

Dell PowerEdge VRTX Networking

A Dell EMC Deployment and Configuration Guide
VRTX I/O Module Basic Configuration, Use and Troubleshooting
Version 1.6

Dell Networking Solutions Engineering
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Revisions

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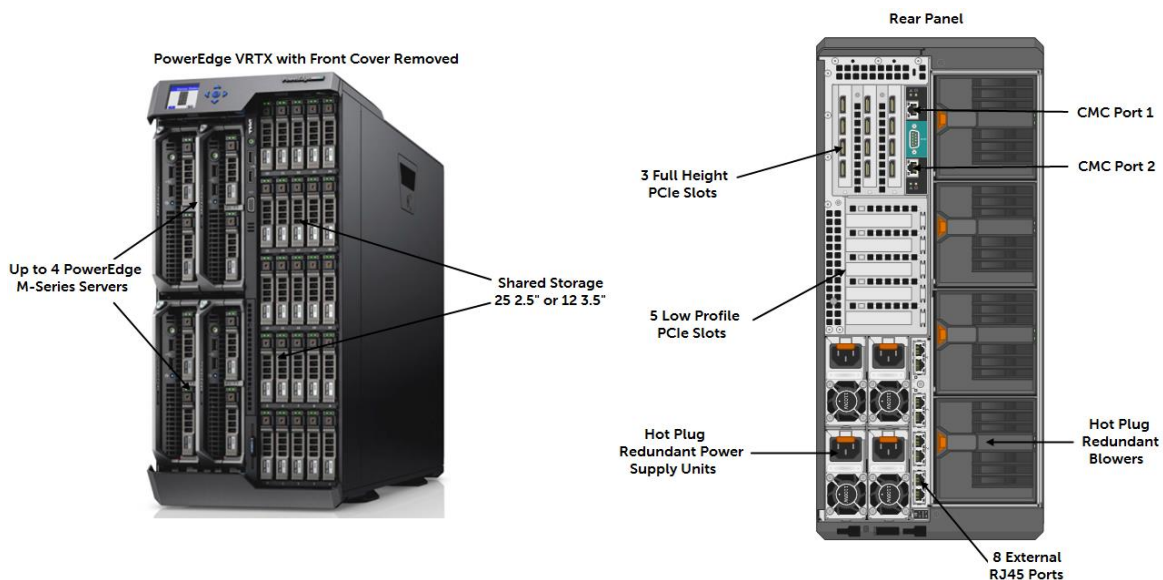
1 Introduction

Dell PowerEdge VRTX is an infrastructure product focused on remote, branch and small office requirements.

This document outlines the configuration of the Dell PowerEdge VRTX 1GbE Switch Module to establish basic connection to the local network and provides basic connectivity troubleshooting. You can configure the Dell PowerEdge VRTX with an integrated 1GbE Pass-Through module, an integrated 1GbE Switch Module or a 10GbE Switch Module. Dell EMC recommends the 1GbE or 10GbE switch module for most applications.

Figure 1 illustrates the primary components of the Dell PowerEdge VRTX chassis with a GbE switch module.

Figure 1 Dell PowerEdge VRTX chassis components



1.1 VRTX Pass-Through Module (R1-PT)

The VRTX R1-PT, is a 1Gb Ethernet Pass-Through Module (PTM) that allows devices to connect directly to the blade server NIC. The PTM extends each blade server NIC port using an internal port that is a direct connection to an external RJ45 on the PTM. This allows devices to directly connect to the blade server NIC port at 10/100/1000 Mbps, which they auto-negotiate. If auto-negotiation does not establish the proper connections, you may need to manually configure the ports at the server or top-of-rack (ToR) switch.

