

Explicit Constituent Selection Overview

If you want only a subset of the queues for a subscriber to be shaped to the shared rate, then you must explicitly identify the desired constituents rather than accepting the implicitly selected constituents.

For compound shared shaping, explicit selection is also useful when you want queues as the active constituents instead of the node below them. By choosing queues you can assign appropriate priority or weights.

In the set of nodes and queues for a logical interface, only scheduler objects associated with a scheduler profile that includes a **shared-shaping-constituent** command are considered constituents. Objects that are not explicitly selected are exempt from the shared shaper.

To identify the constituents for simple shared shaping, include the **explicit-constituents** keyword with the **shared-shaping-rate simple** command in a scheduler profile that you associate with a best-effort node or queue to identify the logical interface.



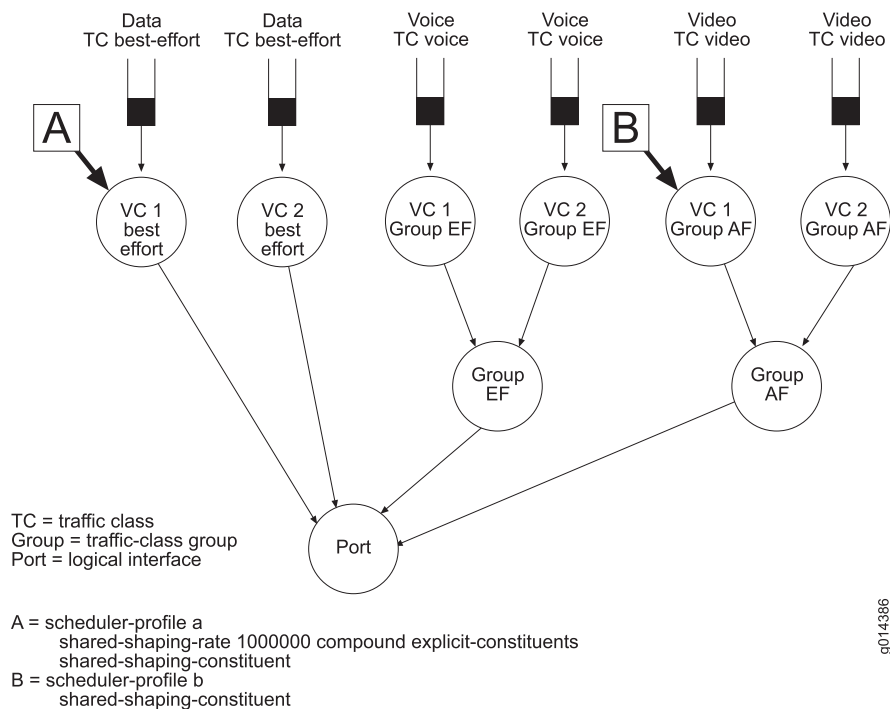
NOTE: If you explicitly specify both a node and the queues stacked above the node as constituents in a scheduler profile, compound shared shaping uses the node as the constituent.

For compound shared shaping, omit the **simple** keyword. For a compound shared shaper, you can further designate the explicit constituents as priority or weighted.

Explicit Shared Shaping Example

In Figure 1, two scheduler profiles are applied to scheduler objects VC 1 best effort node, VC 1 AF node, and VC 1 EF node. The shared-shaping-constituent command in each profile specifies that the associated object is an explicit constituent of the shared shaper.

