

## Changing CoS Services Overview

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This topic describes how to provide CoS when subscribers dynamically upgrade or downgrade services in an access environment.

You can configure your network with an access profile that provides all subscribers with default CoS parameters when they log in. For example, all subscribers can receive a basic data service. By configuring the access profile with JUNOS internal dynamic variables for RADIUS-provided CoS parameters, you also enable the service to be activated for those subscribers at login.

To enable subscribers to activate a service or upgrade to different services through RADIUS change-of-authorization (CoA) messages after login, configure a service profile that includes user-defined variables.

### ***Types of CoS Variables Used in a Dynamic Service Profile***

You can configure variables for the following CoS parameters in a dynamic service profile:

- Shaping rate
- Delay buffer rate
- Guaranteed rate
- Scheduler map

For each CoS parameter, you must associate a RADIUS vendor ID. For each vendor ID, you must assign an attribute number and a tag. The tag is used to differentiate between values for different CoS variables when you specify the same attribute number for those variables. These values are matched with the values supplied by RADIUS during subscriber authentication. All of the values in the dynamic profile must be defined in RADIUS or none of the values are passed.

Optionally, you can configure default values for each parameter. Configuring default values is beneficial if you do not configure RADIUS to enable service changes. During service changes, RADIUS takes precedence over the default value that is configured.

### ***Static and Dynamic CoS Configurations***

Depending on how you configure CoS parameters in the access and service profiles, certain CoS parameters are replaced or merged when subscribers change or activate new services.

Static configuration is when you configure the scheduler map and schedulers in the static `[edit class-of-service]` hierarchy and reference the scheduler map in the dynamic profile. Dynamic configuration is when you configure the scheduler map and schedulers within the dynamic profile.

The CoS configuration also depends on whether you have enabled multiple subscribers on the same logical interface using the `aggregate-clients` option in the dynamic profile referenced by DHCP. When you specify the `aggregate-clients` option, the scheduler

map names specified in the dynamic profile are appended. If the length of the scheduler map name exceeds 128 characters, subscribers cannot log in.

## Scenarios for Static and Dynamic Configuration of CoS Parameters

Table 1 on page 2 lists the scenarios for static and dynamic configuration of CoS parameters in access profiles and service profiles at subscriber login. The table also lists the behavior for each configuration for service activation and service modification using RADIUS CoA messages.

**Table 1: CoS Services and Variables**

Scenario	Static CoS Configuration	Dynamic CoS Configuration	Dynamic CoS Configuration (Multiple Subscribers Enabled on a Logical Interface)
Subscriber login	<ul style="list-style-type: none"> <li>■ Configure RADIUS values or default values for all parameters in access profile</li> <li>■ Configure scheduler map in <code>edit class-of-service</code> hierarchy and reference in access profile</li> </ul>	<ul style="list-style-type: none"> <li>■ Configure RADIUS values or default values for all parameters in access profile</li> <li>■ Configure scheduler map and schedulers in access profile</li> </ul>	<ul style="list-style-type: none"> <li>■ Configure RADIUS values or default values for all parameters in access profile</li> <li>■ Configure scheduler map and schedulers in access profile</li> </ul>
	<b>Static CoS Behavior</b>	<b>Dynamic CoS Behavior</b>	<b>Dynamic CoS Behavior (Multiple Subscribers Enabled on Logical Interface)</b>
RADIUS CoA for service or variable change	Replaces the following parameters: <ul style="list-style-type: none"> <li>■ Delay buffer rate</li> <li>■ Guaranteed rate</li> <li>■ Scheduler map</li> <li>■ Shaping rate</li> </ul>	Replaces the following parameters: <ul style="list-style-type: none"> <li>■ Delay buffer rate</li> <li>■ Guaranteed rate</li> <li>■ Shaping rate</li> </ul> Does not replace the scheduler map	Combines the values of the following parameters to their maximum scalar value: <ul style="list-style-type: none"> <li>■ Delay buffer rate</li> <li>■ Guaranteed rate</li> <li>■ Shaping rate</li> </ul> Replaces the scheduler map parameter
RADIUS CoA for service activation	Does not merge queues	Merge queues if the queue specified in the service profile is not already in use for the subscriber  NOTE: Do not instantiate a CoA request using a service dynamic profile that is already in use on the same logical interface.	Merge queues if the queue specified in the service profile is not already in use for the subscriber  NOTE: Do not instantiate a CoA request using a service dynamic profile that is already in use on the same logical interface.

- Related Topics**
- Configuring Static Scheduling and Queuing in a Dynamic Profile for Subscriber Access
  - Configuring Dynamic Scheduling and Queuing in a Dynamic Profile for Subscriber Access
  - Dynamic Profile Attachment to DHCP Subscriber Interfaces Overview
  - RADIUS Attributes and Juniper Networks VSAs Supported by the AAA Service Framework
  - Guidelines for Configuring CoS for Subscriber Access

