Configure RSPAN with VMware

Published: 2024-07-29

The Remote Switched Port Analyzer (RSPAN) enables you to monitor traffic on one switch through a device on another switch and then send the monitored traffic to one or more destinations.

Before you begin

RSPAN requires that you configure an RSPAN VLAN on your physical switches. If you cannot configure an RSPAN VLAN, consider configuring ERSPAN as an alternative. For more information, see How Mirroring Works ☑.

- You must have experience with basic VMware ESX and ESXi administration through the VMware vSphere Web Client.
- You must have an uplink port (HW NIC) attached to the switch (preferably one that is not designated for general network traffic).
- Direct access to the iDRAC console is preferred.

For information about configuring the VMware vSphere server, see the Working with Port Mirroring section in the ESXi and vCenter documentation for your version of VMware.

For information about configuring VMware with an ExtraHop sensor, see Deploy the ExtraHop sensor on VMware ^I.

The following steps outline the key procedures that are required to configure RSPAN with VMware for an ExtraHop sensor. Note that procedures in these steps might vary between versions of VMware.

- **Note:** While these steps are required for RSPAN configuration, most deployments have completed the first four steps prior to installing the sensor. If you have an existing Virtual Distributed Switch, start with step 5.
- 1. Create a virtual distributed switch (VDS)
- 2. Add port groups to the VDS
- 3. Add a host to the VDS
- 4. Add uplink ports to the VDS
- 5. Configure an RSPAN port mirror on the VDS

Create a virtual distributed switch

Complete the following steps to create a virtual distributed switch (VDS). The VDS carries traffic from your virtual machines (VM) to your physical network and to other VMs.

- 1. Log in to the vSphere Web Client.
- 2. Click vCenter Inventory Lists.

vmware [®] vSphere Web Client	π≡		
Navigator		Ŧ	🚹 Home
vCenter Inventory Lists	• 🕤		Home
n Home			Inventories
🛃 vCenter Inventory Lists		>	
Hosts and Clusters		>	
VMs and Templates		>	vCenter
Storage		>	Inventory Lists
🧕 Networking		>	

3. In the left panel, click **Distributed Switches**.

VMWare [®] vSphere Web Client	î€		
Navigator		Ŧ	1
Home	• 🔊		ſ
vCenter Inventory Lists			Ľ
🛃 vCenter Home			
Virtual Machines		>	
🔀 vApps		>	
VM Templates in Folders		>	
E Content Libraries		>	
✓ Resources			
🕝 vCenter Servers		>	
Datacenters		>	
E Hosts		>	
Clusters		>	
C Resource Pools		>	
Datastores		>	
Datastore Clusters		>	
🧕 Networks		>	
2 Distributed Port Groups		>	
E Distributed Switches		>	

4. Above the list of switches, click the **Create a new distributed switch** icon.

Distributed Switches					
Objects					
🛌 📖 🛷 🛛 🖓 Actions 🗸		Q Filter			
Nam Croate a new distributed sw	itch				
	WIN-QQKFN512JQ9				
im switch	WIN-QQKFN512JQ9				
ExtraHop vDS	WIN-QQKFN512JQ9				
DSwitch	WIN-QQKFN512JQ9				
EitronVDS	WIN-QQKFN512JQ9				

5. In the New Distributed Switch window, type a name for the switch, select the destination data center or network folder, and then click **Next**.

New Distributed Switch			
1 Name and location	Name: DSwitchTest		
2 Select version	Select location for the new distributed switch		
3 Edit settings			
4 Ready to complete			
	TME-Datacenter		

6. Select the distributed switch version and click **Next**.

line New Distributed Switch	Sew Distributed Switch				
 1 Name and location 2 Select persion 	Select version Specify a distributed switch version.				
3 Edit settings 4 Ready to complete	 Distributed switch: 6.0.0 This version is compatible with VMware ESXi version 6.0 and later. The following new features are available: Network I/O Control version 3, and IGMP/MLD snooping. 				
	Distributed switch: 5.5.0 This version is compatible with VMware ESXi version 5.5 and later. The following new features are available: Traffic Filtering and Marking, and enhanced LACP support.				
	Distributed switch: 5.1.0 This version is compatible with VMware ESXi version 5.1 and later. The following new features are available: Management Network Rollback and Recovery, Health Check, Enhanced Port Mirroring, and LACP.				
	Distributed switch: 5.0.0 This version is compatible with VMware ESXi version 5.0 and later. The following new features are available: User-defined network resource pools in Network I/O Control, NetFlow, and Port Mirroring.				

