Configuring SDM Templates

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Information About SDM Templates

You can use SDM templates to configure the 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.

Cisco Catalyst 9400 Series Switches support the following templates:

- Access
- Core
- SDA
- NAT

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.

Table 1: Approximate Number of Feature Resources Allowed by Templates in Cisco Catalyst 9400 Series Supervisor 1

Resource	Access
LPM	64K
Host	48K
Layer 2 Multicast	16K
Layer 3 Multicast	16K

Resource	Access
MAC Address	64K
SGT	8K
Flexible Netflow	128K/ASIC
Security ACL	18K
QoS ACL	18K
PBR/NAT	2K
Tunnel	1K
LISP	1K
MPLS L3VPN VRF	255
MPLS Label	12K
MPLS L3VPN Routes VRF	32K
MPLS L3VPN Routes Prefix	4K
MVPN MDT Tunnels	1K
L2VPN EOMPLS Attachment	1K

Table 2: Approximate Number of Feature Resources Allowed by Templates in Cisco Catalyst 9400 Series Supervisor 1XL and Supervisor 1XL-Y Module

Template Name	Access	Core	SDA	NAT
LPM	64K	64K	64K	64K
Host	48K	32K	80K	48K
Layer2 Multicast	16K	16K	16K	16K
Layer3 Multicast	16K	32K	16K	32K
MAC Address	64K	16K	16K	16K
SGT	8K	8K	8K	8K
Flexible Netflow	128K/ASIC	128K/ASIC	128K/ASIC	128K/ASIC
Security ACL	18K	18K	18K	18K
QoS ACL	18K	18K	18K	18K
PBR/NAT	2K	2K	2K	16K
Tunnel	1K	1K	1K	1K

Template Name	Access	Core	SDA	NAT
LISP	1K	1K	1K	1K
MPLS L3VPN VRF	255	255	N/A	255
MPLS Label	12K	16K		12K
MPLS L3VPN Routes VRF	32K	32K		32K
MPLS L3VPN Routes Prefix	4K	4K		4K
MVPN MDT Tunnels	1K	1K		1K
L2VPN EOMPLS Attachment	1K	1K	1K	1K

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** { **access** | **core** | **nat** | **sda** } **Example:** `Device(config)# sdm prefer nat`	Specifies the SDM template to be used on the switch. The keywords have these meanings: • **access** —Sets the switch to the Access template. • **core** —Sets the Core template.

	Command or Action	Purpose
		• **nat** —Maximizes the NAT configuration on the switch. • **sda** —Sets the SDA template. **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. 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.

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.

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: Displaying SDM Templates

This is an example output showing the advanced template information on Cisco Catalyst 9400 Series Supervisor 1 Module

```
Device#show sdm prefer
Showing SDM Template Info
This is the Access template.
Number of VLANs: 4094
Unicast MAC addresses: 65536
Overflow Unicast MAC addresses: 1024
L2 Multicast entries: 16384
Overflow L2 Multicast entries: 1024
L3 Multicast entries: 16384
Overflow L3 Multicast entries: 1024
Directly connected routes: 49152
Indirect routes: 65536
STP Instances: 1024
Security Access Control Entries: 18432
QoS Access Control Entries: 18432
Policy Based Routing ACEs / NAT ACEs: 2048
Netflow Input ACEs: 1024
Netflow Output ACEs: 2048
Ingress Netflow ACEs: 1024
Egress Netflow ACEs: 2048
Flow SPAN ACEs: 1024
Tunnels: 1024
LISP Instance Mapping Entries: 1024
Control Plane Entries: 1024
Input Netflow flows: 65536
Output Netflow flows: 65536
SGT/DGT (or) MPLS VPN entries: 8192
SGT/DGT (or) MPLS VPN Overflow entries: 512
Wired clients: 2048
MACSec SPD Entries: 1024
MPLS L3 VPN VRF: 255
MPLS Labels: 12288
MPLS L3 VPN Routes VRF Mode: 32768
MPLS L3 VPN Routes Prefix Mode: 4096
MVPN MDT Tunnels: 1024
L2 VPN EOMPLS Attachment Circuit: 1024
MAX VPLS Bridge Domains : 128
MAX VPLS Peers Per Bridge Domain: 32
MAX VPLS/VPWS Pseudowires : 4096
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.
* values can be modified by sdm cli.
```

