CHAPTER 14

Configuring SPAN

This chapter describes how to configure an Ethernet switched port analyzer (SPAN) to analyze traffic between ports on Cisco NX-OS devices.

This chapter includes the following sections:

Information About SPAN

SPAN analyzes all traffic between source ports by directing the SPAN session traffic to a destination port with an external analyzer attached to it.

You can define the sources and destinations to monitor in a SPAN sessions on the local device.

This section includes the following topics:

SPAN Sources

The interfaces from which traffic can be monitored are called SPAN sources. Sources designate the traffic to monitor and whether to copy ingress, egress, or both directions of traffic. SPAN sources include the following:

- Ethernet ports
- VLANs—When a VLAN is specified as a SPAN source, all supported interfaces in the VLAN are SPAN sources.
- Remote SPAN (RSPAN) VLANs
- The inband interface to the control plane CPU—You can monitor the inband interface only from the default VDC. Inband traffic from all VDCs is monitored.

Note A single SPAN session can include mixed sources in any combination of the above.

Characteristics of Source Ports

SPAN source ports have the following characteristics:

- A port configured as a source port cannot also be configured as a destination port.
- An RSPAN VLAN can only be used as a SPAN source.
- If you use the supervisor inband interface as a SPAN source, the following packets are monitored:
  - All packets that arrive on the supervisor hardware (ingress)
  - All packets generated by the supervisor hardware (egress)

SPAN Destinations

SPAN destinations refer to the interfaces that monitor source ports. Destination ports receive the copied traffic from SPAN sources.

Characteristics of Destination Ports

SPAN destination ports have the following characteristics:

- Destinations for a SPAN session include Ethernet ports or port-channel interfaces in either access or trunk mode.
- A port configured as a destination port cannot also be configured as a source port.
- A destination port can be configured in only one SPAN session at a time.
- Destination ports do not participate in any spanning tree instance. SPAN output includes Bridge Protocol Data Unit (BPDU) Spanning-Tree Protocol hello packets.
- An RSPAN VLAN cannot be used as a SPAN destination.
- You can configure SPAN destinations to inject packets to disrupt a certain TCP packet stream in support of the Intrusion Detection System (IDS).
- You can configure SPAN destinations to enable a forwarding engine to learn the MAC address of the IDS.

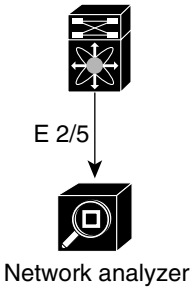
SPAN Sessions

You can create up to 18 SPAN sessions designating sources and destinations to monitor.

Note Only two SPAN sessions can be running simultaneously.

Figure 14-1 shows a SPAN configuration. Packets on three Ethernet ports are copied to destination port Ethernet 2/5. Only traffic in the direction specified is copied.

Figure 14-1 SPAN Configuration



Source Port	Direction	Destination Ports
E 2/1	Rx	E 2/5
E 2/2	Rx, Tx	
E 2/3	Tx	

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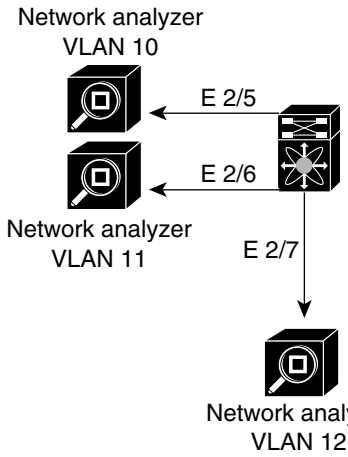
Virtual SPAN Sessions

You can create a virtual SPAN session to monitor multiple VLAN sources and choose only VLANs of interest to transmit on multiple destination ports. For example, you can configure SPAN on a trunk port and monitor traffic from different VLANs on different destination ports.

Figure 14-2 shows a virtual SPAN configuration. The virtual SPAN session copies traffic from the three VLANs to the three specified destination ports. You can choose which VLANs to allow on each destination port to limit the traffic that the device transmits on it. In Figure 14-2, the device transmits packets from one VLAN at each destination port.

