Topic
VxRail Installation Procedures

Selections
Are you installing a VD-4510c or VD-4520c 2-node cluster?: No Select the VxRail Appliance to be Installed: VxRail E660/E660F Select the VxRail Software Image on the new Appliance: v7.0.370/371 What type of cluster is being installed?: Normal Cluster (3 or more nodes) Select vSAN Witness Type: N/A Choose your activity: Perform Both Activities Is a SmartFabric being configured?: No Are you installing a vSAN Stretched Cluster: No Are you configuring Witness Traffic Separation?: N/A Are you connecting to an external vCenter?: No Select the SysLog Option: None Is this a Dark Site? i.e. Customer does NOT allow call-home!: YES - This is a Dark-Site! Customer does NOT allow call-home! Service Connectivity Options: N/A Include ToR Content?: Include ToR Content: Dell EMC Networking OS10 SmartFabric and Enterprise VxRail ToR Switch Configuration Guide SR Number(s): 186007896

Generated: February 28, 2024 6:38 PM GMT

REPORT PROBLEMS

If you find any errors in this procedure or have comments regarding this application, send email to SolVeFeedback@dell.com

This document may contain certain words that are not consistent with Dell's current language guidelines. Dell plans to update the document over subsequent future releases to revise these words accordingly.

This document may contain language from third party content that is not under Dell's control and is not consistent with Dell's current guidelines for Dell's own content. When such third party content is updated by the relevant third parties, this document will be revised accordingly.

Publication Date: February, 2024

Contents

Preliminary Activity Tasks

This section may contain tasks that you must complete before performing this procedure.

Read, understand, and perform these tasks

1. Table 1 lists tasks, cautions, warnings, notes, and/or knowledgebase (KB) solutions that you need to be aware of before performing this activity. Read, understand, and when necessary perform any tasks contained in this table and any tasks contained in any associated knowledgebase solution.

Table 1 List of cautions, warnings, notes, and/or KB solutions related to this activity

185731: The Kioxia CD5 NVMe drive has the potential to Assert (0GB) due to incorrect handling of an interrupt from the SMBus HW module
541525: VxRail: Nodes are not discovered by VxRail manager when customer is using Juniper switches
• VxRail 7.0.320 and later releases contain resolutions for two of the VMware vSAN issues detailed in VMware Proactive Customer Advisory issued in June 2022: KB 88870 https://kb.vmware.com/s/article/88870. One issue is not yet resolved by VMware and requires the workaround described in KB 88870. The Dell VxRail: VxRail Response to VMware Proactive Customer Advisory for June 2022 contains more information https://www.dell.com/support/kbdoc/EN-US/000201082. • VxRail standard cluster deployments support 3 to 6 nodes for initial cluster bring up. Any additional nodes must be added as a day 2 node expansion operation. • For vSAN stretched clusters don't use a storage policy with locality=none (88358): KB https://kb.vmware.com/s/article/88358

2. This is a link to the top trending service topics. These topics may or not be related to this activity. This is merely a proactive attempt to make you aware of any KB articles that may be associated with this product.

Note: There may not be any top trending service topics for this product at any given time.

VxRail Appliance Top Service Topics

Utilize NVT

NVT is used to help customers to prepare their environment before deployment.

1. [ ] Open a browser session to https://www.dell.com/support/kbdoc/en-us/000019313/deployment-kb-dell-technologies-network-validation-tool-nvt?lang=en
2. [ ] Follow the guidance to run NVT.

Access VxRail Configuration Portal

Note: Starting with VxRail version 7.0.010, the VxRail configuration portal can be used to enter and save the settings for a VxRail initial build and produce a JSON file.

Access VxRail configuration portal

1. [ ] Open a browser session to https://vxrailconfiguration.dell.com/.
2. [ ] Accept the terms and conditions.
3. [ ] Read the getting started guide.
4. [ ] Follow the guide to use the configuration portal for a VxRail initial build and produce a JSON file.

VxRail Dell hardware installation overview

The procedure details the key steps necessary to install VxRail Dell server hardware and prepare it for implementation.

These steps include but are not limited to:

- Mounting the VxRail Appliances into the rack
- (If applicable) mounting the ToR switches into the rack
- Cabling ToR switches to VxRail appliance nodes
- Connecting to the network
- Powering on VxRail appliance

Note: Drive layout is set based on model type ordered and configured at the factory. Do not move drives from their installed locations.

Site requirements

There are no restrictions on the location of the server in the cabinet. Allow at least 36 inches of service clearance in front of and behind the cabinet. Power distribution must support the number of outlets required for the servers and the server power rating listed on the Device Rating label on the chassis. For additional information, see the preparation/planning guides for your specific site and cabinet.

Ensure that you have the following available before installing the VxRail appliance:

- Philips screwdriver
- Laptop or PC with Internet access to register for EMC Online Support, and with local network access to configure the VxRail system (Refer to the *Pre-installation Site Checklist*)
- A cable to connect the laptop or PC to the top-of-rack switch. This may require a media converter depending on the type of ToR switch and the type of connectors on the appliance (SFP+ or RJ45).
- Two 110 VAC circuits (VxRail 60 only) or two 220 VAC circuits (all other Gen 2 VxRail Appliances)

Note: For new installations, nodes should be racked in alphanumerical order as this will drive ESXi host numbering. In v7.0.010 exclusively, the logical view of a VxRail Cluster is based off the node Service Tag Number rather than the PSNT. Dell's best practice and recommendation is to rack the nodes in ascending order, starting from the bottom of the rack. An alternative option is to rack the nodes descending from the top of the rack instead. It is not recommended to rack the nodes descending from the bottom of the rack, in the middle of the rack, or mixed. Check with your Dell Project Manager for any specific requirements on racking the nodes.

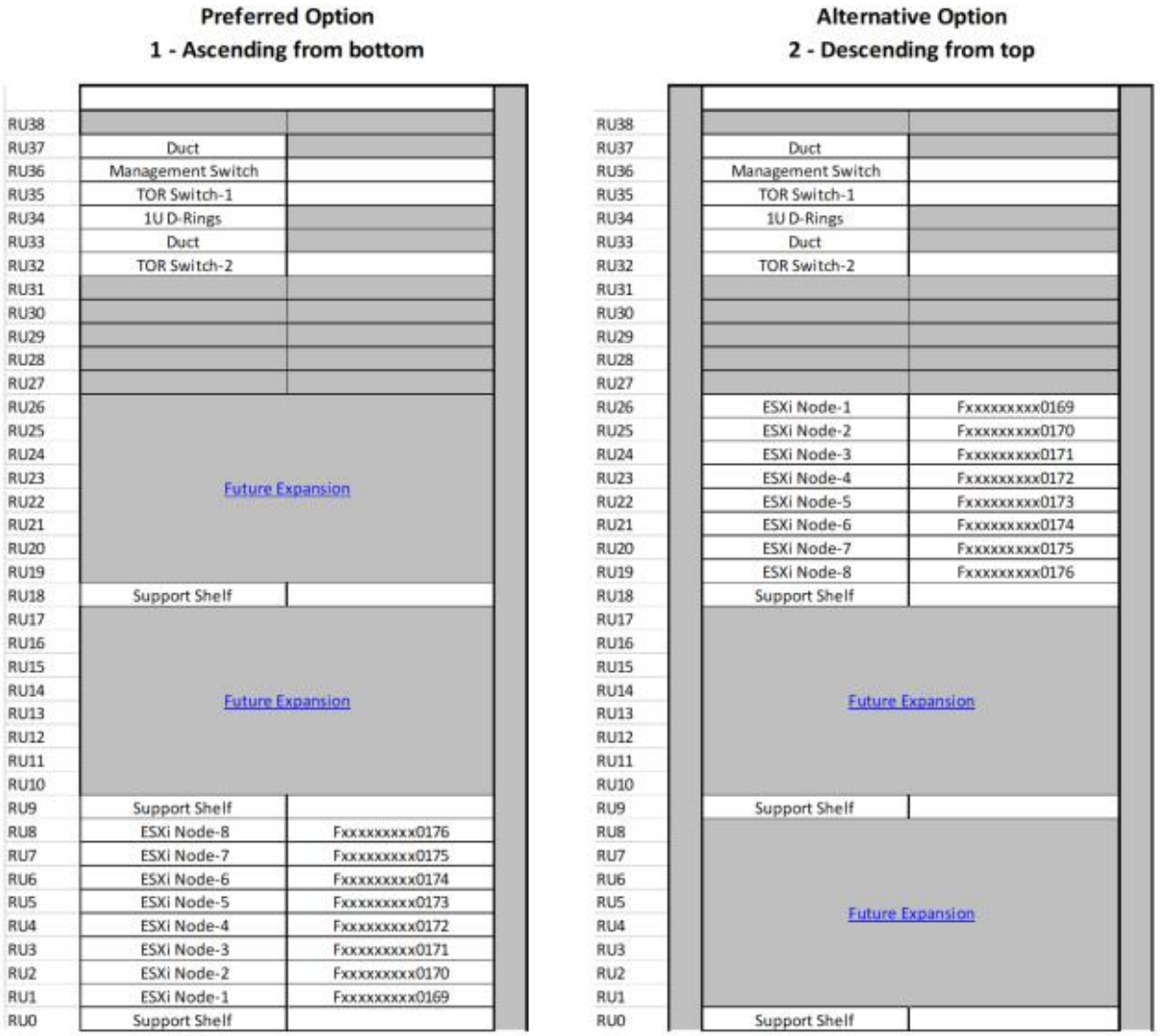

Figure 1 Physical Rack Layout

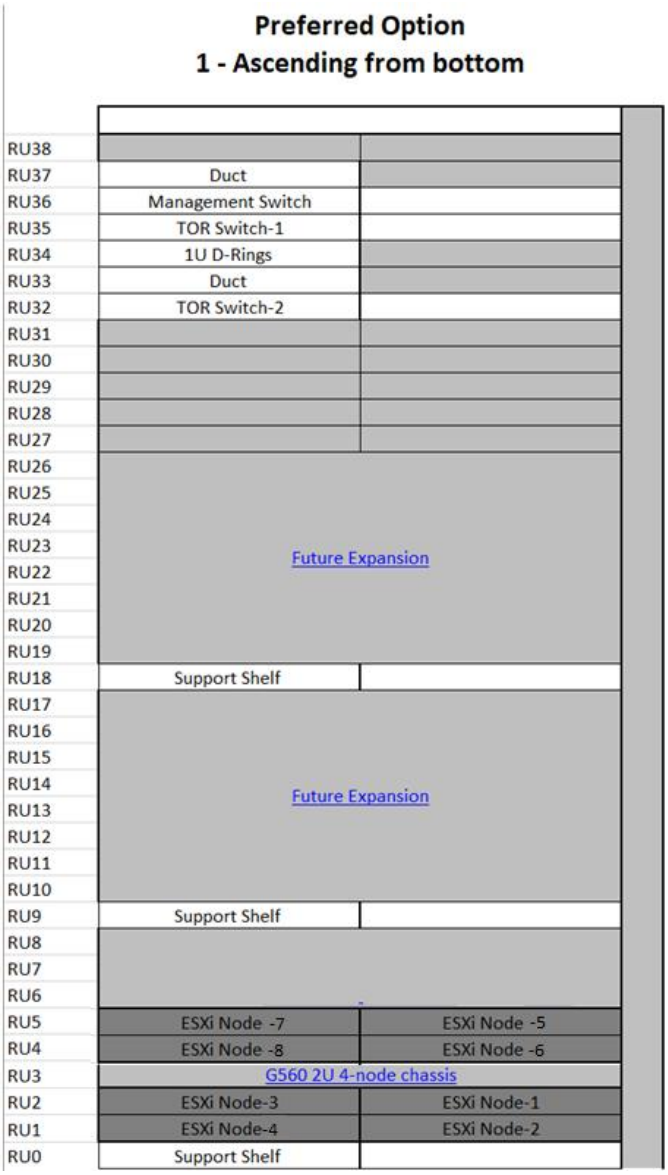

Figure 2 G560 4-node, 2U chassis.

Install with static rails

Task 1: Locate static rails

The rail offerings consist of the static rails only.

The static rails do not support serviceability in the rack and are thus not compatible with the CMA (cable management arm).

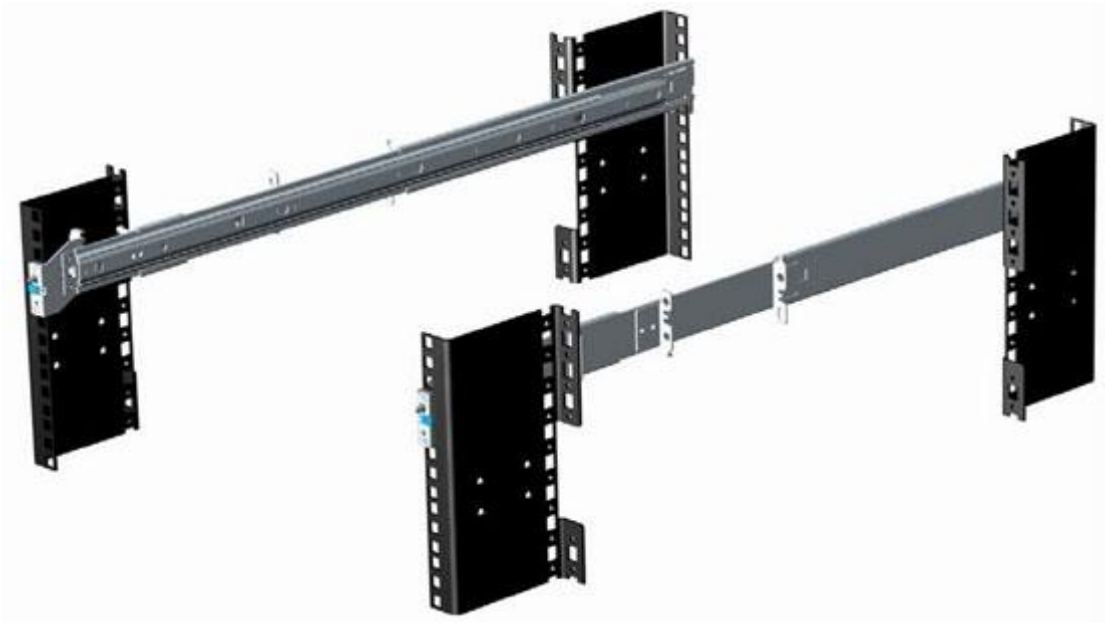

Figure 3 Static Rail

One key factor in selecting the proper rails is identifying the type of rack in which they are installed. The static rails support tool-less mounting in 19” wide, EIA-310-E-compliant square hole and unthreaded round hole 4-post racks. It also supports tooled mounting in threaded hole 4-post racks and mounting in 2-post-Telco racks.

Table 1. Static rails

Rail identifier		Mounting interface				Rail type		Supported rack types	
								4-Post	2-Post
			Square	Round	Thread	Flush	Center		
B4	ReadyRails	Static	√	√	√	√	√		

Note: Screws are not included in either kit because threaded racks are offered with various thread designations. Users must therefore provide their own screws when mounting the rails in threaded racks.

Other key factors governing proper rail selection include the following:

- Spacing between the front and rear mounting flanges of the rack
- Type and location of any equipment mounted in the back of the rack such as power distribution units (PDUs)
- Overall depth of the rack

The static rails offer a greater adjustability range and a smaller overall mounting footprint than the sliding rails. This feature is due to their reduced complexity and lack of need for CMA support.

Table 2. Static rails adjustability

Rail Identifier	Rail Type	Rail Adjustable Range—mm						Rail Depth—mm	
		Square		Without CMA	Round		With CMA	Threaded	
		Min	Max		Min	Max		Min	Max
B4	Static	608	879	594	872	604	890	622	N/A

Note: The adjustment range of the rails is a function of the type of rack in which they are being mounted. The Min/Max values listed above represent the allowable distance between the front and rear mounting flanges in the rack. Rail depth without the CMA represents the minimum depth of the rail with the outer CMA brackets removed-if applicable as measured from the front mounting flanges of the rack.

Task 2: Installing the node into the rack

The following steps are procedures to install the system into the rack:

1. [ ] Install the optional chassis retention bracket and insert two cage nuts in the two rack holes above the rail.

Note: The cage nuts must be installed before installing the system in the rack.

2. [ ] Position the system on the rail.
3. [ ] Hold the system rack ears and slide the system into the rack until the system is seated in place.
4. [ ] Tighten the thumbscrews to secure the system.

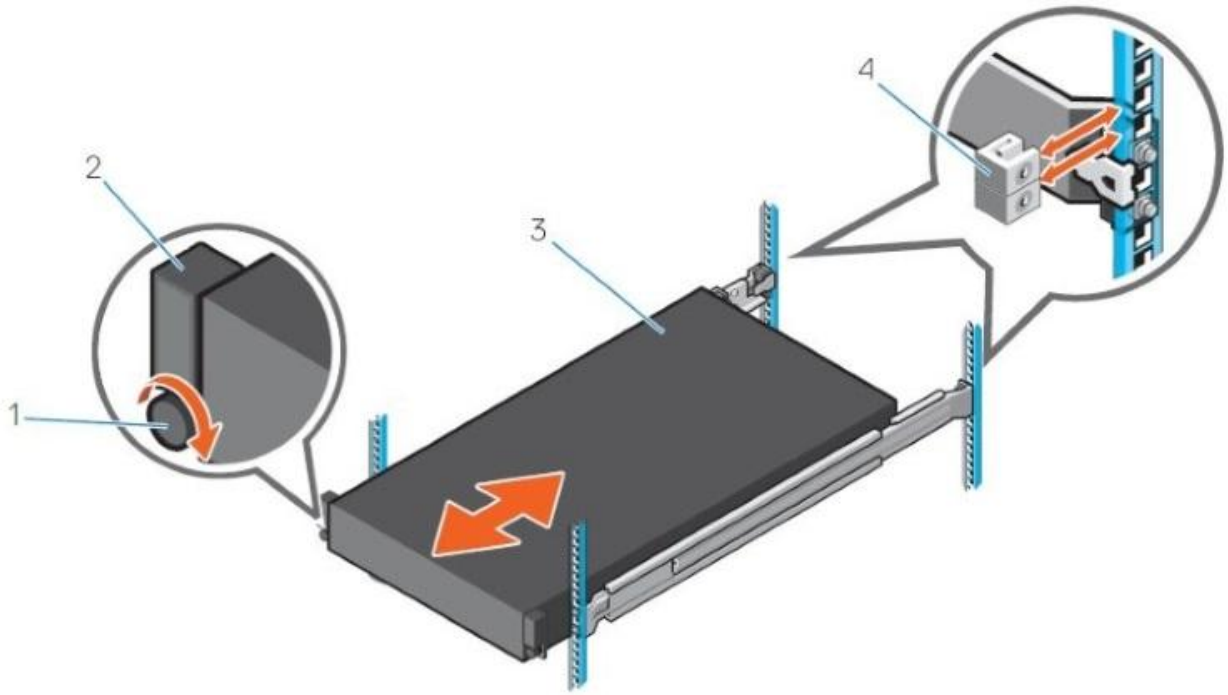

Figure 4

1. Thumbscrews (2)
2. Rack ear (2)
3. System
4. Cage nut (2)

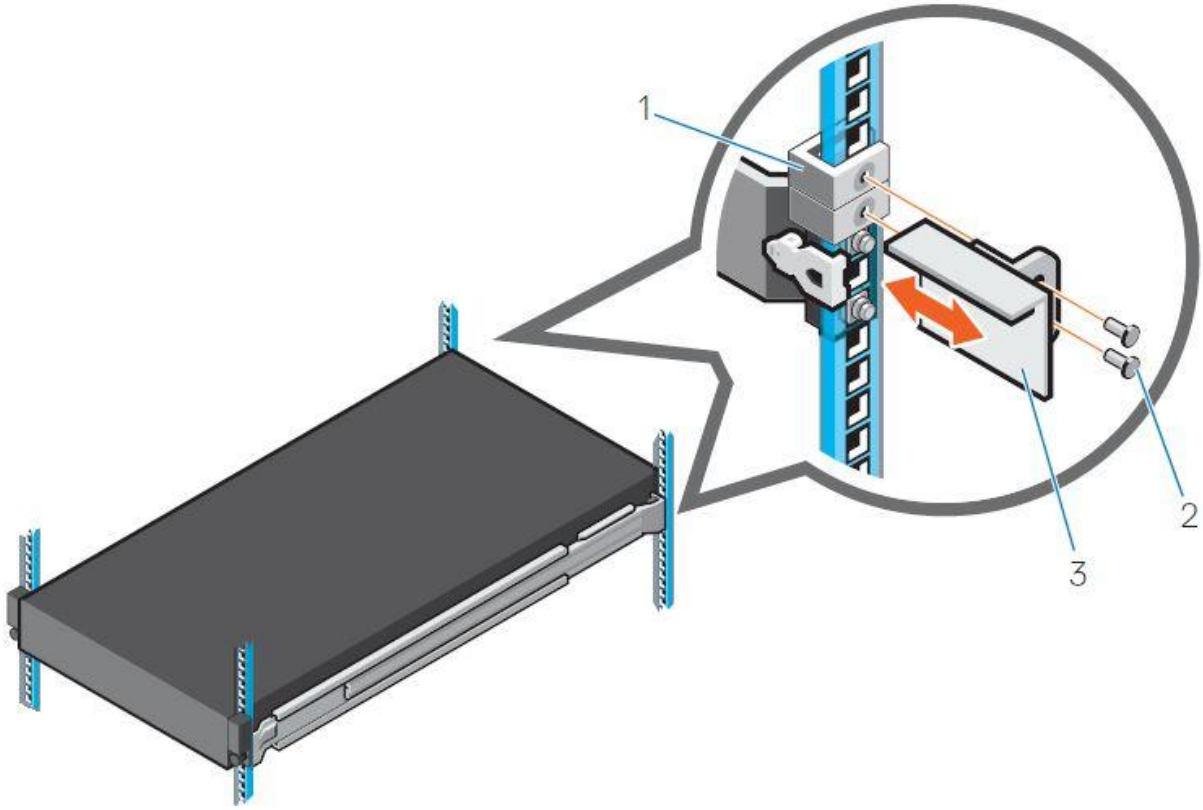

Figure 5

1. Cage nut (2)
2. Screws (2)
3. Chassis retention bracket

Task 3: Connect cables to the VxRail nodes

1. [ ] Plug the power cords into the power supplies on each node and connect these cords to AC power sources.
2. [ ] Locate the Ethernet ports on the back of the VxRail node

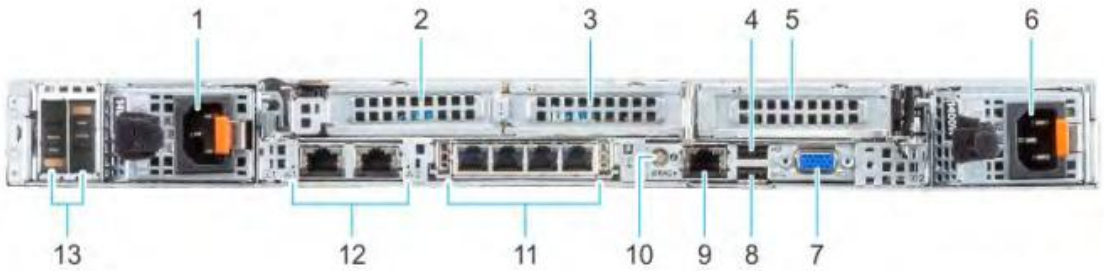

Figure 6 Rear view of VxRail node

Item	Ports, panels, or slots	Icon	Description
1	Power supply unit (PSU 1)		Indicates the PSU
2	PCIe expansion card riser (slot 1)	N/A	The expansion card riser enables you to connect PCI Express expansion cards
3	PCIe expansion card riser (slot 2)	N/A	The expansion card riser enables you to connect PCI Express expansion cards
4	USB 2.0 port (1)		This port is USB 2.0-compliant.
5	PCIe expansion card riser (slot 3)	N/A	The expansion card riser enables you to connect PCI Express expansion cards.
6	Power supply unit (PSU 2)		Indicates the PSU.
7	VGA port		Enables you to connect a display device to the system.
8	USB 3.0 port (1)		This port is USB 3.0-compliant.
9	iDRAC dedicated port	iDRAC	Enables you to remotely access iDRAC. For moreinformation, see the iDRAC User's Guide at www.dell.com/poweredgemanuals.
10	System identification button		Press the system ID button: ● To locate a particular system within a rack. ● To turn the system ID on or off. To reset iDRAC, press and hold the button for more than 16 seconds. **NOTE:** **● To reset iDRAC using system ID, ensure that the system ID button is enabled in the iDRAC setup.** **● If the system stops responding during POST, press and hold the system ID button (for more than 5 seconds) to enter the BIOS progress mode.**
11	OCP NIC port (optional)	N/A	This port supports OCP 3.0. The NIC ports are integrated on the OCP card which is connected to the system board. This can be two-port NIC card or quad-port NIC card.
12	NIC port (2)		The NIC ports are embedded on the LOM card that is connected to the system board.

13	BOSS S2 card (optional)	N/A	This slot supports the BOSS S2 module.

a. Locate the Ethernet port used to connect the iDRAC to the customer's IT management network.

b. Locate the Ethernet ports on the OCP. These are the Ethernet ports built into the rear of the node.

c. Check if any PCIe slots are populated with an optional Ethernet adapter card.

Task 4: Determine if pre-defined or custom network topology

Depending on the VxRail version being deployed, and the customer requirements, the topology between the VxRail nodes and adjacent top-of-rack switches can be either a pre-defined network profile automated during VxRail initial build, or a custom network topology that requires specific instructions.

- If a pre-defined network profile is selected, then confirm with the customer and the solutions architect the number and type of Ethernet ports on each node that are to be reserved for VxRail networking and create a connectivity map between the VxRail node ports and adjacent top-of-rack switches.
- If a custom network design and topology is selected, then request the connectivity map agreed to by the solutions architect and the customer.

Note: Work with the customer and refer to the captured VxRail settings as needed for the port assignments on the top-of-rack switches. Plugging into any available port does not guarantee network connectivity.

Task 5: Create mapping between node ports and switch ports for pre-defined network profile

---

Note: Skip this task if the network connectivity mapping will not match a pre-defined network profile, and instead will be a custom network profile.

---

3. [ ] Determine whether one switch, two switches or four switches will be supporting the VxRail cluster networks
4. [ ] Determine which ports on the top-of-rack switch(es) in the data center rack will be used for connecting the ports on the VxRail nodes to support the required VxRail networks
5. [ ] Determine whether two ports or four ports per node will be used to support VxRail networking
   - If two Ethernet ports are to be reserved for the required VxRail networks, then only the OCP ports are connected to support VxRail networking. If there are four ports on the OCP, then use the two left-most OCP ports.
   - If four Ethernet ports are to be reserved for the required VxRail networks, and the network speed is 10Gb Ethernet, then the four OCP Ethernet ports are connected to support VxRail networking.
   - If four Ethernet ports are to be reserved for the required VxRail networks, and the network speed is 25Gb Ethernet, then the two 25Gb OCP ports and the two 25gb ports in the first PCIe slot are connected for VxRail networking.
6. [ ] Create a mapping from the VxRail node ports to the appropriate switch ports
   - For a single switch, create mapping of either two Ethernet cables or four Ethernet cables to the switch.

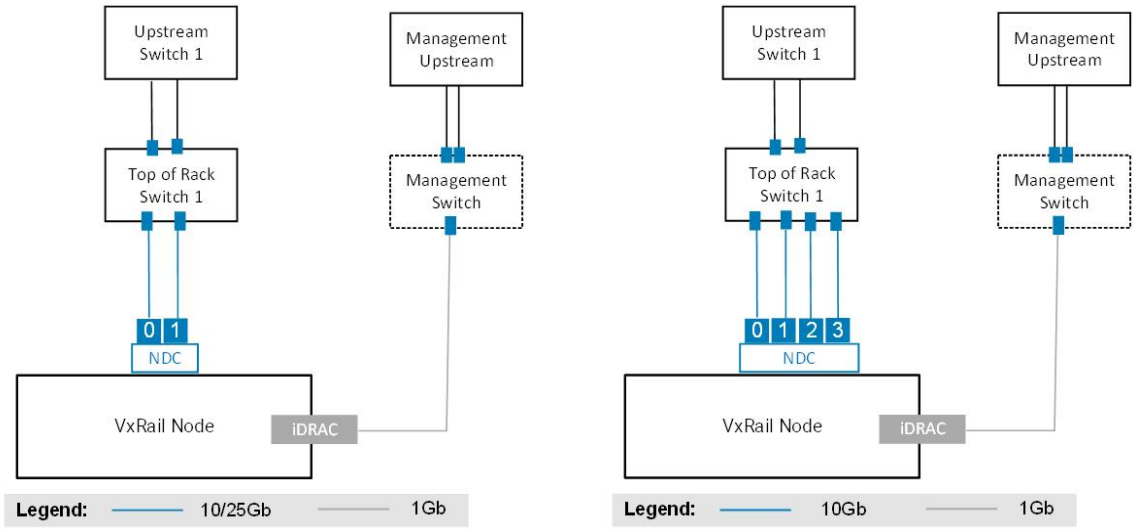

Figure 7 Connections for 2 OCP ports or 4 OCP ports to a single switch

- For a dual-switch deployment with two Ethernet ports on the OCP reserved for the required VxRail networks, map one cable into the first switch, and the second cable into the second switch.
- For a dual-switch deployment with four Ethernet ports on the OCP reserved for the required VxRail networks, map the cables from OCP ports 0 and 2 into the first switch, and map the cables from OCP ports 1 and 3 into the second switch.

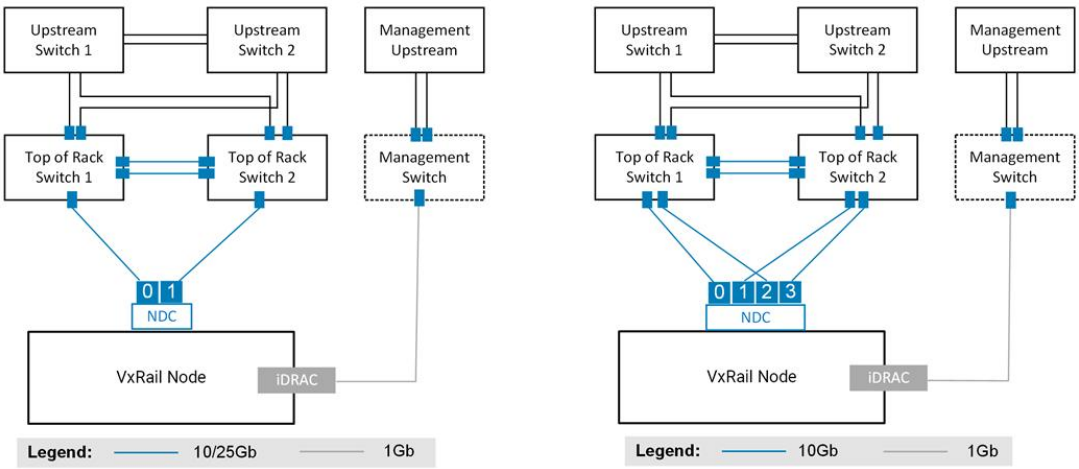

Figure 8 Connections for 2 OCP ports or 4 OCP ports to dual switches

- For a dual-switch deployment with two 10Gb Ethernet ports on the OCP and two 10Gb Ethernet ports on the PCIe adapter reserved for the required VxRail networks, map the cables from OCP port 0 and PCIe card port 0 into the first switch, and map the cables from OCP port 1 and PCIe card port 1 into the second switch.
- For a dual-switch deployment with two 25Gb Ethernet ports on the OCP and two 25Gb Ethernet ports on the PCIe adapter reserved for the required VxRail networks, map the cables from OCP port 0 and PCIe card port 1 into the first switch, and map the cables from OCP port 1 and PCIe card port 0 into the second switch.

