



Configuring SPAN

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Information About SPAN

The Switched Port Analyzer (SPAN) feature (sometimes called port mirroring or port monitoring) selects network traffic for analysis by a network analyzer. The network analyzer can be a Cisco SwitchProbe or other Remote Monitoring (RMON) probes.

SPAN Sources

SPAN sources refer to the interfaces from which traffic can be monitored. The Cisco Nexus Series device supports Ethernet, port channels, and VLANs as SPAN sources. With VLANs, all supported interfaces in the specified VLAN are included as SPAN sources. You can choose the SPAN traffic in the ingress direction, the egress direction, or both directions for Ethernet source interfaces:

- Ingress source (Rx)—Traffic entering the device through this source port is copied to the SPAN destination port.
- Egress source (Tx)—Traffic exiting the device through this source port is copied to the SPAN destination port.

Characteristics of Source Ports

A source port, also called a monitored port, is a switched interface that you monitor for network traffic analysis. The switch supports any number of ingress source ports (up to the maximum number of available ports on the switch) and any number of source VLANs.

A source port has these characteristics:

- Can be of Ethernet, port channel, or VLAN port type.
- Cannot be monitored in multiple SPAN sessions.
- Cannot be a destination port.
- Each source port can be configured with a direction (ingress, egress, or both) to monitor. For VLAN sources, the monitored direction can only be ingress and applies to all physical ports in the group. The RX/TX option is not available for VLAN SPAN sessions.
- Source ports can be in the same or different VLANs.

SPAN Destinations

SPAN destinations refer to the interfaces that monitors source ports. The Cisco Nexus Series device supports Ethernet interfaces as SPAN destinations.

Source SPAN	Dest SPAN
Ethernet	Ethernet

Characteristics of Destination Ports

Each local SPAN session must have a destination port (also called a monitoring port) that receives a copy of traffic from the source ports or VLANs. A destination port has these characteristics:

- Can be any physical port. Source ethernet ports cannot be destination ports.

- Cannot be a source port.
- Cannot be a port channel.
- Does not participate in spanning tree while the SPAN session is active.
- Is excluded from the source list and is not monitored if it belongs to a source VLAN of any SPAN session.
- Receives copies of sent and received traffic for all monitored source ports. If a destination port is oversubscribed, it can become congested. This congestion can affect traffic forwarding on one or more of the source ports.

Guidelines and Limitations for SPAN

SPAN has the following guidelines and limitations:

- If you install NX-OS 5.0(3)U2(2) and then downgrade to a lower version of software, the SPAN configuration is lost.

To avoid this, you need to save the configuration before upgrading to NX-OS 5.0(3)U2(2), and then reapply the local span configurations after the downgrade.

For information about a similar ERSPAN limitation, see [Guidelines and Limitations for ERSPAN](#) for ERSPAN.

Creating or Deleting a SPAN Session

You create a SPAN session by assigning a session number using the **monitor session** command. If the session already exists, any additional configuration information is added to the existing session.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config)# monitor session <i>session-number</i>	Enters the monitor configuration mode. New session configuration is added to the existing session configuration.

This example shows how to configure a SPAN monitor session:

```
switch# configure terminal
switch(config) # monitor session 2
switch(config) #
```

Configuring an Ethernet Destination Port

You can configure an Ethernet interface as a SPAN destination port.



Note The SPAN destination port can only be a physical port on the switch.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config)# interface ethernet <i>slot/port</i>	Enters interface configuration mode for the Ethernet interface with the specified slot and port.
Step 3	switch(config-if)# switchport monitor	Enters monitor mode for the specified Ethernet interface. Priority flow control is disabled when the port is configured as a SPAN destination.
Step 4	switch(config-if)# exit	Reverts to global configuration mode.
Step 5	switch(config)# monitor session <i>session-number</i>	Enters monitor configuration mode for the specified SPAN session.
Step 6	switch(config-monitor)# destination interface ethernet <i>slot/port</i>	Configures the Ethernet SPAN destination port.

The following example shows how to configure an Ethernet SPAN destination port:

```
switch# configure terminal
switch(config)# interface ethernet 1/3
switch(config-if)# switchport monitor
switch(config-if)# exit
switch(config)# monitor session 2
switch(config-monitor)# destination interface ethernet 1/3
switch(config-monitor)#
```

Configuring the SPAN Buffer Limit

You can configure the SPAN buffer limit on an interface port.



Note The buffer limit can only be configured when the interface is a member of an active SPAN session.



Note The default SPAN buffer limit is set at 200 packets.



Note When configuring a high SPAN buffer limit, it may affect regular data plane traffic as they both use the same memory pool.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config)# interface ethernet slot/port	Enters interface configuration mode for the Ethernet interface with the specified slot and port.
Step 3	switch(config-if)# switchport mode monitor buffer-limit limit [bytes kbytes mbytes packets]	Sets the buffer limit.
Step 4	switch(config)# copy running-config startup-config	(Optional) Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

This example shows how to configure the SPAN buffer-limit:

```
switch# configure terminal
switch(config)# interface ethernet 1/15
switch(config-if)# switchport mode monitor buffer-limit 100 bytes
switch(config-if)#
```

Configuring Source Ports

Source ports can only be Ethernet ports.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # monitor session session-number	Enters monitor configuration mode for the specified monitoring session.
Step 3	switch(config-monitor) # source interface type slot/port [rx tx both]	Configures sources and the traffic direction in which to duplicate packets. You can enter a range of Ethernet ports. You can specify the traffic direction to duplicate as ingress (rx), egress (tx), or both. By default, the direction is both.

The following example shows how to configure an Ethernet SPAN source port:

```
switch# configure terminal
switch(config)# monitor session 2
switch(config-monitor)# source interface ethernet 1/16
switch(config-monitor)#
```

Configuring Source Port Channels or VLANs

You can configure the source channels for a SPAN session. These ports can be port channels, and VLANs. The monitored direction can be ingress, egress, or both and applies to all physical ports in the group.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # monitor session <i>session-number</i>	Enters monitor configuration mode for the specified SPAN session.
Step 3	switch(config-monitor) # source { interface { port-channel } <i>channel-number</i> [rx tx both] vlan <i>vlan-range</i> }	Configures port channel, or VLAN sources. For VLAN sources, the monitored direction is implicit.

This example shows how to configure a port channel SPAN source:

```
switch# configure terminal
switch(config)# monitor session 2
switch(config-monitor)# source interface port-channel 1 rx
switch(config-monitor)# source interface port-channel 3 tx
switch(config-monitor)# source interface port-channel 5 both
switch(config-monitor)#
```

This example shows how to configure a VLAN SPAN source:

```
switch# configure terminal
switch(config)# monitor session 2
switch(config-monitor)# source vlan 1
switch(config-monitor)#
```

Configuring the Description of a SPAN Session

For ease of reference, you can provide a descriptive name for a SPAN session.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # monitor session <i>session-number</i>	Enters monitor configuration mode for the specified SPAN session.
Step 3	switch(config-monitor) # description <i>description</i>	Creates descriptive name for the SPAN session.

The following example shows how to configure a SPAN session description:

```
switch# configure terminal
switch(config) # monitor session 2
switch(config-monitor) # description monitoring ports eth2/2-eth2/4
switch(config-monitor) #
```

Activating a SPAN Session

The default is to keep the session state shut. You can open a session that duplicates packets from sources to destinations.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # no monitor session {all session-number} shut	Opens the specified SPAN session or all sessions.

The following example shows how to activate a SPAN session:

```
switch# configure terminal
switch(config) # no monitor session 3 shut
```

Suspending a SPAN Session

By default, the session state is **shut**.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # monitor session {all session-number} shut	Suspends the specified SPAN session or all sessions.

The following example shows how to suspend a SPAN session:

```
switch# configure terminal
switch(config) # monitor session 3 shut
switch(config) #
```

Displaying SPAN Information

Procedure

	Command or Action	Purpose
Step 1	switch# show monitor [session {all session-number range session-range} [brief]]	Displays the SPAN configuration.

This example shows how to display SPAN session information:

```
switch# show monitor
SESSION  STATE      REASON          DESCRIPTION
-----  -
2        up         The session is up
3        down      Session suspended
4        down      No hardware resource
```

This example shows how to display SPAN session details:

```
switch# show monitor session 2
session 2
-----
type           : local
state          : up
source intf    :

source VLANs   :
  rx           :

destination ports : Eth3/1
```