7. Edit the following settings:

놀 New Distributed Switch			(?) H
1 Name and location Edit settings Specify number of uplink ports, resource allo		corts, resource allocation and default port group.	
2 Select version 3 Edit settings 4 Ready to complete	Number of uplinks: Network I/O Control: Default port group: Port group name:	2 Enabled Create a default port group DPortGroup 1	

- a) Set the **Number of uplinks** to two or more if your SPAN traffic is on a dedicated NIC (recommended). Otherwise, set this value to 1.
- b) Click the Network I/O Control drop-down list and select one of the following options.

Disabled

If your SPAN traffic on a dedicated NIC. (Recommended)

Enabled

If your SPAN traffic is on the same NIC as your monitored traffic.

Add port groups to the VDS

Complete the following steps to add port groups when you deploy a new virtual machine or add a new ESX host into your VDS environment. Port groups enable you to properly associate the new machine or host to the port group that is being monitored immediately.

1. Click on Networking.



2. Right-click the VDS and then select New Distributed Port Group.



3. In the New Distributed Port Group window, type a name for the port group and click **Next**.



4. Configure the following settings:

2 New Distributed Port Group			
 1 Select name and location 2 Configure settings 	Configure settings Set general properties of the new port group.		
3 Ready to complete	Port binding:	Static binding	
	Port allocation:	Fixed •	
	Number of ports:	128	
	Network resource pool:	(default)	
	VLAN		
	VLAN type:	None 🔹	
	Advanced		
	Customize default policie	s configuration	

- a) Click the **Port binding** drop-down list and select **Static binding**.
- b) Click the Port allocation drop-down list and select Fixed.
- c) In the Number of ports field, type the number of ports you want to connect.
- d) Leave the default settings for the remaining items.
- e) Click Next.
- 5. Verify your settings and click **Finish**. The new port group appears on the **Manage** tab.

Management VLAN ID: Virtual Machines (0)	*	My VDS-DVUplinks-930 My VDS-DVUplinks-930 Duplink 1 (0 NIC Adapters) G Uplink 2 (0 NIC Adapters)

6. Repeat these steps for any additional port groups.

Add a host to the VDS

Complete the following steps to add a host to the VDS. Skip this procedure if all hosts have already been added to the cluster. We recommend that you dedicate one uplink for management and one uplink for spanning.

1. Click Networking.

vmware [®] vSphere Web Client	ft≣		/
Navigator		Ŧ	6
Networking	Þ 🖸		ſ
者 Home			h
pvCenter Inventory Lists		>	
Hosts and Clusters		>	
VMs and Templates		>	
E Storage		>	
Setworking		>	N

- 2. Right-click the VDS and then select **Add and Manage Hosts**.
- 3. In the Add and Manage Hosts dialog box, click the Add Hosts radio button and click Next.

17 A	Add and Manage Hosts				
1	Select task	Select task Select a task to perform on this distributed switch.			
3	Select hosts Select physical network adapters	Add hosts Add new basts to this distributed switch			
4	Select virtual network adapters	Migrate host networking Migrate networking of member hosts to this distributed switch.			
6	Select VM network adapters	Remove hosts Remove hosts from this distributed switch.			
7	Ready to complete	Add host and migrate host networking (advanced) Add new hosts and migrate networking of member hosts to this distributed switch. Use this option to unify the network configuration of new and existing hosts.			