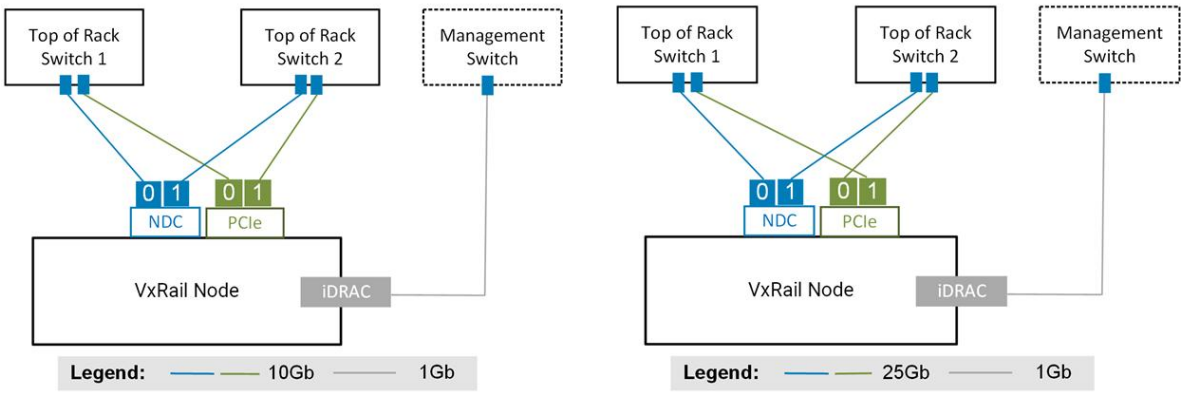

Figure 9 Connections for 2 OCP ports and 2 PCIe ports to dual switches

Task 6: Create mapping between node ports and switch ports for a custom network

In a custom network topology, the deployment does not align with a pre-defined network profile and the customer can select any ports on the node to use for the VxRail networks. The mapping document should connect a specific port on each node with a specific switch port.

- Two ports per node or four ports per node to support VxRail networking is required

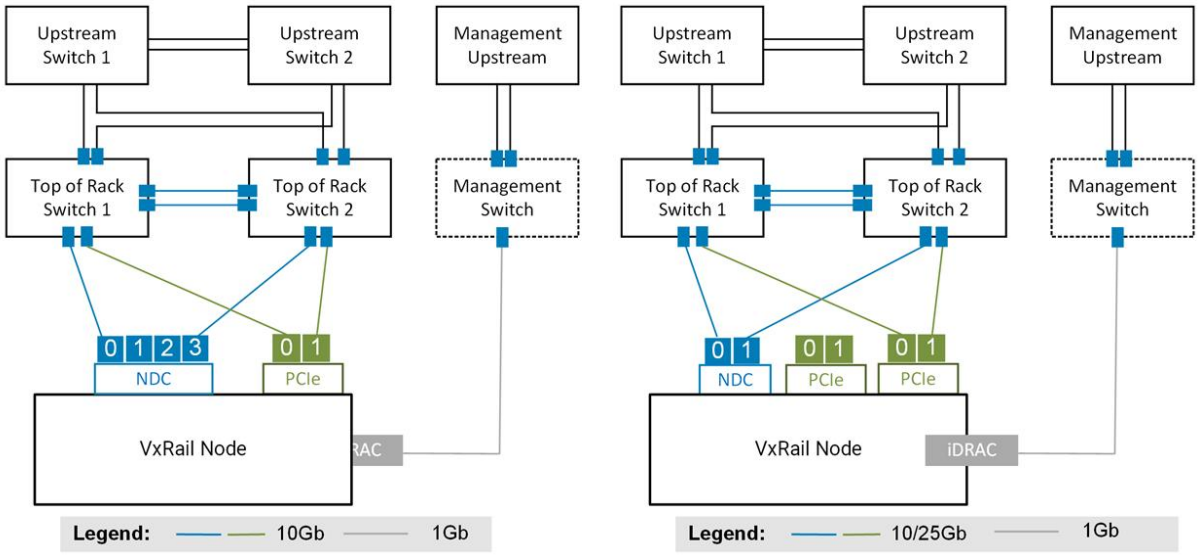

Figure 10 Sample custom connectivity options

- Customer can select any combination of OCP ports and PCIe ports, so long as they are all running the same network speed and the same network port type
- A deployment with four switches is supported. In this event, each node port will plug into a top-of-rack switch.

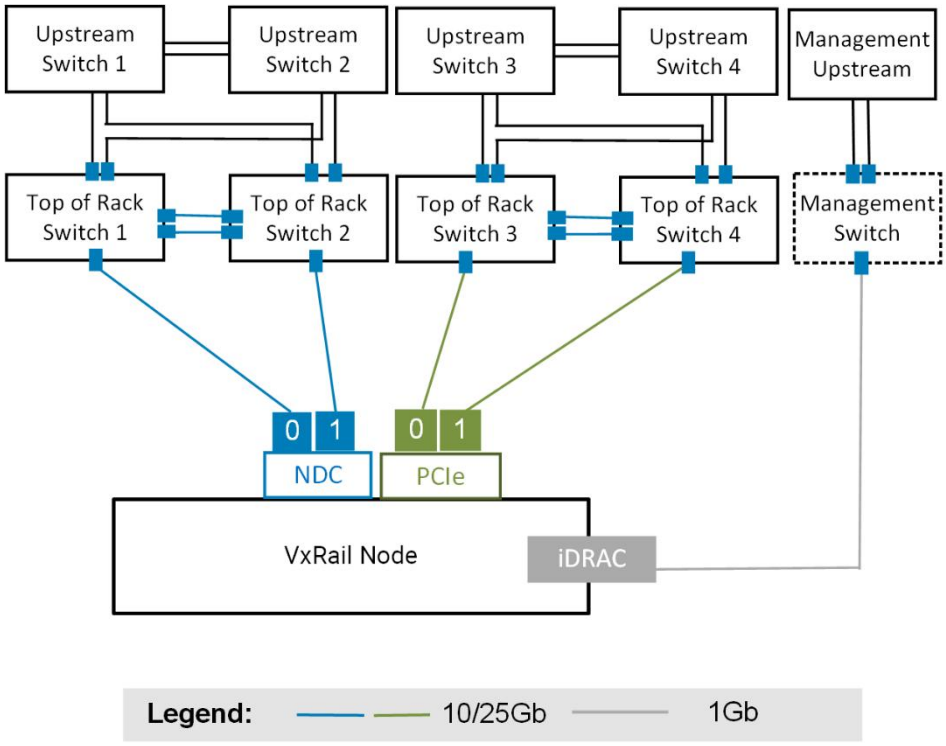

Figure 11 Sample topology with four top-of-rack switches

Task 7: Verify network passage for a dual switch deployment

7. [ ] Verify network passage between the switches
8. [ ] IPV6 multicast traffic is forwarded between the two switches

Note: Refer to the appropriate vendor documentation that came with the switches for the precise configuration details to enable network passage.

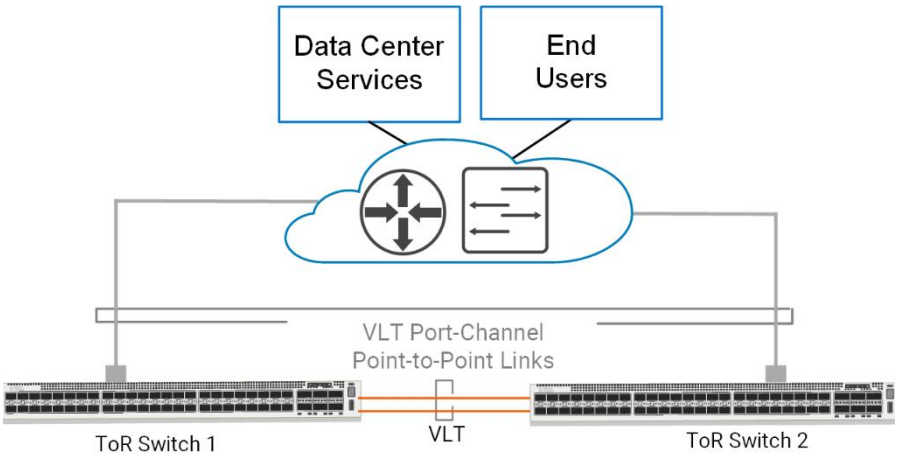

Figure 12 Enabling network passage between the two switches

Task 8: Connect cabling between nodes and customer data center

Note: Repeat the steps in this task for all of the VxRail nodes

9. [ ] Plug the power cords into the power supplies and connect these cords to AC power sources.
10. [ ] Connect the Ethernet cables from each VxRail node to the customer network using the mapping created between the node ports and the switch ports
11. [ ] Connect the Ethernet cable from the iDRAC management port on each VxRail node to the designated management switch

Note: The designated management switch can either be a physical Ethernet switch separate from the top-of-rack switches, or the customer can use ports on the top-of-rack switches, provided the switches are compatible.

Task 9: Enable network connectivity to VxRail Manager

12. [ ] Verify the VxRail external management VLAN and the IP address of VxRail Manager

Note: The default VxRail Manager IP address is 192.168.10.200, and the default VLAN for the VxRail external management network is the default (untagged) VLAN.

13. [ ] Determine the method to connect to VxRail Manager
    - If connectivity is enabled by connecting a laptop to a port on one of the top-of-rack switches, then the switch port must be correctly configured to access VxRail external management network VLAN.
    - If connectivity is enabled by a jump host upstream from the top-of-rack switches, then the upstream network must be configured to enable connectivity to VxRail Manager through a browser.

Note: Skip the next step if the customer will provide a jump host for VxRail Manager access

14. [ ] Configure the laptop to enable network connectivity to the VxRail Manager IP address
15. [ ] Connect the laptop to the designated port on the switch

CAUTION: Do not power on the VxRail appliance until after you have confirmed the TOR switch configuration is complete. Refer to the *VxRail Network Planning Guide* for switch protocol requirements. Refer to the ToR switch vendor documentation for configuration instructions.

Task 10: Front Panel Features

1. [ ] The below figure illustrates the front panel features and indicators, including the power button location.

Figure 1 Front Panel Features

Item	Ports, panels, and slots	Icon	Description
1	Left control panel	N/A	Contains the system health, system ID, status LED.
2	Drive	N/A	Enable you to install drives that are supported on your system
3	Right control panel	N/A	Contains the power button, USB port, iDRAC Direct micro port, and the iDRAC Direct status LED.
4	VGA port		Enables you to connect a display device to the system.
5	Information tag	N/A	The Information tag is a slide-out label panel that contains system information such as Service Tag, NIC, MAC address, and so on. If you have opted for the secure default access to iDRAC, the Information tag also contains the iDRAC secure default password.

Figure 2 Description of features on front of node

Task 11: Configuring iDRAC

To perform out-of-band systems management using iDRAC, you must configure iDRAC for remote accessibility, setup the management station and managed system, and configure the supported Web browsers. You can configure the iDRAC within the System Setup following Method 1, or you can connect to the iDRAC interface over direct USB connection using Method 2.

Method 1: Configuring iDRAC using System Setup

Note: The G560 model uses a mini display port for video. You will need a mini-DP to VGA adapter for video output.

For VxRail, you must complete the following on each individual node in the cluster.

1. [ ] Connect a KVM to the proper ports on the system.
2. [ ] Power on the on the system.
3. [ ] Press **<F2>** during Power-on Self-test (POST) to enter System Setup.

Figure 13 Enter System Setup

4. [ ] In the System Setup Main Menu page, click **iDRAC Settings**.

Figure 14 System Setup Main Menu

5. [ ] On the iDRAC Settings page, click **Network**.
6. [ ] Set the following items:
   a. Set Enable NIC to **Enabled**.
   b. Set NIC Selection to **Dedicated**.

Note: For VxRail G560/G560F, set NIC selection to **LOM1** instead of **Dedicated**. For details, see KB 000157690.

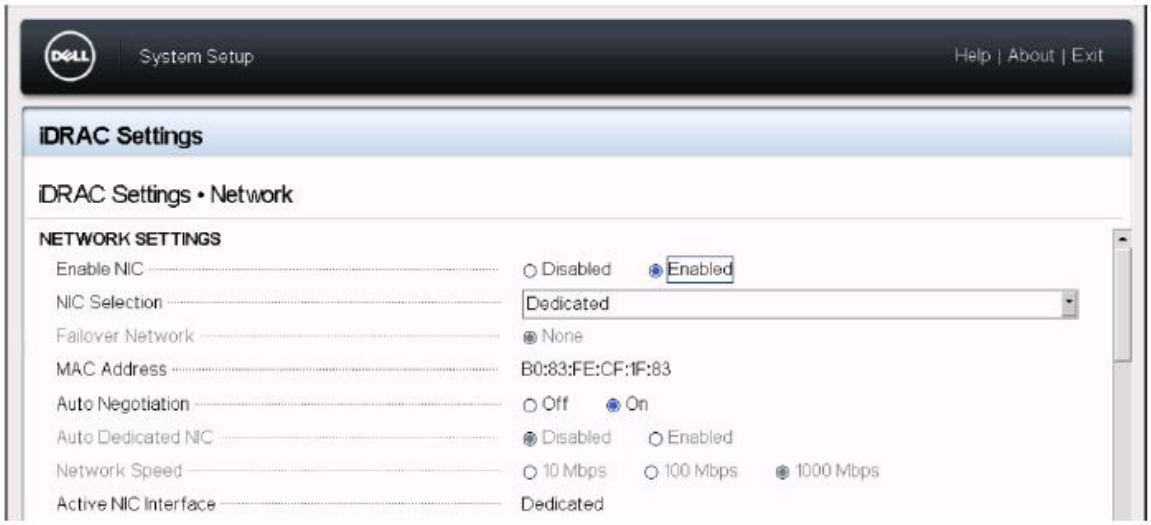

Figure 15

c. Set Enable IPMI Over LAN to **Enabled**.

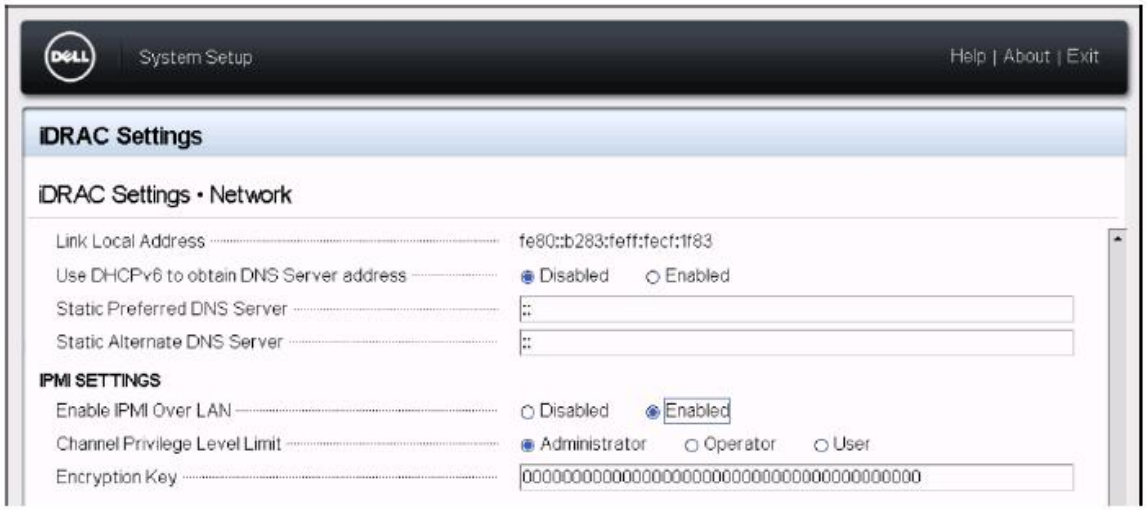

Figure 16

7. [ ] Under the IPV4 Settings, set the Static IP Address (iDRAC address), the Static Gateway, and the Static Subnet Mask

Figure 17 IPV4 Settings

8. [ ] Click **Back** > **Finish**, and then click **Yes** to save the settings.
9. [ ] Repeat for all nodes being installed.

Method 2: Configuring iDRAC using direct USB connection

Note: iDRAC direct feature allow direct connection from your laptop or PC USB port to the iDRAC USB port. This allows you to interact directly with iDRAC interfaces for advanced management and servicing.

1. [ ] Connect to iDRAC using direct USB connection.
   a. For model E460, connect your laptop to the Micro USB port on the front of the node or to the one of the USB 3.0 ports on the back of the node.
   b. For models P470, V470, or S470, connect your laptop to the front USB Management port, identified by the icon, with a USB A/A cable.
   c. For model E560, connect your laptop to the front iDRAC Direct port (Micro AB USB) with a USB A to Micro-B cable.
   d. For models P570, V570 or S570, connect your laptop to the iDRAC Direct Micro USB port located in the right Control panel on the front of the system with a USB A to Micro-B cable.
   e. For a G560, connect your laptop to the iDRAC Direct Micro USB port located on the rear of the node with a Type A USB to Micro-B cable.

      Note: For a G560, if the port is disabled, you will need to follow Method 1 listed above.

   f. Wait for the laptop to acquire IP address 169.254.0.4. It may take several seconds for the IP addresses to be acquired. iDRAC acquires the IP address 169.254.0.3.
2. [ ] In a web browser, type in the iDRAC IOP address.
3. [ ] Log in to the iDRAC GUI using default login/PW of root/calvin.
4. [ ] From the Dashboard screen, go to iDRAC Settings -> Connectivity.

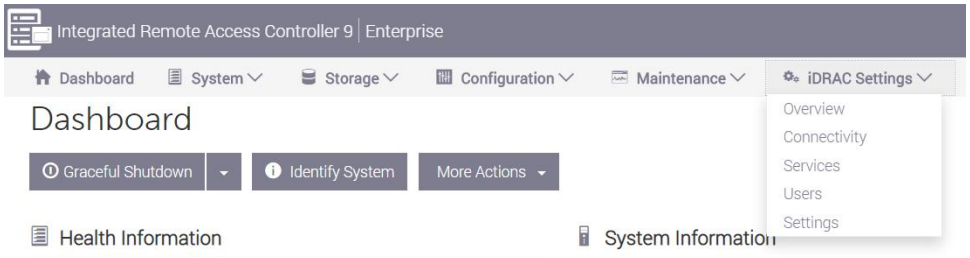

Figure 18 **Dashboard screen**

5. [ ] Scroll down to IPMI Settings , enable IPMI Over LAN and click apply.

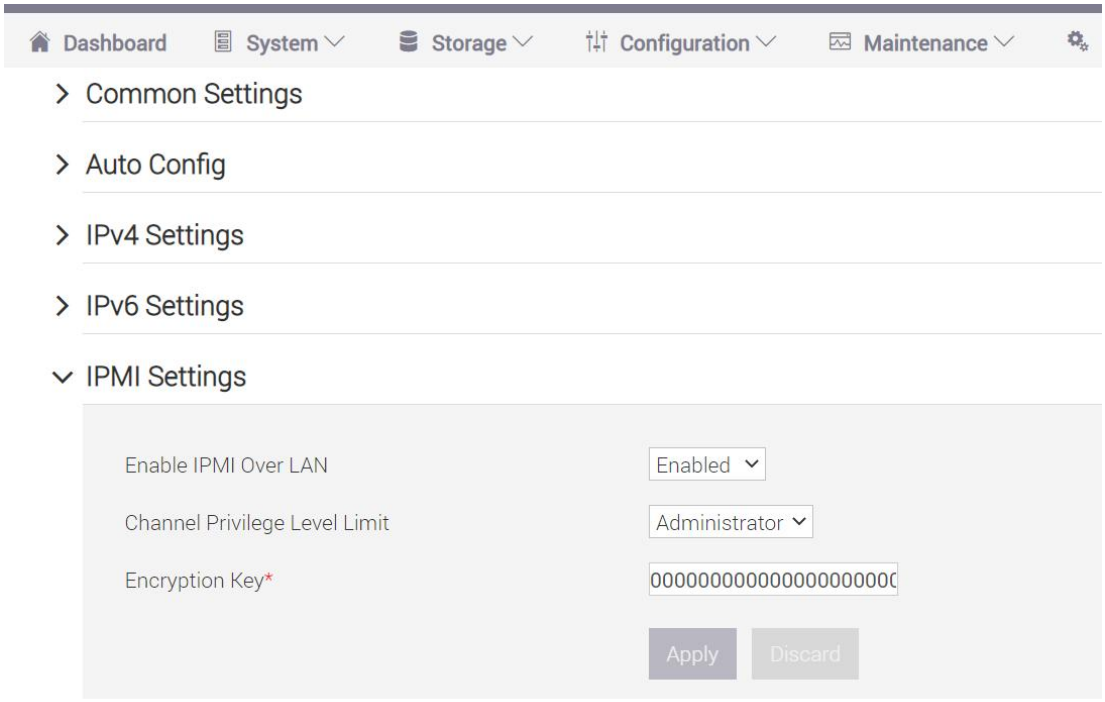

Figure 19 **Enable IPMI Over LAN**

6. [ ] Scroll down to IPv4 Settings and expand that section.
7. [ ] Change the DHCP to **Disabled** (it should be enabled by default). Then set the following:
   a. Static IP address
   b. Static gateway
   c. Static subnet mask

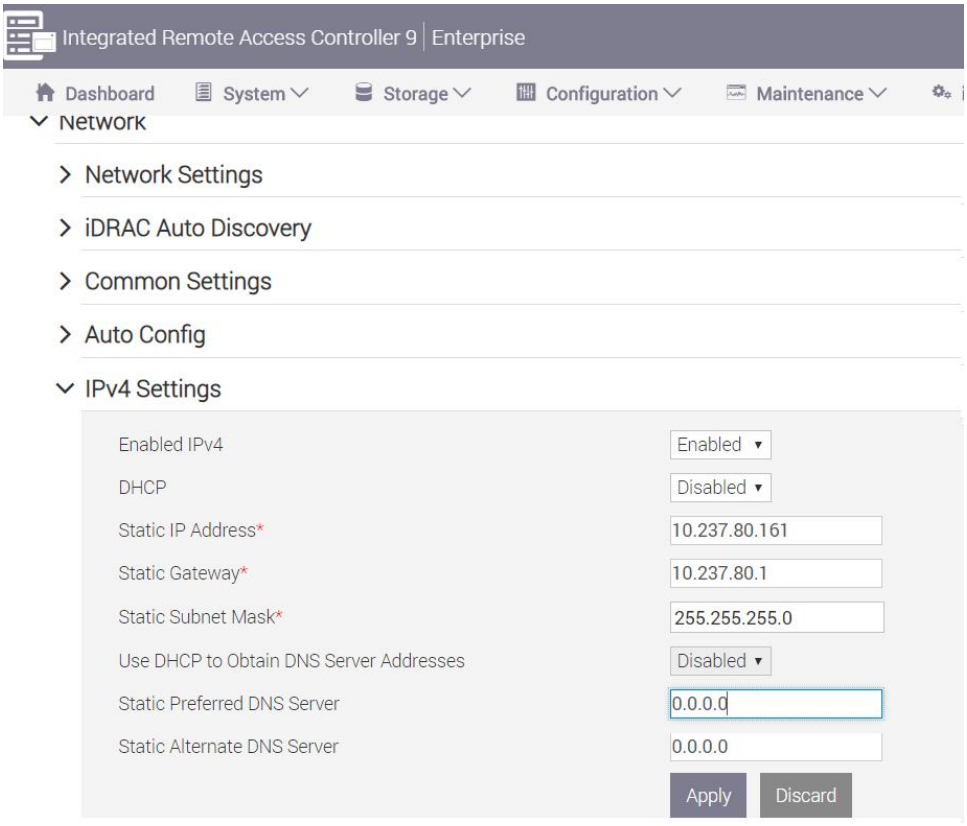

Figure 20 **IPv4 Settings**

8. [ ] Verify that it works by pinging the gateway.

Note: It may take 30-60 seconds for the static IP to take and be able to ping the gateway.

9. [ ] Go to **Maintenance** > **Diagnostics** and enter a ping command using the gateway you entered (10.237.80.1 in the above example – yours will be different).

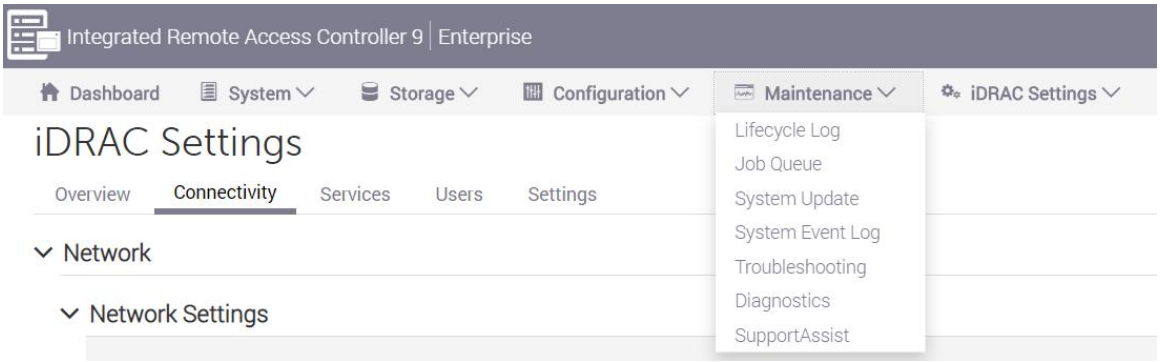

Figure 21 **iDRAC settings**

10. [ ] Enter the ping command and click **Submit**.

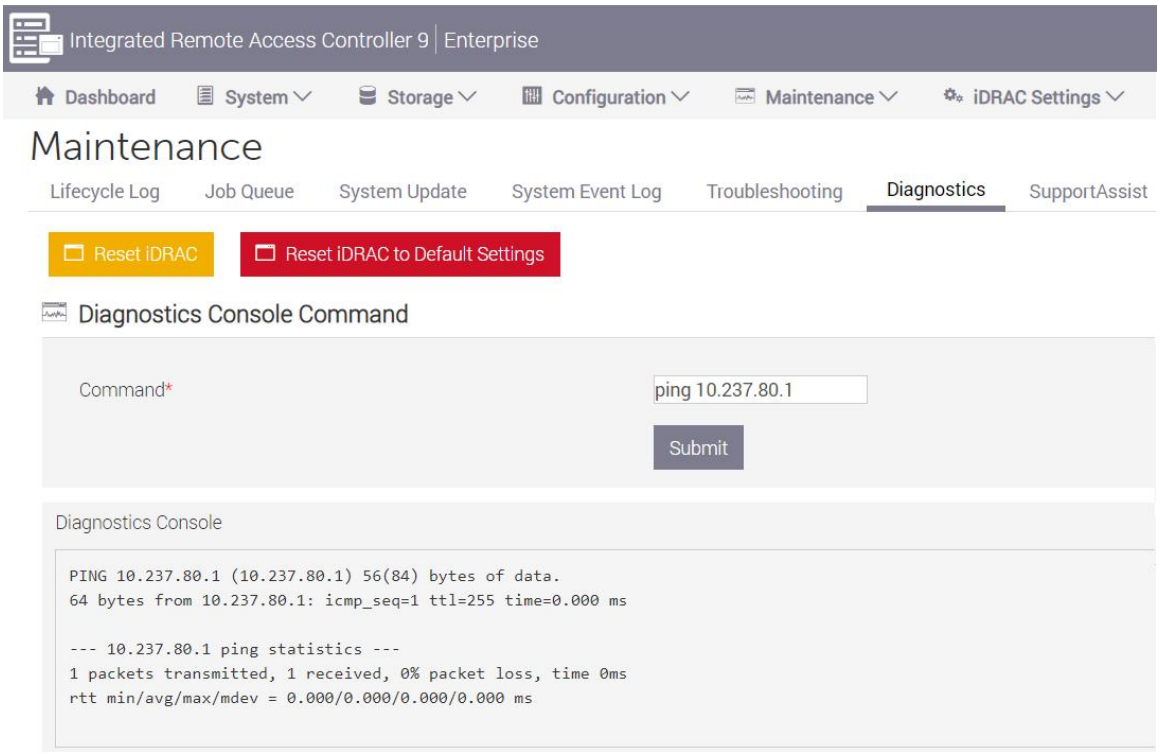

Figure 22 **Submit Ping command.**

11. [ ] You should see that the ping command was transmitted, received with 0% packet loss.
12. [ ] Following is the output with an IP that can NOT be pinged (indicating you entered the wrong IP address or there is some networking issue you need to resolve.)

Figure 23 **Ping command failed.**

13. [ ] If you can NOT ping the gateway, try to ping another iDRAC in the rack you are setting up. (Use the same ping command but with the IP address of another iDRAC).
14. [ ] If all works then exit the iDRAC and move on to next node.

Task 12: Verify time setting

You will need to verify the time setting for each node to ensure that no issues occur during validation.

1. [ ] At the System **Setup Main Menu**, select **System BIOS.**

Figure 24 System setup menu

2. [ ] Select **Miscellaneous Settings.**

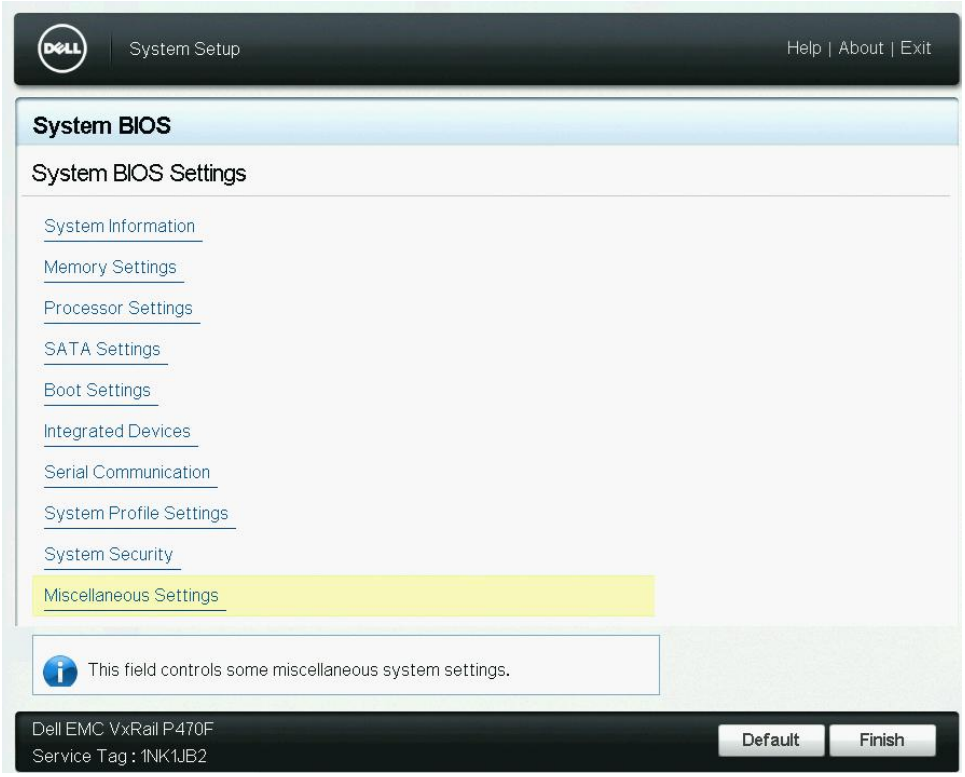

Figure 25 Miscellaneous settings

3. [ ] Verify that the System time and System date are correctly set to UTC time.