Figure 1: Explicit Constituent Selection



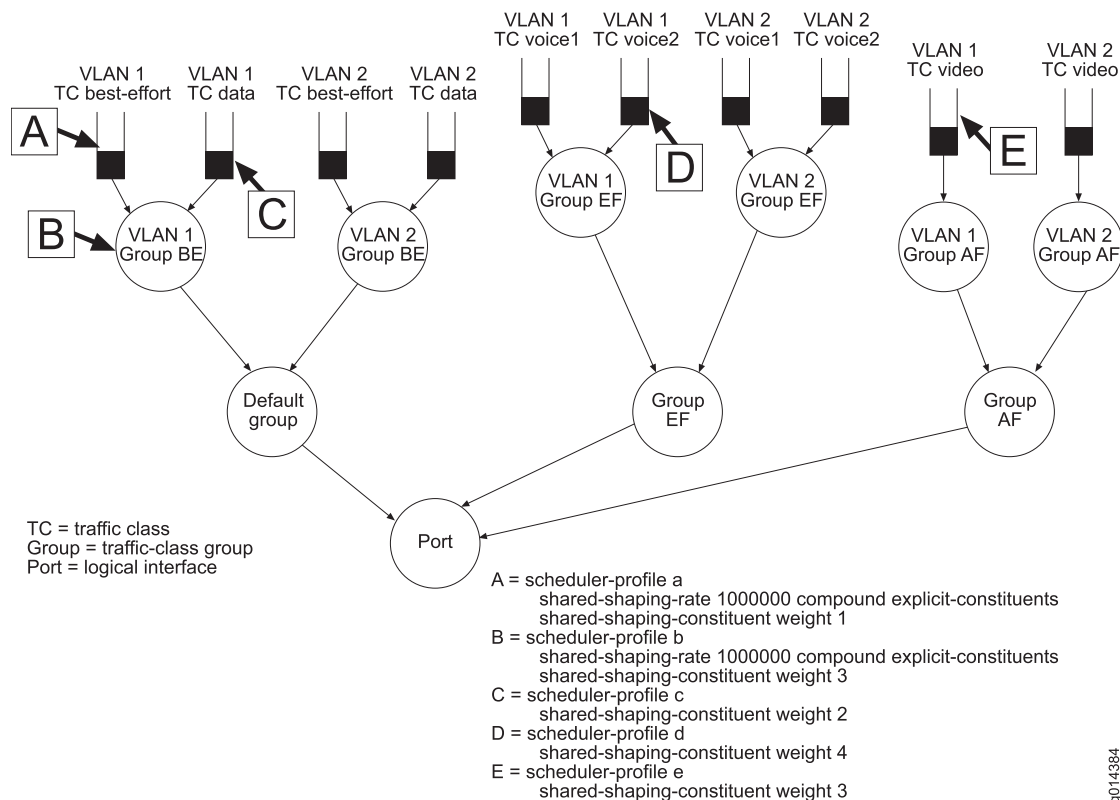
In this example, the VC shared shaper has two explicit constituents, the VC 1 best effort node and the VC 1 Group EF node. By default, these constituents are considered to be strict constituents with a priority of 8.

If implicit selection rules are followed in this example, the association of the shared shaper with the VC 1 best-effort node selects the VC 1 best effort node, the VC 1 Group EF node, and the VC 1 Group AF node.

Explicit Weighted Compound Shared Shaping Example

Figure 2 illustrates a case where scheduler profiles A, B, C, D, and E are applied to scheduler objects.