Note Virtual SPAN sessions cause all source packets to be copied to all destinations, whether the packets are required at the destination or not. VLAN traffic filtering occurs at the egress destination port level.

Figure 14-2 Virtual SPAN Configuration



Source VLAN	Traffic Direction	Destination Ports
10	Rx	E 2/5 E 2/6 E 2/7
11	Rx, Tx	
12	Tx	

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Rx is ingress
Tx is egress

For information about configuring a virtual SPAN session, see the "Configuring a Virtual SPAN Session" section on page 14-10.

Multiple SPAN Sessions

Although you can define up to 18 SPAN sessions, only two SPAN sessions can be running simultaneously. You can shut down an unused SPAN session.

For information about shutting down SPAN sessions, see the "Shutting Down or Resuming a SPAN Session" section on page 14-13.

High Availability

The SPAN feature supports stateless and stateful restarts. After a reboot or supervisor switchover, Cisco NX-OS applies the running configuration.

Virtualization Support

A virtual device context (VDC) is a logical representation of a set of system resources. SPAN applies only to the VDC where the commands are entered.

Note You can monitor the inband interface only from the default VDC. Inband traffic from all VDCs is monitored.

For information about configuring VDCs, see the *Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.x.*

Licensing Requirements for SPAN

The following table shows the licensing requirements for this feature:

Product	License Requirement
NX-OS	SPAN requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the NX-OS licensing scheme, see the *Cisco NX-OS Licensing Guide*.

Prerequisites for SPAN

SPAN has the following prerequisites:

- You must first configure the ports on each device to support the desired SPAN configuration. For more information, see the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 4.x*.

Guidelines and Limitations

SPAN has the following configuration guidelines and limitations:

- Table 1 lists the SPAN session limits.

Table 1 SPAN Session Limits

Description	Limit
Configured SPAN sessions	18
Simultaneously running SPAN sessions	2
Source interfaces per session	128
Source VLANs per session[1]	32
Destination interfaces per session	32

1. If you specify a VLAN range greater than 32, the first 32 VLANs are added as source VLANs to the SPAN session even if the VLANs have not been created. For example, if you specify a VLAN range of 1-40 for the SPAN session, only VLANs 1-32 are added to the SPAN session. To add only specific VLANs within a range, you must add the VLANs explicitly.

- SPAN is not supported for management ports.
- A destination port can only be configured in one SPAN session at a time.
- You cannot configure a port as both a source and destination port.
- A single SPAN session can include mixed sources in any combination of the following:
  - Ethernet ports, but not subinterfaces.
  - VLANs, which can be assigned to port channel subinterfaces
  - The inband interface to the control plane CPU
- Destination ports do not participate in any spanning tree instance. SPAN output includes Bridge Protocol Data Unit (BPDU) Spanning-Tree Protocol hello packets.

- When a SPAN session contains source ports that are monitored in the transmit or transmit and receive direction, packets that these ports receive may be replicated to the SPAN destination port even though the packets are not actually transmitted on the source ports. Some examples of this behavior on source ports include:
  - Traffic that results from flooding
  - Broadcast and multicast traffic
- For VLAN SPAN sessions with both ingress and egress configured, two packets (one from ingress and one from egress) are forwarded from the destination port if the packets get switched on the same VLAN.
- VLAN SPAN monitors only the traffic that leaves or enters Layer 2 ports in the VLAN.
- You can monitor the inband interface only from the default VDC. Inband traffic from all VDCs is monitored.
- You can configure an RSPAN VLAN for use only as a SPAN session source.
- You can configure a SPAN session on the local device only.
- SPAN sessions cannot capture packets with broadcast or multicast MAC addresses that reach the supervisor, such as ARP requests and Open Shortest Path First (OSPF) protocol hello packets, if the source of the session is the supervisor ethernet in-band interface. To capture these packets, you must use the physical interface as the source in the SPAN sessions.
- All SPAN replication is performed in the hardware. The supervisor CPU is not involved.

Configuring SPAN

This section includes the following topics:

Note Cisco NX-OS commands for this feature may differ from those in Cisco IOS.

Configuring a SPAN Session

You can configure a SPAN session on the local device only. By default, SPAN sessions are created in the shut state.

For sources, you can specify Ethernet ports, port channels, the supervisor inband interface, VLANs, and RSPAN VLANs. You can specify private VLANs (primary, isolated, and community) in SPAN sources.

A single SPAN session can include mixed sources in any combination of Ethernet ports, VLANs, or the inband interface to the control plane CPU. You cannot specify Ethernet port subinterfaces as sources for a SPAN session.

Note To use a Layer 3 port-channel subinterface as a SPAN source in the monitor session, you must specify the vlan ID that you entered when configuring IEEE 802.1Q VLAN encapsulation for the subinterface as the filter VLAN. When you use the main interface and the SPAN VLAN filter to filter the 802.1Q VLANs on the subinterfaces, SPAN shows the traffic for all subinterfaces on the SPAN destination port.

When you specify the supervisor inband interface for a SPAN source, the device monitors all packets that arrive on the supervisor hardware (ingress) and all packets generated by the supervisor hardware (egress).

For destination ports, you can specify Ethernet ports or port-channels in either access or trunk mode. You must enable monitor mode on all destination ports.

BEFORE YOU BEGIN

Make sure that you are in the correct VDC. To switch VDCs, use the **switchto vdc** command.

- You must have already configured the destination ports in access or trunk mode. For more information, see the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 4.x* at the following.l

SUMMARY STEPS

1. **config t**
2. **interface ethernet** *slot*/*port*[*-port*]
3. **switchport**
4. **switchport mode** [**access** | **trunk** | **private-vlan**]
5. **switchport monitor** [**ingress** [**learning**]]
6. Repeat Steps 2 and 3 to configure monitoring on additional SPAN destinations.
7. **no monitor session** *session-number*
8. **monitor session** *session-number*
9. **description** *description*
10. **source** {**interface** *type* | **vlan** {*number* | *range*} [**rx** | **tx** | **both**]
11. Repeat Step 8 to configure all SPAN sources.
12. **filter vlan** {*number* | *range*}
13. Repeat Step 10 to configure all source VLANs to filter.
14. **destination interface** *type* {*number* | *range*}
15. Repeat Step 12 to configure all SPAN destination ports.
16. **no shut**
17. **show monitor session** {**all** | *session-number* | **range** *session-range*} [**brief**]
18. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** switch# config t switch(config)#	Enters global configuration mode.
Step 2	**interface ethernet** *slot/port*[*-port*] **Example:** switch(config)# interface ethernet 2/5 switch(config-if)#	Enters interface configuration mode on the selected slot and port or range of ports.
Step 3	**switchport** **Example:** switch(config-if)# switchport switch(config-if)#	Configures switchport parameters for the selected slot and port or range of ports.
Step 4	**switchport mode** [**access** | **trunk** | **private-vlan**] **Example:** switch(config-if)# switchport mode trunk switch(config-if)#	Configures the switchport mode for the selected slot and port or range of ports. • access • trunk • private-vlan
Step 5	**switchport monitor** [**ingress** [**learning**]] **Example:** switch(config-if)# switchport monitor	Configures the switchport interface as a SPAN destination: • **ingress** Allows the SPAN destination port to inject packets that disrupt a certain TCP packet stream, for example, in networks with IDS. • **ingress learning** Allows the SPAN destination port to inject packets, and learning adds the ability for the switch to learn the MAC address of the downstream network analysis device.
Step 6	(Optional) Repeat Steps 2 and 3 to configure monitoring on additional SPAN destinations.	—
Step 7	**no monitor session** *session-number* **Example:** switch(config)# no monitor session 3	Clears the configuration of the specified SPAN session. The new session configuration is added to the existing session configuration.
Step 8	**monitor session** *session-number* **Example:** switch(config)# monitor session 3 switch(config-monitor)#	Enters the monitor configuration mode. The new session configuration is added to the existing session configuration. By default, the session is created in the shut state.
Step 9	**description** *description* **Example:** switch(config-monitor)# description my_span_session_3	Configures a description for the session. By default, no description is defined. The description can be up to 32 alphanumeric characters.

	Command	Purpose

Step 10	**source** {**interface** *type* | **vlan** *{1-3967,4048-4093}*} [**rx** | **tx** | **both**]
	
	Example 1:
	`switch(config-monitor)# source interface ethernet 2/1-3, ethernet 3/1 rx`
	
	Example 2:
	`switch(config-monitor)# source interface port-channel 2`
	
	Example 3:
	`switch(config-monitor)# source interface sup-eth 0 both`
	
	Example 4:
	`switch(config-monitor)# source vlan 3, 6-8 tx`
		Configures sources and the traffic direction in which to copy packets. You can enter a range of Ethernet ports, a port channel, an inband interface, or a range of VLANs.
		
		You can configure one or more sources, as either a series of comma-separated entries or a range of numbers. You can specify up to 128 interfaces. The VLAN range is from 1 to 3967 and 4048 to 4093.
		
		You can specify the traffic direction to copy as ingress (rx), egress (tx), or both. By default, the direction is both.
		
		Note You can monitor the inband interface only from the default VDC. The inband traffic from all VDCs is monitored.

Step 11	(Optional) Repeat Step 8 to configure all SPAN sources.	—
Step 12	**filter vlan** {*number* | *range*} **Example:** `switch(config-monitor)# filter vlan 3-5, 7`	Configures which VLANs to select from the configured sources. You can configure one or more VLANs, as either a series of comma-separated entries, or a range of numbers. The VLAN range is from 1 to 3967 and 4048 to 4093.
Step 13	(Optional) Repeat Step 10 to configure all source VLANs to filter.	—
Step 14	**destination interface** *type* {*number* | *range*} **Example:** `switch(config-monitor)# destination interface ethernet 2/5, ethernet 3/7`	Configures destinations for copied source packets. You can configure one or more destinations, as either a series of comma-separated entries, or a range of numbers. You can specify up to 128 interfaces. **Note** SPAN destination ports must be either access or trunk ports.
Step 15	(Optional) Repeat Step 12 to configure all SPAN destination ports.	—
Step 16	**no shut** **Example:** `switch(config-monitor)# no shut`	Enables the SPAN session. By default, the session is created in the shut state. **Note** Only two SPAN sessions can be running simultaneously.
Step 17	**show monitor session** {**all** | *session-number* | **range** *session-range*} [**brief**] **Example:** `switch(config-monitor)# show monitor session 3`	(Optional) Displays the SPAN configuration.
Step 18	**copy running-config startup-config** **Example:** `switch(config-monitor)# copy running-config startup-config`	(Optional) Copies the running configuration to the startup configuration.

Configuring a Virtual SPAN Session

You can configure a virtual SPAN session to copy packets from source ports, VLANs, and RSPAN VLANs to destination ports on the local device. By default, SPAN sessions are created in the shut state.

For sources, you can specify ports, VLANs, or RSPAN VLANs.

For destination ports, you can specify Ethernet ports. You can choose which VLANs to allow on each destination port to limit the traffic that the device transmits on it.

BEFORE YOU BEGIN

- Ensure that you are in the correct VDC (or use the **switchto vdc** command).
- You have already configured the destination ports in trunk mode. For more information, see the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 4.x*.
- You have already configured the destination ports to monitor a SPAN session with the **switchport monitor** command.

SUMMARY STEPS

1. **config t**
2. **no monitor session** *session-number*
3. **monitor session** *session-number*
4. **source** {**interface** *type* | **vlan**} {*number* | *range*} [**rx** | **tx** | **both**]
5. Repeat Step 4 to configure all virtual SPAN VLAN sources.
6. **destination interface** *type* {*number* | *range*}
7. Repeat Step 6 to configure all virtual SPAN destination ports.
8. **no shut**
9. **show monitor session** {**all** | *session-number* | **range** *session-range*} [**brief**]
10. **interface ethernet** *slot*/*port*[-*port*]
11. **switchport**
12. **switchport mode trunk**
13. **switchport trunk allowed vlan** {{*number* | *range*} | **add** {*number* | *range*} | **except** {*number* | *range*} | **remove** {*number* | *range*} | **all** | **none**}
14. Repeat Steps 10 and 11 to configure the allowed VLANs on each destination port.
15. **show interface ethernet** *slot*/*port*[-*port*] **trunk**
16. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose
Step 1	**config t** **Example:** switch# config t switch(config)#	Enters global configuration mode.
Step 2	**no monitor session** *session-number* **Example:** switch(config)# no monitor session 3	Clears the configuration of the specified SPAN session. New session configuration is added to the existing session configuration.
Step 3	**monitor session** *session-number* **Example:** switch(config)# monitor session 3 switch(config-monitor)#	Enters the monitor configuration mode. A new session configuration is added to the existing session configuration.
Step 4	**source** {**interface** *type* | **vlan**} {*number* | *range*} [**rx** | **tx** | **both**] **Example:** switch(config-monitor)# source vlan 3, 6-8 tx	Configures sources and the traffic direction in which to copy packets. You can configure one or more sources, as either a series of comma-separated entries, or a range of numbers. You can specify up to 128 interfaces. The VLAN range is from 1 to 3967 and 4048 to 4093. You can specify the traffic direction to copy as ingress (rx), egress (tx), or both. By default, the direction is both.
Step 5	(Optional) Repeat Step 4 to configure all virtual SPAN source VLANs.	—
Step 6	**destination interface** *type* {*number* | *range*} **Example:** switch(config-monitor)# destination interface ethernet 2/5, ethernet 3/7	Configures destinations for copied source packets. You can configure one or more interfaces, as either a series of comma-separated entries, or a range of numbers. The allowable range is from 1 to 128. **Note** Configure destination ports as trunk ports. For more information, see the *Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 4.x*.
Step 7	(Optional) Repeat Step 6 to configure all virtual SPAN destination ports.	—
Step 8	**no shut** **Example:** switch(config-monitor)# no shut	Enables the SPAN session. By default, the session is created in the shut state. **Note** Only two SPAN sessions can be running simultaneously.
Step 9	**show monitor session** {**all** | *session-number* | **range** *session-range*} [**brief**] **Example:** switch(config-monitor)# show monitor session 3	(Optional) Displays the virtual SPAN configuration.

	Command	Purpose
Step 10	**interface ethernet** *slot/port*[*-port*] **Example:** switch(config)# interface ethernet 2/5 switch(config-if)#	Enters interface configuration mode on the selected slot and port or range of ports.
Step 11	**switchport** **Example:** switch(config-if)# switchport switch(config-if)#	Makes interface a Layer 2 interface.
Step 12	**switchport mode trunk** **Example:** switch(config-if)# switchport mode trunk switch(config-if)#	Puts Layer 2 interface into trunk mode.
Step 13	**switchport trunk allowed vlan** {{*number* | *range*} | **add** {*number* | *range*} | **except** {*number* | *range*} | **remove** {*number* | *range*} | **all** | **none**} **Example:** switch(config-if)# switchport trunk allowed vlan 3-5	Configures the range of VLANS that are allowed on the interface. You can add to or remove from the existing VLANs, you can select all VLANs except those VLANs that you specify, or you can select all or none of the VLANs. By default, all VLANs are allowed on the interface. You can configure one or more VLANs, as either a series of comma-separated entries, or a range of numbers. The VLAN range is from 1 to 3967 and 4048 to 4093.
Step 14	(Optional) Repeat Steps 10 and 11 to configure the allowed VLANs on each destination port.	—
Step 15	**show interface ethernet** *slot/port*[*-port*] **trunk** **Example:** switch(config-if)# show interface ethernet 2/5 trunk	(Optional) Displays the interface trunking configuration for the selected slot and port or range of ports.
Step 16	**copy running-config startup-config** **Example:** switch(config-if)# copy running-config startup-config	(Optional) Copies the running configuration to the startup configuration.

Configuring an RSPAN VLAN

You can specify a remote SPAN (RSPAN) VLAN as a SPAN session source.

BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the **switchto vdc** command).

SUMMARY STEPS

1. **config t**
2. **vlan** *vlan*

3. **remote-span**
4. **exit**
5. **show vlan**
6. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**config t**
	
	Example:
	`switch# config t`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**vlan** *vlan*
	
	Example:
	`switch(config)# vlan 901`
	`switch(config-vlan)#`
		Enters VLAN configuration mode for the VLAN specified.