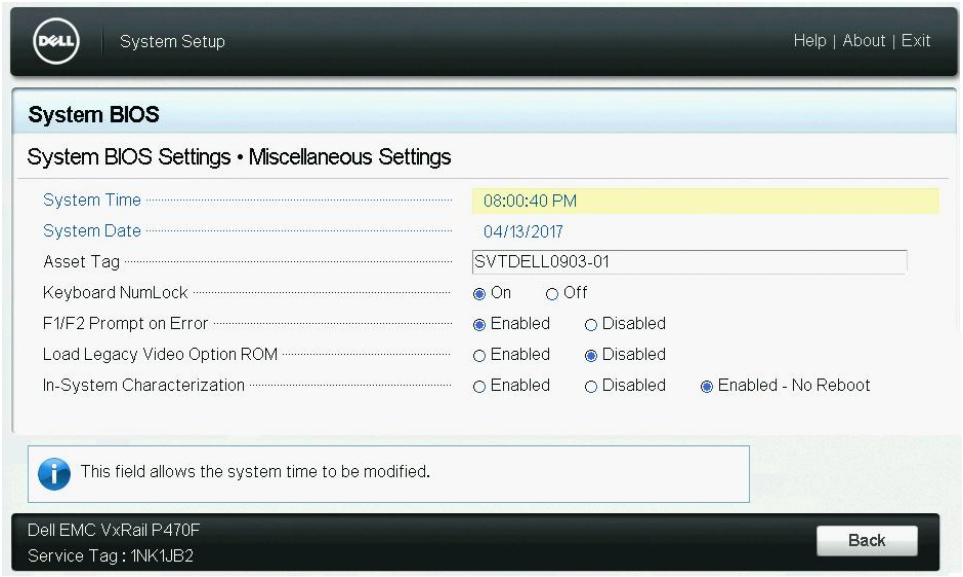

Figure 26 Set system time.

4. [ ] Select **Back > Finish > and Finish to save and exit.**

Task 13: Installing the bezel

Bezels are application-specific, and may be different than shown. Some bezels include a key lock. All bezels include two tabs on either side that you press in to release the bezel and its latches.

1. [ ] Pushing on the ends, not the middle, of the bezel, press the bezel onto the latch brackets until it snaps into place.
2. [ ] If the bezel has a key lock, lock the bezel with the provided key and store the key in a secure place.

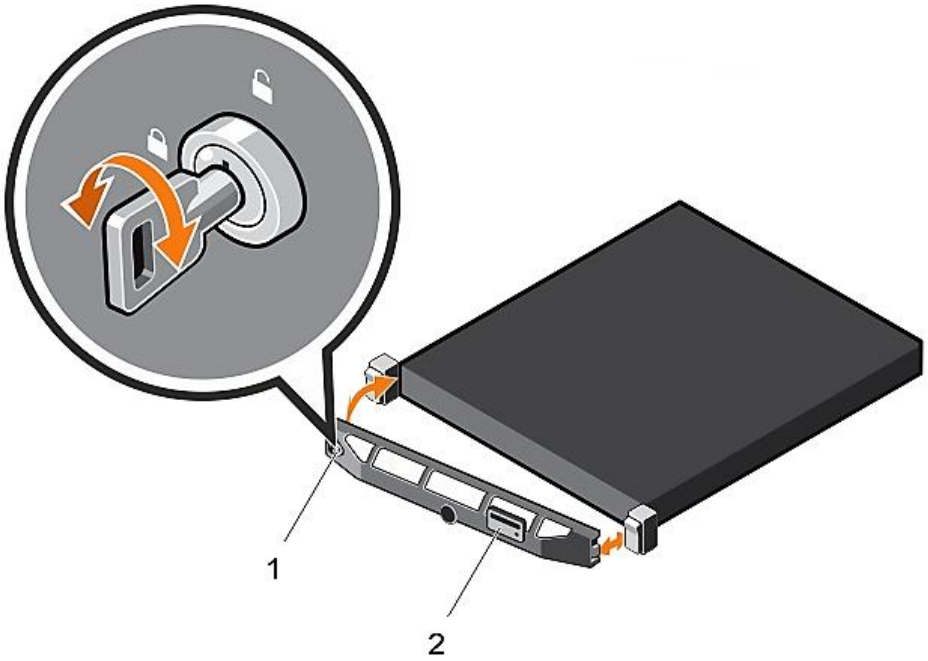

Figure 1 Installing the bezel

Power on VxRail nodes

Repeat the steps in this task for every idle VxRail node for initial build. Only power on the nodes to be included in the VxRail cluster initial build.

Method 1: Press Power Button for on-site powerup operation

1. [ ] Facing the front of the VxRail node, locate the power button in the upper right corner.
2. [ ] Press the button to initiate power-on sequence.

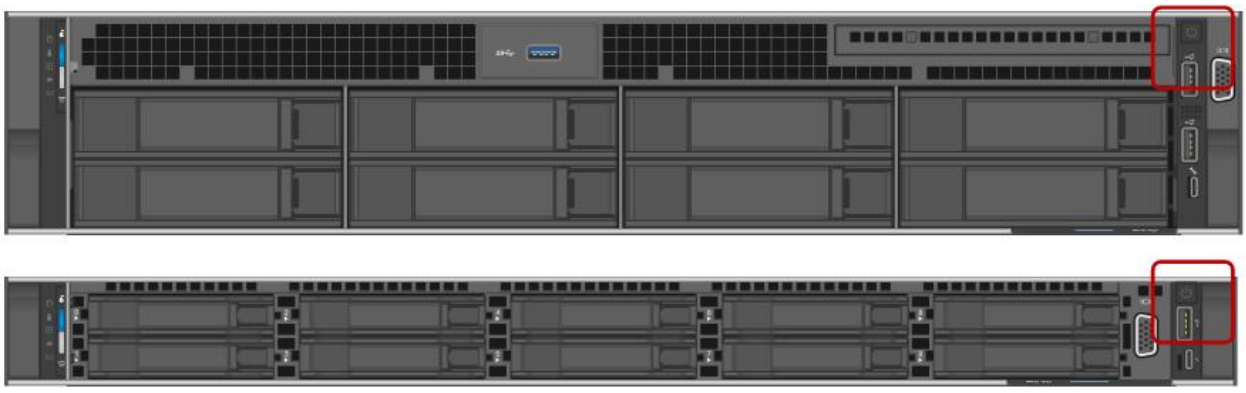

Figure 1 Power button location

Method 2: Use iDRAC for remote power-up operation

1. [ ] Identify the IP address of the iDRAC to the idle VxRail node.

2. [ ] Enter the IP address in a browser session to connect to the iDRAC.
3. [ ] Authenticate with the default credentials of ‘root/calvin’.
4. [ ] Select ‘Power On System’ on left side of the screen.

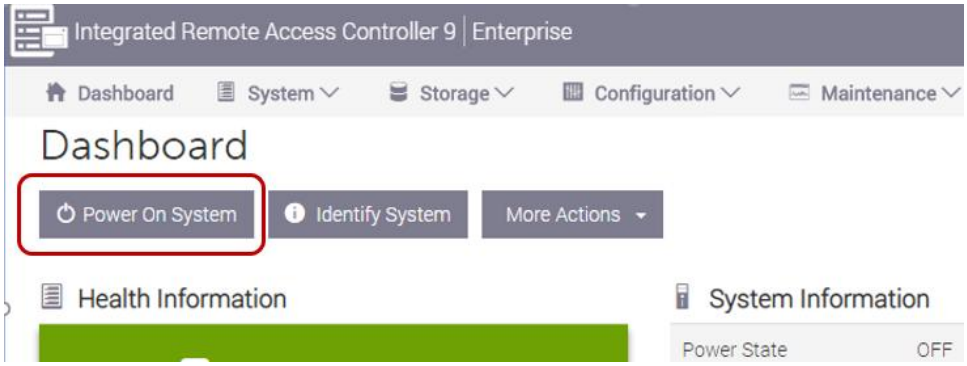

Figure 2 Node power-on from iDRAC Dashboard

Prepare for initial connectivity to VxRail Manager

Task 14: Configure laptop or jump host for VxRail Manager connectivity

1. [ ] Open the JSON file or the cluster report from the Configuration portal.
2. [ ] Locate the network settings for VxRail Manager.
   - For JSON, locate the permanent IP address for VxRail Manager under the ‘vxrail_manager’ section.

Figure 27 Sample IP address for VxRail Manager

3. [ ] Using a laptop, go to Control Panel. Select **Network** > **Internet > network adapters settings.**
4. [ ] Open the Properties page on primary Ethernet adapter.
5. [ ] Open the TCP/IPv4 properties page.
6. [ ] Set IP address to an IP address on the same subnet as the permanent address to be assigned to VxRail Manager.

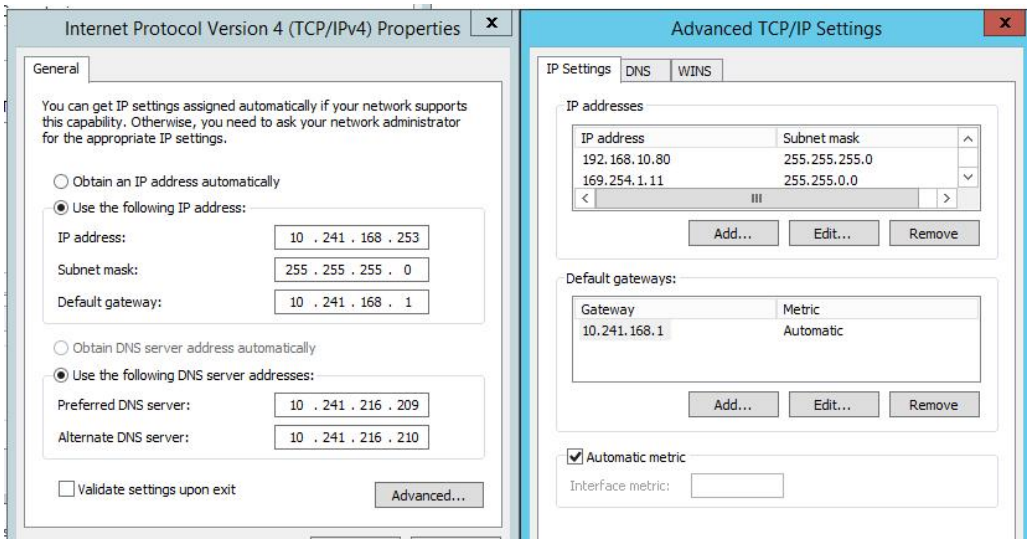

Figure 28 Sample TCP-IPv4 Properties pages

7. [ ] Set the default gateway to the gateway to be assigned to VxRail Manager.
8. [ ] Set DNS entries.

Note: The default IP address for VxRail Manager is '192.168.10.200'. Perform the following steps to add an IP address in the '192.168.10.x' range to the Ethernet interface.

9. [ ] Open **Advanced**.
10. [ ] Select **Add**.
11. [ ] Configure an IP address to connect on the same subnet as the default address assigned to VxRail Manager (default is 192.168.10.x/24)

Establish connection to VxRail External Management Network

Note: Skip this task if a jump host is provided to connect to the VxRail external management network

Task 15: Connect laptop to top-of-rack switch

1. [ ] Locate an open Ethernet port on the top-of-rack switch connected to the VxRail nodes.
2. [ ] Configure the switch port for access mode.
3. [ ] Connect laptop to the port on top-of-rack switch.

Task 16: Confirm VxRail Manager network connectivity

1. [ ] Open a DOS shell on the laptop or jump host.
2. [ ] Run the following command: `ping -t 192.168.10.200`

Validate Data Center Environment for VxRail

Verify that the data center environment that will stage the VxRail cluster using the parameters and settings captured in the VxRail configuration portal.

Task 17: Generate VxRail cluster settings report from Configuration Portal

1. [ ] Open a browser and connect to VxRail Configuration Portal: https://vxrailconfiguration.dell.com/.
2. [ ] Select the **Clusters** view.
3. [ ] Go to the saved cluster settings from the selection screen and select the cluster to be deployed.
4. [ ] Click **View Report**.

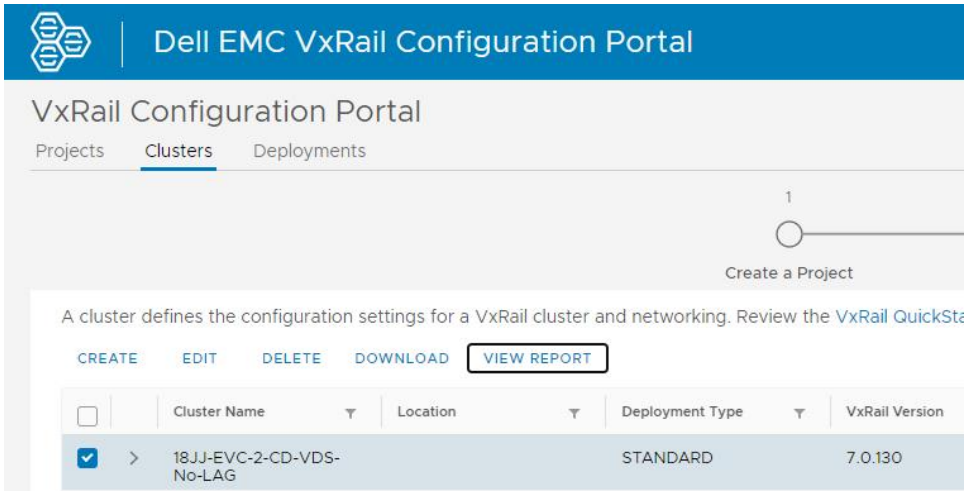

Figure 29 **Produce report of VxRail cluster captured settings.**

The configuration report can be viewed from the browser or downloaded in Microsoft Word format.

Task 18: Validate VxRail Management Network Settings

1. [ ] Open the report to display the settings supplied for the VxRail cluster.
2. [ ] Confirm that the IP addresses for the components on the VxRail external management network (Internal vCenter, ESXi hosts, VxRail Manager, etc.) are non-routable and all on the same subnet.
3. [ ] Confirm that the IP addresses for the vMotion network are on the same subnet.
4. [ ] Confirm that the IP addresses for the vSAN network are on the same subnet.
5. [ ] Open a DOS session on the same network as planned for the VxRail external management network.
   - A customer-supplied Windows session on a jump host is sufficient.
   - A laptop connected to a switch port with network access to the VxRail external management network will also suffice.
6. [ ] Confirm that the IP addresses are reserved for VxRail management components are not in use.

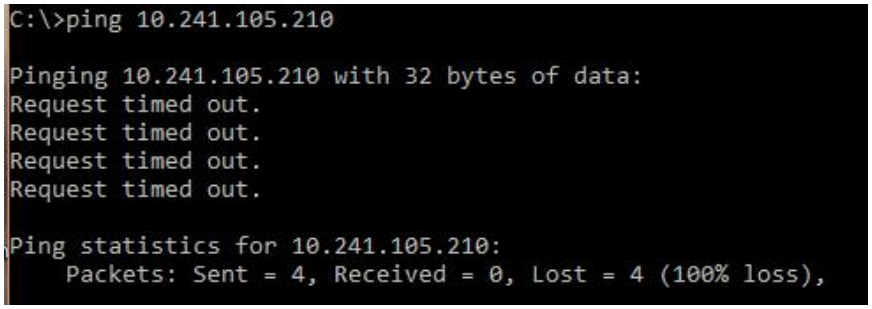

Figure 30 Ping IP address.

Task 19: Validate DNS entries for VxRail

1. [ ] Confirm that forward and reverse entries for the VxRail management components were created in DNS.

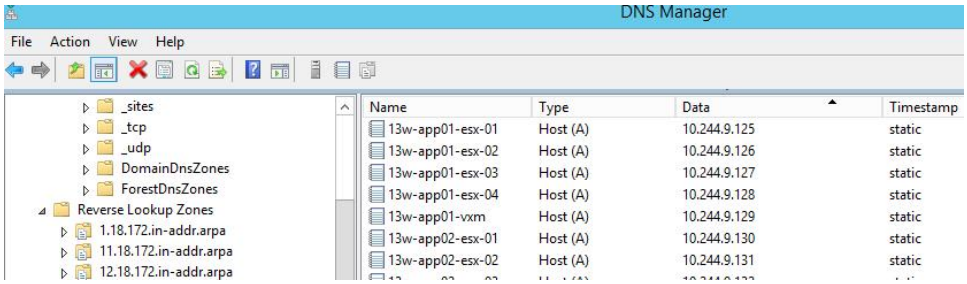

Figure 31 Example DNS entries

- Use ‘nslookup <FQDN> and ‘nslookup <IP address>’ for each VxRail management component.

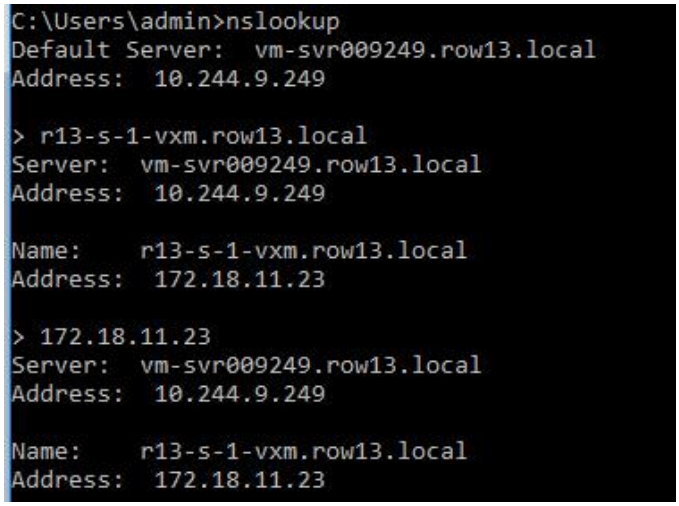

Figure 32 ‘nslookup’ in DOS shell

2. [ ] Verify that you have permanent vSphere and vSAN licenses.

Note: VxRail is delivered with temporary vSphere and vSAN licenses. You must apply the permanent licenses before the end of the grace period.

Change default VxRail network settings

Perform the following steps in order to prepare to change the default settings for VxRail before performing initial build.

Task 20: Open cluster report or JSON file

1. [ ] Choose one of the two methods to access the final VxRail cluster settings.

   a. Open the JSON file in an editor.

   b. Open the cluster report from the Configuration Portal.

Task 21: Enable access to the ESXi shell

If you are local to the data center, you can plug into the console port on the VxRail node. If you are remote, follow the steps in this task to access the ESXi shell over a network connection.

1. [ ] Connect to a laptop or jump host that has access to the iDRAC network supporting the VxRail nodes.
2. [ ] Open a browser to an iDRAC console on any VxRail node.

   URL: https://<iDRAC IP Address>

3. [ ] Login in as 'root'. The default password is 'calvin'.

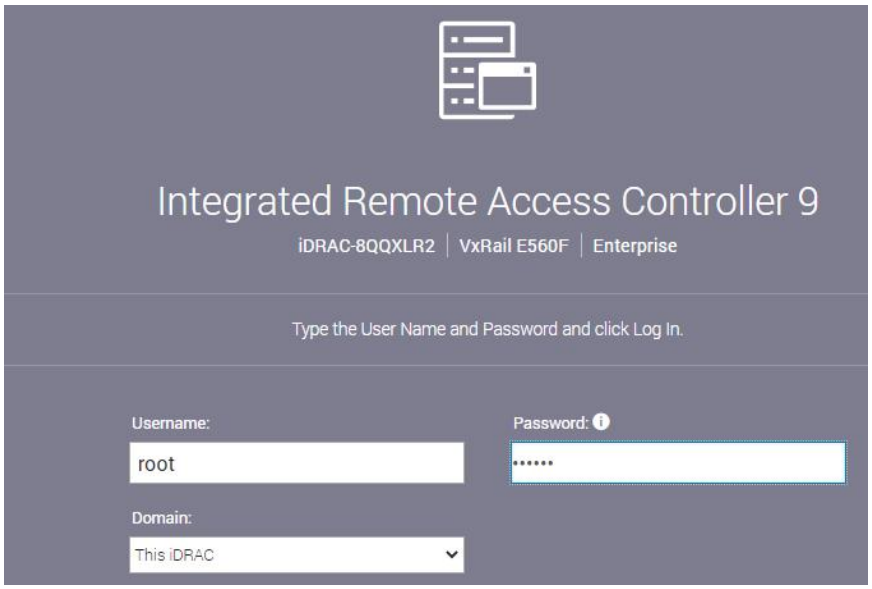

Figure 1 iDRAC Login Screen

4. [ ] Open the virtual console.

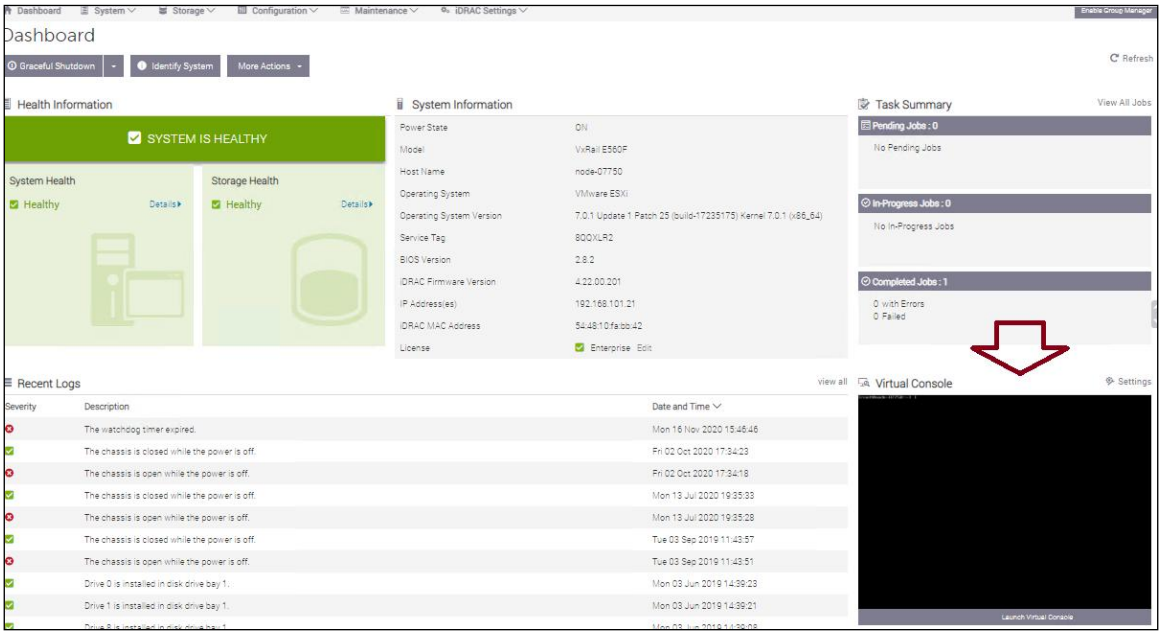

Figure 2 Virtual console location on iDRAC dashboard

5. [ ] From the top toolbar, open the virtual keyboard

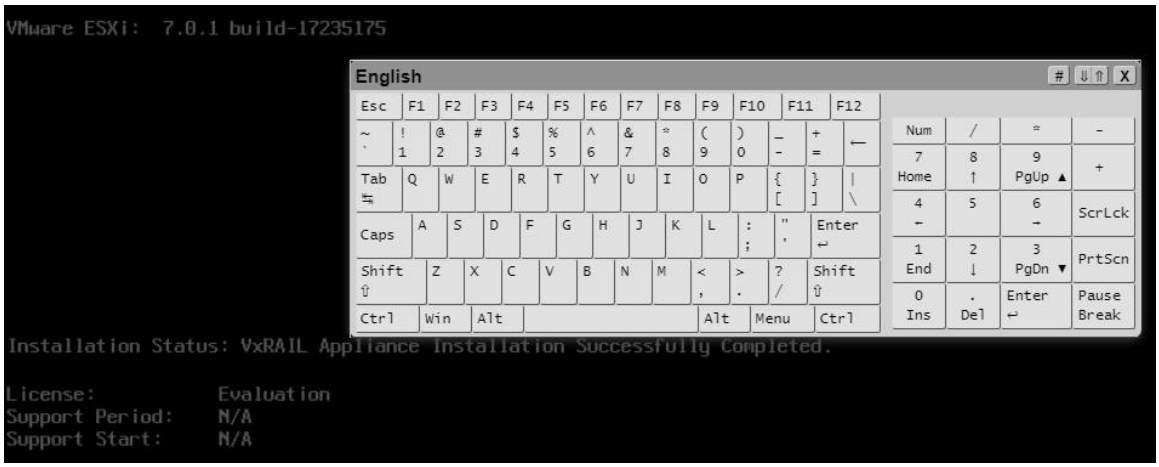

Figure 3 Virtual keyboard for console

6. [ ] Press **F2** and log in to the DCUI as ‘root’. The default password is ‘Passw0rd!’.

Figure 4 Enter credentials into console.

7. [ ] Scroll down and select **Troubleshooting Options**.

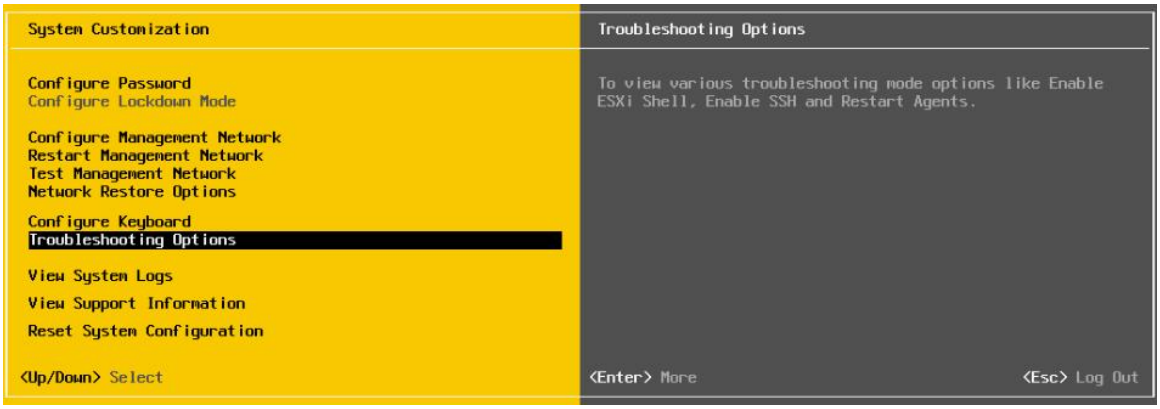

Figure 5 Troubleshooting Options

8. [ ] Press **Enter** to **Enable ESXi Shell**.

Figure 6 Enable ESXi shell.

9. [ ] Using the virtual keyboard, open the console shell by pressing **Alt+F1.**
10. [ ] Login as ‘root’. The default password is ‘Passw0rd!’.

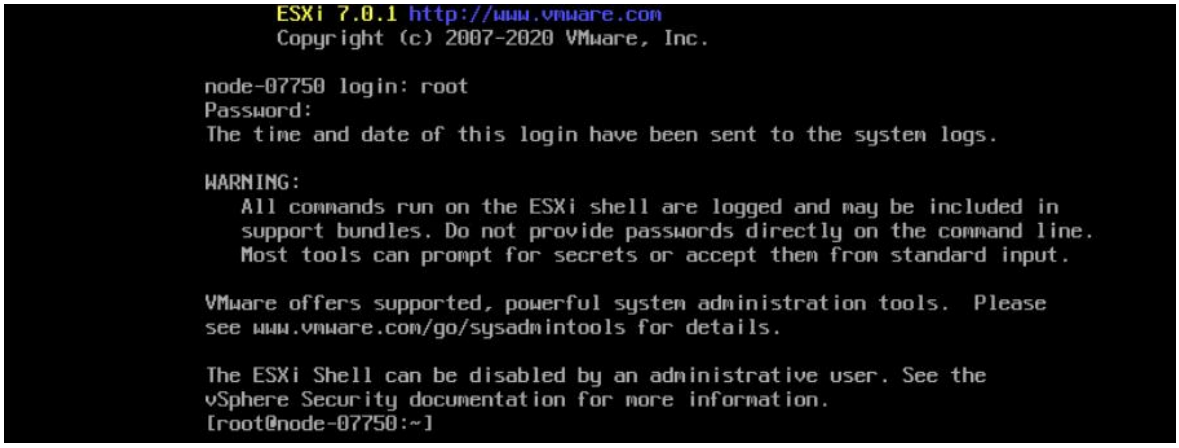

Figure 7 Open ESXi shell

Enable VxRail Node with specific vmnics for management and discovery network in advance mode

Starting with VxRail 7.0.130, VxRail supports advanced VDS configuration with flexible NIC and VDS configurations. By default, you should use smallest NIC data port to support management connection and node discovery. Advance mode provides a more flexible network layout plan. You can define a specific network layout for VxRail management and discovery without vmnic0*. To complete this case, you must adjust NIC configuration before VxRail initialization procedure. This document is designed to help you configure the new code for VxRail initialization and node expansion to generate network portgroups for management and discovery without vmnic0*.

*For G560/F model, it is vmnic1.

This document describes how to adjust the specific vmnic adapter configuration. This procedure only works with NIC_profiles in API: ADVANCED_VXRAIL_SUPPLIED_VDS and ADVANCED_CUSTOMER_SUPPLIED_VDS.

This procedure applies to VxRail version 7.0.350 and later. See the VxRail 7.x Support Matrix for a list of the supported 7.0.x versions.

This procedure is intended for customers and Dell EMC Service providers who are authorized to work on a VxRail cluster and VxRail administrators.

VxRail 7.0.350 and later cluster managed by either a VxRail vCenter Server or a customer-supplied vCenter Server.

Prerequisites:

- The new node must have enough spared NICs for configuration.
- You **must** configure the required VLAN on the switch for the connected adapter ports which are planned for Discovery and management.
- If using non-vmnic0 port connection, you can configure in DCUI using the iDRAC console to avoid network interruptions.
- Planed vmnic layout identification. You must plan the basic information:

Traffic	VSS portgroup name	Usage	Factory teaming	Physical NIC port adjustment plan
Node management traffic portgroup	Management Network	For node management connection	Active: vmnic0 Standby: vmnic1	Active: vmnic2 Standby: vmnic3
System VM management traffic portgroup	VM Network	For system VM management connection	Active: vmnic0 Standby: vmnic1	Active: vmnic2 Standby: vmnic3
Discovery Network portgroup	• Private Management Network • Private VM Network	For node discovery, the default is vLAN 3939. In default network, it can share NIC ports with management.	Active: vmnic0 Standby: vmnic1	Active: vmnic4 Standby: vmnic5

We will only adjust one active vmnic for traffic. Other planned vmnics will be reconfigured during Day1 bring-up or node expansion.

Task 22: Adjust the specific vmnic adapter configuration

1. [ ] Log in to IDRAC console with CLI mode.
   a. Log in to node IDRAC web interface and open the console.
   b. Press **Alt+F1** to switch to CLI mode.
   c. Log in to the CLI with default user *`root`* and default password *`Passw0rd!`*
2. [ ] Locate the vmnics that are from PCIE.
   a. Use *`esxcfg-nics -l`* to check the vmnic status.

```
[root@c2-esx01:~] esxcli network nic list
Name    PCI Device    Driver   Admin Status  Link Status  Speed  Duplex
------  ------------  -------  ------------  -----------  -----  ------
vmnic0  0000:19:00.0  bnxtnet  Up            Up           25000  Full
t Controller
vmnic1  0000:19:00.1  bnxtnet  Up            Up           25000  Full
t Controller
vmnic2  0000:19:00.2  bnxtnet  Up            Up           25000  Full
t Controller
vmnic3  0000:19:00.3  bnxtnet  Up            Up           25000  Full
t Controller
vmnic4  0000:d8:00.0  bnxtnet  Up            Up           25000  Full
t Controller
vmnic5  0000:d8:00.1  bnxtnet  Up            Up           25000  Full
t Controller
vmnic6  0000:d8:00.2  bnxtnet  Up            Up           25000  Full
t Controller
vmnic7  0000:d8:00.3  bnxtnet  Up            Up           25000  Full
t Controller
vusb0   Pseudo        cdce     Up            Up             100  Full
```

Figure 1 vmnic status

In this example, we use two NDC ports and six PCIE adapter ports on VxRail E560F. Vmnic2, vmnic3 are the ports that we plan to use for management. Vmnic4, vmnic5 vmnic3 are the ports that we plan to use for discovery.

3. [ ] Configure and add planned vmnic into default vSwitch0.

   a. esxcfg-vswitch -l.

```
[root@node-41839:~] esxcfg-vswitch -l
Switch Name      Num Ports   Used Ports  Configured Ports  MTU     Uplinks
vSwitch0         7680        7           128               1500    vmnic0,vmnic1

  PortGroup Name                          VLAN ID  Used Ports  Uplinks
  Private VM Network                      0        0           vmnic0,vmnic1
  VM Network                              0        0           vmnic0,vmnic1
  Management Network                      0        1           vmnic0,vmnic1
  Private Management Network              0        1           vmnic0,vmnic1
```

   b. Add planned vmnics to vSwitch0.

      vmnic2, vmnic3 are the ports that are planned to use for management and vmnic4, vmnic5 are the ports that are planned to use for discovery. They are not in vSwitch0, so add it to vSwitch0.

      esxcli network vswitch standard uplink add -u vmnic2 -v vSwitch0

      esxcli network vswitch standard uplink add -u vmnic3 -v vSwitch0

      esxcli network vswitch standard uplink add -u vmnic4 -v vSwitch0

      esxcli network vswitch standard uplink add -u vmnic5 -v vSwitch0

```
[root@node-41839:~] esxcli network vswitch standard uplink add -u vmnic2 -v vSwitch0
[root@node-41839:~] esxcli network vswitch standard uplink add -u vmnic3 -v vSwitch0
[root@node-41839:~] esxcli network vswitch standard uplink add -u vmnic4 -v vSwitch0
[root@node-41839:~] esxcli network vswitch standard uplink add -u vmnic5 -v vSwitch0
```

   c. Configure portgroup teaming as planned.

      Management traffic example: management traffic plan to use vmnic2 as active, vmnic3 as standby, so the portgroup policy failover is set as active avmnic2, standby vmnic3. Private management network, private VM network, and VM network also apply in the same way.

      esxcli network vswitch standard portgroup policy failover set -p "Management Network" -a vmnic2 -s vmnic3

      esxcli network vswitch standard portgroup policy failover set -p "VM Network" -a vmnic2 -s vmnic3

      esxcli network vswitch standard portgroup policy failover set -p "Private Management Network" -a vmnic4 -s vmnic5

      esxcli network vswitch standard portgroup policy failover set -p "Private VM Network" -a vmnic4 -s vmnic5

      Check portgroup information.

      esxcli network vswitch standard portgroup policy failover get -p "Management Network"

esxcli network vswitch standard portgroup policy failover get -p "VM Network"

esxcli network vswitch standard portgroup policy failover get -p "Private Management Network"

esxcli network vswitch standard portgroup policy failover get -p "Private VM Network"

d. Check if vSwitch0 has unused NIC port, and remove them.

esxcli network vswitch standard policy failover get -v vSwitch0

esxcli network vswitch standard uplink remove -u vmnic0 -v vSwitch0

e. Repeat this step on all nodes which are planned for VxRail Deployment.

f. After all nodes are configured, wait until VxRail Management IP is pingable and then go to UI or API to start deployment.

4. [ ] Wait for the VxRail deployment web interface to be online, and complete VxRail initialization.

From the UI:

a. In VDS setting step, select "Custom" for VDS configuration.

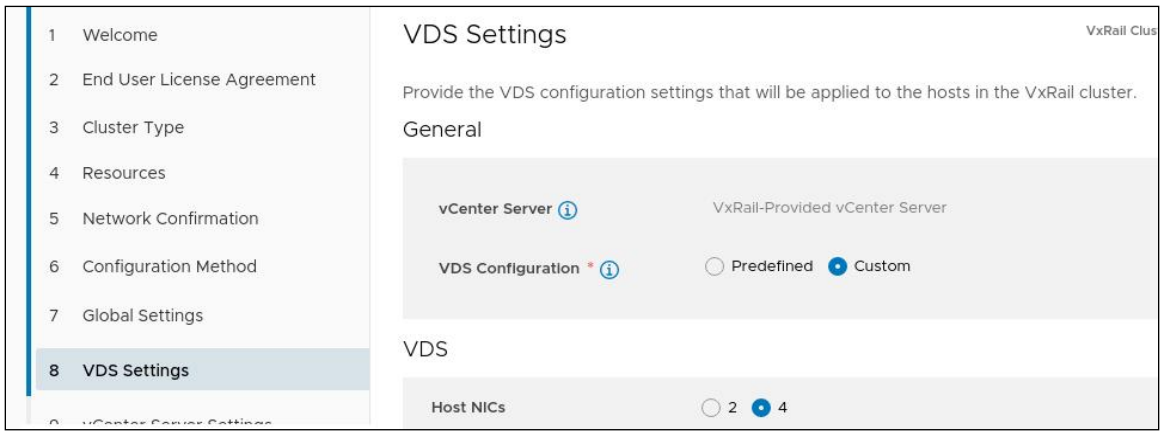

Figure 2 VDS Settings

b. In uplink definition checklist, select planed adapter port, and then complete VxRail Deployment Wizard.

For this example, we adjust vmnic2, vmnic4 as active NICs for the management and discovery network. Then in the VxRail Deployment Wizard:

- vmnic2 vmnic3 are assigned to uplink1 and uplink2. The related management portgroups are using uplink 1 and uplink2 as failover uplinks.
- Vmnic4 vmnic5 are assigned to uplink3 and uplink4. The related discovery traffic is using uplink3 and uplink4 as failover uplinks.

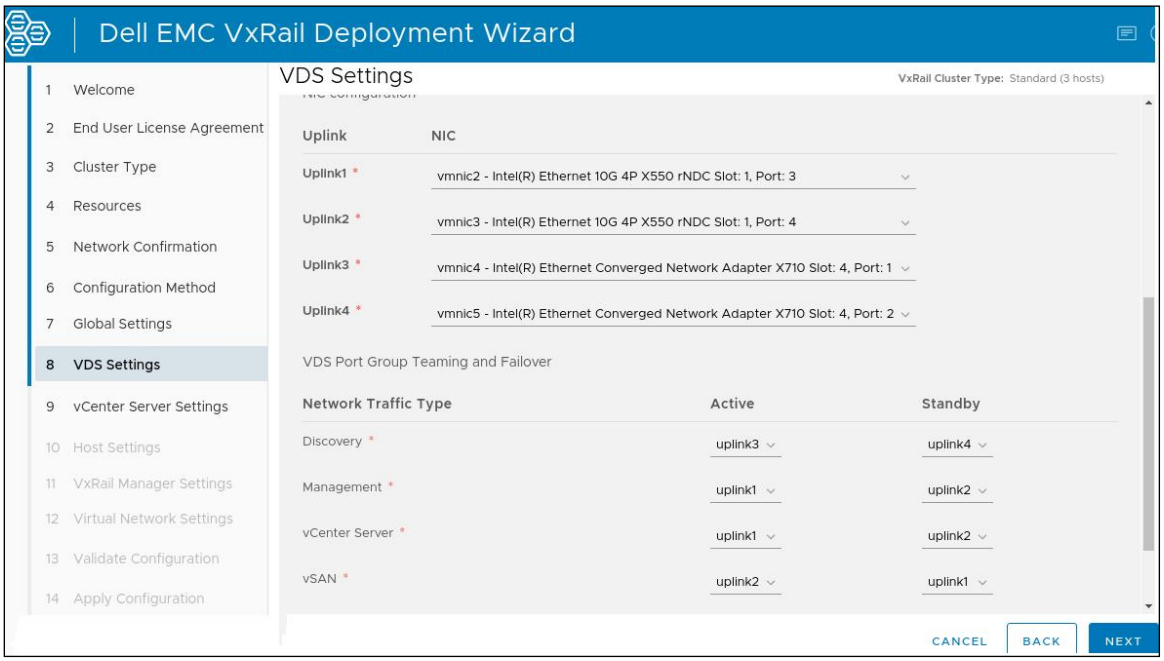

Figure 3 VDS Settings

For API:

If you use API to perform the initialization, only ADAVANCE_VXRAIL_SUPPLIED_VDS and ADVANCED_CUSTOMER_SUPPLIED_VDS nic_profile are supported.

For VxRail node expansion

Complete Steps 1, 2 and 3 for new node, and then perform the node expansion using the UI Wizard or API.

For additional information, see:

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.networking.doc/GUID-0CBF12A2-1074-4514-BE36-B09565BC4620.html

Task 23: Locate IP address for VxRail Manager

1. [ ] Open the JSON file created from the configuration portal.
2. [ ] Locate the permanent IP address for VxRail Manager under the ‘vxrail_manager’ section.

Figure 1 Sample IP address for VxRail Manager

Task 24: Verify connectivity to default VxRail Manager

Note: After VxRail node discovery occurs on the internal management network, a control node is selected, and VxRail Manager is powered on.

1. [ ] Wait for the primary node election to complete after all the nodes that are planned for VxRail initial build have been powered on.
2. [ ] Identify an open port on the top-of-rack switch configured for access mode.
3. [ ] Connect laptop to the open port on the top-of-rack switch.
4. [ ] Open a DOS shell on the laptop or jump host.
5. [ ] Run: *`ping -t 192.168.10.200`*

Task 25: Identify VxRail primary node

Note: The node with the lowest PSNT value is selected by default as the primary node. If the PSNT values are not listed in the JSON file, use this method to identify the node with the lowest PSNT.

Perform the following steps on each node in the cluster to capture the PSNT remotely.

1. [ ] Open a browser to the iDRAC: *`https://<iDRAC IP Address>.`*
2. [ ] Log in as 'root'. The default password is 'calvin'.
3. [ ] Identify the service tag on the dashboard.

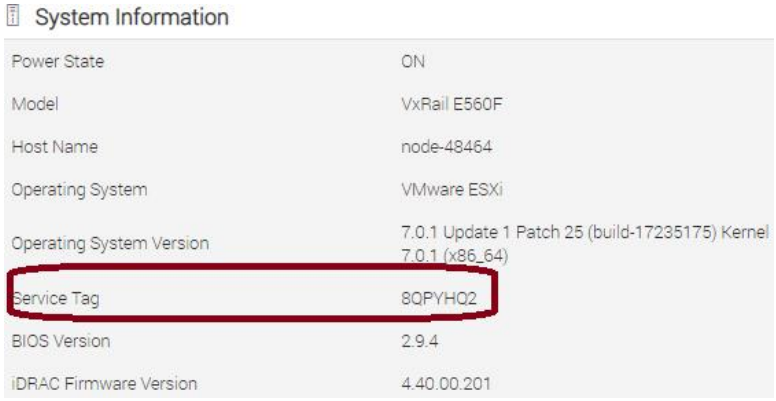

Figure 2 Service tag location on iDRAC dashboard

4. [ ] Perform the query operation to the next VxRail node.

Task 26: Assign permanent IP address to VxRail Manager

1. [ ] From the iDRAC session on the primary node, open an ESXi shell on the primary node
2. [ ] Verify VxRail Manager is running on this node.

   Run: *esxcli network vm list*

```
[root@node-48464:~] esxcli network vm list
World ID  Name            Num Ports  Networks
--------  --------------  ---------  --------
 2291942  VxRail_Manager          2  Private VM Network, VM Network
```

Figure 3 VxRail Manager VM discovered on node

3. [ ] Configure the permanent IP address on VxRail Manager.

   a. View help screen for ‘vxrail-primary’ command.

```
[root@node-36436:~] vxrail-primary -h
usage: vxrail-primary [-h] [--setup | --destroy | --start | --stop | --config]
                      [--vxrail-address VXRAIL_ADDRESS]
                      [--vxrail-netmask VXRAIL_NETMASK]
                      [--vxrail-gateway VXRAIL_GATEWAY] [--vlan VXRAIL_VLAN]
                      [--no-roll-back] [--vmx-timeout VMX_TIMEOUT] [--verbose]

optional arguments:
  -h, --help            show this help message and exit
  --setup               Bootstrap this node as primary
  --destroy             Destroy the VMs and the diskgroups of this node
  --start               Start the VxRail Manager
  --stop                Stop the VxRail Manager
  --config              Configure the VxRail Manager Network settings
  --vxrail-address VXRAIL_ADDRESS
                        The IP address to set for VxRail Engine
  --vxrail-netmask VXRAIL_NETMASK
                        The netmask for VxRail Engine
  --vxrail-gateway VXRAIL_GATEWAY
                        The gateway used by VxRail Engine
  --vlan VXRAIL_VLAN    The vlan used by VxRail Management
  --no-roll-back        No rollback on error
  --vmx-timeout VMX_TIMEOUT
                        How long the command wait for VxM
  --verbose             The switch to print more debug info
```

Figure 4 vxrail-primary help screen

b. Change default IP address to permanent IP address.

Run: *vxrail-primary --config --vxrail-address [X.X.X.X] --vxrail-netmask [X.X.X.X] --vxrail-gateway [X.X.X.X] --vlan [X]*

```
[root@node-36436:~] vxrail-primary --config --vxrail-address 192.2.0.22 --vxrail-netmask 255.255.255.0 --vxrail-gateway 192.2.0.
254 --vlan 200
PRIMARY: 2021-02-03 17:20:12,060.060Z - INFO Configing VxRail Manager with IP 192.2.0.22/255.255.255.0 gateway 192.2.0.254, and
vlan 200
VxRail Manager is already running, no need to power on
PRIMARY: 2021-02-03 17:20:57,399.399Z - INFO Temporary remove the uplinks
PRIMARY: 2021-02-03 17:20:57,483.483Z - INFO Start customizing VxRail Manager address...
PRIMARY: 2021-02-03 17:21:12,680.680Z - INFO Wait until the IP taking effect
PRIMARY: 2021-02-03 17:21:12,731.731Z - INFO VXRAIL default IP set to 192.2.0.22
PRIMARY: 2021-02-03 17:21:12,798.798Z - INFO Restore vSwitch uplinks
PRIMARY: 2021-02-03 17:21:12,892.892Z - INFO Success in completing the setup of VxRail Manager network settings
Success in completing the setup of VxRail Manager network settings
PRIMARY: 2021-02-03 17:21:13,141.141Z - INFO Success in completing the setup of VxRail vlan settings
Success in completing the setup of VxRail vlan settings
```

Figure 5 Sample vxrail-primary command run

Wait about 90 seconds, and then use ‘ping’ command to verify the new VxRail Manager IP address is reachable.

Task 27: Locate VxRail assigned VLANs in JSON file

1. [ ] Open the JSON file created from the configuration portal.
2. [ ] Locate the VLAN assigned to the external management network in the ‘’portgroups’ section.

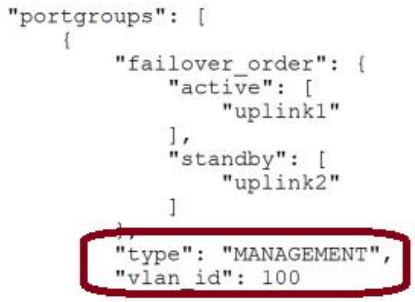

Figure 33 Sample VLAN for external management network

3. [ ] Verify if the VLAN assigned to the external management network differs from the default of 0.
4. [ ] Locate the JSON assigned to the internal management network.

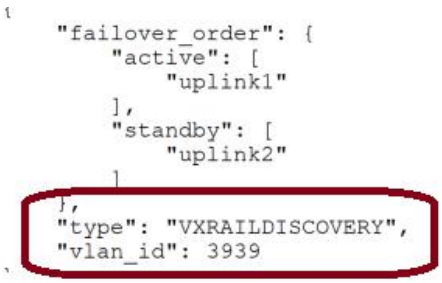

Figure 34 Sample default VLAN for internal management network

5. [ ] Verify whether the VLAN assigned to the internal management network differs from the default of 3939.

Note: The steps in the task can be bypassed if you do not need to change the default VLANs assigned to the VxRail networks from the factory.

Task 28: Modify Default VLAN on the vSwitch

1. [ ] Open the JSON file created from the configuration portal.
2. [ ] Modify the management networks VLAN on the vSwitch.

   Run: *esxcli network vswitch standard portgroup set -p "Management Network" -v [vlan]*

   Run: *esxcli network vswitch standard portgroup set -p "VM Network" -v [vlan]*

   Parameters description:

   - [vlan]: target management network VLAN ID

```
[root@node-14372:~] esxcli network vswitch standard portgroup set -p "Management Network" -v 100
[root@node-14372:~] esxcli network vswitch standard portgroup list
Name                        Virtual Switch    Active Clients  VLAN ID
--------------------------  ----------------  --------------  -------
Management Network          vSwitch0                       1      100
Private Management Network  vSwitch0                       1     3939
Private VM Network          vSwitch0                       1     3939
VM Network                  vSwitch0                       1      100
```

Figure 35 Modify the external management networks VLAN

3. [ ] Modify the internal management VLAN on the vSwitch.

   Run: *esxcli network vswitch standard portgroup set -p "Private Management Network" -v [vlan]*

   Run: *esxcli network vswitch standard portgroup set -p "Private VM Network" -v [vlan]*

   Parameters description:

   - [vlan]: target management network VLAN ID

```
[root@node-14372:~] esxcli network vswitch standard portgroup set -p "Private Management Network" -v 3940
[root@node-14372:~] esxcli network vswitch standard portgroup set -p "Private VM Network" -v 3940
[root@node-14372:~] esxcli network vswitch standard portgroup list
Name                        Virtual Switch    Active Clients  VLAN ID
--------------------------  ----------------  --------------  -------
Management Network          vSwitch0                       1      100
Private Management Network  vSwitch0                       1     3940
Private VM Network          vSwitch0                       1     3940
VM Network                  vSwitch0                       1      100
```

Figure 36 Modify the internal management networks VLAN

4. [ ] Repeat the steps in this task on the next VxRail node.

Task 29: Locate the physical NIC if only PCIe ports are used for VxRail networks

1. [ ] Open the JSON file created from the configuration portal.
2. [ ] Locate the physical NIC assigned to the uplinks in the ‘nic_mappings’ section.

```
"nic_mappings": [
    {
        "uplinks": [
            {
                "name": "uplink1",
                "physical_nic": "vmnic4"
            },
            {
                "name": "uplink2",
                "physical_nic": "vmnic5"
            }
        ]
    }
```

Figure 37 Sample NIC mapping in JSON file

3. [ ] Open an ESXi shell on any VxRail node.
4. [ ] View the full list of NICs discovered by ESXi.

   Run: *esxcli network nic list*

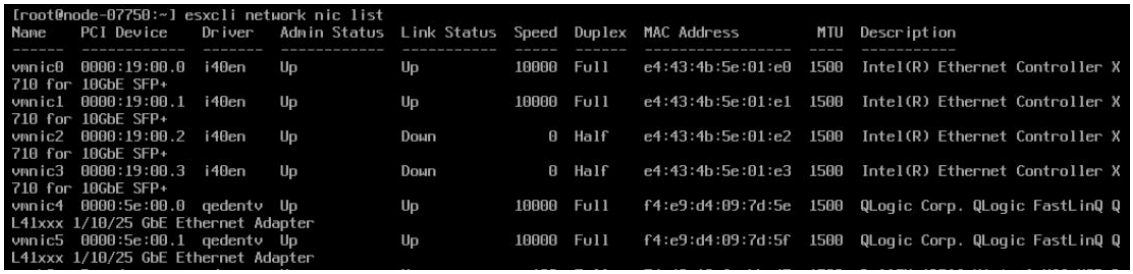

Figure 38 Sample list of NICs detected by ESXi

- The ports on the NDC are first and assigned vmnic names first.

5. [ ] View list of NICs assigned as uplinks to the vSwitch used by VxRail

   Run: *esxcli network vSwitch standard list*

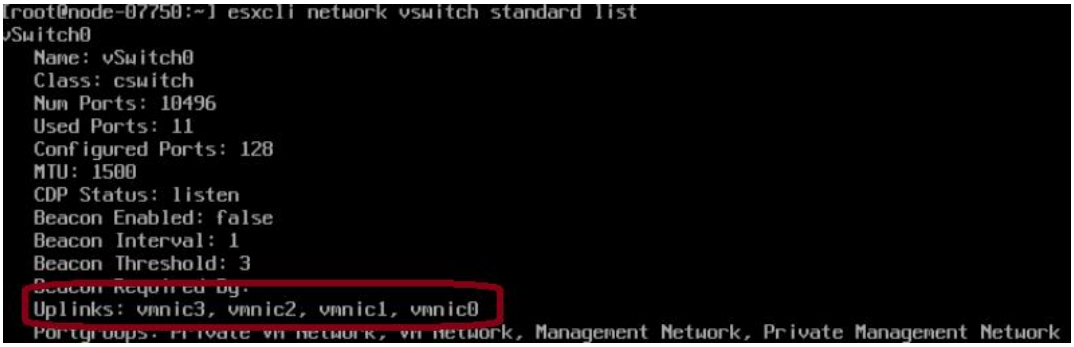

Figure 39 List of NICs discovered on ESXi host

6. [ ] Verify if the NICs selected for VxRail networking from the JSON file are assigned as uplinks to the vSwitch.

   - If none of the selected NICs from the JSON are assigned as an uplink to the vSwitch, one NIC must be manually configured on the vSwitch.

Note: If the NICs selected to support VxRail networking are all NDC ports, or a mixture of NDC ports and PCIe ports, the next task can be bypassed. The steps in the next task are performed only if all the NICs selected for VxRail networking are PCIe-based.

Task 30: Configure PCIe-based NIC onto VxRail vSwitch

Repeat the steps in this task on every VxRail node planned for initial build.

1. [ ] Open an ESXi shell on the VxRail node.
2. [ ] Configure one of the NICs as an uplink on the vSwitch.

   Run: *esxcli network vswitch standard uplink add -u <vmnic> -v vSwitch0*

```
[root@node-07750:~] esxcli network vswitch standard uplink add -u vmnic4 -v vSwitch0
[root@node-07750:~] esxcli network vswitch standard list
vSwitch0
   Name: vSwitch0
   Class: cswitch
   Num Ports: 10496
   Used Ports: 13
   Configured Ports: 128
   MTU: 1500
   CDP Status: listen
   Beacon Enabled: false
   Beacon Interval: 1
   Beacon Threshold: 3
   Beacon Required By:
   Uplinks: vmnic4, vmnic3, vmnic2, vmnic1, vmnic0
   Portgroups: Private VM Network, VM Network, Management Network, Private Management Network
```

Figure 40 Add vmnic as uplink to vSwitch.

3. [ ] Assign the selected NIC to the failover policy on the vSwitch.

   Run: *esxcli network vswitch standard policy failover set -v vSwitch0 -a <vmnic>*

```
[root@node-07750:~] esxcli network vswitch standard policy failover get -v vSwitch0
   Load Balancing: srcport
   Network Failure Detection: link
   Notify Switches: true
   Failback: true
   Active Adapters: vmnic0
   Standby Adapters: vmnic1, vmnic2, vmnic3, vmnic4
   Unused Adapters:
[root@node-07750:~] esxcli network vswitch standard policy failover set -v vSwitch0 -a vmnic4
[root@node-07750:~] esxcli network vswitch standard policy failover get -v vSwitch0
   Load Balancing: srcport
   Network Failure Detection: link
   Notify Switches: true
   Failback: true
   Active Adapters: vmnic4
   Standby Adapters: vmnic1, vmnic2, vmnic3
   Unused Adapters: vmnic0
```

Figure 41 Substitute new vmnic with vmnic0 as active adapter.

4. [ ] Assign the selected NIC as the active uplink on the vSwitch portgroups.

   Run: *esxcli network vswitch standard portgroup policy failover set -p "Management Network" -a <vmnic>*

   Run: *esxcli network vswitch standard portgroup policy failover set -p "Private Management Network" -a <vmnic>*

   Run: *esxcli network vswitch standard portgroup policy failover set -p "VM Network" -a <vmnic>*

   Run: *esxcli network vswitch standard portgroup policy failover set -p "Private VM Network" -a <vmnic>*

```
[root@node-07750:~] esxcli network vswitch standard portgroup policy failover get -p "Management Network"
   Load Balancing: srcport
   Network Failure Detection: link
   Notify Switches: true
   Failback: true
   Active Adapters: vmnic0
   Standby Adapters: vmnic1, vmnic2, vmnic3, vmnic4
   Unused Adapters:
   Override Vswitch Load Balancing: true
   Override Vswitch Network Failure Detection: true
   Override Vswitch Notify Switches: true
   Override Vswitch Failback: true
   Override Vswitch Uplinks: true
[root@node-07750:~] esxcli network vswitch standard portgroup policy failover set -p "Management Network" -a vmnic4
[root@node-07750:~] esxcli network vswitch standard portgroup policy failover get -p "Management Network"
   Load Balancing: srcport
   Network Failure Detection: link
   Notify Switches: true
   Failback: true
   Active Adapters: vmnic4
   Standby Adapters: vmnic1, vmnic2, vmnic3
   Unused Adapters: vmnic0
   Override Vswitch Load Balancing: true
   Override Vswitch Network Failure Detection: true
   Override Vswitch Notify Switches: true
   Override Vswitch Failback: true
   Override Vswitch Uplinks: true
```

Figure 42 Assign selected vmnic as active uplink on portgroup.

5. [ ] Remove any unused NICs from the vSwitch.

Figure 43 Unused NIC on vSwitch0

Run: *esxcli network vswitch standard uplink remove -u <vminc> -v vSwitch0*

6. [ ] Repeat the steps in this task on the next VxRail node.

1. [ ] Select **Network Confirmation** and click **NEXT**.

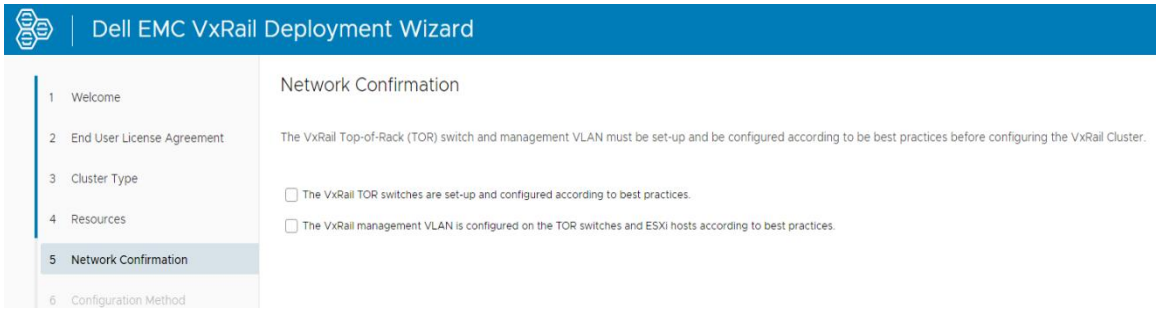

Figure 44 VxRail Wizard: Network Confirmation

2. [ ] Select how you would like to configure VxRail

- If you select **Step-by-step user input**, a wizard starts to enter the required VxRail configuration settings interactively.
- If you select **Upload a Configuration file,** you will be prompted to select the JSON file and VxRail will pre-populate the required VxRail configuration settings before starting the wizard. If you use the JSON file method, use the following tasks to review the input parameters.

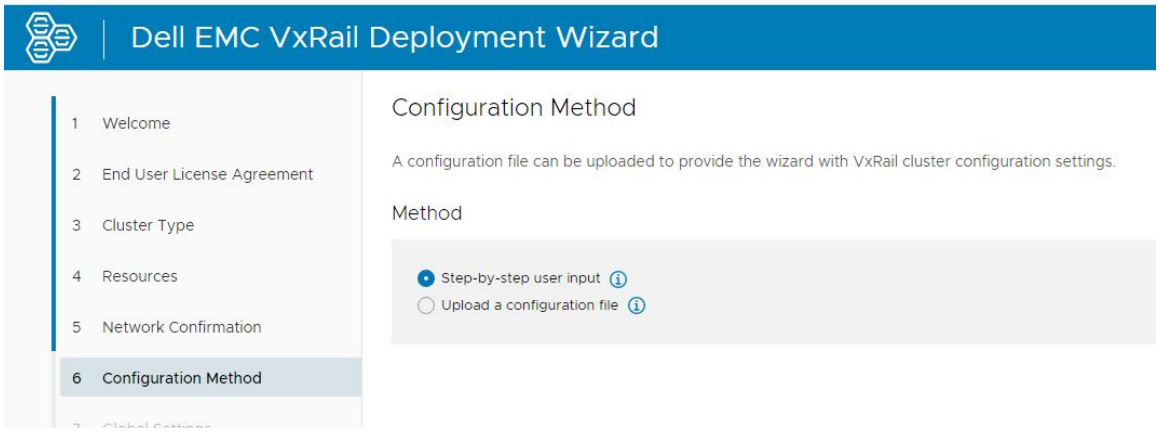

Figure 45 VxRail Wizard: Configuration Method

Note: Follow the on-screen prompts when navigating through the wizard. Make sure all required field are entered, and the information is accurate.

3. [ ] Enter the **Global Settings.**

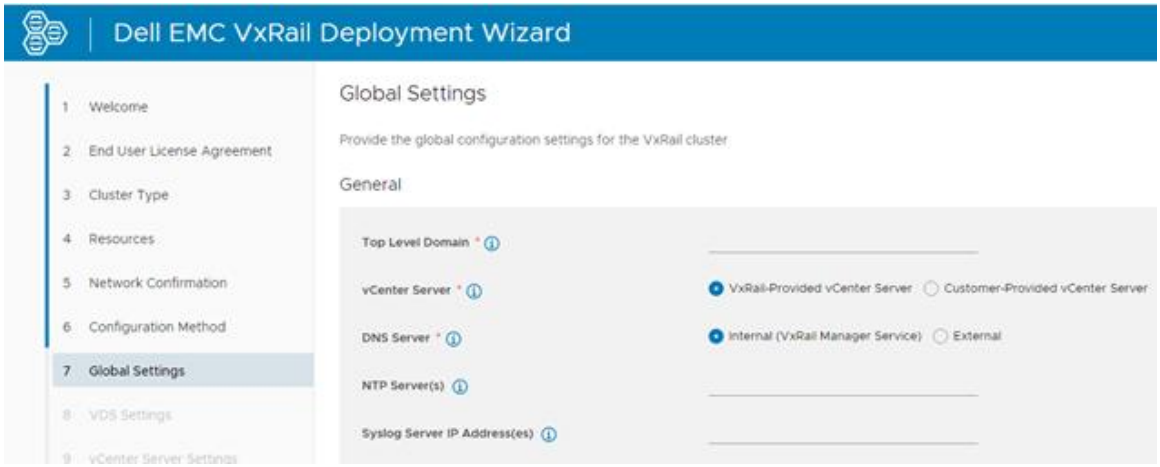

Figure 46 VxRail Wizard: Global Settings

a. Provide domain name in **Top Level Domain** field.

b. **NTP Server(s)** field is optional. If you do not enter anything, then VxRail uses the time set on the first ESXi host on the VxRail appliance. (View VMware Knowledge Base http://kb.vmware.com/kb/1003736 for more information about ESXi time setting). Add multiple addresses by using a comma to separate each entry.

c. Under **vCenter Server**: Select the **VxRail-Provided vCenter server** option

d. Under **DNS Server**: Select **Internal** or **External**. If you select External, you must provide the IP address of the DNS server supporting the VxRail cluster.

Note: When using internal DNS option, entire cluster's DNS service fully rely on availability of VxM VM. User should avoid to shutdown/reboot/pause it unexpectedly. Restarting cluster must follow cluster shutdown procedure.

e. **Syslog Server IP Address(es)** field is optional. Provide valid IP Address or FQDN if required.

f. Select **NEXT**.

4. [ ] Enter the **VDS Settings**

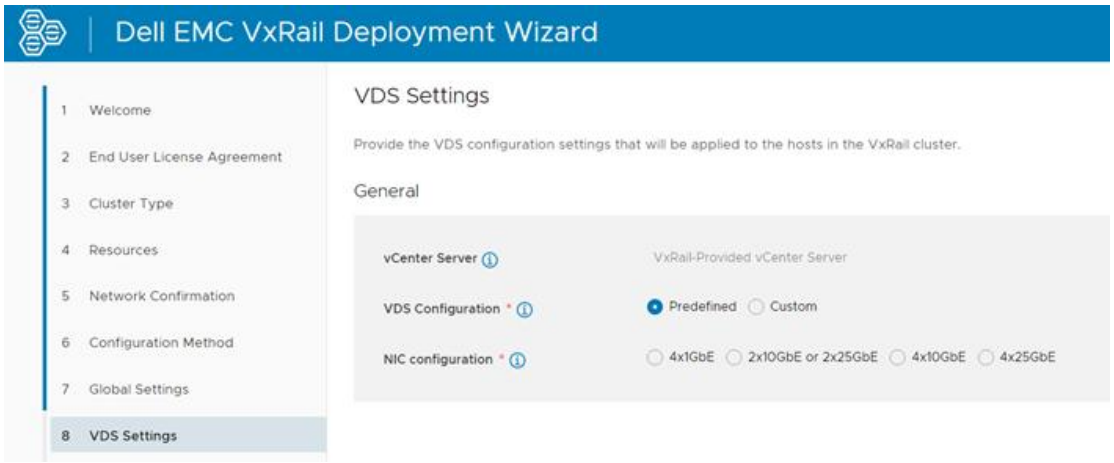

Figure 47 VxRail Wizard: VDS Settings

a. **VDS Configuration:** choose Predefined or Custom.

- If you choose **Predefined**, **NIC Configuration** will display the available NIC profiles for your cluster. Select one of them according to your VxRail networking plan.
- If you choose **Custom**, additional options are displayed to customize the network
  - Choose **Number of VDS**: 1 or 2
  - Choose **Host NICs**: 2 or 4 NICs for each VDS
  - Define **VDS MTU** accordingly (Range: 1500 ~ 9000)
  - Define **NIC Configuration**: Customize which physical NIC to assign to which uplink

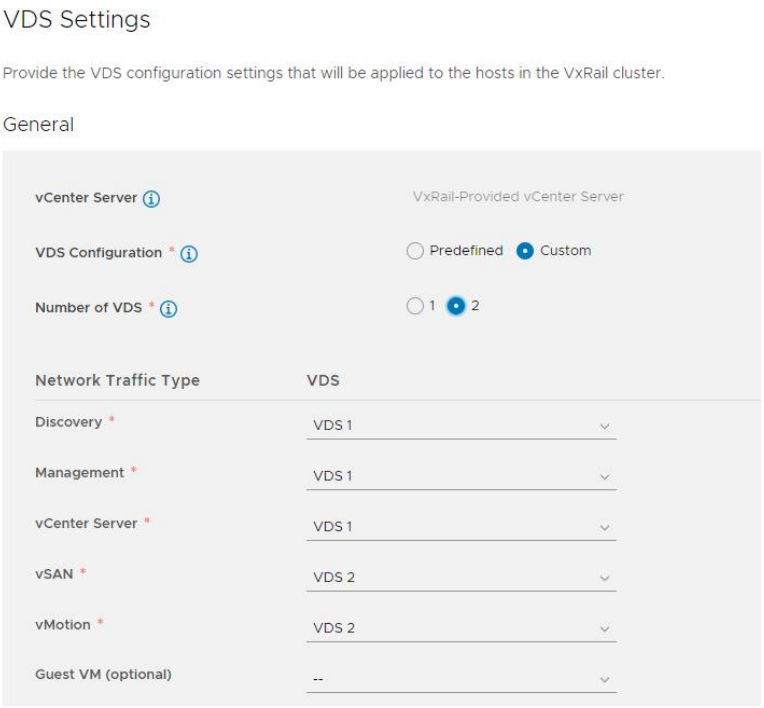

Figure 48 VxRail Wizard: VDS Custom Settings

- Define **VDS portgroup Teaming and Failover**: Input active uplink and standby uplink for each VxRail system traffic. These traffic types are mandatory: Discovery, Management, vCenter Server, vSAN, vMotion. Guest VM is optional.
- Choose Teaming policy for each System Portgroup and load balancing polies.
- Define MTU value for each vmkernal according to portg.

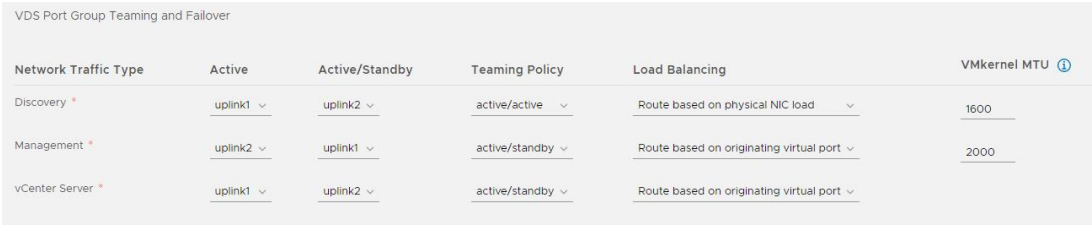

Figure 49 VxRail Wizard: VDS Custom Settings

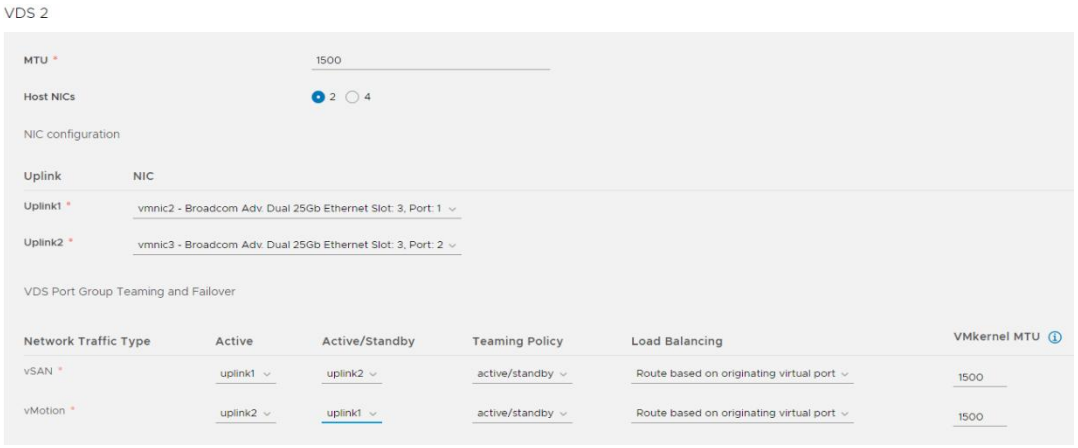

Figure 50 VxRail Wizard: VDS Custom Settings

b. Click **NEXT**.

5. [ ] Enter **vCenter Server Settings.**

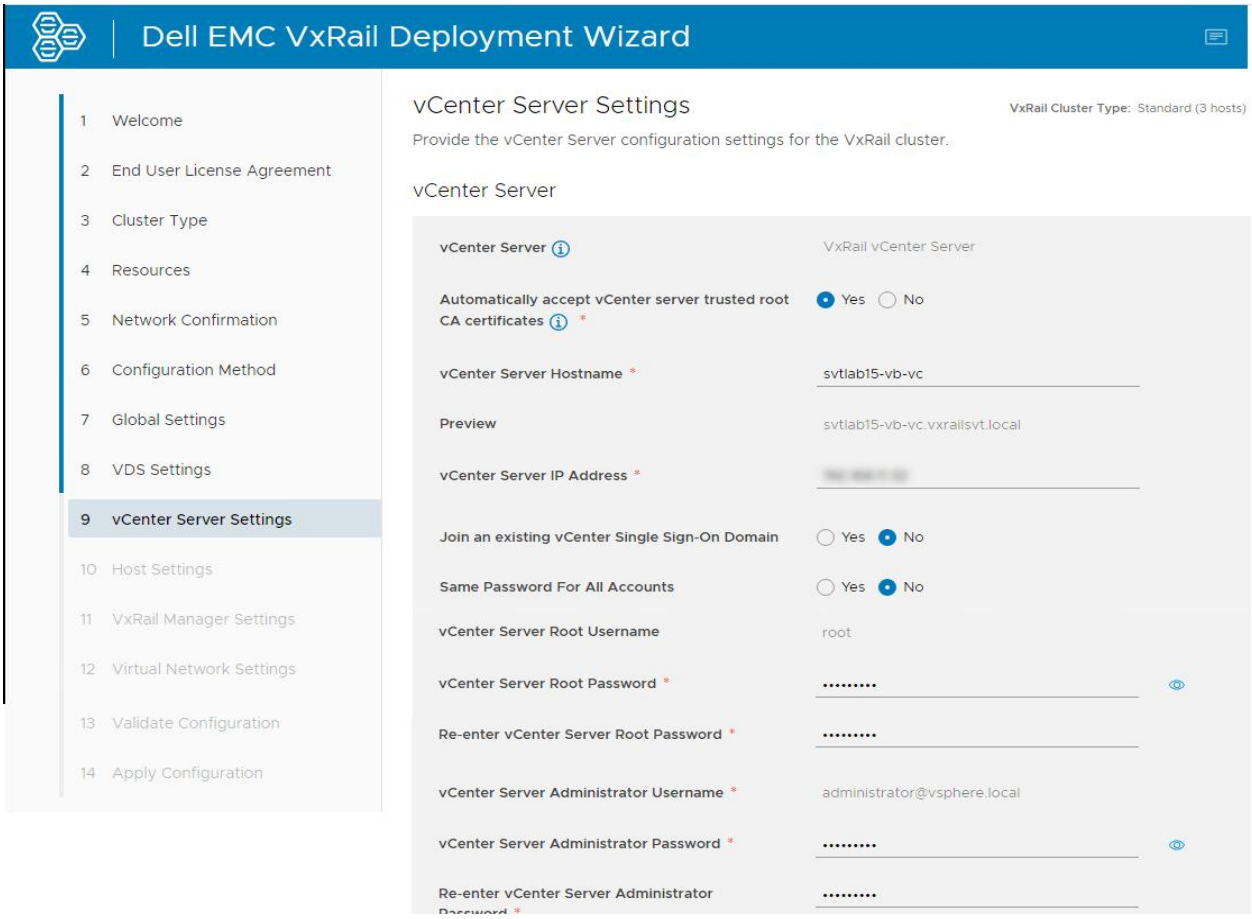

Figure 51 VxRail Wizard: vCenter Settings

Note: When entering hostnames in the VxRail First Run Wizard, hostname vCenter should be entered as simple hostnames. Do not enter FQDN hostnames as this will cause a mis-configuration.

a. **vCenter Server**, **VxRail vCenter Server** indicates the vCenter server type

b. Automatically accept vCenter server trusted root CA certificates, should select Yes in VxRail-provided vCenter Server mode.

c. Enter vCenter Server Hostname.

d. Enter vCenter Server IP Address.

Note:

- For VxRail versions earlier than 7.0.350, the IP addresses for Internal vCenter, ESXi hosts, and VxRail Manager must be on the same subnet.
- Starting with VxRail v7.0.350, the Internal vCenter Server network (Internal vCenter and VxRail Manager) and VxRail external management network (ESXi hosts) can be assigned to different subnets and VLANs. See KB 000198062.

e. Do not select the **Join an existing vCenter Single Sign-On Domain** option

f. Select Yes or No for Same Password for All Accounts. If you select, input one password

g. Enter passwords for root and vCenter administrator

h. Enter management username and password

6. [ ] If using enhanced link mode, select "**Yes**" to **Join an existing vCenter Single Sign-On Domain** and the below extra panel will show in "vCenter Server Settings" tab.

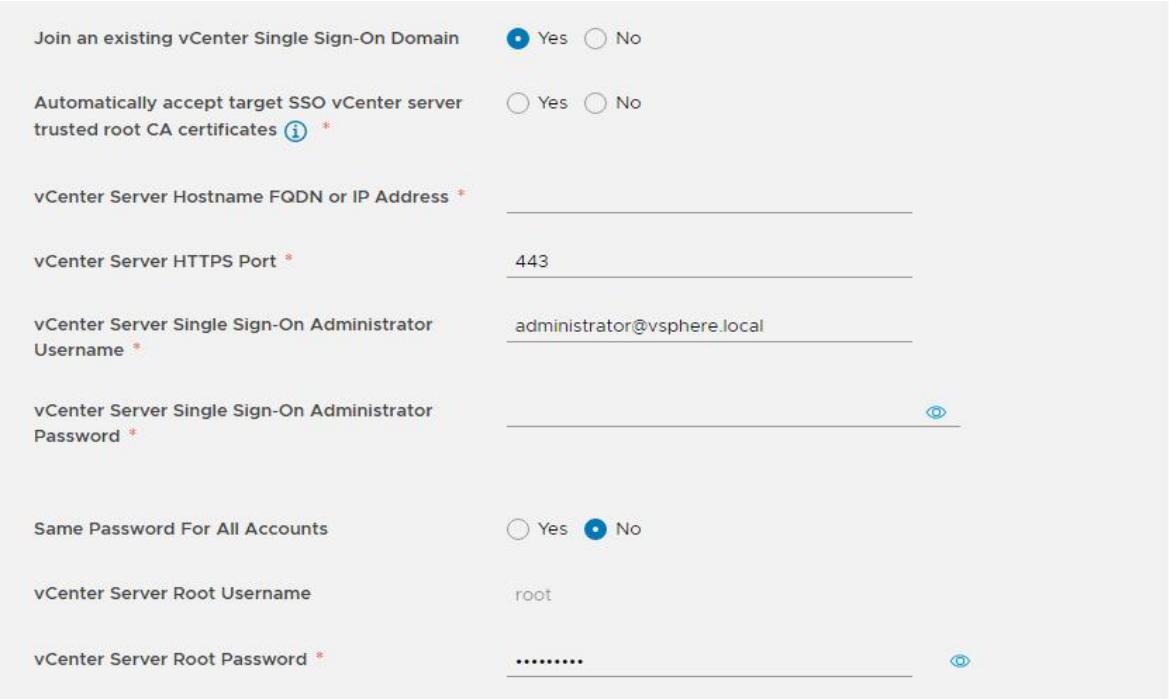

Figure 52 Enabling Enhanced Link Mode (ELM)

a. **Automatically accept target SSO vCenter server trusted root CA certificates**, select **Yes** or **No**.

b. **vCenter Server Hostname FQDN or IP Address**, input target SSO vCenter server FQDN or IP address.

c. **vCenter Server HTTPS Port**, it's 443 default, change if it is not.

d. **vCenter Server Single Sign-On Administrator Username**, input target SSO vCenter server credentials in '**administrator@<domain>**' format.

e. **vCenter Server Single Sign-On Administrator Password**, input target SSO vCenter server administrator username's password.

7. [ ] Click **NEXT**.

8. [ ] Enter **Host Settings**

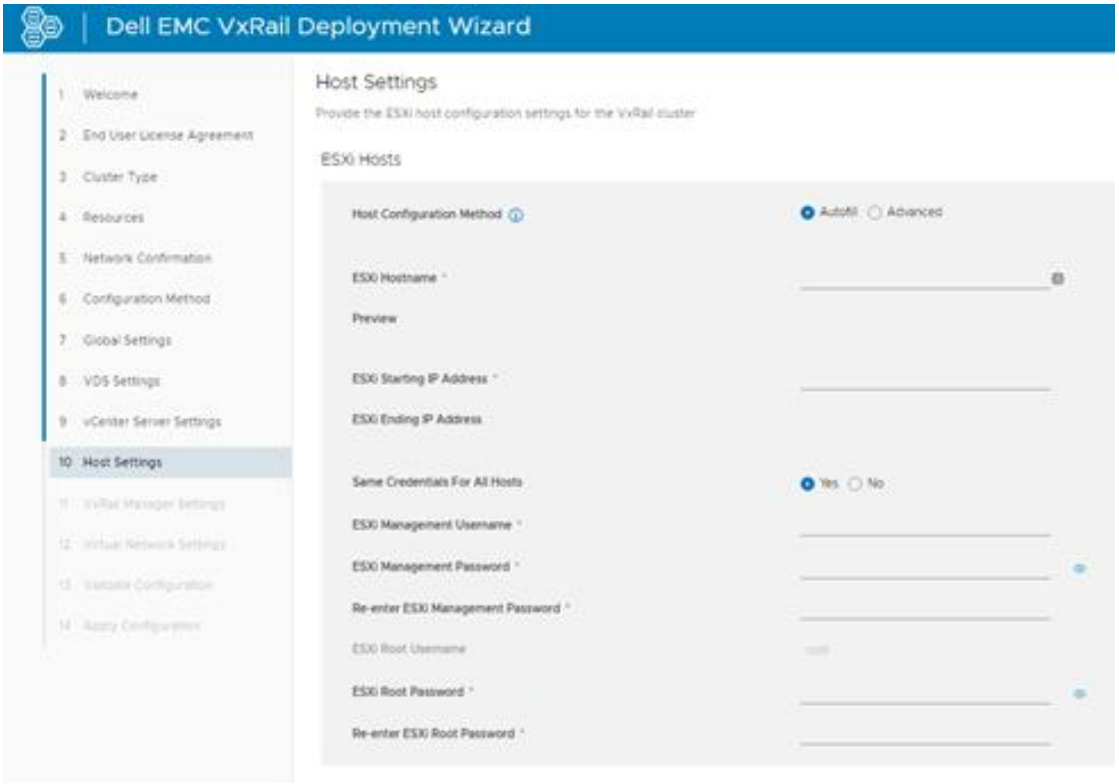

Figure 53 VxRail Wizard: Autofill Host Settings

a. Choose either **Autofill** or **Advanced** to assign ESXi hostnames

- If Autofill mode is selected:
  - Provide template ESXi hostname in **ESXi Hostname** field, the page will generate hostnames with increasing sequence added behind the name. Click the symbol  to expand more options.
  - Provide IP address in **ESXi Starting IP Address** field, the page will generate ESXi ending IP Address and assign incremental IP addresses to each host in order.
- If Advanced mode is selected:

- Provide hostname and IP address of each host in **ESXi Hostname** and **ESXi IP Address** fields for each host.

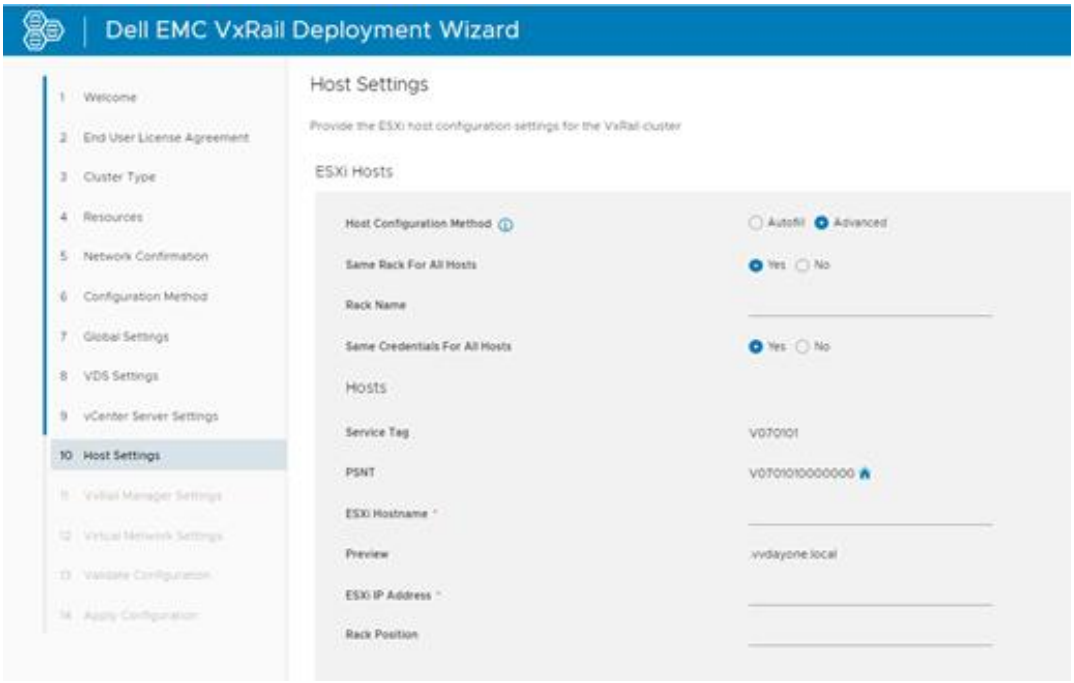

Figure 54 VxRail Wizard: Advanced Host Settings

b. Select **Yes** or **No** for **Same Credentials For All Hosts.**

- No means providing ESXi management account information and ESXi root account information for each host.
- Yes means providing one ESXi management account information and ESXi root account information for all hosts.

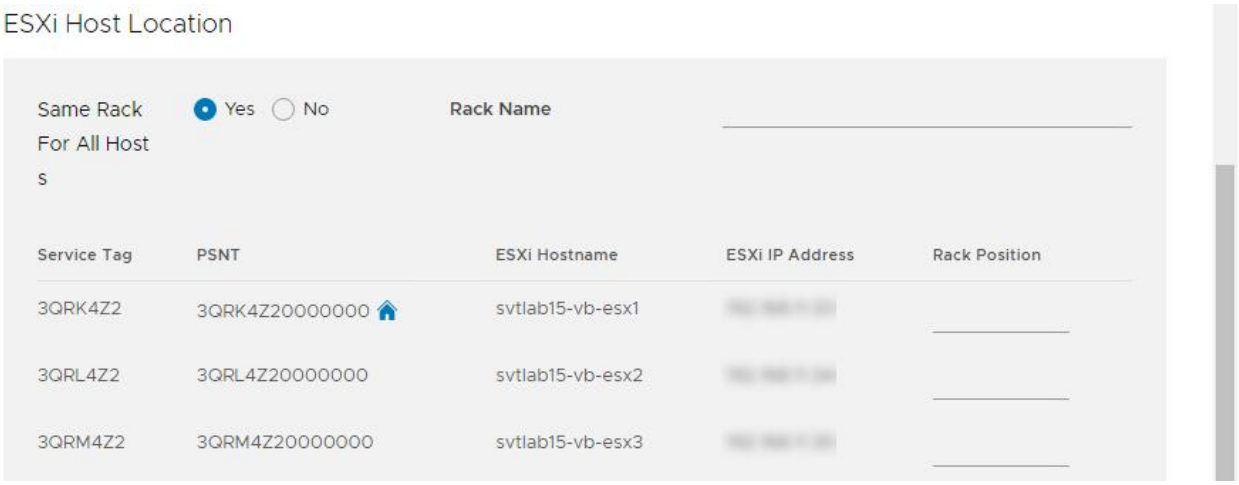

Figure 55 VxRail Wizard: Rack Location

c. Enter rack location

- Host rack related information is optional, Choose **Yes** or **No** for **Same Rack For All Hosts.**
- Provide **Rack Position** and **Rack Name** fields if required.

9. [ ] Click **NEXT**.
10. [ ] Enter the **VxRail Manager Settings.**

Note: The JSON file does not populate the password entries. The passwords must be entered manually.

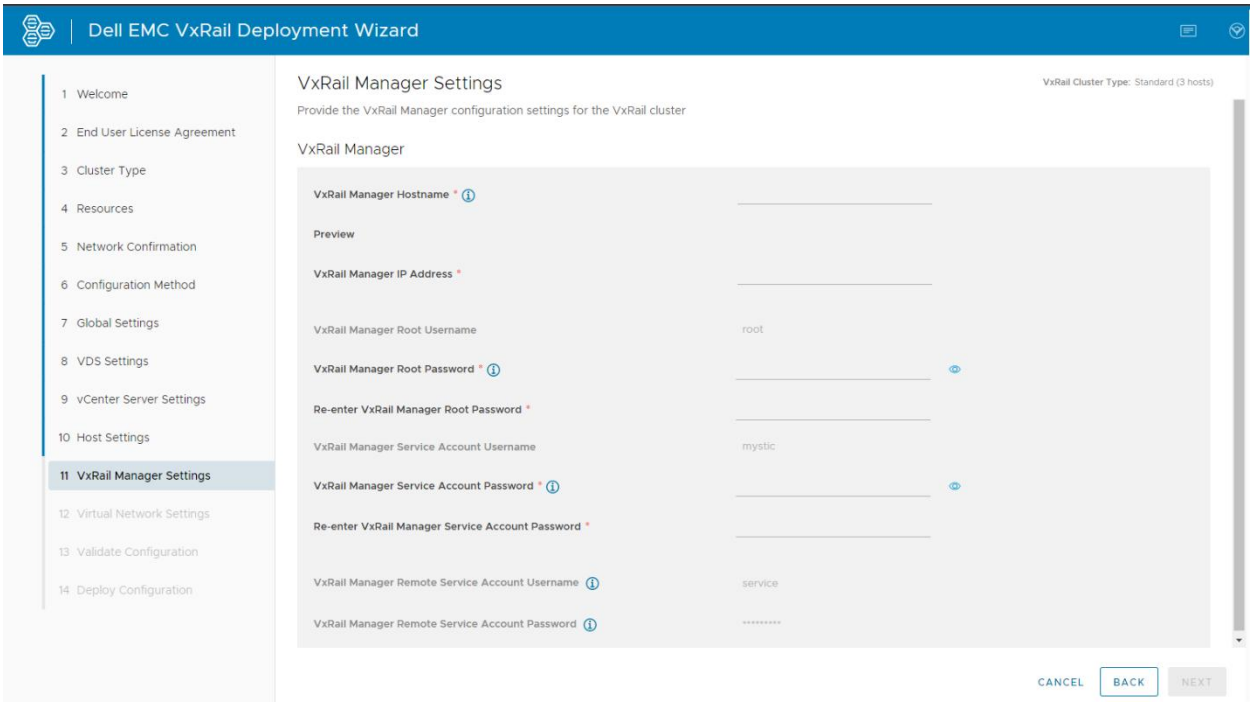

Figure 56 VxRail Wizard: VxRail Manager

a. Enter VxRail Manager Hostname and IP Address.
b. Enter vCenter Server IP Address.

Note:

- For VxRail versions earlier than 7.0.350, the IP addresses for Internal vCenter, ESXi hosts, and VxRail Manager must be on the same subnet.
- Starting with VxRail v7.0.350, the Internal vCenter Server network (Internal vCenter and VxRail Manager) and VxRail external management network (ESXi hosts) can be assigned to different subnets and VLANs. See KB 000198062.

c. Enter VxRail Manager Root password.
d. Enter VxRail Manager 'mystic' Service Account password.

Note: The 'mystic' password cannot be the same as the 'root' password.

e. The VxRail Manager Remote Service Account username is predefined and read-only and its password is read-only and same as the password of 'mystic' account.

11. [ ] Select **NEXT.**
12. [ ] Enter the **Virtual Network Settings.**

Note: Enter a VLAN ID of 0 if a flat network is to be deployed.

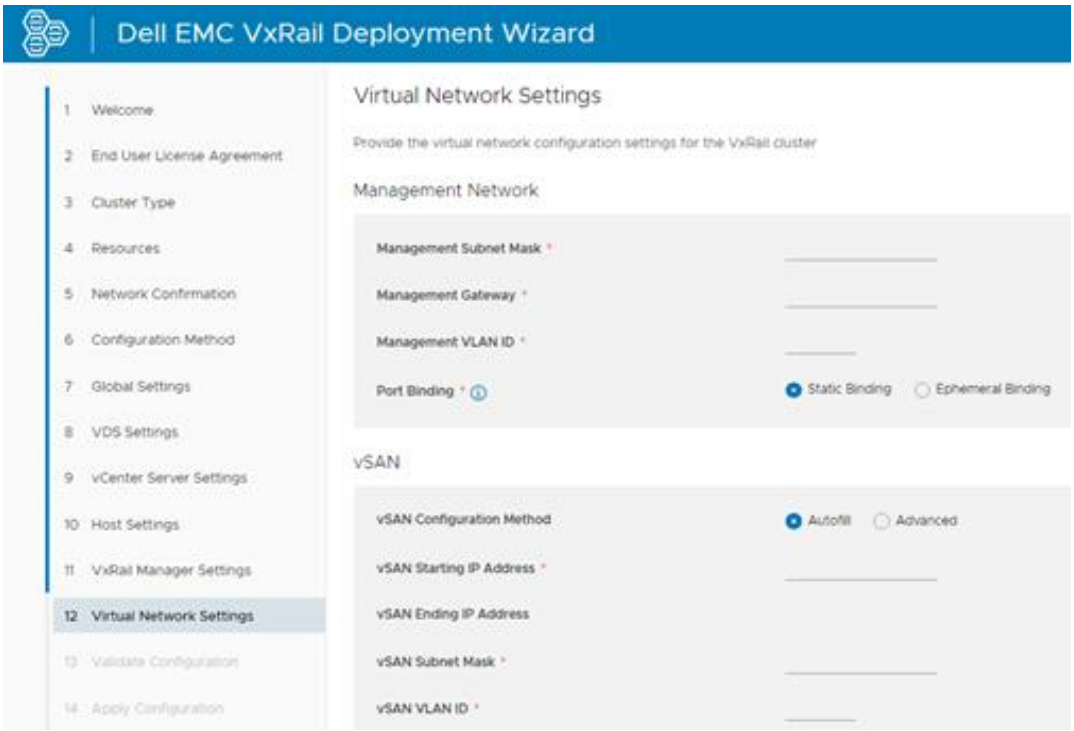

Figure 57 VxRail Wizard: Virtual Network

a. Enter **VxRail Management Network.**
   - Enter External Management Subnet Mask.
   - Enter External Management Gateway.
   - Enter External Management VLAN ID.
   - Select Port Binding.

   Note: A private IP address scheme can be used for the vSAN and vMotion networks.

b. Enter **vSAN** network.
   - Enter host vSAN IP addresses.

     If you select the **Autofill**, enter the beginning vSAN IP address.

     If you select **Advanced**, enter the vSAN IP address for each host.
   - Enter vSAN Subnet Mask.
   - Enter vSAN VLAN ID.

c. Enter **vSphere vMotion network.**
   - Enter host vMotion IP addresses.

If you select the **Autofill**, enter the beginning vMotion IP address.

If you select **Advanced**, enter the vMotion IP address for each host.

- Enter vMotion Subnet Mask.
- Enter vMotion VLAN ID.

d. Under **VM Guest Networks**: Add the optional VM Guest Network Name and VLAN ID.

e. Under **vCenter Server Network**: Choose Static Binding or Ephemeral Binding.

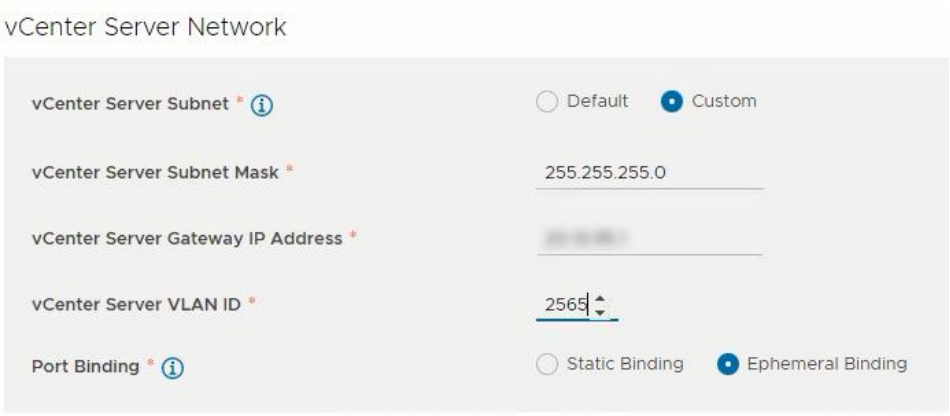

Figure 58 VxRail Wizard: Virtual Network

f. Under **vCenter Server Network** heading, a different VLAN ID and subnet gateway comparing with node management IP are allowed if **Custom** is selected for vCenter Subnet. If **Default** is selected, VxRail will keep legacy behavior.

Note: This section defines network info for VxRail Manager and VxRail-provided vCenter Server if applicable. In VxRail versions earlier than 7.0.350, these two VMs could not be assigned to different subnets nor VLANs).

How to Submit Install Base Updates for VxRail

Dell Partners

Follow the *Partner Product Registration and Install Base Maintenance Job Aid* document for detailed information about product registration, move or party changes, and other install base maintenance updates.

- Go to this location to access the document:https://www.delltechnologies.com/asset/en-us/services/cross-portfolio/templates-forms/partner-hardware-product-registration-job-aid.pdf
- There is also a video tutorial available on the Partner Portal: https://delltvpartner.mediasite.com/Mediasite/Channel/servicespartnermarketing/watch/e6203a75030542e88735fbd0a362e2571d

If you encounter any issues, open a case with the Channel Services Helpdesk on the Support tab of the Partner Portal.

Dell Employees

Follow KB 000197636 (Install Base and Asset Maintenance Employee Submission - Job Aid | Dell US) for detailed information about using the Dell.com/support Administrative Support Portal.

(Required) VxRail File-based backup and restore

The file-based backup and restore mechanism is designed to help restore the VxRail Manager in the case of an unrecoverable failure. It requires you to use a backup script on the VxRail Manager virtual machine to archive VxRail Manager configuration files, database tables, and optionally the logs, which are then stored in a folder on the VxRail vSAN Datastore. This script can be run manually or set up for automatic backups on a scheduled basis. If the VxRail Manager needs to be restored, the backed-up configuration can be applied to restore the configuration files and database tables onto a newly deployed VxRail Manager VM.

Discuss the use of this backup feature with the customer. The procedures to enable File-Based Backup and Restore can be found in SolVe in the How-To section.

Dell EMC S5148F-ON OS10EE Deployment Guide for VxRail

Dell EMC SmartFabric OS10 Switch Configuration Guide for VxRail 4.7

Deploying S5200F-ON series switches for a VxRail 4.7 cluster

Abstract

This document provides Dell EMC SmartFabric OS10 switch configuration examples and topology options for a VxRail 4.7 cluster deployment using S5200F-ON series switches.

August 2019

Revisions

Date	Description
August 2019	Initial release

Table of contents

1 Introduction

Our vision at Dell EMC is to be the essential infrastructure company from the edge, to the core, and to the cloud. Dell EMC Networking ensures modernization for today's applications and for the emerging cloud-native world. Dell EMC is committed to disrupting the fundamental economics of the market with an open strategy that gives you the freedom of choice for networking operating systems and top-tier merchant silicon. The Dell EMC strategy enables business transformations that maximize the benefits of collaborative software and standards-based hardware, including lowered costs, flexibility, freedom, and security. Dell EMC provides further customer enablement through validated deployment guides which demonstrate these benefits while maintaining a high standard of quality, consistency, and support.

VxRail sits at the forefront of a fundamental shift in IT infrastructure consumption – away from application-specific, "build-your-own" infrastructure and toward virtualized, general-purpose, engineered systems. Dell EMC and VMware have embraced this shift with the VxRail hyperconverged appliance. VxRail has a simple, scale-out architecture that uses VMware vSphere and VMware vSAN to provide server virtualization and software-defined storage.

To take full advantage of the VxRail solution, one must carefully consider the network that not only connects multiple nodes into a single cohesive cluster but also enables connectivity to the customer's IT environment. Numerous industry studies have shown that networking is the primary source of both deployment issues and poor performance of hyperconverged solutions. Usually, VxRail clusters (minimum of three and maximum of 64 nodes) connect to a preexisting IP network at the customer site. The inclusion of dedicated switches for the VxRail cluster simplifies this process and avoids many of the network connectivity pitfalls associated with the deployment of a hyperconverged solution.

The audience for this document includes professional services or onsite IT personnel responsible for the deployment of a VxRail cluster when a pair of dedicated Dell EMC PowerSwitches is purchased with the cluster. This document covers the process of connecting a cluster of VxRail nodes to:

- A pair of Dell PowerSwitches configured for Virtual Link Trunking (VLT), using VLT as the preferred topology
- A pair of Dell PowerSwitches not configured for VLT
- A single Dell PowerSwitch

This document provides switch topology options and configuration examples for a VxRail 4.7 cluster using nodes built on 14th generation (14G) PowerEdge servers. Nodes in these examples use 25GbE network adapters. Switches in this guide use Dell EMC SmartFabric OS10.5.

1.1 Supported switches and operating systems

The examples provided in this deployment guide use VxRail 4.7 nodes connected to S5248F-ON switches running Dell EMC SmartFabric OS10.

Dell EMC Networking supports the following switches and operating systems for VxRail 4.7 and later:

Dell EMC PowerSwitches supported for VxRail 4.7 and later releases*

Dell EMC PowerSwitch model	Dell EMC SmartFabric OS10 version 10.5.0.0 and later releases
S3048-ON	Supported
S3124 / S3124F / S3124P / S3148 / S3148P	
S4048F-ON / S4048T-ON	Supported
S4112F-ON / S4112T-ON / S4128F-ON / S4128T-ON	Supported
S4148F-ON / S4148FE-ON / S4148T-ON / S4148U-ON	Supported
S4248FB-ON / S4248FBL-ON	Supported
S5048F-ON	
S5148F-ON	
S5212F-ON / S5224F-ON / S5232F-ON / S5248F-ON / S5296F-ON	Supported
S6010-ON	Supported
S6100-ON	
Z9100-ON	Supported
Z9264F-ON / Z9296F-ON	Supported

*DELL EMC PROVIDES THIS SUPPORTED SWITCH LIST AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND. THIS LIST IS FOR INFORMATIONAL PURPOSES ONLY AND MAY CONTAIN TYPOGRAPHICAL AND TECHNICAL INACCURACIES. DELL EMC SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF THIS LIST.

Figure 1 Supported Dell EMC PowerSwitches and operating systems

1.2 Typographical conventions

The CLI and GUI examples in this document use the following conventions:

`Monospace Text`	CLI examples
`Underlined Monospace Text`	CLI examples that wrap the page
`Italic Monospace Text`	Variables in CLI examples
`Bold Monospace Text`	Commands entered at the CLI prompt, or to highlight information in CLI output
Bold text	GUI fields and information entered in the GUI

1.3 Attachments

This document in .pdf format includes switch configuration file attachments. To access attachments in Adobe Acrobat Reader, click the ▸ icon in the left pane halfway down the page, then click the 📎 icon.

2 Hardware overview

This section briefly describes the hardware used to validate this deployment. Appendix A contains a complete listing of hardware and software validated for this guide.

2.1 Dell EMC PowerSwitch S5248F-ON

The S5248F-ON is a 1-Rack Unit (RU), multilayer switch with 48x25GbE, 4x100GbE, and 2x200GbE ports. This guide uses two S5248F-ONs as leaf switches.

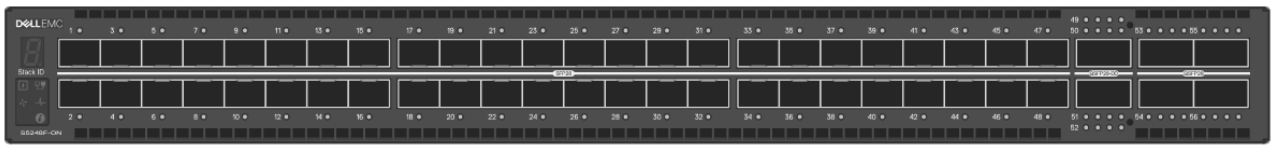

Figure 2 Dell EMC PowerSwitch S5248F-ON

2.2 Dell EMC PowerSwitch S3048-ON

The S3048-ON is a 1-RU switch with 48x1GbE BASE-T ports and 4x10GbE SFP+ ports. This guide uses one S3048-ON switch for out-of-band (OOB) management traffic.

Figure 3 Dell EMC PowerSwitch S3048-ON

2.3 Dell EMC VxRail 14G nodes

Current Dell EMC VxRail P, V, S, and E Series nodes are built on 14th generation (14G) PowerEdge servers. VxRail P, V, and S Series nodes use a 2-RU form factor, as shown in Figure 4.

Figure 4 Dell EMC VxRail 2-RU node (P, V, and S Series)

VxRail E Series nodes use a 1-RU form factor, as shown in Figure 5.

Figure 5 Dell EMC VxRail E Series node

Note: The deployment examples in this guide build a VxRail cluster consisting of four P570 VxRail nodes.

2.3.1 Dell EMC VxRail P Series node

VxRail P Series nodes are ideal for CPU-intensive workloads such as databases. P Series nodes support up to 44 CPU cores, 1536GB memory, and 24TB hybrid or 46TB all-flash storage.

2.3.2 Dell EMC VxRail V Series node

VxRail V Series nodes are graphics-ready for uses such as high-end 2D/3D visualization. V Series nodes support up to 40 CPU cores, 1024GB memory, 3 GPUs, and 24TB hybrid or 46TB all-flash storage.

2.3.3 Dell EMC VxRail S Series node

VxRail S Series nodes provide expanded storage capacity for collaboration, data, and analytics. S Series nodes support up to 36 CPU cores, 1536GB memory, and 48TB hybrid storage.

2.3.4 Dell EMC VxRail E Series node

VxRail E Series nodes are best suited for remote office or entry workloads. E Series nodes support up to 40 CPU cores, 1536GB memory, and 16TB hybrid or 30TB all-flash storage.

2.3.5 VxRail node network adapters

Each 14G VxRail node includes a rack server Network Daughter Card (rNDC) with one of the following port combinations:

- 2x25GbE SFP28 ports
- 2x10GbE SFP+ or BASE-T ports
- 4x10GbE SFP+ or BASE-T ports
- 4x1GbE BASE-T ports (for single CPU nodes only, max 8 nodes/cluster)

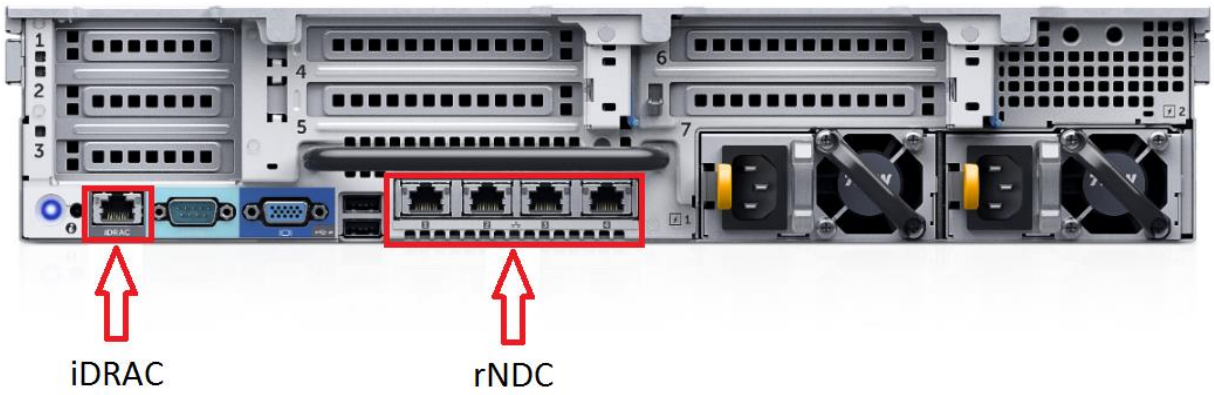

Figure 6 Rear view of VxRail 2-RU node (1-RU node is similar)

Note: Each of the VxRail P570 nodes in the deployment examples in this guide contains a Broadcom 57414 rNDC with 2x25GbE SFP28 ports.

VxRail optimizes network traffic by splitting it across rNDC uplinks and by using Network I/O control (NIOC) shares for different traffic types. See the *Dell EMC VxRail Network Planning Guide* for more information**.**

P, V, S, and E Series VxRail nodes also include a 1GbE BASE-T integrated Dell Remote Access Card (iDRAC) for OOB management.

Note: P, V, and S Series nodes support additional network adapters in PCIe slots. See the *Dell EMC VxRail Network Planning Guide* for more information**.**

---

3 Topology options

VxRail may be deployed using a single or dual switch topology. Using a single switch provides a lower initial cost but creates a single point of failure. A dual switch configuration helps ensure high availability by eliminating this single point of failure.

A dual switch configuration may be used with or without VLT. Dell EMC recommends a dual switch configuration with VLT. The sections that follow explain the different options.

3.1 Dual switch

In a dual switch topology, each VxRail node has one or more connections to each of the two leaf switches providing redundancy at the NIC and switch levels. If VLT is used, the switches are connected with a VLT interconnect (VLTi). If VLT is not used, the switches are connected with a standard LACP port channel.

3.1.1 Dual switch with VLT

Dell EMC recommends using a dual switch configuration with VLT, as shown in Figure 7.

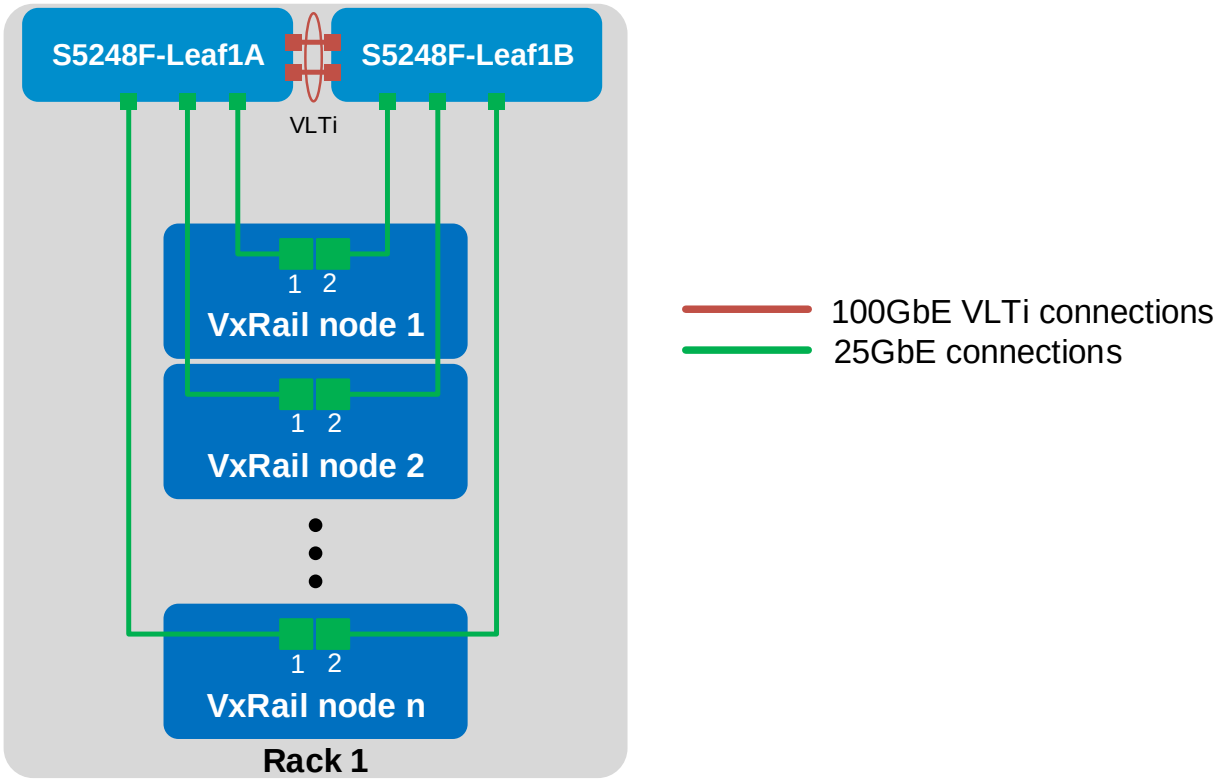

Figure 7 Dual switch topology with VLT

VLT synchronizes ARP, MAC tables, and IPv6 neighbors between the VLT peers and makes the switch pair appear as one logical unit to connected devices.

VLT provides the following benefits:

- Provides a loop-free topology and eliminates STP-blocked ports
- Optimizes the use of all available uplink bandwidth

- Guarantees fast convergence if either a link or a device fails
- Provides link-level resiliency
- Assures high availability
- Allows a single device to use a LAG across two upstream switches
- Provides Layer 2 multipathing

Note: While VxRail nodes use active and standby network adapters instead of LAGs, other servers in the rack can connect to the VLT switch pair with an LACP LAG for active/active Layer 2 multipathing. For more information about VLT, see the *Dell EMC SmartFabric OS10 User Guide Release 10.5.0*.

3.1.2 Dual switch without VLT

The configuration of a switch pair without VLT is supported, but it does not provide the advantages of VLT covered in the previous section.

The switch pair is cabled, as shown in Figure 8. The links connecting the two switches are configured in an LACP port channel.

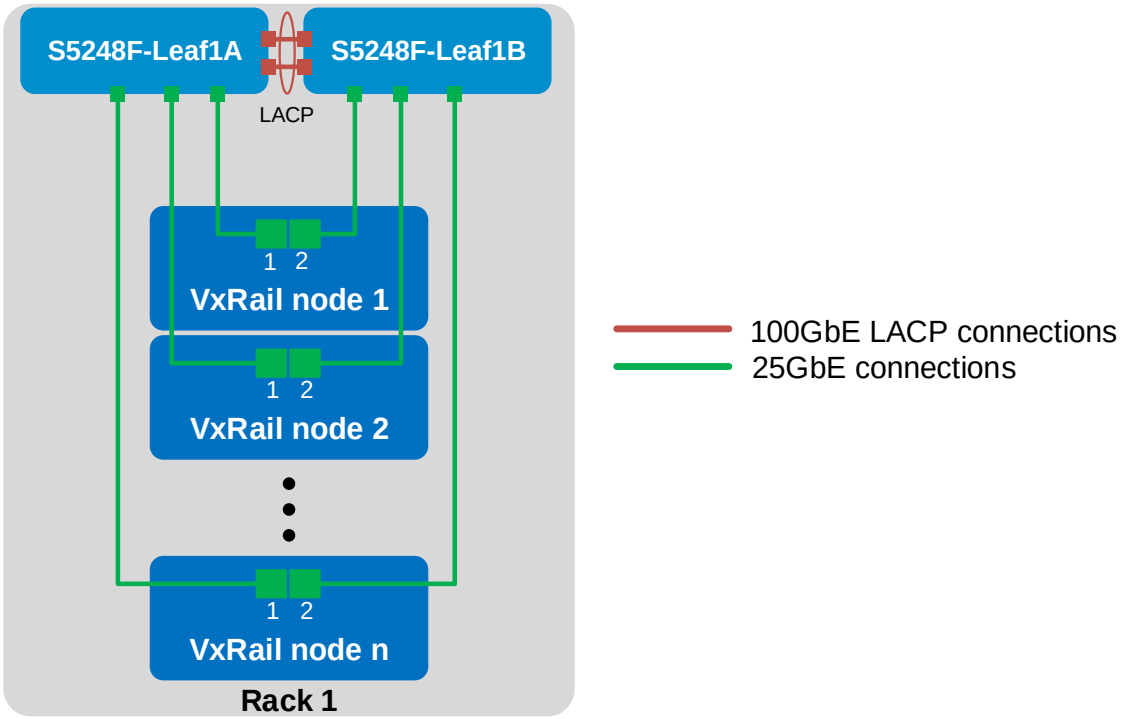

Figure 8 Dual switch topology without VLT

3.2 Single switch

In a single switch topology, all VxRail nodes connect to a single switch. This topology is not recommended as the switch becomes a single point of failure.

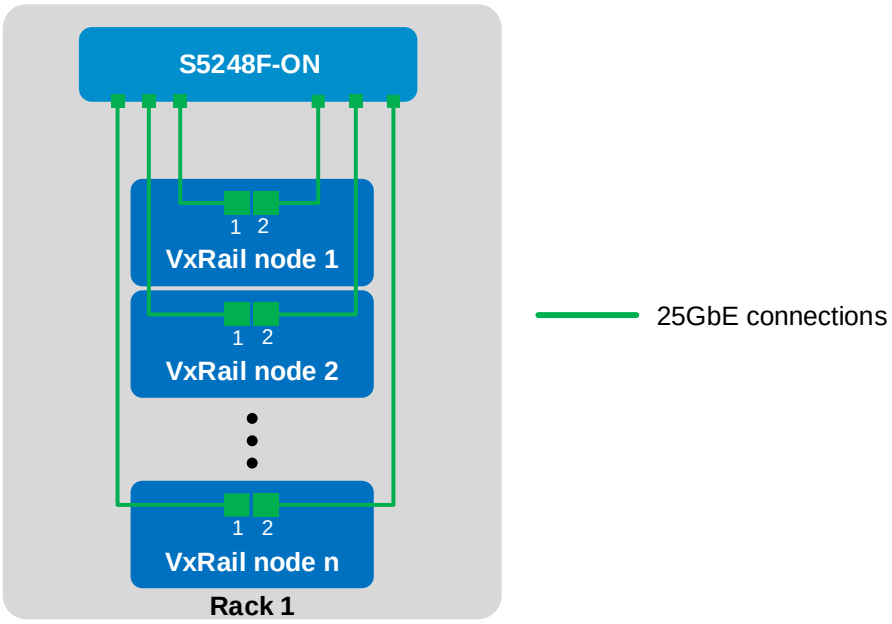

Figure 9 Single switch topology

4 VxRail in the data center

4.1 Leaf-spine network

Dell EMC recommends using a leaf-spine network in the data center with leaf switches configured as VLT peers. The switches and VxRail nodes covered in this guide are shown in Rack 1 in Figure 10 and are incorporated into a data center's leaf-spine network.

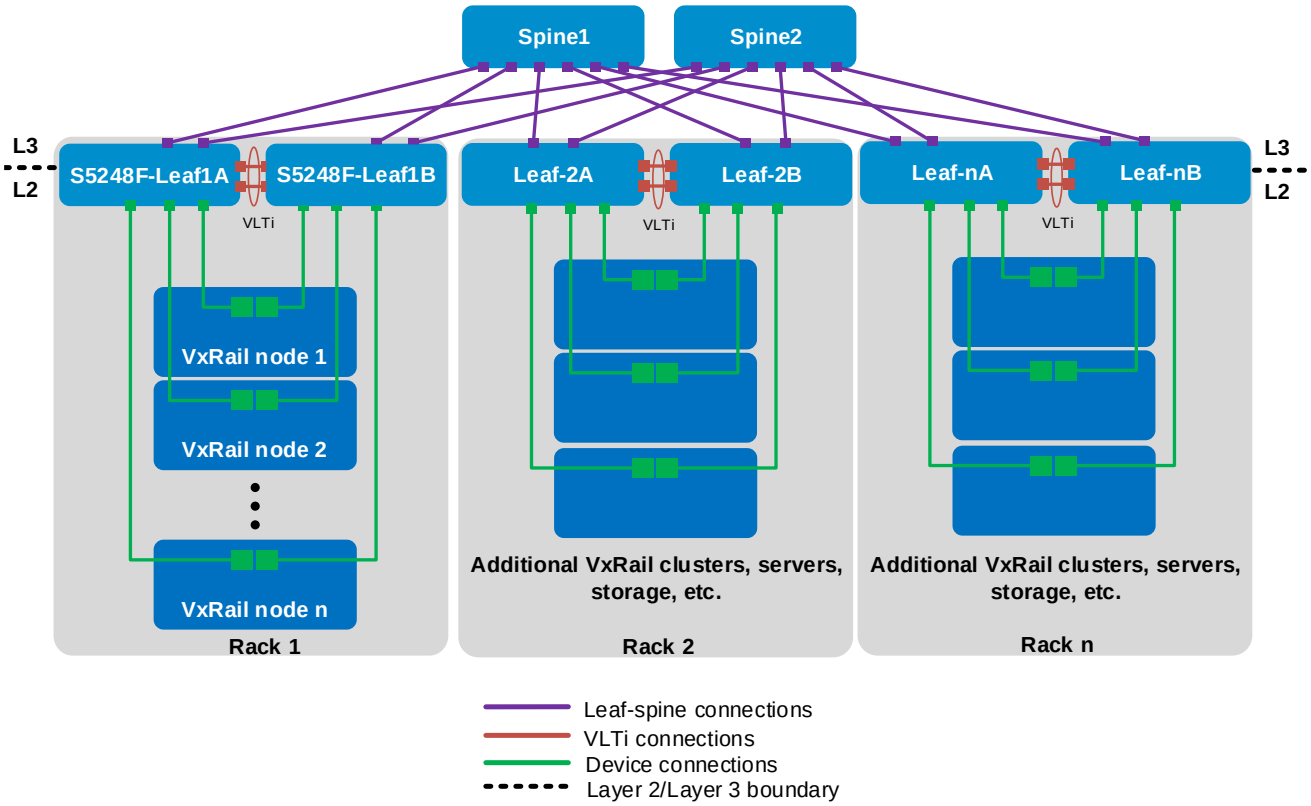

Figure 10 Dual switch topology with VLT connected to a leaf-spine network

In Figure 10, the Layer 2/Layer 3 boundary is at the leafs, meaning traffic within each rack is switched (Layer 2) and traffic between racks is routed (Layer 3). *VMware Validated Design for Software-Defined Data Center 5.1 - Architecture and Design* recommends isolating vSAN traffic to its own Layer 2 VLAN. Therefore, for this leaf-spine topology, each vSAN should be contained within a single rack. Since a VxRail cluster contains a vSAN, a VxRail cluster is also contained within a single rack.

Note: By default, VxRail does not enable routing of vSAN or vMotion traffic.

The leaf-spine topology in Figure 10 scales to sixteen racks or more, depending on the number of ports available in each spine. Racks may contain additional VxRail clusters, switches, servers, storage arrays, and other devices as needed.

To configure the remainder of the leaf-spine network, including spine switches, connections between leafs and spines, and routing protocols, see the *Dell EMC Networking Layer 3 Leaf-Spine Deployment and Best Practices with OS10* document.

4.2 OOB Management network

The Out-of-band (OOB) Management network is an isolated network for remote management of servers, switches, and storage devices using their dedicated hardware management ports. It is also commonly used to carry heartbeat messages sent between switches configured as VLT peers.

For OOB Management network connections, one S3048-ON switch is installed in each rack as shown:

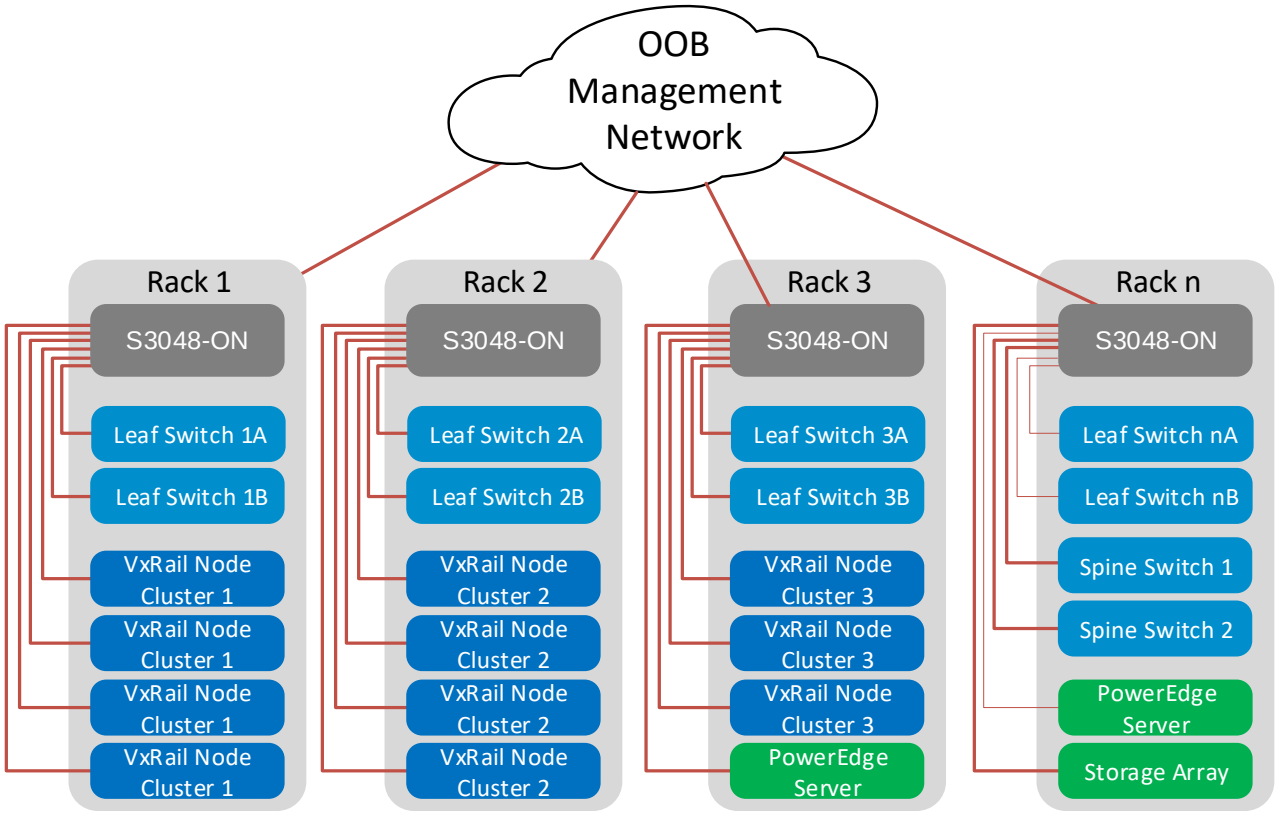

Figure 11 OOB management network connections

Note: This guide focuses on the devices in Rack 1. Devices shown in other racks are for illustration purposes only.