The PTM supports the first two NIC ports on each blade server slot. Internal ports to blade servers remain down until the corresponding external port comes up. The Pass-Through module is not a switch. Therefore, module set-up must include connecting the external ports to an edge or ToR switch. This enables blade servers within the chassis to pass traffic between each blade server. The pass through module does not have a graphical user

interface (GUI) nor command line interface (CLI) for configuration. Table 1, Figure 2 and Figure 3 present VRTX PTM port mapping:

Table 1 VRTX PTM port mapping

VRTX 1Gb PTM port mapping								
External PTM port	1	2	3	4	5	6	7	8
Internal Slot/Port	1/1	1/2	2/1	2/2	3/1	3/2	4/1	4/2

Figure 2 VRTX PTM port mapping

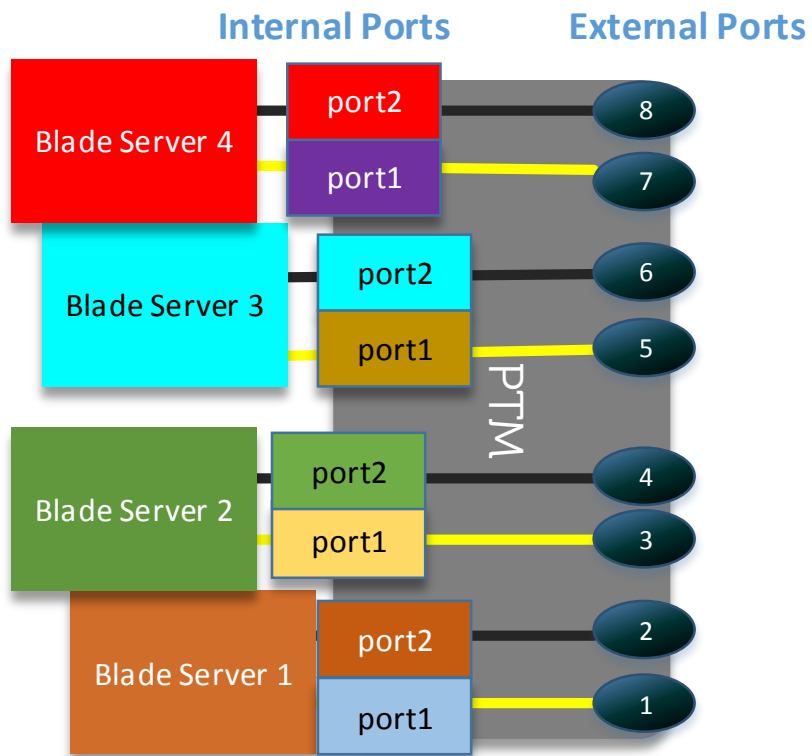
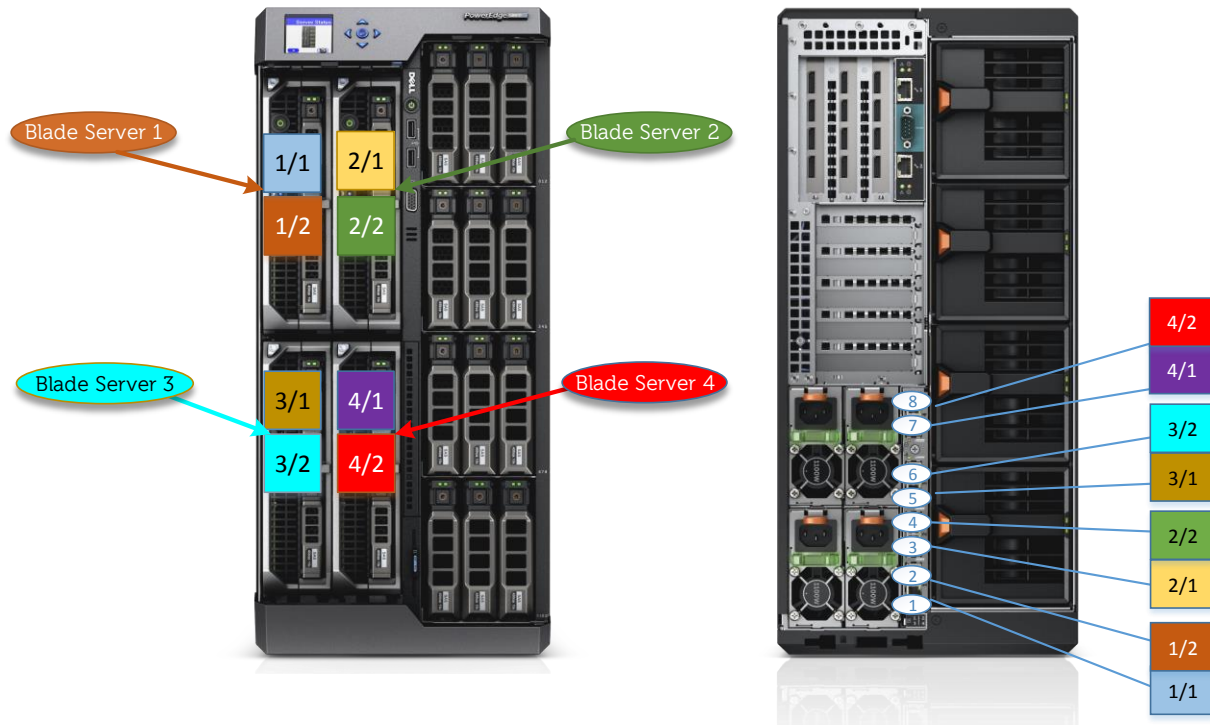


