



Configuring SDM Templates

This chapter describes how to configure the Switch Database Management (SDM) templates on the Catalyst 3750 Metro switch.



Note

For complete syntax and usage information for the commands used in this chapter, refer to the command reference for this release.

This chapter consists of these sections:

- [Understanding the SDM Templates, page 6-1](#)
- [Configuring the Switch SDM Template, page 6-2](#)
- [Displaying the SDM Templates, page 6-4](#)

Understanding the SDM Templates

You can use SDM templates to configure system resources in the switch to optimize support for specific features, depending on how the switch is used in the network. You can select a template to provide maximum system usage for some functions or to use the default template to balance resources.

The templates prioritize system resources to optimize support for these types of features:

- **Routing**—The routing template maximizes system resources for unicast routing, typically required for a router or aggregator in the center of a network. This template does not support policy-based routing.
- **Policy-based routing (PBR)**—The PBR template maximizes system resources to support PBR. This template is not compatible with virtual private network (VPN) routing/forwarding tables (VRFs).
- **VLANs**—The VLAN template disables routing and supports the maximum number of unicast MAC addresses. It would typically be selected for a Layer 2 switch.
- **Default**—The default template gives balance to all functions.

Table 6-1 lists the approximate numbers of each resource supported in each of the four templates.


Note

Although the resources allocated to features are the same in the routing and PBR templates, you must use the PBR template when enabling PBR, and you cannot use the PBR template when VRFs are configured on the switch.

Table 6-1 Approximate Number of Feature Resources Allowed by Each Template

Resource	Template			
	Default	Routing	PBR	VLAN
Unicast MAC addresses	6 K	3 K	3 K	12 K
IGMP groups and multicast routes	1 K	1 K	1 K	1 K
Unicast routes	8 K	11 K	11 K	0
• Directly connected hosts	6 K	3 K	3 K	0
• Indirect routes	2 K	8 K	8 K	0
Policy-based routing ACEs	0	512	512	0
QoS classification ACEs	512	512	512	512
Security ACEs	1 K	1 K	1 K	1 K
Layer 2 VLANs	1 K	1 K	1 K	1 K

The first eight rows in the tables (unicast MAC addresses through security ACEs) represent approximate hardware boundaries set when a template is selected. If a section of a hardware resource is full, all processing overflow is sent to the CPU, seriously impacting switch performance. The last row is a guideline used to calculate hardware resource consumption related to the number of Layer 2 VLANs on the switch.

Configuring the Switch SDM Template

This section describes how to configure the SDM template to be used on the switch. This section contains this configuration information:

- [Default SDM Template, page 6-2](#)
- [SDM Template Configuration Guidelines, page 6-3](#)
- [Setting the SDM Template, page 6-3](#)

Default SDM Template

The default template for is the “default desktop” template.

SDM Template Configuration Guidelines

You must reload the switch for the configuration to take effect.

Use the **sdm prefer vlan** global configuration command only on switches intended for Layer 2 switching with no routing. When you use the VLAN template, no system resources are reserved for routing entries, and any routing is done through software. This overloads the CPU and severely degrades routing performance.

Do not use the routing template if you do not have routing enabled on your switch. The **sdm prefer routing** global configuration command prevents other features from using the memory allocated to unicast routing in the routing template.

You must enter the **sdm prefer routing-pbr** global configuration command for PBR to function correctly.

VRFs are not compatible with the PBR template. Therefore multiprotocol label switching virtual private networks (MPLS VPNs) and multiple VRFs in CE devices (multi-VRF CE) are not compatible with PBR. When you enter the **sdm prefer routing-pbr** command, any preconfigured VRFs are removed from the configuration.

Setting the SDM Template

Beginning in privileged EXEC mode, follow these steps to use the SDM template to maximize resources:

	Command	Purpose
Step 1	configure terminal	Enter global configuration mode.
Step 2	sdm prefer {default routing routing-pbr vlan}	Specify the SDM template to be used on the switch: The keywords have these meanings: • default—Sets the switch to the balance system resources between Layer 2 and Layer 3 functions. • routing—Maximizes routing on the switch. • routing-pbr—Allows PBR on the switch. • vlan—Maximizes VLAN configuration on the switch with no routing supported in hardware.
Step 3	end	Return to privileged EXEC mode.
Step 4	reload	Reload the operating system.

After the system reboots, you can use the **show sdm prefer** privileged EXEC command to verify the new template configuration. If you enter the **show sdm prefer** command before you enter the **reload** privileged EXEC command, the **show sdm prefer** command shows the template currently in use and the template that will become active after a reload.

This is an example of an output display when you have changed the template and have not reloaded the switch:

```
Switch# show sdm prefer
The current template is "desktop routing" template.
The selected template optimizes the resources in
the switch to support this level of features for
8 routed interfaces and 1024 VLANs.
```

```

number of unicast mac addresses:      3K
number of igmp groups + multicast routes: 1K
number of unicast routes:            11K
    number of directly connected hosts: 3K
    number of indirect routes:        8K
number of qos aces:                   512
number of security aces:              1K

```

On next reload, template will be "desktop vlan" template.

To return to the default template, use the **no sdm prefer** global configuration command.

This example shows how to configure a switch with the routing template.

```

Switch(config)# sdm prefer routing
Switch(config)# end
Switch# reload
Proceed with reload? [confirm]

```

Displaying the SDM Templates

Use the **show sdm prefer** privileged EXEC command with no parameters to display the active template.

Use the **show sdm prefer [default | routing | routing-pbr | vlan]** privileged EXEC command to display the resource numbers supported by the specified template.

This is an example of output from the **show sdm prefer** command, displaying the template in use.

```

Switch# show sdm prefer
The current template is "desktop default" template.
The selected template optimizes the resources in
the switch to support this level of features for
8 routed interfaces and 1024 VLANs.

```

```

number of unicast mac addresses:      6K
number of igmp groups + multicast routes: 1K
number of unicast routes:            8K
    number of directly connected hosts: 6K
    number of indirect routes:        2K
number of policy based routing aces:   0
number of qos aces:                   512
number of security aces:              1K

```

This is an example of output from the **show sdm prefer routing** command:

```

Switch# show sdm prefer routing
"desktop routing" template:
The selected template optimizes the resources in
the switch to support this level of features for
8 routed interfaces and 1024 VLANs.

number of unicast mac addresses:      3K
number of igmp groups + multicast routes: 1K
number of unicast routes:            11K
    number of directly connected hosts: 3K
    number of indirect routes:        8K
number of policy based routing aces:   512
number of qos aces:                   512
number of security aces:              1K

```