1GbE BASE-T ports on each S3048-ON are connected downstream to hardware management ports on each device. This includes VxRail node iDRACs, PowerEdge Server iDRACs, and dedicated management ports on switches and storage arrays.

Four 10GbE SFP+ ports are available on each S3048-ON for use as uplinks to the OOB management network core.

Note: The OOB Management network is not to be confused with the External and Internal Management networks. The External and Internal Management networks and their VLANs are covered in Chapter 5.

Devices on the OOB Management network in this guide use the 100.67.0.0/16 IP address block.

5 Configuration planning

5.1 VLANs and IP addresses

VLANs and IP addresses used for VxRail node traffic must be planned before switch configuration and VxRail deployment can begin.

VxRail node traffic is divided into five or more VLANs, as shown in Table 1.

Table 1 VLANs used for VxRail nodes

VLAN	Purpose
External Management	VxRail Manager, ESXi, vCenter Server, NTP, DNS, and vRealize Log Insight traffic
vMotion	Virtual machine (VM) migration
vSAN	Distributed storage traffic
VM network(s)	One or more VLANs for VM data traffic
Internal Management	VxRail node discovery

Note: All VLANs in Table 1 share the physical connections shown in Chapter 3.

VLAN configuration and IP network addresses planned for this deployment are shown in Table 2.

Table 2 VLAN IDs and IP addresses

VLAN ID	Description	Network	Gateway	VLAN ports
1611	External Management	172.16.11.0/24	172.16.11.254	Untagged
1612	vMotion	172.16.12.0/24	NA	Tagged
1613	vSAN	172.16.13.0/24	NA	Tagged
1614	VM Network A	172.16.14.0/24	Optional, not used	Tagged
1615	VM Network B	172.16.15.0/24	Optional, not used	Tagged
3939	Internal Management	IPv6 multicast	not used	Tagged

Note: By default, VxRail does not enable routing of vSAN or vMotion traffic.

This example uses two networks for VM data traffic, VM Network A and VM Network B, with each on a separate VLAN. The actual number of VM data networks used is based on customer requirements.

The Internal Management VLAN, 3939, is used exclusively for VxRail node discovery using IPv6 multicast. Multicast Listener Discovery (MLD) snooping and querier must be enabled on this VLAN for node discovery to succeed.

5.2 VxRail network configuration table

Information provided in the VxRail network configuration table is used during VxRail deployment. The values used for this deployment example are shown in the right column. The VLANs and IP addresses used are based on the information from Table 2.

Note: For additional information on the VxRail network configuration table, see the *Dell EMC VxRail Network Planning Guide.*

Table 3 VxRail network configuration table

Row		Category	Description	Values used
1	VxRail	Management VLAN ID	The recommended is untagged traffic on the Native VLAN. If you want the host to send only tagged frames, manually configure the VLAN on each ESXi™ host using DCUI, and set tagging for your management VLAN on your switch before you deploy VxRail.	**0***
2		VxRail initial IP	If you cannot reach the default (192.168.10.200/24), set an alternate IP address	**192.168.10.200**
3	System	Global settings	Time zone	
4			NTP server(s)	**172.16.11.50**
5			DNS server(s)	**172.16.11.50**
6		Proxy settings	IP address and port	
7			Username and password	
8	Management	ESXi hostnames and IP addresses	ESXi hostname prefix	**vxhost**
9			Separator	**none**
10			Iterator	**Num 0x**
11			Offset	**1**
12			Suffix	**none**
13			Domain	**dell.local**
14			ESXi starting address for IP pool	**172.16.11.1**
15			ESXi ending address for IP pool	**172.16.11.40**
16		vCenter Server Leave blank if Customer Supplied VC	vCenter Server hostname	**vxvcenter**
17			vCenter Server IP address	**172.16.11.100**
18			Platform Services Controller hostname	**vxpsc**
19			Platform Services Controller IP address	**172.16.11.101**
20		Customer Supplied vCenter Server Leave blank if VxRail VC	Customer Supplied Platform Services Controller (PSC) Hostname (FQDN) Leave	
21			Customer Supplied vCenter Server hostname (FQDN)	
22			Customer Supplied vCenter Server SSO domain	
23			admin username/password or the newly created VxRail non-admin username and password	
24			New VxRail management username and password	
25			Customer Supplied data center name	
26			New cluster name	
27		VxRail Manager	VxRail hostname	**vxman**
28			VxRail IP address	**172.16.11.102**
29		Networking	Subnet mask	**255.255.255.0**
30			Gateway	**172.16.11.254**
31		Passwords	ESXi “root” passwords. Can be different for each host starting with Release 4.0.100.	*root_password*
32			VxRail Manager and VxRail vCenter Server “administrator@vsphere.local”	*administrator_password*
33	vMotion		Starting address for IP pool	**172.16.12.1**

Row		Category	Description	Values used
34			Ending address for IP pool	**172.16.12.40**
35			Subnet mask	**255.255.255.0**
36			VLAN ID	**1612**
37	vSAN		Starting address for IP pool	**172.16.13.1**
38			Ending address for IP pool	**172.16.13.40**
39			Subnet mask	**255.255.255.0**
40			VLAN ID	**1613**
41	VM Networks	… (unlimited number)	VM Network name and VLAN ID	**VM_Network_A, 1614**
42			VM Network name and VLAN ID	**VM_Network_B, 1615**
43	Solutions	Logging	vRealize Log Insight™ hostname	**vxinsight**
44			vRealize Log Insight IP address	**172.16.11.103**
45			Syslog server (instead of Log Insight)	

*Setting this value to 0 is explained in Section 9.1 of this guide.

This deployment uses four VxRail nodes. However, host IP address pools are configured for the Management, vMotion, and vSAN VLANs using addresses in the .1 - .40 range in Table 3. This ensures IP addresses are preconfigured for hosts that may be added later as the VxRail cluster grows.

5.3 Using a jump box or laptop computer

For VxRail deployment, VxRail Manager is accessed using the leaf switches connected to the nodes. This may be done by connecting a laptop computer directly to a leaf or by using a jump box (also known as a jump server or jump host) for remote access.

Reserve at least one interface on a leaf switch for this connection. This interface is configured on the External Management VLAN during switch configuration.

Note: A PowerEdge server is used as a jump box in this deployment. More information on jump box connections is provided in Chapter 9.

5.4 DNS and NTP servers

VxRail nodes must be able to reach a correctly configured DNS server from the External Management VLAN during and after VxRail deployment. The DNS server must include forward and reverse lookup entries for ESXi hosts, vCenter, the Platform Services Controller, VxRail Manager, and vRealize Log Insight.

Add forward and reverse lookup records on the DNS server using the hostnames and IP addresses in the VxRail network configuration table (Table 3). Table 4 summaries the DNS entries for this deployment.

Table 4 Hostnames and IP addresses used

Hostname	IP Address
vxhost01.dell.local	172.16.11.1
vxhost02.dell.local	172.16.11.2
vxhost03.dell.local	172.16.11.3
vxhost04.dell.local	172.16.11.4

Hostname	IP Address
vxvcenter.dell.local	172.16.11.100
vxpsc.dell.local	172.16.11.101
vxman.dell.local	172.16.11.102
vxinsight.dell.local	172.16.11.103

An NTP server is not required but is recommended. If an NTP server is not provided, VxRail uses the time that is set on VxRail node 1.

Note: For this deployment guide, the PowerEdge server used as the jump box also provides DNS and NTP services for the VxRail cluster. It is connected to both leaf switches for redundancy using Microsoft Windows NIC teaming (switch-independent load balancing).

6 Switch configuration prerequisites

6.1 Check switch OS version

S5248F-ON switches must be running SmartFabric OS10.5.0.0 or later. Run the **`show version`** command to check the OS version. Dell EMC recommends upgrading to the latest release available on Dell Digital Locker (account required).

```
OS10# show version
S5248F-ON# show version
Dell EMC Networking OS10-Enterprise
Copyright (c) 1999-2019 by Dell Inc. All Rights Reserved.
OS Version: 10.5.0.0
Build Version: 10.5.0.0.326
```

Note: Figure 1 at the beginning of this guide lists supported switches and operating systems for VxRail deployments.

6.2 Verify license installation

Run the command `show license status` to verify license installation. The `License Type:` field should indicate `PERPETUAL`. If an evaluation license is installed, licenses purchased from Dell EMC are available for download on Dell Digital Locker. Installation instructions are provided in the *Dell EMC SmartFabric OS10 User Guide Release 10.5.0*.

```
OS10# show license status

System Information
---------------------------------------------------------
Vendor Name     :        Dell EMC
Product Name    :        S5248F-ON
Hardware Version:        A01
Platform Name   :        x86_64-dellemc_s5200f_c3538-r0
PPID            :        CN00Y2VTCES0082O0018
Service Tag     :        D8MCG02
License Details
----------------
Software        :        OS10-Enterprise
Version         :        10.5.0.0
License Type    :        PERPETUAL
License Duration:        Unlimited
License Status  :        Active
License location:        /mnt/license/D8MCG02.lic
---------------------------------------------------------
```

Note: If SmartFabric OS10 was factory installed, a perpetual license is already on the switch.

6.3 Factory default configuration

The configuration commands in the sections that follow begin with S5248F-ON switches at their factory default settings. Dell EMC PowerSwitches running SmartFabric OS10 can be reset to their default configuration using the serial console port as follows:

```
OS10# delete startup-configuration
Proceed to delete startup-configuration [confirm yes/no(default)]:y

OS10# reload
System configuration has been modified. Save? [yes/no]:n
Proceed to reboot the system? [confirm yes/no]:y
```

Note: The above commands can also be performed from an SSH or Telnet session, but the `reload` command immediately ends the remote access session to the switch.

The switch reboots to its factory default configuration.

Note: SmartFabric OS10 at its default settings has Telnet disabled, SSH enabled, Rapid per-VLAN Spanning Tree Plus (RPVST+) enabled, and the OOB management interface configured to get its IP address using DHCP. The default username and password are both `admin`. Dell EMC recommends changing the admin password to a complex password during the first login.

7 Configure switches

This section covers switch configuration for S5248F-ON switches in the different topologies. Commands for all examples are provided as attachments to this guide.

7.1 Dual switch with VLT

This example uses a four-node VxRail cluster connected to a pair of switches configured with VLT, as shown in Figure 12. Dell EMC recommends using this topology.

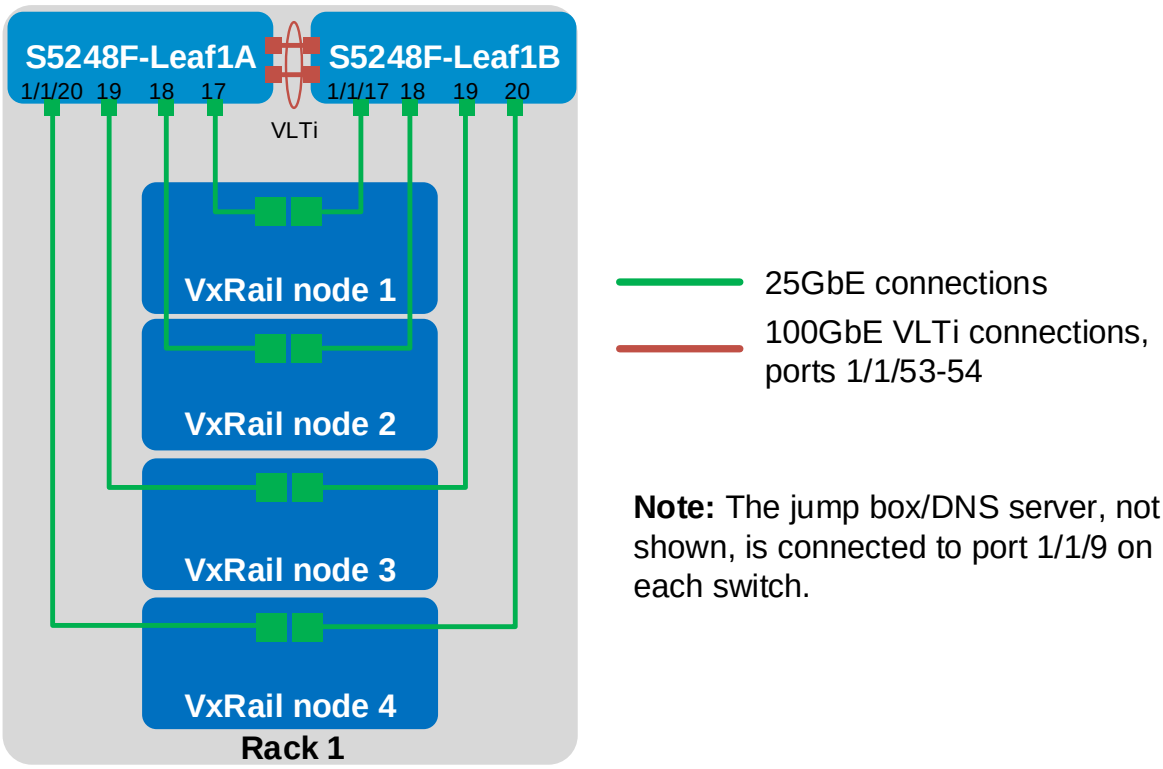

Figure 12 Four-node cluster connected to a pair of switches configured with VLT

The commands in the following sections are run to complete the configuration of both leaf switches. The port numbers used in the configuration commands correspond to those shown in Figure 12.

Note: The commands in the tables below should be entered in the order shown. All commands are provided in the file attachments named S5248F-1A-vlt.txt and S5248F-1B-vlt.txt.

7.1.1 General settings

Configure the hostname, OOB management IP address, and default gateway. Enable IPv6 MLD snooping to allow discovery of the VxRail nodes. Specify an NTP server accessible by the switch. The example shows an NTP server on the OOB management network with a different IP address than the one used by the VxRail nodes on the External Management network.

Note: Default spanning tree settings are used in this deployment. In SmartFabric OS10, RVPST+ is enabled by default, and RPVST+ VLAN priority numbers start at 32769. Modify the spanning tree settings if required for your environment. LLDP is enabled on each interface and globally by default. LLDP is useful for troubleshooting and validation. Dell EMC recommends leaving it enabled.

Table 5 General settings – dual switch with VLT

S5248F-Leaf1A	S5248F-Leaf1B
configure terminal hostname S5248F-Leaf1A interface mgmt1/1/1 no ip address ip address 100.67.172.38/24 no shutdown management route 0.0.0.0/0 100.67.172.254 ipv6 mld snooping enable ntp server 100.67.10.20	configure terminal hostname S5248F-Leaf1B interface mgmt1/1/1 no ip address ip address 100.67.172.37/24 no shutdown management route 0.0.0.0/0 100.67.172.254 ipv6 mld snooping enable ntp server 100.67.10.20

7.1.2 Configure VLANs

In this section, VLANs are configured per Table 2.

Create the External Management VLAN and assign a unique IP address on each switch. Configure VRRP to provide gateway redundancy. Set the VRRP priority. The switch with the largest priority value becomes the master VRRP router. Assign the same virtual address to both switches.

Create the vMotion, vSAN, VM Network, and Internal Management VLANs. Enable IPv6 MLD snooping querier on the Internal Management VLAN for node discovery.

Table 6 Configure VLANs – dual switch with VLT

S5248F-Leaf1A	S5248F-Leaf1B
interface vlan1611 description External_Mgmt ip address 172.16.11.253/24 vrrp-group 11 priority 150 virtual-address 172.16.11.254 no shutdown	interface vlan1611 description External_Mgmt ip address 172.16.11.252/24 vrrp-group 11 priority 100 virtual-address 172.16.11.254 no shutdown

S5248F-Leaf1A	S5248F-Leaf1B
interface vlan1612 description vMotion no shutdown interface vlan1613 description vSAN no shutdown interface vlan1614 description VM_Network_A no shutdown interface vlan1615 description VM_Network_B no shutdown interface vlan3939 description Internal_Mgmt no shutdown ipv6 mld snooping querier	interface vlan1612 description vMotion no shutdown interface vlan1613 description vSAN no shutdown interface vlan1614 description VM_Network_A no shutdown interface vlan1615 description VM_Network_B no shutdown interface vlan3939 description Internal_Mgmt no shutdown ipv6 mld snooping querier

7.1.3 Configure interfaces

Configure the interfaces for the jump box or laptop computer connections to be used during VxRail deployment. This example uses 10GbE interface 1/1/9:1 on each switch.

Note: See Appendix B to change the native speed of S5248F-ON port groups from 25GbE to 10GbE for jump box or laptop computer connections.

While only one connection to the jump box is required, two may be used for redundancy. Add these interfaces as access ports on VLAN 1611 (the External Management VLAN).

Note: In this example, the jump box also provides DNS and NTP services as covered in Section 5.4. If these services are on other devices, ensure the corresponding switch interfaces are also in the External Management VLAN.

Configure the interfaces for connections to the VxRail nodes. Interfaces 1/1/17 through 1/1/20 are used in this example.

Use the `switchport mode trunk` command to enable ports to carry traffic for multiple VLANs. Configure the ports as access (untagged) ports on VLAN 1611 (the External Management VLAN). Configure the ports as trunk (tagged) ports on VLANs 1612-1615, and 3939 (the vMotion, vSAN, VM Network, and Internal Management VLANs).

Configure ports directly connected to nodes, servers, or other endpoints as STP edge ports. Set flow control to “receive on” and “transmit off” on node-connected ports as a best practice.

Note: Flow control is enabled on all network interfaces in ESXi by default. For more information, see *VMware vSAN Network Design*.

Table 7 Configure interfaces – dual switch with VLT

S5248F-Leaf1A	S5248F-Leaf1B
interface ethernet1/1/9:1 description JumpBox_DNS switchport access vlan 1611 spanning-tree port type edge no shutdown interface ethernet1/1/17 description Node1_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/18 description Node2_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/19 description Node3_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/20 description Node4_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown	interface ethernet1/1/9:1 description JumpBox_DNS switchport access vlan 1611 spanning-tree port type edge no shutdown interface ethernet1/1/17 description Node1_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/18 description Node2_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/19 description Node3_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/20 description Node4_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown

7.1.4 Configure VLT

Use 100GbE interfaces for the VLTi between the two leaf switches. This example uses interfaces 1/1/53 and 1/1/54. Remove each interface from Layer 2 mode with the `no switchport` command.

Create the VLT domain. The backup destination is the OOB management IP address of the VLT peer switch. Configure the interfaces used as the VLTi with the `discovery-interface` command. Enable peer routing.

Note: For more information on VLT, see the *Dell EMC SmartFabric OS10 User Guide Release 10.5.0*.

When the configuration is complete, exit configuration mode and save the configuration with the `end` and `write memory` commands.

Table 8 Configure VLT – dual switch with VLT

S5248F-Leaf1A	S5248F-Leaf1B
interface ethernet1/1/53 description VLTi no switchport no shutdown interface ethernet1/1/54 description VLTi no switchport no shutdown vlt-domain 127 backup destination 100.67.172.37 discovery-interface ethernet1/1/53-1/1/54 peer-routing end write memory	interface ethernet1/1/53 description VLTi no switchport no shutdown interface ethernet1/1/54 description VLTi no switchport no shutdown vlt-domain 127 backup destination 100.67.172.38 discovery-interface ethernet1/1/53-1/1/54 peer-routing end write memory

7.2 Dual switch without VLT

This example uses a four-node VxRail cluster connected to a switch pair without VLT, as shown in Figure 13.

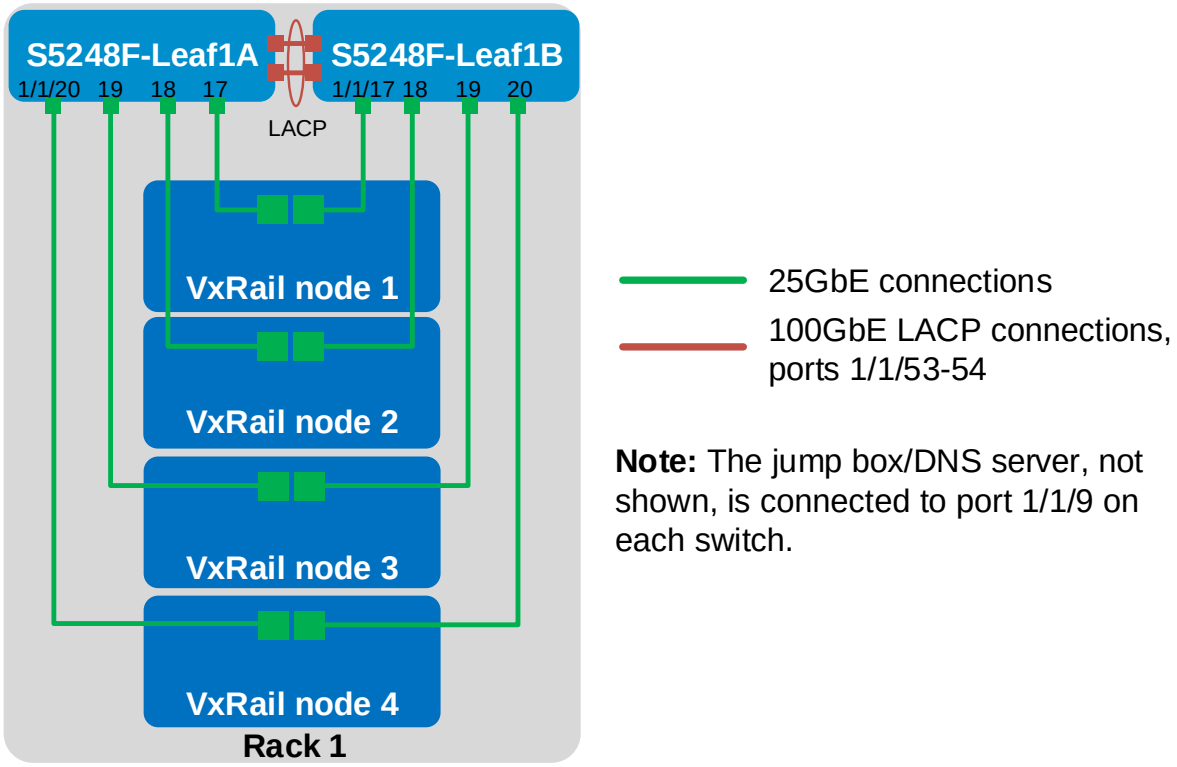

Figure 13 Four-node cluster connected to a switch pair without VLT

In this topology, an LACP port channel is used to connect the two switches.

The commands in the following sections are run to complete the configuration of both switches. The port numbers used in the configuration commands correspond to those shown in Figure 13.

Note: The commands in the tables below should be entered in the order shown. All commands are provided in the file attachments named S5248F-1A-no-vlt.txt and S5248F-1B-no-vlt.txt.

7.2.1 General settings

Configure the hostname, OOB management IP address, and default gateway. Enable IPv6 MLD snooping to allow discovery of the VxRail nodes. Specify an NTP server accessible by the switch. In this example, this is an NTP server on the OOB management network, with a different IP address than the one used by the VxRail nodes on the External Management network.

Note: Default spanning tree settings are used in this deployment. In SmartFabric OS10, RVPST+ is enabled by default, and RPVST+ VLAN priority numbers start at 32769. Modify the spanning tree settings if required for your environment. LLDP is enabled on each interface and globally by default. LLDP is useful for troubleshooting and validation. Dell EMC recommends leaving it enabled.

Table 9 General settings - dual switch without VLT

S5248F-Leaf1A	S5248F-Leaf1B
configure terminal hostname S5248F-Leaf1A interface mgmt1/1/1 no ip address ip address 100.67.172.38/24 no shutdown management route 0.0.0.0/0 100.67.172.254 ipv6 mld snooping enable ntp server 100.67.10.20	configure terminal hostname S5248F-Leaf1B interface mgmt1/1/1 no ip address ip address 100.67.172.37/24 no shutdown management route 0.0.0.0/0 100.67.172.254 ipv6 mld snooping enable ntp server 100.67.10.20

7.2.2 Configure VLANs

In this section, VLANs are configured per Table 2.

Create the External Management VLAN and assign a unique IP address on each switch. Configure VRRP to provide gateway redundancy. Set the VRRP priority. The switch with the largest priority value becomes the master VRRP router. Assign the same virtual address to both switches.

Create the vMotion, vSAN, VM Network, and Internal Management VLANs. Enable IPv6 MLD snooping querier on the Internal Management VLAN for node discovery.

Table 10 Configure VLANs - dual switch without VLT

S5248F-Leaf1A	S5248F-Leaf1B
interface vlan1611 description External_Mgmt ip address 172.16.11.253/24 vrrp-group 11 priority 150 virtual-address 172.16.11.254 no shutdown interface vlan1612	interface vlan1611 description External_Mgmt ip address 172.16.11.252/24 vrrp-group 11 priority 100 virtual-address 172.16.11.254 no shutdown interface vlan1612

S5248F-Leaf1A	S5248F-Leaf1B
description vMotion no shutdown interface vlan1613 description vSAN no shutdown interface vlan1614 description VM_Network_A no shutdown interface vlan1615 description VM_Network_B no shutdown interface vlan3939 description Internal_Mgmt no shutdown ipv6 mld snooping querier	description vMotion no shutdown interface vlan1613 description vSAN no shutdown interface vlan1614 description VM_Network_A no shutdown interface vlan1615 description VM_Network_B no shutdown interface vlan3939 description Internal_Mgmt no shutdown ipv6 mld snooping querier

7.2.3 Configure interfaces

Configure the interfaces for the jump box or laptop computer connections to be used during VxRail deployment. This example uses 10GbE interface 1/1/9:1 on each switch.

Note: See Appendix B to change the native speed of S5248F-ON port groups from 25GbE to 10GbE for jump box or laptop computer connections.

While only one connection to the jump box is required, two may be used for redundancy. Add these interfaces as access ports on VLAN 1611 (the External Management VLAN).

Note: In this example, the jump box also provides DNS and NTP services as covered in Section 5.4. If these services are located on other devices, ensure the corresponding switch interfaces are also in the External Management VLAN.

Configure the interfaces for connections to the VxRail nodes. Interfaces 1/1/17 through 1/1/20 are used in this example.

Use the `switchport mode trunk` command to enable ports to carry traffic for multiple VLANs. Configure the ports as access (untagged) ports on VLAN 1611 (the External Management VLAN). Configure the ports as trunk (tagged) ports on VLANs 1612-1615 and 3939 (the vMotion, vSAN, VM Network, and Internal Management VLANs).

Configure ports directly connected to nodes, servers, or other endpoints as STP edge ports. Set flow control to “receive on” and “transmit off” on node-connected ports as a best practice.

Note: Flow control is enabled on all network interfaces in ESXi by default. For more information, see *VMware vSAN Network Design*.

Table 11 Configure interfaces – dual switch without VLT

S5248F-Leaf1A	S5248F-Leaf1B
interface ethernet1/1/9:1 description JumpBox_DNS switchport access vlan 1611 spanning-tree port type edge no shutdown interface ethernet1/1/17 description Node1_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/18 description Node2_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/19 description Node3_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/20 description Node4_Port1 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown	interface ethernet1/1/9:1 description JumpBox_DNS switchport access vlan 1611 spanning-tree port type edge no shutdown interface ethernet1/1/17 description Node1_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/18 description Node2_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/19 description Node3_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown interface ethernet1/1/20 description Node4_Port2 switchport mode trunk switchport access vlan 1611 switchport trunk allowed vlan 1612-1615,3939 spanning-tree port type edge flowcontrol receive on flowcontrol transmit off no shutdown

7.2.4 Configure the switch interconnect

Create a port channel to use between the two leaf switches, 127 in this example. Use the `switchport mode trunk` command to enable the port channel to carry traffic for multiple VLANs, and allow all VLANs on the port channel.

Use 100GbE interfaces for the port channel, 1/1/53 and 1/1/54 in this example. Add each interface to the port channel as LACP active members with the `channel-group 127 mode active` command.

When the configuration is complete, exit configuration mode and save the configuration with the `end` and `write memory` commands.

Table 12 Configure switch interconnect - dual switch without VLT

S5248F-Leaf1A	**S5248F-Leaf1B**
interface port-channel 127 description To_Leaf_1B switchport mode trunk switchport trunk allowed vlan 1611-1615,3939 no shutdown interface ethernet1/1/53 description To_Leaf_1B channel-group 127 mode active no shutdown interface ethernet1/1/54 description To_Leaf_1B channel-group 127 mode active no shutdown end write memory	interface port-channel 127 description To_Leaf_1A switchport mode trunk switchport trunk allowed vlan 1611-1615,3939 no shutdown interface ethernet1/1/53 description To_Leaf_1A channel-group 127 mode active no shutdown interface ethernet1/1/54 description To_Leaf_1A channel-group 127 mode active no shutdown end write memory

7.3 Single switch

This example uses a four-node VxRail cluster connected to a single switch, as shown in Figure 14.

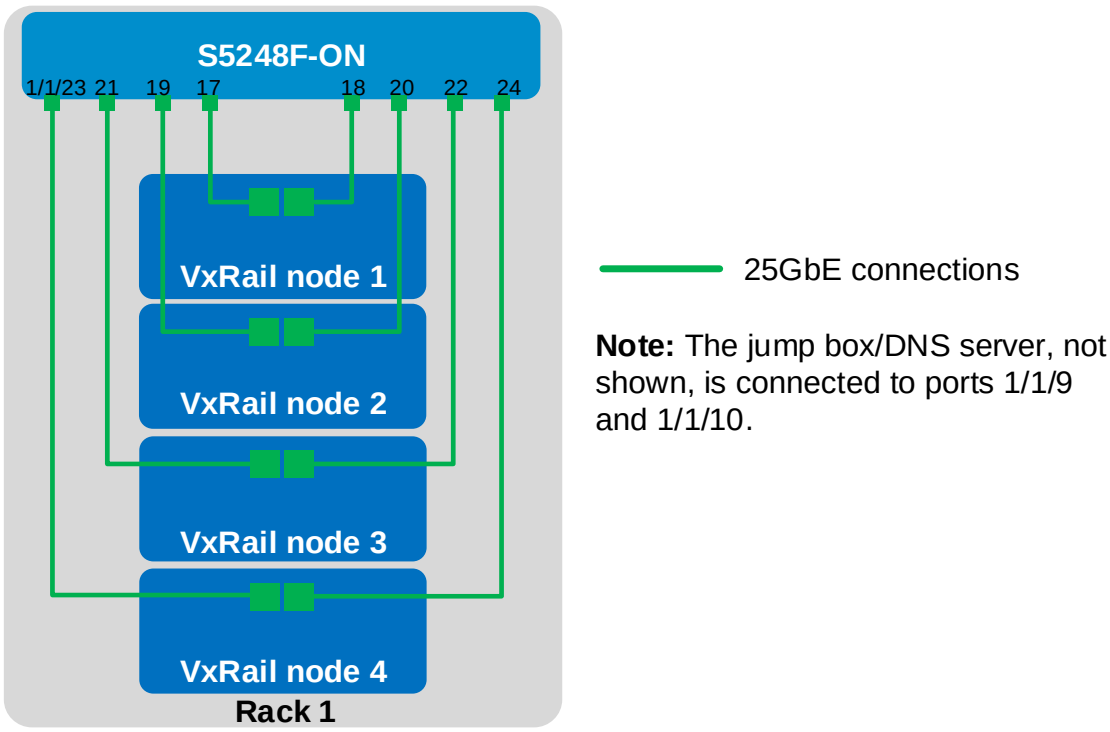

Figure 14 Four-node cluster connected to a single switch

The commands in the following sections are run to complete the switch configuration. The port numbers used in the configuration commands correspond to those shown in Figure 14.