Figure 3 VRTX chassis PTM port mapping



1.2 VRTX 1GbE Switch Module (R1-2401)

The VRTX 1GbE Switch Module, model R1-2401, is a layer 2 switch that supports 10/100/1000 Mb Ethernet. Both the switch GUI and switch CLI provide access for configuring the switch. The Out-of-Band (OOB) management IP must be on a different IP subnet than the subnets defined on all of the other switch interfaces (port, VLAN). All internal ports (gi 1/1 – gi 4/4) communicate together as if plugged into a rack switch, supporting east-west traffic and north-south traffic. The external ports allow communication to any upstream device on the network as if the ports were typical switching/bridging devices. Figure 4 and Figure 5 show the switch port mapping for the VRTX Gb switch.

Figure 4 VRTX 1Gb switch port

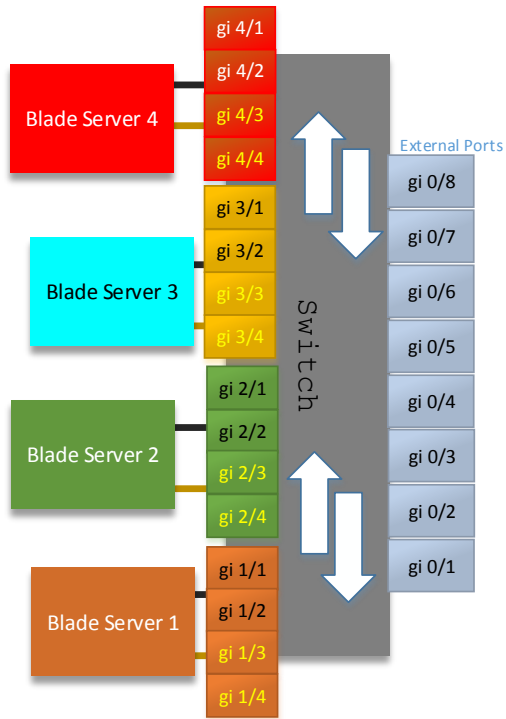
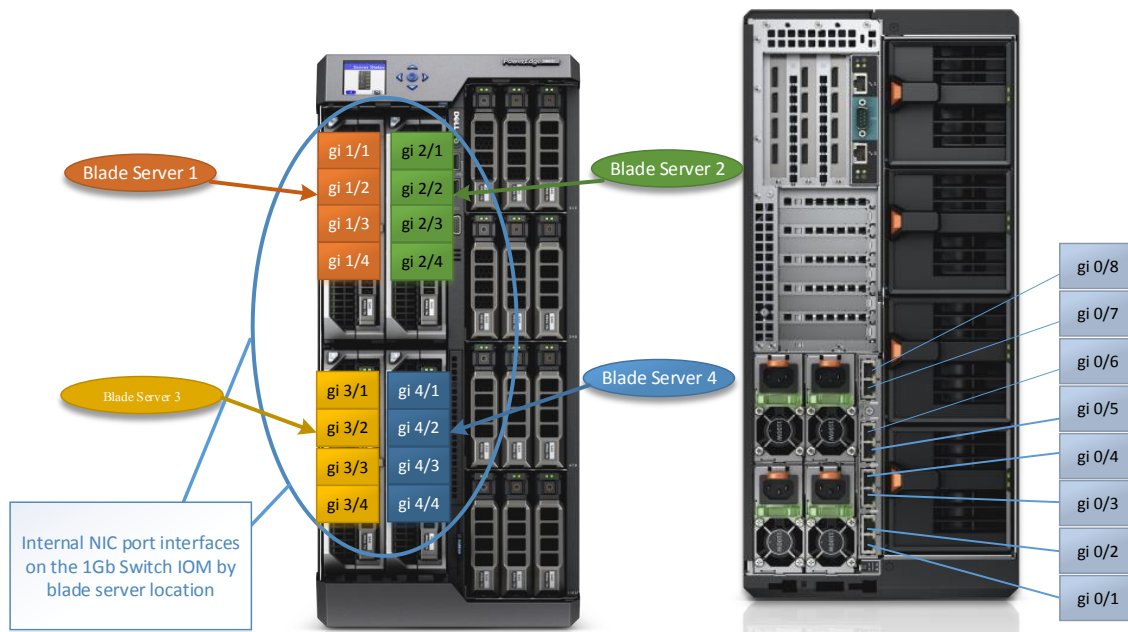


