



Managing Virtual Extensible LANs

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About VXLANs

A virtual extensible LAN (VXLAN) defines a 24-bit LAN segment identifier to provide segmentation at cloud scale and an architecture that expands cloud deployments with repeatable pods in different Layer 2 (L2) domains. A VXLAN can also enable the migration of virtual machines (VMs) between servers across Layer 3 networks.

A VXLAN creates LAN segments by overlaying the original MAC (L2) frame in IP encapsulation from the VM within the Virtual Ethernet Module (VEM).

Each VEM is assigned an IP address, which is used as the source IP address when MAC frames are encapsulated and sent over the network. You can have multiple VMkernel NICs (also referred to as virtual network adapters or vmknics) per VEM that are used as sources for this encapsulated traffic. The encapsulation carries the 24-bit VXLAN identifier that scopes the MAC address of the payload frame.



Note VMkernel NICs are used to manage physical NICs (pNICs) on a host server to connect the virtual network to the physical network.

The connected VXLAN is indicated within the port profile configuration of the virtual network interface card (vNIC) and is applied when the VM connects. Each VXLAN uses an assigned IP multicast group to carry broadcast traffic within the VXLAN segment.

In Cisco UCS Director, you can configure VXLANs on the Cisco Nexus 1000 switch.



Note For more detailed information about VXLANs and configuration guidelines for VXLANs, see the [Cisco NX-OS Software Configuration Guides](#).

Creating a VXLAN

- Step 1** Choose **Physical > Network**.
- Step 2** On the **Network** page, choose the pod.
- Step 3** Expand the pod, and select the network device to be configured.
- Step 4** Click **VXLAN Table**.
- Step 5** Click **Create VXLAN**.

Alternately, you can choose the command from the **More Actions** drop-down list.

- Step 6** In the **Create VXLAN** screen, complete the required fields, including the following:

Name	Description
Bridge Name field	The bridge domain name for the virtual extensible LAN (VXLAN).
VXLAN Id field	The VXLAN ID number within the valid range.
Mode Unicast check box	Check the check box to enable a unicast-only VXLAN. With a unicast-only VXLAN, the Virtual Supervisor Module (VSM) knows which VEMs have Virtual Machines (VMs) attached to a particular VXLAN segment and distributes that information to all Virtual Ethernet Modules (VEMs). Each VEM receives a per-VXLAN list of destination IP addresses to use for flooding purposes.
Distribution learning MAC check box	Check the check box to distribution learning for MAC addressing. MAC learning enables the distribution of the MAC addresses learned on one line card to the other line cards.
Copy Running configuration to Startup configuration check box	Check the check box to copy the running VXLAN configuration to the startup configuration.

- Step 7** Click **Submit**.

Encapsulating a VXLAN

You can configure VMkernel NICs (vmknics) for virtual extensible LAN (VXLAN) encapsulation by running the following procedure.



Note Identify a VLAN to be used for transporting VXLAN encapsulated traffic and ensure that it is configured on the uplink port profile for all VEMs on which the VXLAN can be configured.

- Step 1** Choose **Physical > Network**.
- Step 2** On the **Network** page, choose the pod.
- Step 3** Expand the pod, and select the network device to be configured.
- Step 4** Click **VXLAN Table**.
- Step 5** Select the VXLAN domain to be encapsulated.
- Step 6** Click **Encapsulate VXLAN**.
- Alternately, you can choose the command from the **More Actions** drop-down list.

Step 7 In the **Encapsulate VXLAN** screen, complete the required fields, including the following:

Name	Description
Select Port Profile drop-down list	Choose the port profile that you want to use for the VXLAN.
VLAN ID Select button	Click Select . In the Select dialog box, check the check box for the VLAN ID that you want encapsulated and click Select .
Copy Running configuration to Startup configuration check box	Check the check box to copy the running VXLAN configuration to the startup configuration.

Step 8 Click **Submit**.

Assigning a VXLAN to a Port Profile

- Step 1** Choose **Physical > Network**.
- Step 2** On the **Network** page, choose the pod.
- Step 3** Select the network device to be configured.
- Step 4** Click **VXLAN Table**.
- Step 5** Select the VXLAN domain to be assigned to a port profile.
- Step 6** Click **Assign VXLAN to a Port Profile**.
- Alternately, you can choose the command from the **More Actions** drop-down list.
- Step 7** In the **Assign VXLAN** screen, complete the required fields, including the following:

Name	Description
Select Port Profile drop-down list	Choose the port profile name for the VXLAN assignment. Note Ensure that the access VLAN is enabled for a VXLAN capability in the port profile that you are using for the VXLAN. For more information, see Creating a Port Profile .
Copy Running configuration to Startup configuration check box	Check the check box to copy the running VXLAN configuration to the startup configuration.

Step 8 Click **Submit**.

Unassigning a VXLAN from a Port Profile

Step 1 Choose **Physical > Network**.

Step 2 On the **Network** page, choose the pod.

Step 3 Expand the pod and select the network device to be configured.

Step 4 Click **VXLAN Table**.

Step 5 Select the VXLAN domain to be unassigned from a port profile.

Step 6 Click **Unassign VXLAN from Port Profile**.

Alternatively, you can choose the command from the **More Actions** drop-down list.

Step 7 In the **Unassign VXLAN** dialog box, complete the required fields, including the following:

Name	Description
Select Port Profile drop-down list	Choose the port profile from which you need to unassign the VXLAN.
Copy Running configuration to Startup configuration check box	Check the check box to copy the running VXLAN configuration to the startup configuration.

Step 8 Click **Submit**.

Removing a VXLAN



Note Executing this procedure moves the ports to the default VLAN.

Step 1 Choose **Physical > Network**.

- Step 2** On the **Network** page, choose the pod.
- Step 3** Expand the pod and select the network device to be configured.
- Step 4** Click **VXLAN Table**.
- Step 5** Select the VXLAN to be removed.
- Step 6** Click **Remove VXLAN**.
- Step 7** In the **Remove VXLAN** screen, complete the following field:

Name	Description
Copy Running configuration to Startup configuration check box	Check the check box to copy the running VLAN configuration to the startup configuration.

- Step 8** Click **Submit**.
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