Step 3	**remote-span** **Example:** `switch(config-vlan)# remote-span`	Configures the VLAN as an RSPAN VLAN.

Step 4	**exit**
	
	Example:
	`switch(config-vlan)# exit`
	`switch(config)#`
		Exits VLAN configuration mode.

Step 5	**show vlan** **Example:** `switch(config)# show vlan`	(Optional) Displays the VLAN configuration. Remote SPAN VLANs are listed together.
Step 6	**copy running-config startup-config** **Example:** `switch(config)# copy running-config startup-config`	(Optional) Copies the running configuration to the startup configuration.

Shutting Down or Resuming a SPAN Session

You can shut down SPAN sessions to discontinue the copying of packets from sources to destinations. Because only two SPAN sessions can be running simultaneously, you can shut down one session in order to free hardware resources to enable another session. By default, SPAN sessions are created in the shut state.

You can resume (enable) SPAN sessions to resume the copying of packets from sources to destinations. In order to enable a SPAN session that is already enabled but operationally down, you must first shut it down and then enable it.

You can configure the shut and enabled SPAN session states with either a global or monitor configuration mode command.

BEFORE YOU BEGIN

Ensure that you are in the correct VDC (or use the **switchto vdc** command).

SUMMARY STEPS

1. **config t**
2. **monitor session** {*session-range* | **all**} **shut**
3. **no monitor session** {*session-range* | **all**} **shut**
4. **monitor session** *session-number*
5. **shut**
6. **no shut**
7. **show monitor**
8. **copy running-config startup-config**

DETAILED STEPS

	Command	Purpose

Step 1	**config t**
	
	Example:
	`switch# config t`
	`switch(config)#`
		Enters global configuration mode.

Step 2	**monitor session** {*session-range* | **all**} **shut** **Example:** `switch(config)# monitor session 3 shut`	Shuts down the specified SPAN sessions. The session ranges from 1 to 18. By default, sessions are created in the shut state. Only two sessions can be running at a time.
Step 3	**no monitor session** {*session-range* | **all**} **shut** **Example:** `switch(config)# no monitor session 3 shut`	Resumes (enables) the specified SPAN sessions. The session ranges from 1 to 18. By default, sessions are created in the shut state. Only two sessions can be running at a time. **Note** If a monitor session is enabled but its operational status is down, then to enable the session, you must first specify the **monitor session shut** command followed by the **no monitor session shut** command.

Step 4	**monitor session** *session-number*
	
	Example:
	`switch(config)# monitor session 3`
	`switch(config-monitor)#`
		Enters the monitor configuration mode. The new session configuration is added to the existing session configuration.

Step 5	**shut** **Example:** `switch(config-monitor)# shut`	Shuts down the SPAN session. By default, the session is created in the shut state.

	Command	Purpose
Step 6	**no shut** **Example:** `switch(config-monitor)# no shut`	Enables the SPAN session. By default, the session is created in the shut state. **Note** Only two SPAN sessions can be running simultaneously.
Step 7	**show monitor** **Example:** `switch(config-monitor)# show monitor`	(Optional) Displays the status of SPAN sessions.
Step 8	**copy running-config startup-config** **Example:** `switch(config-monitor)# copy running-config startup-config`	(Optional) Copies the running configuration to the startup configuration.

Verifying the SPAN Configuration

To display SPAN configuration information, perform one of the following tasks:

Command	Purpose
show monitor session {**all** | *session-number* | **range** *session-range*} [**brief**]	Displays the SPAN session configuration.

For detailed information about the fields in the output from these commands, see the *Cisco NX-OS System Management Command Reference*.