Figure 5 Location-based VRTX 1Gb switch port-mapping



1.3 VRTX 10GbE Switch Module (R1-2210)

The VTRX 10GbE Switch Module, model R1-2210, is a layer 2 switch that supports speeds up to 10 Gbps. Both the switch GUI and CLI provide access for configuring the switch. The OOB management IP must be on a different IP subnet than those defined on all other switch interfaces (port, VLAN). Blade servers are connected to internal (te 1/1 – te 4/4) ports. The internal ports communicate together allowing for east-west traffic. The external ports allow for north-south communication to any upstream devices on the network as if the ports were typical switching/bridging device. Key features of the R1-2210 include the following internal (server-to-server) and external connections:

- Internal 10Gb SFP+ ports: 16
- External 10Gb SFP+ ports: 4
- External 1Gb RJ45 ports: 2

Figure 6 and Figure 7 show the switch port mapping for the R1-2210.

Figure 6 VRTX 10Gb switch port mapping

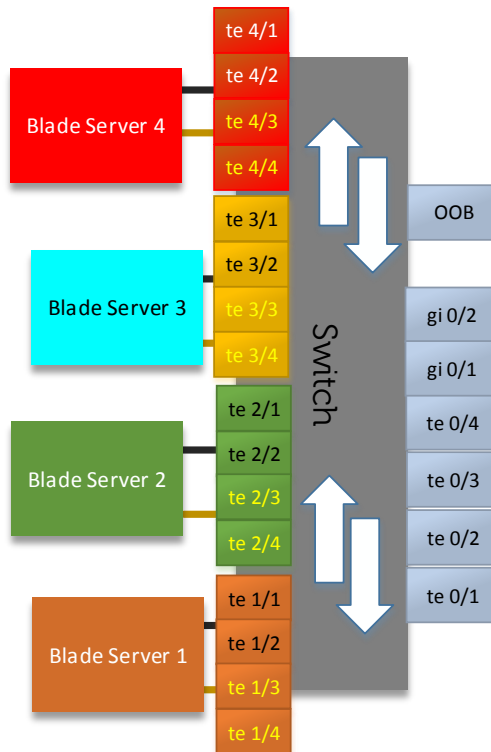
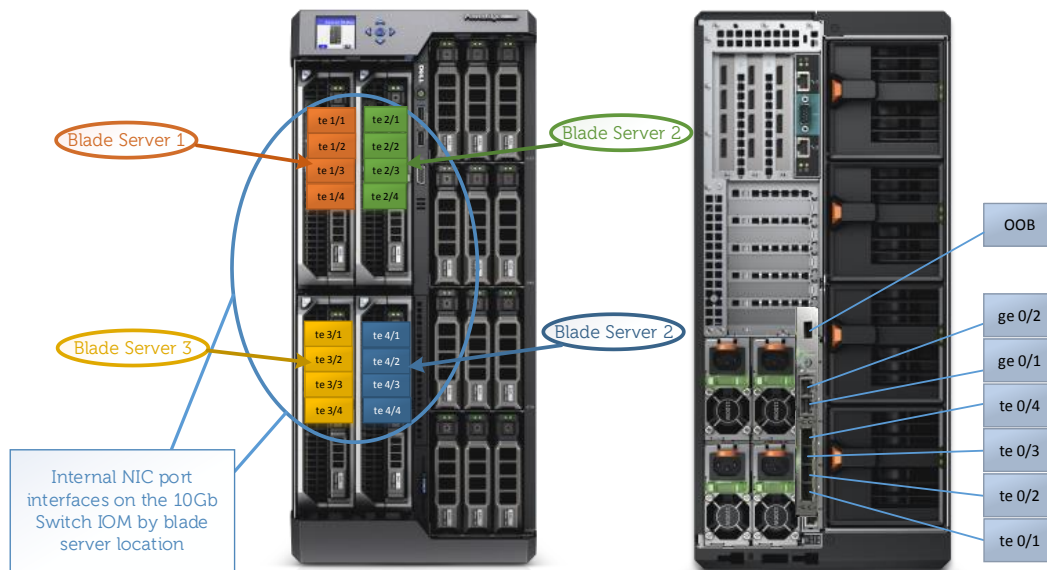


