Configuring SDM Templates

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About Configuring SDM Templates

Restrictions for SDM Templates

The following are restrictions when using SDM templates:

- The default template is the only template supported on switches running the LAN Lite image.
- The LAN Base default template is used with switches in a homogeneous stack.
- The LAN Base routing template is supported only on switches running the LAN Base image.
- The LAN Base routing template is used with switches in a mixed stack.
- The switch supports homogeneous stacking and mixed stacking. Mixed stacking is supported only with the Catalyst 2960-S switches. A homogenous stack can have up to eight stack members, while a mixed stack can have up to four stack members. All switches in a switch stack must be running the LAN Base image.

- The default template is the only template supported on switches running the LAN Base image.

SDM Templates

You can use Switch Database Management (SDM) templates to configure system resources to optimize support for specific features, depending on how your device is used in the network. You can select a template to provide maximum system usage for some functions.

To allocate ternary content addressable memory (TCAM) resources for different usages, the switch SDM templates prioritize system resources to optimize support for certain features. The templates supported on your device:

- Default—The default template gives balance to all functions.
- LAN Base default—The LAN Base default template is to be used with switches in a homogeneous stack.
- LAN Base routing—The LAN Base routing template supports IPv4 unicast routes for static routing SVI configuration.

The LAN Base routing template prevents other features from using the memory allocated to unicast routing. Routing must be enabled on your switch before you can use the routing template.

For more information about homogeneous and mixed stacks, see the *Catalyst 2960-X Switch Stacking Configuration Guide*.

After you change the template and 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 becomes active after a reload.

Note

- The SDM templates contain only those commands that are defined as part of the templates. If a template enables another related command that is not defined in the template, then this other command will be visible when the **show running config** command is entered. For example, if the SDM template enables the **switchport voice vlan** command, then the **spanning-tree portfast edge** command may also be enabled (although it is not defined on the SDM template).

  If the SDM template is removed, then other such related commands are also removed and have to be reconfigured explicitly.

- SDM templates do not create VLANs. You must create the VLANs before adding commands to the SDM templates.

Default and LAN Base Templates

- Default and LAN Base routing templates—Optimizes the resources in the switch to support feature level for no routed interfaces and 255 VLANs.
- LAN Base default—Optimizes the resources in the switch to support feature level for no routed interfaces and 1024 VLANs.

Table 1: Approximate Number of Feature Resources Allowed by Templates

Resource	Default	LAN Base Default	LAN Base Routing	LAN Lite
Unicast MAC addresses	8 K	16 k	4 K	16 k
Active VLANs/VLAN IDs	255/4096	255/1024	255/4096	64/4096
NetFlow Entries	16 K	—	—	—
IPv4 IGMP groups	.375 K	1 K	.375 K	1 K
IPv4 unicast routes	0	3 K	.875 K	0
• Directly connected hosts	0	2 K	.875 K	0
• Indirect routes	0	1 K	80	0
IPv4 policy based routing ACEs	0	0	0	0
IPv6 multicast groups:	.25 K	1 K	.25 K	0
• Directly connected IPv6 addresses	.25 K	2 K	.75 K	0
• Indirect IPv6 unicast routes	32	1 K	32	0
IPv6 policy based routing ACEs	0	0	0	0
Ipv4 MAC QoS ACEs	.375 K	.5 K	.375 K	.256 K
IPv4 MAC security ACEs	.375 K	.625 K	.375 K	.256 K
IPv6 policy based routing ACEs	0	0	0	0
IPv6 QoS ACEs	60	.5 K	.125 K	0

Resource	Default	LAN Base Default	LAN Base Routing	LAN Lite
IPv6 security ACEs	.125 K	.625 K	.25	0

Related Topics

Examples: Displaying SDM Templates, on page 5
Setting the SDM Template, on page 4

SDM Templates and Switch Stacks

All stack members use the same SDM template that is stored on the active stack. When a new switch is added to a stack, as with the switch configuration and VLAN database files, the SDM configuration that is stored on the active stack overrides the template configured on an individual switch.

Version-mismatch (VM) mode has priority over SDM-mismatch mode. If a VM mode condition and an SDM-mismatch mode exist, the switch stack first attempts to resolve the VM-mode condition. You can use the **show switch** privileged EXEC command to see if any stack members are in SDM-mismatch mode.

How to Configure SDM Templates

Setting the SDM Template

Follow these steps to use the SDM template to maximize feature usage:

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**sdm prefer** { **default** | **lanbase-default** | **lanbase-routing** } **Example:** `Device(config)# sdm prefer lanbase-routing`	Specifies the SDM template to be used on the switch. The keywords have these meanings: • **default**—The default template provides balance for all Layer 2, IPv4 and IPv6 functionality.