Note: The commands in the tables below should be entered in the order shown. All commands are provided in the file attachment named S5248F-single-switch.txt.

7.3.1 General settings

Configure the hostname, OOB management IP address, and default gateway. Enable IPv6 MLD snooping to allow discovery of the VxRail nodes. Specify an NTP server accessible by the switch. In this example, this is an NTP server on the OOB management network, with a different IP address than the one used by the VxRail nodes on the External Management network.

Note: Default spanning tree settings are used in this deployment. In SmartFabric OS10, RVPST+ is enabled by default, and RPVST+ VLAN priority numbers start at 32769. Modify the spanning tree settings if required for your environment. LLDP is enabled on each interface and globally by default. LLDP is useful for troubleshooting and validation. Dell EMC recommends leaving it enabled.

Table 13 General settings – single switch

S5248F-ON
configure terminal hostname S5248F-ON interface mgmt1/1/1 no ip address ip address 100.67.172.38/24 no shutdown management route 0.0.0.0/0 100.67.172.254 ipv6 mld snooping enable ntp server 100.67.10.20

7.3.2 Configure VLANs

In this section, VLANs are configured per Table 2.

Create the External Management VLAN and assign an IP address. Create the vMotion, vSAN, VM Network, and Internal Management VLANs. Enable IPv6 MLD snooping querier on the Internal Management VLAN for node discovery.

Table 14 Configure VLANs – single switch

S5248F-ON
interface vlan1611 description External_Mgmt ip address 172.16.11.254/24 no shutdown interface vlan1612 description vMotion no shutdown interface vlan1613 description vSAN no shutdown interface vlan1614 description VM_Network_A no shutdown interface vlan1615 description VM_Network_B no shutdown interface vlan3939 description Internal_Mgmt no shutdown ipv6 mld snooping querier

7.3.3 Configure interfaces

Configure the interfaces for the jump box or laptop computer connections to be used during VxRail deployment. This example uses 10GbE interfaces 1/1/9:1 and 1/1/10:1.

Note: See Appendix B to change the native speed of S5248F-ON port groups from 25GbE to 10GbE for jump box or laptop computer connections.

While only one connection to the jump box is required, two may be used for redundancy. Add these interfaces as access ports on VLAN 1611 (the External Management VLAN).

Note: In this example, the jump box also provides DNS and NTP services as covered in Section 5.4. If these services are located on other devices, ensure the corresponding switch interfaces are also in the External Management VLAN.

Configure the interfaces for connections to the VxRail nodes. Interfaces 1/1/17 through 1/1/24 are used in this example.

Use the `switchport mode trunk` command to enable ports to carry traffic for multiple VLANs. Configure the ports as access (untagged) ports on VLAN 1611 (the External Management VLAN). Configure the ports as trunk (tagged) ports on VLANs 1612-1615, and 3939 (the vMotion, vSAN, VM Network, and Internal Management VLANs).

Configure ports directly connected to nodes, servers, or other endpoints as STP edge ports. Set flow control to “receive on” and “transmit off” on node-connected ports as a best practice.

Note: Flow control is enabled on all network interfaces in ESXi by default. For more information, see *VMware vSAN Network Design*.

When the configuration is complete, exit configuration mode and save the configuration with the `end` and `write memory` commands.

Table 15 Configure interfaces – single switch

S5248F-ON

`interface ethernet1/1/9:1`
`description JumpBox_DNS`
`switchport access vlan 1611`
`spanning-tree port type edge`
`no shutdown`
 	
`interface ethernet1/1/10:1`
`description JumpBox_DNS`
`switchport access vlan 1611`
`spanning-tree port type edge`
`no shutdown`
 	
`interface ethernet1/1/17`
`description Node1_Port1`
`switchport mode trunk`
`switchport access vlan 1611`
`switchport trunk allowed vlan 1612-1615,3939`

S5248F-ON

```
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/18
description Node1_Port2
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/19
description Node2_Port1
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/20
description Node2_Port2
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/21
description Node3_Port1
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/22
description Node3_Port2
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown
```

S5248F-ON

```
interface ethernet1/1/23
description Node4_Port1
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

interface ethernet1/1/24
description Node4_Port2
switchport mode trunk
switchport access vlan 1611
switchport trunk allowed vlan 1612-1615,3939
spanning-tree port type edge
flowcontrol receive on
flowcontrol transmit off
no shutdown

end
write memory
```

8 Switch validation

After switches are configured and devices are connected, the switch CLI is used to validate the network configuration. This section provides a list of the most common commands and their output for the examples used in this guide.

8.1 General validation commands

The commands and output shown in this section are for S5248F-Leaf1A in the dual switch with VLT topology. The output of its peer, S5248F-Leaf1B, is similar. If the dual switch without VLT or single switch topology is used, notes are added where differences exist.

Note: For additional commands and output related to the leaf-spine portion of the topology, such as BGP and Uplink Failure Detection (UFD), see *Dell EMC Networking Layer 3 Leaf-Spine Deployment and Best Practices with OS10*.

8.1.1 show interface status

The **`show interface status | grep up`** command is used to verify required interfaces are up, and links are established at their appropriate speeds.

```
S5248F-Leaf1A# show interface status | grep up
Port           Description     Status   Speed    Duplex  Mode Vlan Tagged-Vlans
Eth 1/1/9:1    JumpBox_DNS     up       10G      full    A    1611 -
Eth 1/1/17     Node1_Port1     up       25G      full    T    1611 1612-1615,3939
Eth 1/1/18     Node2_Port1     up       25G      full    T    1611 1612-1615,3939
Eth 1/1/19     Node3_Port1     up       25G      full    T    1611 1612-1615,3939
Eth 1/1/20     Node4_Port1     up       25G      full    T    1611 1612-1615,3939
Eth 1/1/53     VLTi            up       100G     full    -
Eth 1/1/54     VLTi            up       100G     full    -
```

Note: For the dual switch without VLT topology, the output is identical to the above except for the description of ports 1/1/53-54. For the single switch topology, the output includes all eight node ports, and ports 1/1/53-54 are not used.

8.1.2 show port-channel summary

The `show port-channel summary` command is used to view port channel numbers, interfaces used, and status. In SmartFabric OS10, the VLTi is automatically configured as a static LAG using port channel 1000. Ports 1/1/53 and 1/1/54 are port channel members, and `(P)` indicates each is up and active.

```
S5248F-Leaf1A# show port-channel summary
Flags:  D - Down     I - member up but inactive     P - member up and active
        U - Up (port-channel)     F - Fallback Activated
--------------------------------------------------------------------------------
Group Port-Channel            Type      Protocol  Member Ports
--------------------------------------------------------------------------------
1000 port-channel1000          Eth       STATIC    1/1/53(P) 1/1/54(P)
```

Note: The command output for the dual switch without VLT topology is shown below. In this example, Port channel 127 is up `(U)`, and `DYNAMIC` indicates LACP is used. Ports 1/1/53 and 1/1/54 are port channel members, and **`(P)`** indicates each is up and active.

```
S5248F-Leaf1A# show port-channel summary
Flags:  D - Down    I - member up but inactive    P - member up and active
        U - Up (port-channel)    F - Fallback Activated
--------------------------------------------------------------------------------
Group Port-Channel           Type     Protocol  Member Ports
--------------------------------------------------------------------------------
127  port-channel127  (U)     Eth      DYNAMIC   1/1/53(P) 1/1/54(P)
```

8.1.3 show vlan

The `show vlan` command is used to view interfaces assigned to each VLAN and whether the interfaces are access/untagged `(A)` or tagged `(T)`. Port channel 1000 is the VLTi. VLAN ID 4094 is reserved as an internal control VLAN for the VLT domain, and it is not user configurable.

```
S5248F-Leaf1A# show vlan
Codes: * - Default VLAN, M - Management VLAN, R - Remote Port Mirroring VLANs
Q: A - Access (Untagged), T - Tagged
    NUM    Status    Description                    Q Ports
    1      Active                                   A Eth1/1/1-1/1/8,1/1/10:1,
1/1/11:1,1/1/12:1,1/1/13-1/1/16,1/1/21-1/1/52,1/1/55-1/1/56
                                                    A Po1000
    1611   Active    External_Mgmt                  T Po1000
                                                    A Eth1/1/9:1,1/1/17-1/1/20
    1612   Active    vMotion                        T Eth1/1/17-1/1/20
                                                    T Po1000
    1613   Active    vSAN                           T Eth1/1/17-1/1/20
                                                    T Po1000
    1614   Active    VM_Network_A                   T Eth1/1/17-1/1/20
                                                    T Po1000
    1615   Active    VM_Network_B                   T Eth1/1/17-1/1/20
                                                    T Po1000
    3939   Active    Internal_Mgmt                  T Eth1/1/17-1/1/20
                                                    T Po1000
    4094   Active                                   T Po1000
```

Note: For the dual switch without VLT topology, the VLAN portion of the command output is as follows:

```
    NUM    Status    Description                    Q Ports
    1      Active                                   A Eth1/1/1-1/1/8,1/1/10:1,
1/1/11:1,1/1/12:1,1/1/13-1/1/16,1/1/21-1/1/52
                                                    A Po127
    1611   Active    External_Mgmt                  T Po127
                                                    A Eth1/1/9:1,1/1/17-1/1/20
    1612   Active    vMotion                        T Eth1/1/17-1/1/20
                                                    T Po127
    1613   Active    vSAN                           T Eth1/1/17-1/1/20
                                                    T Po127
    1614   Active    VM_Network_A                   T Eth1/1/17-1/1/20
                                                    T Po127
    1615   Active    VM_Network_B                   T Eth1/1/17-1/1/20
                                                    T Po127
    3939   Active    Internal_Mgmt                  T Eth1/1/17-1/1/20
                                                    T Po127
```

For the single switch topology, the VLAN portion is as follows:

```
    NUM    Status    Description                    Q Ports
    1      Inactive                                 A Eth1/1/1-1/1/8,1/1/11:1,
1/1/12:1,1/1/13-1/1/16,1/1/25-1/1/56
    1611   Active    External_Mgmt                  A Eth1/1/9:1,1/1/10:1,
1/1/17-1/1/24
    1612   Active    vMotion                        T Eth1/1/17-1/1/24
    1613   Active    vSAN                           T Eth1/1/17-1/1/24
    1614   Active    VM_Network_A                   T Eth1/1/17-1/1/24
    1615   Active    VM_Network_B                   T Eth1/1/17-1/1/24
    3939   Active    Internal_Mgmt                  T Eth1/1/17-1/1/24
```

8.1.4 show ipv6 mld snooping interface

The `show ipv6 mld snooping interface vlan 3939` command is used to verify MLD snooping and querier are enabled on VLAN 3939 (shown in bold in the output below). These settings are required for discovery of the VxRail nodes before creating the VxRail cluster.

```
S5248F-Leaf1A# show ipv6 mld snooping interface vlan 3939

Vlan3939 is up, line protocol is up
MLD version is 2
MLD snooping is enabled on interface
MLD snooping query interval is 60 seconds
MLD snooping querier timeout is 130 seconds
MLD snooping last member query response interval is 1000 ms
MLD snooping max response time is 10 seconds
MLD snooping fast-leave is disabled on this interface
MLD snooping querier is enabled on this interface
Multicast snooping flood-restrict is enabled on this interface
```

Note: The command output is the same for all topologies in this guide.

8.1.5 show lldp neighbors

The `show lldp neighbors` command is useful for identifying connected equipment. Interface 1/1/9:1 is connected to the jump box. Interfaces 1/1/17-20 are connected to the Broadcom adapter in each of the VxRail nodes, and 1/1/53-54 are connected to the other leaf.

```
S5248F-Leaf1A# show lldp neighbors
Loc PortID          Rem Host Name        Rem Port Id          Rem Chassis Id
-------------------------------------------------------------------------------
ethernet1/1/9:1     Not Advertised       00:0a:f7:38:ba:a0    00:0a:f7:38:ba:a0
ethernet1/1/17      Broadcom Adv. Dua... 00:0a:f7:b6:15:d0    00:0a:f7:b6:15:d0
ethernet1/1/17      node-63356           00:0a:f7:b6:15:d0    vmnic0
ethernet1/1/18      Broadcom Adv. Dua... 00:0a:f7:b6:1a:80    00:0a:f7:b6:1a:80
ethernet1/1/18      node-94415           00:0a:f7:b6:1a:80    vmnic0
ethernet1/1/19      Broadcom Adv. Dua... 00:0a:f7:b6:11:c0    00:0a:f7:b6:11:c0
ethernet1/1/19      node-38673           00:0a:f7:b6:11:c0    vmnic0
ethernet1/1/20      Broadcom Adv. Dua... 00:0a:f7:b6:1c:10    00:0a:f7:b6:1c:10
ethernet1/1/20      node-86429           00:0a:f7:b6:1c:10    vmnic0
ethernet1/1/53      S5248F-Leaf1B        ethernet1/1/53       d8:9e:f3:bf:ae:00
ethernet1/1/54      S5248F-Leaf1B        ethernet1/1/54       d8:9e:f3:bf:ae:00
```

If an entry is not shown for the jump box or laptop computer (port 1/1/9:1 above), it means the NIC on the remote system does not have LLDP enabled. This is not required and may be ignored for this solution.

Note: For the dual switch without VLT topology, the output is identical to the above. For the single switch topology, the output includes all eight node-connected ports, and ports 1/1/53-54 are not used.

8.1.6 show vrrp brief

In this deployment, VRRP is configured on the External Management VLAN, 1611, to provide gateway redundancy for management traffic. The output from the **`show vrrp brief`** command shows the master and virtual IP addresses and whether the switch is in the master or backup role. The switch configured with the largest priority value, shown in the `Priority` column, becomes the master.

```
S5248F-Leaf1A# show vrrp brief

Interface Group   Priority Prempt  State Version Master addr(s) Virtual addr
-------------------------------------------------------------------------------
vlan1611  IPv4 11  150     true    master   2    172.16.11.253  172.16.11.254
```

Note: For the dual switch without VLT topology, the output is identical to the above. For the single switch topology, this command is not applicable.

8.2 VLT validation commands

The commands in this section are only applicable to the dual switch with VLT topology.

8.2.1 show vlt *domain_id*

This command is used to validate the VLT configuration status. The `Role` for one switch in the VLT pair is `primary`, and its peer switch (not shown) is assigned the `secondary` role. Ensure `Peer-Routing` is `Enabled`. The `VLTi Link Status` and `VLT Peer Status` must both be `up`.

```
S5248F-Leaf1A# show vlt 127
Domain ID                  : 127
Unit ID                    : 1
Role                       : primary
Version                    : 2.3
Local System MAC address   : d8:9e:f3:c0:61:00
Role priority              : 32768
VLT MAC address            : d8:9e:f3:bf:ae:00
IP address                 : fda5:74c8:b79e:1::1
Delay-Restore timer        : 90 seconds
Peer-Routing               : Enabled
Peer-Routing-Timeout timer : 0 seconds
VLTi Link Status
    port-channel1000       : up

VLT Peer Unit ID    System MAC Address    Status    IP Address           Version
-------------------------------------------------------------------------------
  2                 d8:9e:f3:bf:ae:00      up       fda5:74c8:b79e:1::2     2.3
```

8.2.2 show vlt *domain_id* backup-link

This command is used to verify VLT peers are communicating on the backup link over the OOB management network. The `Destination` is the management IP address of the peer. The `Peer Heartbeat status` must be `Up`.

```
S5248F-Leaf1A# show vlt 127 backup-link
VLT Backup Link
------------------------
Destination                     : 100.67.172.37
Peer Heartbeat status           : Up
Heartbeat interval              : 30
Heartbeat timeout               : 90
Destination VRF                 : default
```

8.2.3 show vlt *domain_id* mismatch

This command highlights any potential configuration issues between VLT peers. All items must indicate `No mismatch`.

```
S5248F-Leaf1A# show vlt 127 mismatch
VLT-MAC mismatch:
No mismatch

Peer-routing mismatch:
No mismatch

VLAN mismatch:
No mismatch

VLT VLAN mismatch:
No mismatch

VLT Virtual Network Mismatch:
Virtual Network Name Mismatch:
No mismatch

Virtual Network VLTi-VLAN Mismatch:
No mismatch

Virtual Network Mode Mismatch:
No mismatch

Virtual Network Tagged Interfaces Mismatch:
No mismatch

Virtual Network Untagged Interfaces Mismatch:
No mismatch
(Output truncated)
```

9 Deploy VxRail

A laptop computer or jump box with a web browser for the VxRail user interface is required. It is either directly plugged into a leaf switch or able to logically reach the VxRail External Management VLAN from elsewhere on the network.

By default, the initial VxRail Manager IP address is 192.168.10.200/24. After initial configuration, the address changes to its new address on the External Management network. The new VxRail Manager address used in this guide is 172.16.11.102/24 per the planning data in Table 3.

During installation, the laptop or jump box must be able to reach both the initial and new VxRail Manager addresses, so two addresses are configured on the network adapter, one for each network.

Note: Both addresses may be configured simultaneously if the network adapter supports it, or in sequence if required.

The IP addresses configured on the laptop computer/jump box in this example are as follows:

- 192.168.10.1/24, to communicate with the initial VxRail Manager address, 192.168.10.200/24
- 172.16.11.50/24, to communicate with the new VxRail Manager address, 172.16.11.102/24

If a laptop computer is used, the connections appear, as shown in Figure 15.

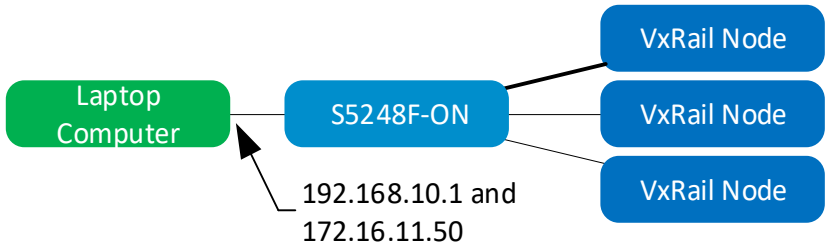

Figure 15 Use of a laptop computer for deployment

If a PowerEdge server is used as a jump box, make the connections, as shown in Figure 16. Access the jump box's operating system from a workstation using the iDRAC virtual console.

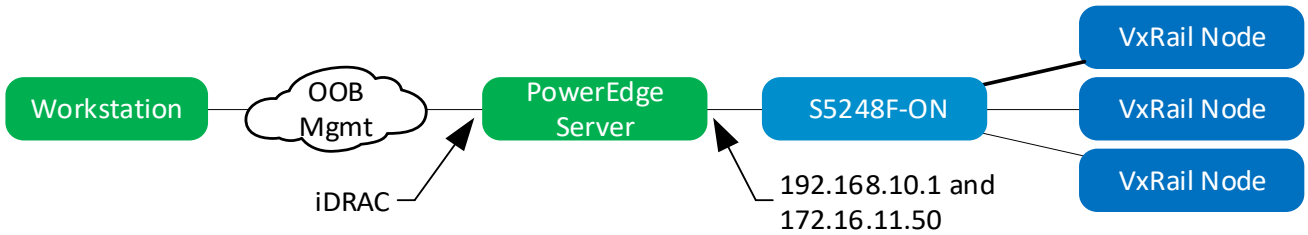

Figure 16 PowerEdge server as a jump box

Note: This deployment uses a PowerEdge server as a jump box that is also in the roles of DNS and NTP server. It may be connected to both leaf switches for redundancy using NIC teaming. Figure 16 shows a single connection from a jump box to a leaf switch for clarity. Port-group1/1/3 on the S5248F-ON is set to 10GbE to allow connectivity to a 10GbE NIC on the jump box. See Appendix B for information on S5248F-ON port-group configuration.

In a web browser on the laptop computer or jump box, connect to https://192.168.10.200 and deploy VxRail using the planning data in Table 3.

Note: Step-by-step VxRail deployment GUI screenshots are beyond the scope of this guide.

9.1 Management network VLAN ID

During VxRail 4.7 deployment, the user is prompted for the **Management Network VLAN ID** in the GUI. This refers to the External Management VLAN, which is VLAN 1611 in this guide. Since ports in this VLAN are access ports (untagged), leave the value set to 0, as shown in Figure 17.

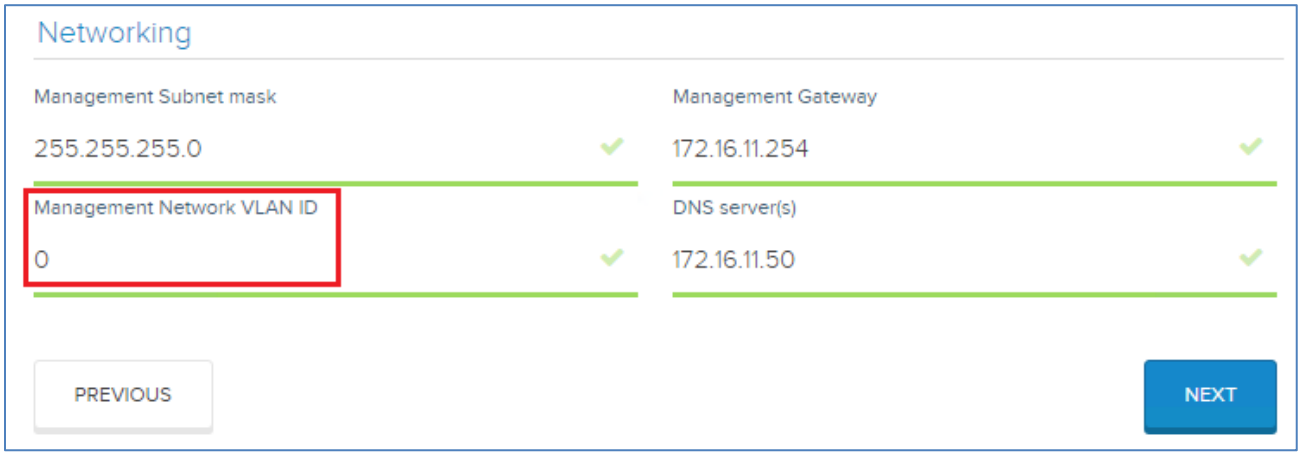

Figure 17 Management Network VLAN ID is set to 0 during deployment

Use the actual VLAN numbers for the remaining VLANs when prompted by the deployment GUI. Ports in the remaining VLANs are tagged.

A Validated components for S5248F-ON using VxRail 4.7

The following tables include hardware, software, and firmware that was used to configure and validate the examples in this guide.

A.1 Dell EMC PowerSwitches

Table 16 Switches and operating system versions

Qty	Item	OS version
2	Dell EMC PowerSwitch S5248F-ON leaf switches	10.5.0.0
1	Dell EMC PowerSwitch S3048-ON management switch	10.5.0.0

A.2 DAC Cables

Table 17 DAC cables

Qty	Item	Dell PN
8	DAC-SFP28-25G-3.0M (Node connections)	0VXFJY
2	DAC-QSFP28-4SFP28-3M (VLTi connections)	07R9N9

Note: Dell EMC supported fiber optic cables and transceivers may also be used.

A.3 VxRail P570 nodes

A cluster of four VxRail P570 nodes was used to validate the examples in this guide. The nodes were each configured using the information provided below.

Table 18 VxRail P570 node components

Qty per node	Item	Firmware version
2	Intel Xeon Gold 6136 CPU @ 3.00GHz, 12 cores	
12	16GB DDR4 DIMMs (192GB total)	
2	240GB SAS SSD	
8	1.2TB SAS HDD	
1	Dell HBA330 Storage Controller	15.17.09.06
1	Boot Optimized Storage Solution (BOSS) Controller	2.5.13.3016
1	Broadcom 57414 rNDC – 2x25GbE SFP28 ports	21.40.22.21
-	BIOS	2.1.8
-	iDRAC with Lifecycle Controller	3.32.32.32

A.4 VxRail appliance software

The examples in this guide were validated using VxRail 4.7 appliance software. The software consists of the component versions that are provided below:

Table 19 VxRail appliance software component versions

Item	Version
VxRail Manager	4.7.211 build 13893929
VMware ESXi	6.7 EP09 build 13644319
VMware vCenter Server Appliance	6.7 U2a 13643870
VMware vSAN	6.7 EP09
VMware vRealize Log Insight	4.6.0 build 8080673

B S5248F-ON port groups

In the example used in this guide, interface eth1/1/9 is connected to a 10GbE adapter on a PowerEdge server used as a jump box. On S5248F-ON, this interface must be changed from its native speed of 25GbE to 10GbE using the `port-group` command.

Note: In place of a jump box, a laptop computer containing a 1GbE BASE-T network adapter may be directly connected to an S5248F-ON leaf switch for VxRail deployment as described in Chapter 9. In this case, use an SFP-to-1GbE BASE-T adapter, Dell part number XTY28, in the leaf switch. Configure the corresponding S5248-ON port for 10GbE as described below. The switch port auto-negotiates to 1GbE when the laptop is connected.

To determine the port-group-to-interface mapping, run the `show port-group` command:

```
S5248F-Leaf1A# show port-group

Port-group            Mode           Ports      FEM
port-group1/1/1       Eth 25g-4x     1  2  3  4      -
port-group1/1/2       Eth 25g-4x     5  6  7  8      -
port-group1/1/3       Eth 25g-4x     9  10  11  12      -
port-group1/1/4       Eth 25g-4x     13  14  15  16      -
port-group1/1/5       Eth 25g-4x     17  18  19  20      -
port-group1/1/6       Eth 25g-4x     21  22  23  24      -
port-group1/1/7       Eth 25g-4x     25  26  27  28      -
port-group1/1/8       Eth 25g-4x     29  30  31  32      -
port-group1/1/9       Eth 25g-4x     33  34  35  36      -
port-group1/1/10      Eth 25g-4x     37  38  39  40      -
port-group1/1/11      Eth 25g-4x     41  42  43  44      -
port-group1/1/12      Eth 25g-4x     45  46  47  48      -
port-group1/1/13      Eth 100g-2x    49  50      -
port-group1/1/14      Eth 100g-2x    51  52      -
port-group1/1/15      Eth 100g-1x    53          -
port-group1/1/16      Eth 100g-1x    54          -
port-group1/1/17      Eth 100g-1x    55          -
port-group1/1/18      Eth 100g-1x    56          -
```

In the output above, interface eth1/1/9 is in port-group 1/1/3 which is at its default setting of 25GbE. The commands to change the interfaces in port-group 1/1/3 from 25GbE to 10GbE are as follows:

```
S5248F-Leaf1A# configure terminal
S5248F-Leaf1A(config)# port-group 1/1/3
S5248F-Leaf1A(conf-pg-1/1/3)# mode eth 10g-4x
```

Verify the settings with the following command:

```
S5248F-Leaf1A(conf-pg-1/1/3)# do show port-group

Port-group            Mode            Ports      FEM
port-group1/1/1       Eth 25g-4x      1  2  3  4      -
port-group1/1/2       Eth 25g-4x      5  6  7  8      -
port-group1/1/3       Eth 10g-4x      9  10  11  12      -
(Output truncated)
```

The four interfaces in port-group1/1/3 are now set to 10GbE.

Note: The `mode` command changes the native speed of all interfaces in the port group, eth 1/1/9-1/1/12. In this guide, only port 1/1/9 is used. Repeat the above commands on the second leaf switch if it is also connected to a 10GbE adapter on the jump box.

After the port group mode change is made, the interface naming changes from eth 1/1/x to eth 1/1/x:n, where x is the physical port number, and n is the logical port number. In this example, changing port group 1/1/3 to 10GbE also changes the affected interface names to eth1/1/9:1– 1/1/12:1.

Port-group configuration options for the S5248F-ON are shown in Table 20.

Table 20 S5248F-ON port-group configuration options

Port group number	Native physical interface name	Native speed	Other supported speeds	Non-native logical interface name
1/1/1	Eth 1/1/1-1/1/4	25g-4x	10g-4x	Eth 1/1/x:1
1/1/2	Eth 1/1/5-1/1/8	25g-4x	10g-4x	Eth 1/1/x:1
1/1/3	Eth 1/1/9-1/1/12	25g-4x	10g-4x	Eth 1/1/x:1
1/1/4	Eth 1/1/13-1/1/16	25g-4x	10g-4x	Eth 1/1/x:1
1/1/5	Eth 1/1/17-1/1/20	25g-4x	10g-4x	Eth 1/1/x:1
1/1/6	Eth 1/1/21-1/1/24	25g-4x	10g-4x	Eth 1/1/x:1
1/1/7	Eth 1/1/25-1/1/28	25g-4x	10g-4x	Eth 1/1/x:1
1/1/8	Eth 1/1/29-1/1/32	25g-4x	10g-4x	Eth 1/1/x:1
1/1/9	Eth 1/1/33-1/1/36	25g-4x	10g-4x	Eth 1/1/x:1
1/1/10	Eth 1/1/37-1/1/40	25g-4x	10g-4x	Eth 1/1/x:1
1/1/11	Eth 1/1/41-1/1/44	25g-4x	10g-4x	Eth 1/1/x:1
1/1/12	Eth 1/1/45-1/1/48	25g-4x	10g-4x	Eth 1/1/x:1
1/1/13	Eth 1/1/49-1/1/50	100g-2x	50g-4x 40g-2x 10g-8x 25g-8x	Eth 1/1/x:n
1/1/14	Eth 1/1/51-1/1/52	100g-2x	50g-4x 40g-2x 10g-8x 25g-8x	Eth 1/1/x:n
1/1/15	Eth 1/1/53	100g-1x	50g-2x 40g-1x 10g-4x 25g-4x	Eth 1/1/x:n
1/1/16	Eth 1/1/54	100g-1x	50g-2x 40g-1x 10g-4x 25g-4x	Eth 1/1/x:n
1/1/17	Eth 1/1/55	100g-1x	50g-2x 40g-1x 10g-4x 25g-4x	Eth 1/1/x:n
1/1/18	Eth 1/1/56	100g-1x	50g-2x 40g-1x 10g-4x 25g-4x	Eth 1/1/x:n

C Technical resources

Dell EMC Networking Guides

Dell EMC SmartFabric OS10 User Guide Release 10.5.0

Manuals and documentation for Dell EMC PowerSwitch S3048-ON

Manuals and documentation for Dell EMC PowerSwitch S5248F-ON

Dell EMC Networking Layer 3 Leaf-Spine Deployment and Best Practices with OS10

Dell EMC VxRail Network Planning Guide

Dell EMC VxRail support and documentation (account required)

Dell EMC VxRail Support Matrix (account required)

Dell EMC VxRail Appliance 4.5.x and 4.7.x Event Code Reference (account required)

VMware vSAN Network Design

VMware Validated Design Documentation

VMware Validated Design for Software-Defined Data Center 5.1 - Architecture and Design

D Support and feedback

Contacting Technical Support

Support Contact Information	Web: http://www.dell.com/support
	Telephone: USA: 1-800-945-3355

Feedback for this document

Readers are encouraged to provide feedback on the quality and usefulness of this publication by sending an email to Dell_Networking_Solutions@Dell.com.