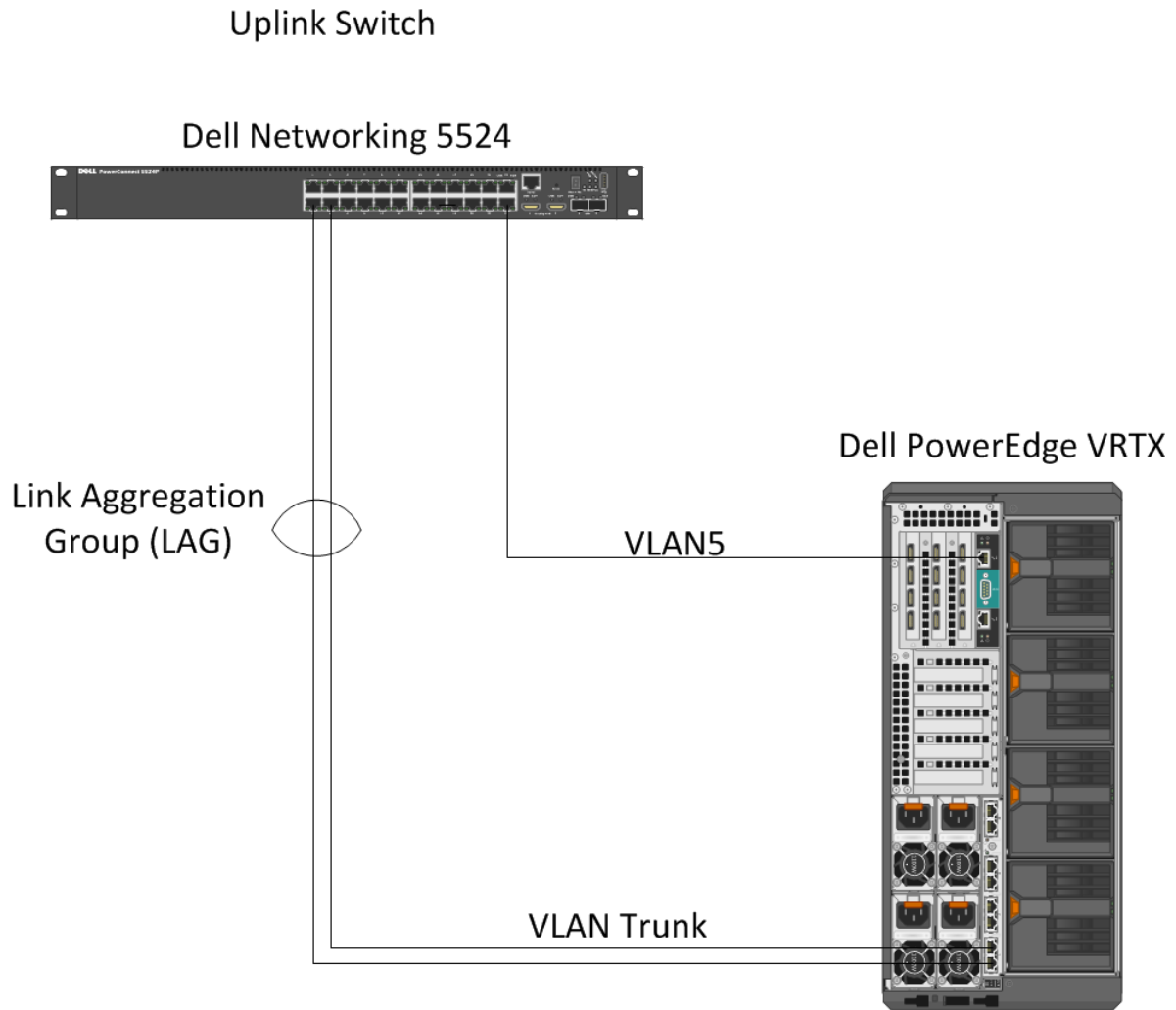
Figure 7 Location-based VRTX 10Gb switch port mapping



