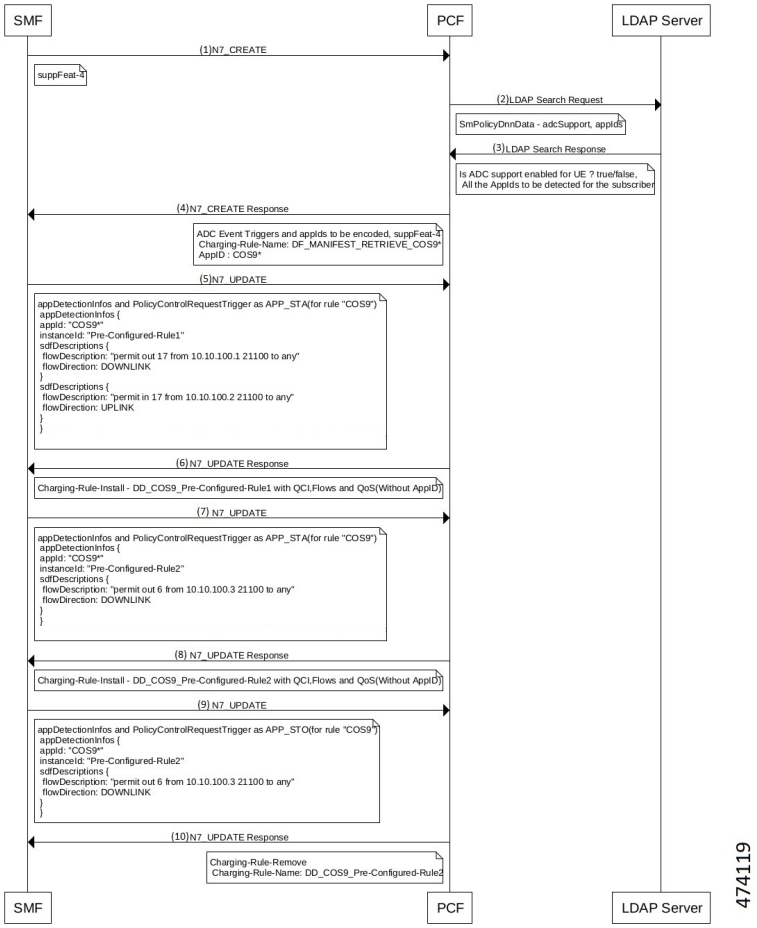


Table 4: Basic Flow for LDAP - ADC Support Call Flow Description

Step	Description
1	The SMF sends a N7 Create to the PCF and verifies the supported feature attribute.
2	The PCF performs an LDAP search request to the LDAP server to collect the Attribute adcSupport and a list of application IDs from the LDAP server.
3	The LDAP server sends the attributes adcSupport = true, the list of application IDs in the LDAP Search Response to the PCF.
4	The PCF sends N7 Create Response to the SMF and add rules for the application IDS and event the triggers for the ADC.
5	The SMF sends N7 Update to the PCF with the event trigger APP_STA for the specific ID.

Step	Description
6	The PCF sends the N7 Update Response to the SMF with the specific rules for the application IDs sent in the request.
7	The SMF sends N7 Update to the PCF with APP_STA for installing the dedicated bearer.
8	The PCF sends N7 Update Response to the SMF with dedicated rule information.
9	The SMF sends N7 Update to the PCF with the event trigger APP_STO for the specific ID.
10	The PCF sends the N7 Update Response to the SMF by removing the dedicated bearer for the specific application IDs.

Standards Compliance

This feature complies with the following standards specifications:

- 3GPP 29.503 "Policy and Charging Control framework"
- 3GPP 29.512 "Session Management Policy Control Service"