	Command or Action	Purpose
		• **lanbase-default**—The LAN Base default template provides both IPv4 and IPv6 static routing functionality. **Note** In Catalyst 2960-X switches with Lan Base license, up to 200 OSPF routes are supported, for each IPv4 and IPv6 routes. • **lanbase-routing**—The LAN Base routing templates provides both IPv4 and IPv6 static routing functionality. Use the **no sdm prefer** command to set the switch to the default template, The default template balances the use of system resources.
Step 4	**end** **Example:** `Device(config)# end`	Returns to privileged EXEC mode.
Step 5	**reload** **Example:** `Device# reload`	Reloads the operating system.

Configuration Examples for SDM Templates

Examples: Displaying SDM Templates

This is an example output showing the default template information.

```
Device# show sdm prefer default

 "default" template:
 The selected template optimizes the resources in
 the switch to support this level of features for
 0 routed interfaces and 255 VLANs.

  number of unicast mac addresses:                  8K
  number of IPv4 IGMP groups + multicast routes:    0.375k
  number of IPv4 unicast routes:                    0
  number of IPv6 multicast groups:                  0.25K
  number of directly-connected IPv6 addresses:      0.25K
  number of indirect IPv6 unicast routes:           32
```

```
  number of IPv4 policy based routing aces:         0
  number of IPv4/MAC qos aces:                      0.375k
  number of IPv4/MAC security aces:                 0.375k
  number of IPv6 policy based routing aces:         0
  number of IPv6 qos aces:                          60
  number of IPv6 security aces:                     0.125k


Device#
```

This is an example output showing the LAN Base default template information.

```
Device# show sdm prefer lanbase-default

 "lanbase-default" template:
 The selected template optimizes the resources in
 the switch to support this level of features for
 0 routed interfaces and 1024 VLANs.

  number of unicast mac addresses:                  16K
  number of IPv4 IGMP groups + multicast routes:    1K
  number of IPv4 unicast routes:                    3K
    number of directly-connected IPv4 hosts:        2K
    number of indirect IPv4 routes:                 1K
  number of IPv6 multicast groups:                  1K
  number of directly-connected IPv6 addresses:      2K
  number of indirect IPv6 unicast routes:           1K
  number of IPv4 policy based routing aces:         0
  number of IPv4/MAC qos aces:                      0.5K
  number of IPv4/MAC security aces:                 0.625k
  number of IPv6 policy based routing aces:         0
  number of IPv6 qos aces:                          0.5K
  number of IPv6 security aces:                     0.625k

Device#
```

This is an example output showing the LAN Base routing template information.

```
Device# show sdm prefer lanbase-routing

 "lanbase-routing" template:
 The selected template optimizes the resources in
 the switch to support this level of features for
 0 routed interfaces and 255 VLANs.

  number of unicast mac addresses:                  4K
  number of IPv4 IGMP groups + multicast routes:    0.375k
  number of IPv4 unicast routes:                    0.875k
    number of directly-connected IPv4 hosts:        0.875k
    number of indirect IPv4 routes:                 80
  number of IPv6 multicast groups:                  0.25K
  number of directly-connected IPv6 addresses:      0.75K
  number of indirect IPv6 unicast routes:           32
  number of IPv4 policy based routing aces:         0
  number of IPv4/MAC qos aces:                      0.375k
  number of IPv4/MAC security aces:                 0.375k
  number of IPv6 policy based routing aces:         0
  number of IPv6 qos aces:                          0.125k
  number of IPv6 security aces:                     0.25K


Device#
```

Examples: Configuring SDM Templates

This example shows how to configure the VLAN template:

```
Device(config)# sdm prefer lanbase-routing
Device(config)# exit
Device# reload
  Proceed with reload? [confirm]
```

```
Device(config)# sdm prefer dual-ipv4-and-ipv6 default
Device(config)# exit
Device# reload
  Proceed with reload? [confirm]
```

Additional References for SDM Templates

Related Documents

Related Topic	Document Title
SDM commands	*Catalyst 2960-X Switch System Management Command Reference*

Standards and RFCs

Standard/RFC	Title
None	—

MIBs

MIB	MIBs Link
All supported MIBs for this release.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature History and Information for Configuring SDM Templates

Release	Modification
Cisco IOS Release 15.0(2)EXCisco IOS Release 15.2(5)E	This feature was introduced.