This is an example output showing the advanced template information on Cisco Catalyst 9400 Series Supervisor 1XL Module

```
Device
This is the Access template.
Number of VLANs: 4094
Unicast MAC addresses: 65536
Overflow Unicast MAC addresses: 1024
L2 Multicast entries: 16384
```

```
Overflow L2 Multicast entries: 1024
L3 Multicast entries: 16384
Overflow L3 Multicast entries: 1024
Directly connected routes: 49152
Indirect routes: 65536
STP Instances: 1024
Security Access Control Entries: 18432
QoS Access Control Entries: 18432
Policy Based Routing ACEs / NAT ACEs: 2048
Netflow Input ACEs: 1024
Netflow Output ACEs: 2048
Ingress Netflow ACEs: 1024
Egress Netflow ACEs: 2048
Flow SPAN ACEs: 1024
Tunnels: 1024
LISP Instance Mapping Entries: 1024
Control Plane Entries: 1024
Input Netflow flows: 65536
Output Netflow flows: 65536
SGT/DGT (or) MPLS VPN entries: 8192
SGT/DGT (or) MPLS VPN Overflow entries: 512
Wired clients: 2048
MACSec SPD Entries: 1024
MPLS L3 VPN VRF: 255
MPLS Labels: 12288
MPLS L3 VPN Routes VRF Mode: 32768
MPLS L3 VPN Routes Prefix Mode: 4096
MVPN MDT Tunnels: 1024
L2 VPN EOMPLS Attachment Circuit: 1024
MAX VPLS Bridge Domains : 128
MAX VPLS Peers Per Bridge Domain: 32
MAX VPLS/VPWS Pseudowires : 4096
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.
* values can be modified by sdm cli.

Device
This is the Core template.
Number of VLANs: 4094
Unicast MAC addresses: 16384
Overflow Unicast MAC addresses: 1024
L2 Multicast entries: 16384
Overflow L2 Multicast entries: 1024
L3 Multicast entries: 32768
Overflow L3 Multicast entries: 1024
Directly connected routes: 32768
Indirect routes: 65536
STP Instances: 1024
Security Access Control Entries: 18432
QoS Access Control Entries: 18432
Policy Based Routing ACEs / NAT ACEs: 2048
Netflow Input ACEs: 1024
Netflow Output ACEs: 2048
Ingress Netflow ACEs: 1024
Egress Netflow ACEs: 2048
Flow SPAN ACEs: 1024
Tunnels: 1024
LISP Instance Mapping Entries: 1024
Control Plane Entries: 1024
Input Netflow flows: 65536
Output Netflow flows: 65536
SGT/DGT (or) MPLS VPN entries: 8192
SGT/DGT (or) MPLS VPN Overflow entries: 512
Wired clients: 2048
```

```
MACSec SPD Entries: 256
MPLS L3 VPN VRF: 255
MPLS Labels: 16384
MPLS L3 VPN Routes VRF Mode: 32768
MPLS L3 VPN Routes Prefix Mode: 4096
MVPN MDT Tunnels: 1024
L2 VPN EOMPLS Attachment Circuit: 1024
MAX VPLS Bridge Domains : 128
MAX VPLS Peers Per Bridge Domain: 32
MAX VPLS/VPWS Pseudowires : 4096
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.
* values can be modified by sdm cli.

Device
This is the NAT template.
Number of VLANs: 4094
Unicast MAC addresses: 16384
Overflow Unicast MAC addresses: 1024
L2 Multicast entries: 16384
Overflow L2 Multicast entries: 1024
L3 Multicast entries: 32768
Overflow L3 Multicast entries: 1024
Directly connected routes: 49152
Indirect routes: 65536
STP Instances: 1024
Security Access Control Entries: 18432
QoS Access Control Entries: 3072
Policy Based Routing ACEs / NAT ACEs: 16384
Netflow Input ACEs: 1024
Netflow Output ACEs: 2048
Ingress Netflow ACEs: 1024
Egress Netflow ACEs: 2048
Flow SPAN ACEs: 1024
Tunnels: 1024
LISP Instance Mapping Entries: 1024
Control Plane Entries: 1024
Input Netflow flows: 65536
Output Netflow flows: 65536
SGT/DGT (or) MPLS VPN entries: 8192
SGT/DGT (or) MPLS VPN Overflow entries: 512
Wired clients: 2048
MACSec SPD Entries: 256
MPLS L3 VPN VRF: 255
MPLS Labels: 12288
MPLS L3 VPN Routes VRF Mode: 32768
MPLS L3 VPN Routes Prefix Mode: 4096
MVPN MDT Tunnels: 1024
L2 VPN EOMPLS Attachment Circuit: 1024
MAX VPLS Bridge Domains : 128
MAX VPLS Peers Per Bridge Domain: 32
MAX VPLS/VPWS Pseudowires : 4096
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.
* values can be modified by sdm cli.

Device
This is the SDA template.
Number of VLANs: 4094
Unicast MAC addresses: 16384
Overflow Unicast MAC addresses: 1024
L2 Multicast entries: 16384
Overflow L2 Multicast entries: 1024
```

```
L3 Multicast entries: 16384
Overflow L3 Multicast entries: 1024
Directly connected routes: 81920
Indirect routes: 65536
STP Instances: 1024
Security Access Control Entries: 18432
QoS Access Control Entries: 18432
Policy Based Routing ACEs / NAT ACEs: 2048
Netflow Input ACEs: 1024
Netflow Output ACEs: 2048
Ingress Netflow ACEs: 1024
Egress Netflow ACEs: 2048
Flow SPAN ACEs: 1024
Tunnels: 1024
LISP Instance Mapping Entries: 1024
Control Plane Entries: 1024
Input Netflow flows: 65536
Output Netflow flows: 65536
SGT/DGT (or) MPLS VPN entries: 8192
SGT/DGT (or) MPLS VPN Overflow entries: 512
Wired clients: 2048
MACSec SPD Entries: 256
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.
* values can be modified by sdm cli.
```

Examples: Configuring SDM Templates

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

Additional References for SDM Templates

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	*Command Reference (Catalyst 9400 Series Switches)*

Feature History for SDM Templates

This table provides release and related information for features explained in this module.

These features are available on all releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature	Feature Information
Cisco IOS XE Everest 16.6.1	SDM Template	Standard SDM templates can be used to configure system resources to optimize support for specific features.

Use Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn.