Configuring SDM Templates

Information About Configuring SDM Templates

Restrictions for SDM Templates

The following are restrictions when using SDM templates:

The switch supports homogeneous stacking, but does not support mixed stacking.

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: for example, use the default template to balance resources, and use the access template to obtain maximum ACL usage. The switch SDM templates allocate system hardware resources for different uses.

You can select SDM templates for IP Version 4 (IPv4) to optimize these features on switches running the IP Lite feature set:

Note When the switch is running the LAN Base feature set, you must use the default template.

- IPv4—The IPv4 template provides maximum support for IPv4. No IPv6 support is available on this template.

- VLAN—The VLAN template provides Layer 2 functionality and the maximum number of unicast MAC addresses.

• Default—The default template gives balance to all functions providing support for Layer 2, IPv4 and IPv6 functionality.

Note Use the default template when configuring IPv4 static routing on SVIs on switches running the LAN Base feature set. You can configure up to 16 static routes.

For information about homogeneous stacks, see the *Catalyst 2960-XR 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.

SDM Template Resources

You can use 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. These templates are supported on your device:

Table 1: Approximate Number of Feature Resources Allowed by Templates

Resource	Default	IPv4	VLAN
Unicast MAC addresses	16 K	16 K	32 K
Active VLANs/VLAN IDs	1K/4096	1K/4096	1K/4096
IPv4 IGMP groups	1 K	1 K	1 K
IPv4 unicast routes	5.25 K	24 K	0.5 K

Resource	Default	IPv4	VLAN
• Directly connected hosts	4 K	16 K	0.25 K
• Indirect routes	1.25 K	8 K	0.25 K
IPv4 policy-based routing ACEs	0.5 K	0.375 k	0.5 K
IPv6 multicast groups:	1 K	0	1 K
• Directly connected IPv6 addresses	4 K	0	0.25 K
• Indirect IPv6 unicast routes	1.25 K	0	0.25 K
IPv4 MAC QoS ACEs	0.5 K	0.5 K	0.5 K
IPv4 MAC security ACEs	1 K	0.875 k	1 K
IPv6 policy-based routing ACEs	0.25 K	0	0
IPv6 QoS ACEs	0.25 K	0	0.5 K
IPv6 security ACEs	0.5 K	60	0.5 K

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:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **sdm prefer** { **default** | **ipv4** | **vlan** }
4. **end**
5. **reload**

DETAILED STEPS

	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**	**ipv4**	**vlan** } **Example:** Device(config)# **sdm prefer default**	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. • **IPv4** —The IPv4 template provides maximum support for IPv4. No IPv6 support is available on this template. • **VLAN** —The VLAN template provides Layer 2 functionality and the maximum number of unicast MAC addresses. 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
 8 routed interfaces and 1024 VLANs.

  number of unicast mac addresses:                  16K
  number of IPv4 IGMP groups + multicast routes:    1K
  number of IPv4 unicast routes:                    5.25K
    number of directly-connected IPv4 hosts:        4K
    number of indirect IPv4 routes:                 1.25K
  number of IPv6 multicast groups:                  1K
  number of directly-connected IPv6 addresses:      4K
  number of indirect IPv6 unicast routes:           1.25K
  number of IPv4 policy based routing aces:         0.5K
  number of IPv4/MAC qos aces:                      0.5K
  number of IPv4/MAC security aces:                 1K
  number of IPv6 policy based routing aces:         0.25K
  number of IPv6 qos aces:                          0.25K
  number of IPv6 security aces:                     0.5K


Device#
```

This is an example output showing the IPv4 template information:

```
Device# show sdm prefer ipv4

 "ipv4" 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:                  16K
  number of IPv4 IGMP groups + multicast routes:    1K
  number of IPv4 unicast routes:                    24K
    number of directly-connected IPv4 hosts:        16K
    number of indirect IPv4 routes:                 8K
  number of IPv6 multicast groups:                  0
  number of directly-connected IPv6 addresses:      0
  number of indirect IPv6 unicast routes:           0
  number of IPv4 policy based routing aces:         0.375k
  number of IPv4/MAC qos aces:                      0.5K
  number of IPv4/MAC security aces:                 0.875k
  number of IPv6 policy based routing aces:         0
  number of IPv6 qos aces:                          0
  number of IPv6 security aces:                     60
```

This is an example output showing the VLAN template information:

```
Device# show sdm prefer vlan

"vlan" 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:                32K
 number of IPv4 IGMP groups + multicast routes:  1K
 number of IPv4 unicast routes:                  0.5K
   number of directly-connected IPv4 hosts:      0.25K
   number of indirect IPv4 routes:               0.25K
 number of IPv6 multicast groups:                1K
 number of directly-connected IPv6 addresses:    0.25K
 number of indirect IPv6 unicast routes:         0.25K
 number of IPv4 policy based routing aces:       0.5K
 number of IPv4/MAC qos aces:                    0.5K
 number of IPv4/MAC security aces:               1K
 number of IPv6 policy based routing aces:       0
 number of IPv6 qos aces:                        0.5K
 number of IPv6 security aces:                   0.5K
```

Examples: Configuring SDM Templates

This example shows how to configure the VLAN template:

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

Additional References for SDM Templates

Related Documents

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

Standards and RFCs

Standard/RFC	Title
None	—

MIBs

MIB	MIBs Link
All the 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)EX1	This feature was introduced.