4. Click the plus icon + to add a host.

	Add and Manage Hosts				
~	1 Select task Select hosts Select hosts to add to this distributed switch.				
	2	Select hosts			
	 3 Select physical network adapters 4 Select virtual network adapters 		+ ×		
			Host	Host Status	
		uduptera	This list is	empty.	
	5	Validate changes			
	6	Select VM network adapters			
	7 Ready to complete				

5. In the list of available hosts, select the checkbox next to the host and click **OK**.

Select new hosts				
Incompatible Hosts		Q Filter -		
Host	Host State	Cluster		
V 10.10.247.89	Connected	N/A		

- 6. Select the host from the list and click **Next**.
- 7. Select the checkboxes next to the network adapters you want to add to the host and click **Next**.
- 8. Assign one of the NICs to the management port group.
 - a) Select the network adapter from the list and click the **Assign Port Group** icon.
 - b) In the **Select Network** pop-up window, select the port group to assign to the network adapter for management.
 - c) Assign one NIC to the monitoring port group.
- 9. Select the network adapter from the list and click the Assign Port Group icon.
- 10. In the Select Network pop-up window, select the port group to assign to the network adapter for monitoring.

Select Network				
Show all columns C				
Name Distributed Switch				
🚨 Management	My VDS			
🚨 Monitor Traffic	My VDS			

11. After you have assigned each adapter to a Destination Port Group (in the far right column), click Next.

🔂 Add and Manage Hosts				
 ✓ 1 Select task ✓ 2 Select hosts 	Select task Select virtual network adapters Select a port group to provide network connectivity for the adapters on the distributed switch.			
 3 Select physical network adapters 	Assign adapters to a destination port group to migrate them. Ctrl + click to multi-select.			
4 Select virtual network adapters	Virtual network adapters marked with the warning sign might lose network connectivity unless they are migrated to the distributed switch. Select a destination port group in order to migrate them.			they are migrated to the
5 Validate changes	<u>گ</u> گ 0			
6 Select VM network adapters	Host/Virtual Adapter	Switch	Source Port Group	Destination Port Group
7 Ready to complete				
	Vmk0	vSwitch0	Management Network	Management
	mk1	vSwitch0	VMkernel	Monitor Traffic

12. On the Validate Changes screen, verify that the status has passed and click Next.

	🔂 Add and Manage Hosts						
✓ 1 Select task Validate changes							
~	2 Select hosts	view services depending on the migrated	View services depending on the migrated physical and virtual network adapters.				
~	3 Select physical network adapters	Overall validation status: 🥑 Passed	Overall validation status: 📀 Passed				
~	4 Select virtual network	Host/Validation	Validation Status				
	5 Velidate observes	_					
	5 Validate changes						
	6 Select VM network adap	ters					
	7 Ready to complete						

13. Select the Migrate Virtual Machine Networking checkbox.

🕞 Add and Manage Hosts						
 ✓ 1 Select task ✓ 2 Select bests 	Select VM network adapters Select virtual machines or network adapters to migrate to the distributed switch.					
 3 Select physical network adapters 	Migrate Virtual Machine Networking					
 4 Select virtual network adapters 	Assign VMs or network adapters to a destination port group to migrate them. Ctrl + click to multi-select.					
 5 Validate changes 	Ž 🙆 🛈					
6 Select VM network adapters	Host/Virtual Machine/Network Adapter	NIC Count	Source Port Group	Destination Port Group		
7 Ready to complete	Nexus 1000v	3		Management		
	▶ 🔂 Apple	1		Management		
	▶ AnngoDB	1		Management		
	- 🔂 ExtraHop Discovery Edition	2		Management		
	Network adapter 1 VM Network Management					
Network adapter 2 Nexus Control Monitor Traffic						

- 14. Click the **Assign Port Group** icon and assign a network adapter for management and a network adapter for monitoring, and click **Next**.
- 15. Verify your settings and click Finish.



16. View the progress bar in the right panel and wait for the system to add the host.

The following figure shows an example configuration.

→ My VDS Actions →				≡*			
	Getting Started Summary M	oni	tor Manage	Related Objects			
	Settings Alarm Definitions Ta 11 Topology Properties Private VLAN NetFlow Port mirroring Health check	gs	Permissions	Network Protocol Profiles agement ID: Irnel Ports (1) al Machines (10) ID: Irnel Ports (1) ID: Irnel Ports (1) al Machines (1)	Ports	Resource Allocation (no filter)	Ċ

Add uplink ports to the VDS

Complete the following steps to add an uplink port to the VDS. You must assign one uplink port to the VDS for each associated host.

