Configure RSPAN with VMware

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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	ft≣		
Navigator		Ŧ	🚹 Home
vCenter Inventory Lists	• 🕤		Home
n Home			Inventories
🛃 vCenter Inventory Lists		>	
Hosts and Clusters		>	
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3. In the left panel, click **Distributed Switches**.

VMWare [®] vSphere Web Client	î€		
Navigator		Ŧ	1
Home	• 🔊		ſ
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🛃 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		>	
<u> Networks</u>		>	
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 Create 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	Search		
4 Ready to complete			
	TME-Datacenter		

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

Sew Distributed Switch						
 1 Name and location 2 Select version 	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:

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

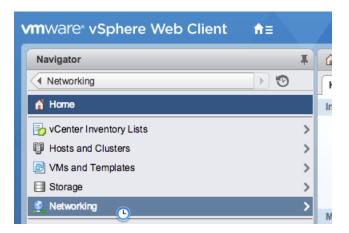
Enabled

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

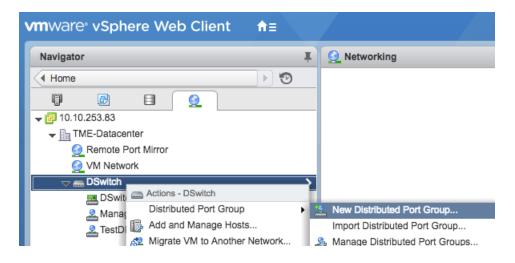
Add port groups to the VDS

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:

Level 2 New Distributed Port Group			
 Select name and location 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	• 🔊		ſ
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Provide the second seco		>	
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.

🕼 A	dd and Manage Hosts	
	Select task	Select task Select a task to perform on this distributed switch.
2	Select hosts Select physical network adapters	Add hosts Add new hosts to this distributed switch.
4	Select virtual network adapters	Migrate host networking Migrate networking of member hosts to this distributed switch.
	Validate changes 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.

	Host Status
	Host Status
	Host Status
This list is	omnti
This list is	s empty.

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		
🗹 📱 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	Select virtual network adapters Select a port group to provide network connectivity for the adapters on the distributed switch.			
 2 Select hosts 	denot a port group to provide network connectivity for the adapters on the distributed striker.			
 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.			
5 Validate changes	<u>گ & 0</u>			
6 Select VM network adapters	Host/Virtual Adapter	Switch	Source Port Group	Destination Port Group
7 Ready to complete				
	vmk0	vSwitch0	Management Network	Management
	M vmk1	vSwitch0	VMkernel	Monitor Traffic

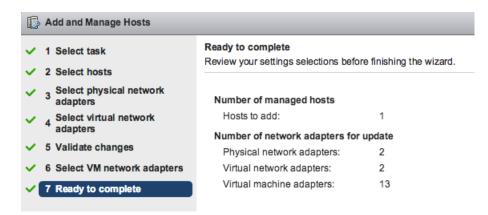
12. On the Validate Changes screen, verify that the status has passed and click Next.

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

13. Select the Migrate Virtual Machine Networking checkbox.

🕞 Add and Manage Hosts						
	elect task	Select VM network adapters Select virtual machines or network adapters to migrate to the distributed switch.				
✓ 3 Se	elect hosts elect physical network dapters	Migrate Virtual Machine Networking				
	elect virtual network dapters	Assign VMs or network adapters to a destination port group to migrate them. Ctrl + click to multi-select.				
🗸 5 Va	alidate changes	å 🚯				
6 Se	elect VM network adapters	Host/Virtual Machine/Network Adapter	NIC Count	Source Port Group	Destination Port Group	
_		- 🕤 10.10.247.89				
7 R6	eady to complete	Nexus 1000v	3		Management	
		🕨 🚰 Apple	1		Management	
		▶ B MongoDB	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	onitor Manage Related Objects	
Settings Alarm Definitions Ta	Permissions Network Protocol Profiles Ports Resource Allocation	
44	🚵 🎼 🧔 (no filter) 💌 🔍 😪 🖓	G
Topology Properties Private VLAN NetFlow Port mirroring Health check		

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
III III IIIIIIIIIIIIIIIIIIIIIIIIIIIII	_	Settings Networking Storage Alarm Definitions Tag
▼ Im TME-Datacenter ▼ ESXi Hosts		Virtual switches
 ▶ ☐ 10.10.250.248 ▶ ☐ 10.10.253.71 		Virtual switches 22 Co 199 Te
 ▶ 10.10.253.81 ▼ 10.10.253.67 	>	Physical adapters DSwitch TCP/IP configuration
Svcenter-tme		Advanced TvSwitch1
		Distributed switch:

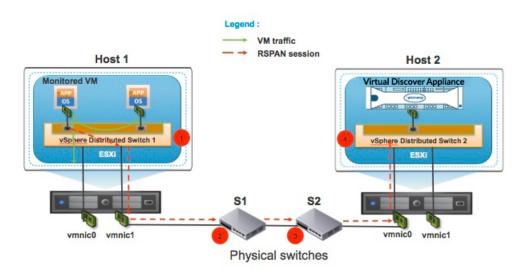
- 3. From the list, select the distributed switch you want to add an uplink port to.
- 4. Click Manage the physical network adapters **P**.
- 5. Click Add +.
- 6. From the list, select a network adapter and then select the uplink port from the drop-down menu that you want to assign to the network adapter.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

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vmware [®] vSphere Web Client	† ≡	
Navigator	, and the second se	DSwitch Actions
Home	• 🕑	Summary Monitor Manage Related Objects
Image: Constant and the second and the sec		Settings Alarm Definitions Tags Permissions Netwo
TME-Datacenter		++ Port mirroring
VM Network		Properties - New
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 4 Select destinations	Distributed Port Mirroring Mirror network traffic from a set of distributed ports to other distributed ports.				
	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		le port minoring session.			
	3 Select sources	Name:	Session 0			
	4 Select destinations	Status:				
	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.