

SPAN Session or Port Mirroring

- About SPAN Sessions, on page 1
- Configuring SPAN Sessions, on page 1
- Configuration Examples for SPAN Session Scenarios, on page 3

About SPAN Sessions

The Switched Port Analyzer (SPAN) or Port Mirroring feature helps you analyze network traffic passing through interfaces or VLANs by using SPAN sessions. The SPAN sessions send a copy (mirror) of the traffic to another interface or VLAN on the switch that has been connected to a network analyzer or monitoring device. SPAN does not affect the switching of network traffic on the source interfaces.

Note You must dedicate a destination port for SPAN use. Except for traffic that is required for the SPAN session, destination ports do not receive or forward traffic. When the SPAN is configured on the system, there might be some performance hit.

SPAN Session Interfaces

The interface can be:

- Physical interface
- LAN SRIOV
- VM's vNIC (virtio net)

In the case of virtio net or SRIOV VF, you have to specify the VM group name and NIC ID of the VM interface. If the VM vNIC is virtio net type, then the SPAN session is applied on the OVS bridge. If VM vNIC is SRIOV VF, then the mirror is applied to the hardware bridge. The interface name is specified for a physical interface, for example, GE0-0 or eth0.

Configuring SPAN Sessions

The SPAN session configuration has the following four parameters:

- Session number—Each SPAN session is identified with a unique number.
- Bridge name—The SPAN session is applied to a bridge. For VLAN mirroring, the bridge must be specified. The bridge name is optional if the source or destination interface is configured for the session.
- Source configuration—The source of the mirror traffic can be one of the following:
  - Packets entering (Rx), or exiting (Tx), or both. You can specify multiple interfaces of any type.
  - You can also specify all interfaces on the OVS bridge.
  - All packets entering a VLAN. You can also specify a list of VLANs.
- Destination configuration—The destination for the mirrored traffic can be one of the following:
  - You can send the mirrored traffic to interfaces of Cisco ENCS switch port when you use a physical interface.
  - The mirrored traffic can be sent to a speciifc VLAN. In this case, the original VLAN tag is stripped in the mirrored traffic in favor of the destination VLAN. This loss of original VLAN information might make the mirrored traffic hard to interpret.



Note Use VM Group Name for **source vm-vnic** and **destination vm-vnic** commands. Use the **show vm_lifecycle deployments all | include Group** command to get Group Name.

```
ENCS# show vm_lifecycle deployments all | include Group
VM Group Name : deployment-ASAv
VM Group Name : deployment-ISRv
VM Group Name : deployment-Linux
ENCS#
```

To configure a SPAN session:

```
configure terminal
monitor session  2
bridge wan-br
source interface GE0-0
destination vm-vnic Linux2 0
commit
```

Verifying the SPAN Session Configuration

Use the **show system monitor session** command to verify the SPAN session configuration.

```
nfvis# show system monitor session
system monitor session 2
 bridge                wan-br
 destination_vlan      ""
 destination_interface vnic0
 source_vlans          ""
 source_rx_interfaces  "GE0-0"
 source_tx_interfaces  "GE0-0"
 source_all            false
 statistics            "tx_bytes=142660, tx_packets=1380"
```

Use the **show running-config monitor session** command to verify the interface configuration for a SPAN session:

```
nfvis# show running-config monitor session
monitor session 2
 destination vm-vnic Linux2 0
 source vm-vnic Linux1 0 both
 source interface GE0-0 both
```

SPAN Session APIs and Commands

APIs	Commands
• /api/config/monitor • /api/operational/monitor\?deep • /api/config/monitor\?deep • /api/operational/system/monitor/session\?deep	• monitor session • bridge • source • destination • show system monitor session • show monitor session status • show running-config monitor session

Configuration Examples for SPAN Session Scenarios

Example: SPAN Session Traffic on a Physical Interface

The following example shows how to configure all traffic coming in or going out on GE0-0 (physical interface) and VM Linux1 (vnic0). And traffic is mirrored to the VM Linux2 (vnic1). With this configuraton, any traffic arriving on vnet1 will be dropped.

Note An existing SPAN session will be in FAIL state after the system reboot. In this case, you need to recreate (delete and create) the SPAN session after the system bootup.

VM deployment interfaces:

- SPAN source: GE0-0 (traffic in both directions)
- SPAN source: Linux1/vnic0, and wan-net (traffic in both directions)
- • SPAN destination: Linux2/vnic0, and wan-net

```
nfvis# show running-config monitor session
monitor session 20
 destination vm-vnic Linux2 0
```

```
 source vm-vnic Linux1 0 both
 source interface GE0-0 both
!
nfvis#

nfvis# show system monitor session
system monitor session 20
 bridge                wan-br
 destination_vlan      ""
 destination_interface vnic11
 source_vlans          ""
 source_rx_interfaces  "vnic10, GE0-0"
 source_tx_interfaces  "vnic10, GE0-0"
 source_all            false
 statistics            "tx_bytes=142660, tx_packets=1380"
nfvis#

nfvis# show monitor session status
NUMBER  STATUS
------------------------
20      CREATE_SUCCESS
```

Example: SPAN Session Traffic on a LAN SRIOV

The following example shows how to configure all traffic coming in or going out on an SRIOV interface (VF0). It is also mirrored to VF1.

Note This scenario is applicable only to the Cisco ENCS.

VM deployment for VF-VF scenario:

CentOS_SRIOV, C3, and C5 are CentOS VMs with SRIOV support.

- CentOS_SRIOV: vnic0: wan-net/vnic1: LAN-SRIOV-1 (192.168.1.36)
- C3: vnic0: LAN-SRIOV3 (192.168.1.3)
- C5: vnic0: LAN-SRIOV5 (192.168.1.5)

SPAN destination and source:

- SPAN destination: CentOS_SRIOV (vnic0: wan-net/vnic1: LAN-SRIOV-1)
- SPAN source: C3 (vnic0: LAN-SRIOV-3); traffic in both directions (rx, tx)
- Ping target: C5 (vnic0: LAN-SRIOV-5)

```
nfvis# show running-config monitor session
monitor session 6
 destination vm-vnic CentOS_SRIOV 1
 source vm-vnic C3 0
!
nfvis#

nfvis# show system monitor session
system monitor session 6
```

```
 bridge                ""
 destination_vlan      ""
 destination_interface LAN-SRIOV-1
 source_vlans          ""
 source_rx_interfaces  LAN-SRIOV-3
 source_tx_interfaces  LAN-SRIOV-3
 source_all            ""
 statistics            ""
nfvis#

nfvis# show monitor session status
NUMBER  STATUS
------------------------
6       CREATE_SUCCESS
```

Example: SPAN Session Traffic on a VLAN

The following example shows how to configure the SPAN session for all traffic entering in VLAN 10 and 11. It is also mirrored to VLAN 20.

```
nfvis# show running-config monitor session
monitor session 11
 bridge lan-br
 destination vlan 20
 source vlan [ 10 11 ]
!

nfvis# show system monitor session
system monitor session 11
 bridge                lan-br
 destination_vlan      20
 destination_interface ""
 source_vlans          "10, 11"
 source_rx_interfaces  ""
 source_tx_interfaces  ""
 source_all            true
 statistics            "tx_bytes=0, tx_packets=0"

nfvis# show monitor session 11
NUMBER  STATUS
------------------------
11      CREATE_SUCCESS
```