- 1. Browse to a host in the vSphere Web Client.
- 2. Click the Manage tab, and then select Networking > Virtual Switches.

vmware• vSphere Web Client ♠≡		
Navigator	Ŧ	☐ 10.10.253.81 Actions -
Distributed Switches		Getting Started Summary Monitor Manage Rela
□ □ ○ □ □ □ ○ □ □ □ ○ □ □ □ ○ □ □ □ □ ○ □ □ □ □ □ ○ □ □ □ □ □ ○ □ □ □ □ □ □ □ □ □ □		Settings Networking Storage Alarm Definitions Tag
▼ Im TME-Datacenter ▼ Im ESXi Hosts		Virtual switches
 10.10.250.248 10.10.253.71 		Virtual switches 22 22 12 12 12 12 12 12 12 12 12 12 12
 ▶ ■ 10.10.253.81 ▼ ■ 10.10.253.67 	>	Physical adapters DSwitch
vcenter-tme VMware vRealize Orchestrator Appliance		Advanced To vSwitch1
		Distributed switch:

- 3. From the list, select the distributed switch you want to add an uplink port to.
- 4. Click Manage the physical network adapters **P**.
- 5. Click Add +.
- 6. From the list, select a network adapter and then select the uplink port from the drop-down menu that you want to assign to the network adapter.
- 7. Click OK.

Configure an RSPAN port mirror

Complete the following steps to configure an RSPAN port mirror to view traffic on the VDS, to configure the local switch to view external traffic, and to configure the virtual Discover appliance to do a combination of both. The virtual Discover appliance can be deployed in environments with multiple ESX servers connected with a virtual distributed switch (VDS).

Complete the following steps to configure a virtual Discover appliance as the destination for one or more RSPAN mirror sessions. The RPSAN mirror sessions can originate from either a virtual distributed switch (VDS) that mirrors local VM traffic or from a physical switch that mirrors external traffic.

The following steps are for a Discover appliance deployed on an ESX host that is managed by vCenter with a configured VDS. You must connect a local switch to an uplink port that is configured as a VLAN trunk port and that carries the RSPAN VLAN traffic. The RSPAN VLAN will carry the mirrored traffic and can span multiple switches to reach the virtual Discover appliance.



The following figure illustrates the port mirror setup.

- 1. Click on Networking.
- 2. Select your VDS and ensure that the Settings tab is selected.
- 3. Click Port mirroring.

EXTRAHOP

vmware [®] vSphere Web Client	ft≣	
Navigator	Ŧ	DSwitch Actions
Home	• 🔊	Summary Monitor Manage Related Objects
Image: Construction Image: Construction		Settings Alarm Definitions Tags Permissions Netwo
Remote Port Mirror		•• Port mirroring
VM Network		Properties
DSwitch	>	Topology Session Name
		LACP
		Private VLAN
		NetFlow
		Port mirroring
		Health check

- 4. Click New....
- 5. In the Add Port Mirroring Session wizard, select Remote Mirroring Destination, and then click Next.

DSwitch - Add Port Mirroring Session						
1 Select session type	Select session type Select the type of the port mirroring session.					
2 Edit properties						
3 Select sources	Distributed Port Mirroring Mirror network traffic from a set of distributed ports to other distributed ports.					
4 Select destinations	Remote Mirroring Source					
5 Ready to complete	Mirror network traffic from a set of distributed ports to specific uplink ports.					
	Remote Mirroring Destination Mirror network traffic from a set of VLANs to distributed ports.					

- 6. In the Name field, type a name to identify the port mirroring session.
- 7. From the Status drop-down, select Enabled.
- 8. Click Next.

	DSwitch - Add Port Mirroring Session					
~	 1 Select session type Edit properties Specify a name and the properties of the port mirroring session 					
	2 Edit properties	Specify a name and the properties of the port minoring s				
	3 Select sources	Name:	Session 0			
	4 Select destinations	Statua				
	5 Ready to complete	Status.	Enabled			
		Session type:	Remote Mirroring Destination			

- 9. Click the plus icon + to add the source VLAN IDs that you want to monitor, and then click Next.
- 10. Specify the destination port where you want to send mirrored traffic. This port is the virtual port on the VDS that corresponds to the monitoring interface on your virtual Discover appliance.
- 11. Verify the summary information and then click **Finish** to add the port mirror.