SPAN Example Configurations

This section includes the following topics:

- SPAN Session Example Configuration, page 14-15
- Virtual SPAN Session Example Configuration, page 14-16
- Private VLAN Source in SPAN Session Example Configuration, page 14-16

SPAN Session Example Configuration

To configure a SPAN session, follow these steps:

Step 1 Configure destination ports in access or trunk mode, and enable SPAN monitoring.

```
switch# config t
  switch(config)# interface ethernet 2/5
    switch(config-if)# switchport
    switch(config-if)# switchport mode trunk
    switch(config-if)# switchport monitor
    switch(config-if)# no shut
    switch(config-if)# exit
```

```
switch(config)#
```

Step 2 Configure a SPAN session.

```
switch(config)# no monitor session 3
switch(config)# monitor session 3
  switch(config-monitor)# source interface ethernet 2/1-3, ethernet 3/1 rx
  switch(config-monitor)# source interface port-channel 2
  switch(config-monitor)# source interface sup-eth 0 both
  switch(config-monitor)# source vlan 3, 6-8 tx
  switch(config-monitor)# filter vlan 3-5, 7
  switch(config-monitor)# destination interface ethernet 2/5
  switch(config-monitor)# no shut
  switch(config-monitor)# exit
switch(config)# show monitor session 3
switch(config)# copy running-config startup-config
```

Virtual SPAN Session Example Configuration

To configure a virtual SPAN session, follow these steps:

Step 1 Configure destination ports in access or trunk mode, and enable SPAN monitoring.

```
switch# config t
  switch(config)# interface ethernet 3/1
    switch(config-if)# switchport
    switch(config-if)# switchport mode trunk
    switch(config-if)# switchport trunk allowed vlan add 100-200
    switch(config-if)# switchport monitor
    switch(config-if)# no shut
    switch(config-if)# exit
  switch(config)# interface ethernet 3/2
    switch(config-if)# switchport
    switch(config-if)# switchport mode trunk
    switch(config-if)# switchport trunk allowed vlan add 201-300
    switch(config-if)# switchport monitor
    switch(config-if)# no shut
    switch(config-if)# exit
  switch(config)#
```

Step 2 Configure a SPAN session.

```
  switch(config)# no monitor session 3
  switch(config)# monitor session 3
    switch(config-monitor)# source vlan 100-300
    switch(config-monitor)# destination interface ethernet 3/1-2
    switch(config-monitor)# no shut
    switch(config-monitor)# exit
  switch(config)# show monitor session 3
  switch(config)# copy running-config startup-config
```

Private VLAN Source in SPAN Session Example Configuration

To configure a SPAN session that includes a private VLAN source, follow these steps:

Step 1 Configure source VLANs.

```
switch# config t
  switch(config)# vlan 100
    switch(config-vlan)# private-vlan primary
    switch(config-vlan)# exit
  switch(config)# interface ethernet 3/1
    switch(config-if)# switchport
    switch(config-if)# switchport access vlan 100
    switch(config-if)# no shut
    switch(config-if)# exit
  switch(config)# interface ethernet 3/2
    switch(config-if)# switchport
    switch(config-if)# switchport mode trunk
    switch(config-if)# switchport trunk native vlan 100
    switch(config-if)# no shut
    switch(config-if)# exit
  switch(config)#
```

Step 2 Configure destination ports in access or trunk mode, and enable SPAN monitoring.

```
switch# config t
  switch(config)# interface ethernet 3/3
    switch(config-if)# switchport
    switch(config-if)# switchport mode trunk
    switch(config-if)# switchport trunk allowed vlan add 100-200
    switch(config-if)# switchport monitor
    switch(config-if)# no shut
    switch(config-if)# exit
  switch(config)#
```

Step 3 Configure a SPAN session.

```
  switch(config)# no monitor session 3
  switch(config)# monitor session 3
    switch(config-monitor)# source vlan 100
    switch(config-monitor)# destination interface ethernet 3/3
    switch(config-monitor)# no shut
    switch(config-monitor)# exit
  switch(config)# show monitor session 3
  switch(config)# copy running-config startup-config
```

Additional References

For additional information related to implementing SPAN, see the following sections:

- Related Documents, page 14-18
- Standards, page 14-18

Related Documents

Related Topic	Document Title
VDCs	*Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide, Release 4.x*
SPAN commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	*Cisco Nexus 7000 Series NX-OS System Management Command Reference*

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

Feature History for SPAN

Table 14-2 lists the release history for this feature.

Table 14-2 Feature History for SPAN

Feature Name	Releases	Feature Information
Guidelines and Limitations	4.1(3)	Added a table of SPAN session limits. See the "Table 1SPAN Session Limits" section on page 14-5.