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

SDM Templates

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.

These templates are supported on your device:

- Advanced—The advanced template is available on all supported images for this release. It maximizes system resources for features like netflow, multicast groups, security ACEs, QoS ACEs, and so on.
- VLAN—The VLAN template is available only on the LAN Base license. The VLAN template disables routing and supports the maximum number of unicast MAC addresses. It would typically be selected for a Layer 2 device.

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 will become active after a reload.

The default is the advanced template.

Table 1: Approximate Number of Feature Resources Allowed by Templates

Resource	Advanced	VLAN
Number of VLANs	4094	4094
Unicast MAC addresses	32 K	32 K
Overflow unicast MAC addresses	512	512
IGMP groups and multicast routes	4 K	4 K
Overflow IGMP groups and multicast routes	512	512
• Directly connected routes	16K	16 K
• Indirectly connected IP hosts	7 K	7 K
Policy-based routing ACEs	1024	0
QoS classification ACEs	3 K	3 K
Security ACEs	3 K	3 K
Netflow ACEs	1024	1024
Input Microflow policer ACEs:	256 K	0
Output Microflow policer ACEs:	256 K	0
FSPAN ACEs	256	256
Tunnels:	256	0
Control Plane Entries:	512	512
Input Netflow flows:	8 K	8 K
Output Netflow flows:	16 K	16 K
SGT/DGT entries:	4 K	4 K
SGT/DGT Overflow entries:	0	512

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

The tables 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.

SDM Templates and Switch Stacks

In a switch stack, all stack members must use the same SDM template that is stored on the active switch. When a new switch is added to a stack, the SDM configuration that is stored on the active switch overrides the template configured on an individual switch.

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

Configuring SDM Templates

Configuring the Switch SDM Template

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** { **advanced** | **vlan** }
4. **end**
5. **reload**

DETAILED STEPS

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.

	Command or Action	Purpose
Step 3	**sdm prefer** { **advanced** | **vlan** } **Example:** `Device(config)# sdm prefer advanced`	Specifies the SDM template to be used on the switch. The keywords have these meanings: • **advanced** —Supports advanced features such as Netflow. • **vlan** —Maximizes VLAN configuration on the switch with no routing supported in hardware. **Note** The **no sdm prefer** command and a default template is not supported.
Step 4	**end** **Example:** `Device(config)# end`	Returns to privileged EXEC mode.
Step 5	**reload** **Example:** `Device# reload`	Reloads the operating system.

Monitoring and Maintaining SDM Templates

Command	Purpose
show sdm prefer	Displays the SDM template in use.
reload	Reloads the switch to activate the newly configured SDM template.
no sdm prefer	Sets the default SDM template.

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.

Configuration Examples for SDM Templates

Examples: Configuring SDM Templates

Examples: Displaying SDM Templates

This is an example output showing the advanced template information:

```
Device# show sdm prefer

Showing SDM Template Info

This is the Advanced template.
  Number of VLANs:                                4094
  Unicast MAC addresses:                          32768
  Overflow Unicast MAC addresses:                 512
  IGMP and Multicast groups:                      8192
  Overflow IGMP and Multicast groups:             512
  Directly connected routes:                      32768
  Indirect routes:                                8192
  Security Access Control Entries:                3072
  QoS Access Control Entries:                     2816
  Policy Based Routing ACEs:                      1024
  Netflow ACEs:                                   1024
  Input Microflow policer ACEs:                   256
  Output Microflow policer ACEs:                  256
  Flow SPAN ACEs:                                 256
  Tunnels:                                        256
  Control Plane Entries:                          512
  Input Netflow flows:                            8192
  Output Netflow flows:                           16384
These numbers are typical for L2 and IPv4 features.
Some features such as IPv6, use up double the entry size;
so only half as many entries can be created.
```

This is an example output showing the VLAN template information:

```
Device# show sdm prefer vlan

Showing SDM Template Info

This is the VLAN template for a typical Layer 2 network.
  Number of VLANs:                                4094
  Unicast MAC addresses:                          32768
  Overflow Unicast MAC addresses:                 512
  IGMP and Multicast groups:                      8192
  Overflow IGMP and Multicast groups:             512
  Directly connected routes:                      32768
  Indirect routes:                                8192
  Security Access Control Entries:                3072
  QoS Access Control Entries:                     3072
  Policy Based Routing ACEs:                      0
  Netflow ACEs:                                   1024
  Input Microflow policer ACEs:                   0
  Output Microflow policer ACEs:                  0
```

```
  Flow SPAN ACEs:                                 256
  Tunnels:                                        0
  Control Plane Entries:                          512
  Input Netflow flows:                            16384
  Output Netflow flows:                           8192
These numbers are typical for L2 and IPv4 features.
Some features such as IPv6, use up double the entry size;
so only half as many entries can be created.
```

Feature History and Information for Configuring SDM Templates

Release	Modification
Cisco IOS XE 3.3SECisco IOS XE 3.3SE	This feature was introduced.