Figure 2: Case 1: Explicit Constituent Selection with Weighted Constituents



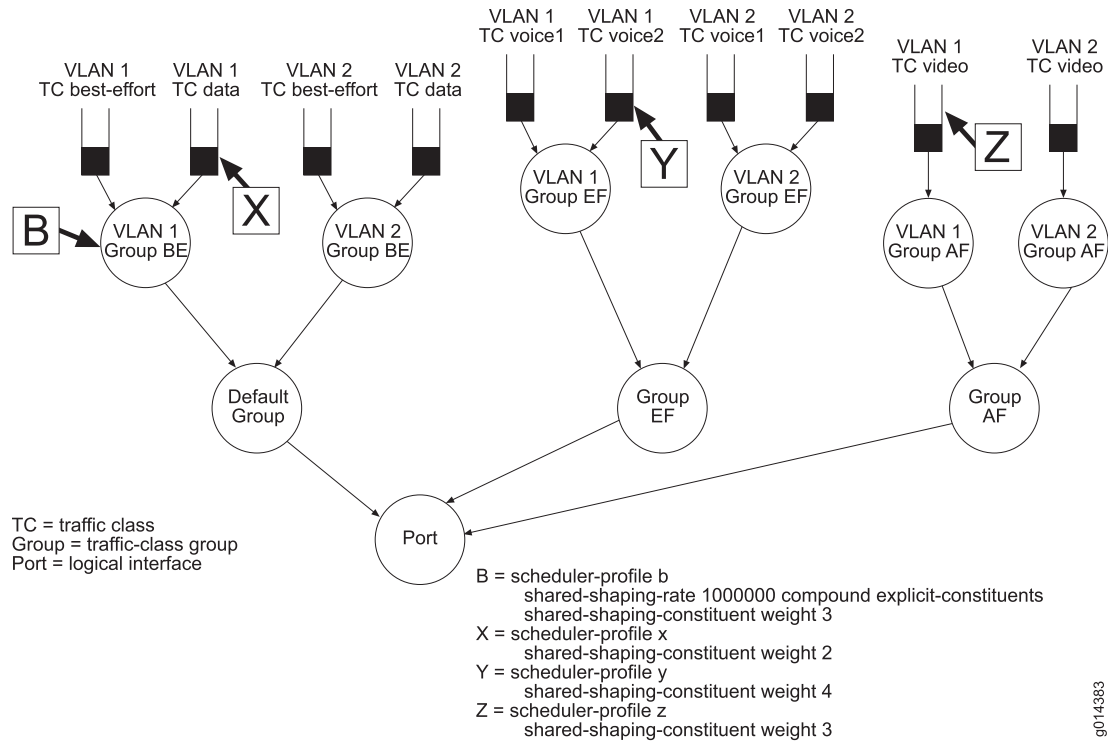
In Case 1, scheduler profile A associates the shared-shaping rate with the VLAN 1 best-effort queue. Table 1 lists the explicit constituents of the shared shaper and the bandwidth allocated to each constituent:

Table 1: Bandwidth Allocation for Case 1 Explicit Constituents

Explicit Constituent	Bandwidth Allocation
VLAN 1 TC voice1 queue	Strict constituent that can consume up to its legacy shaping-rate.
VLAN 1 TC voice2 queue	Weighted constituent that shares bandwidth with its weighted shared shaper siblings in a proportion of 4/10.
VLAN 1 TC video queue	Weighted constituent that shares bandwidth with its weighted shared shaper siblings in a proportion of 3/10.
VLAN 1 TC data queue	Weighted constituent that shares bandwidth with its weighted shared shaper siblings in a proportion of 2/10.
VLAN 1 TC best-effort queue	Weighted constituent that shared bandwidth with weighted shared shaper siblings in a proportion of 1/10.

Figure 3 illustrates another case where scheduler profiles B, X, Y, and Z are applied to scheduler objects. Each profile assigns a weight to an explicit constituent.

Figure 3: Case 2: Explicit Constituent Selection with Weighted Constituents



In Case 2, scheduler profile B associates the shared-shaping rate with the best-effort node for VLAN 1. Table 2 lists the explicit constituents of the shared shaper and the bandwidth allocated to each constituent:

Table 2: Bandwidth Allocation for Case 2 Explicit Constituents

Explicit Constituent	Bandwidth Allocation
VLAN 1 TC voice1 queue	Strict constituent that can consume up to its legacy shaping-rate.
VLAN 1 TC voice2 queue	Weighted constituent that shares bandwidth with its weighted shared shaper siblings in a proportion of 4/10.
VLAN 1 TC video queue	Weighted constituent that shares bandwidth with its weighted shared shaper siblings in a proportion of 3/10.
Best-effort node for VLAN 1	Weighted constituent that shared bandwidth with weighted shared shaper siblings in a proportion of 3/10.

NOTE: The node is selected as the constituent when both the node and the queues stacked over node are specified in a scheduler profile.

Related Topics ■ Configuring Explicit Constituents for Simple or Compound Shared Shaping

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