1.4 General networking best practices for VRTX 1GbE and 10GbE switch modules

- Ensure that the local network DHCP server IP address pool can support multiple unique IP addresses. For static IP addresses assigned to the Dell PowerEdge VRTX 1GbE switch, ensure that they are unique from the local network DHCP server pool.
- Uplink switch ports in IEEE 802.1Q trunk or Link Aggregation Group (LAG) configurations on Dell PowerEdge VRTX 1GbE or 10GbE switch modules require identical IEEE 802.1Q trunks or LAG configurations. See Figure 8.
- Dell EMC recommends creating a separate VLAN when establishing a management link to the Dell PowerEdge VRTX Chassis Management Controller (CMC). The CMC and any in-band IP configuration for management must be on different subnets. Following best practices, in Figure 8, an in-band management port would be on a separate VLAN than the CMC.

Figure 8 Basic network topology with separation of management subnets



2 Dell PowerEdge VRTX 1GbE or 10GbE switch configuration via GUI

To configure the PowerEdge VRTX 1GbE or 10GbE switch IOM, follow the steps below:

1. Log in to the CMC.
2. Log in to the VRTX Switch IOM.
3. Configure the VLANs.
4. Configure the trunk ports.
5. Configure the Link Aggregations Ports.

Note: The following sections include detailed instructions on each of the steps above. Section 3.2 includes additional CLI configuration commands.

2.1 Logging into CMC GUI

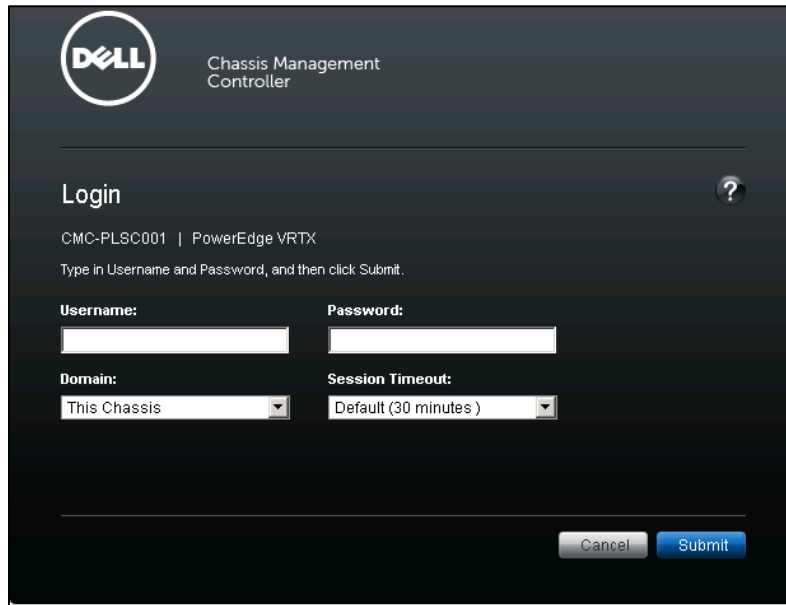
For instructions on configuring CMC settings, see the “*Chassis Management Controller Version x.x for Dell PowerEdge VRTX User's Guide*” at dell.com/support/manuals.

1. Go to the LCD display on the front of the PowerEdge VRTX system.
2. Select **IP Summary** from the main menu screen.
The CMC IP address displays along with iDRAC IP address.

Note: Navigate using the up and down arrow buttons. Make selections using the center button.

3. Open a web browser.
4. Enter the CMC IP address from step 2 in the address field.
5. Enter the default Username: **root** and Password: **calvin** in the Dell PowerEdge VRTX CMC Login screen and click **Submit**.
The Chassis Management Controller GUI displays. See Figure 9.

Figure 9 Chassis Management Controller GUI

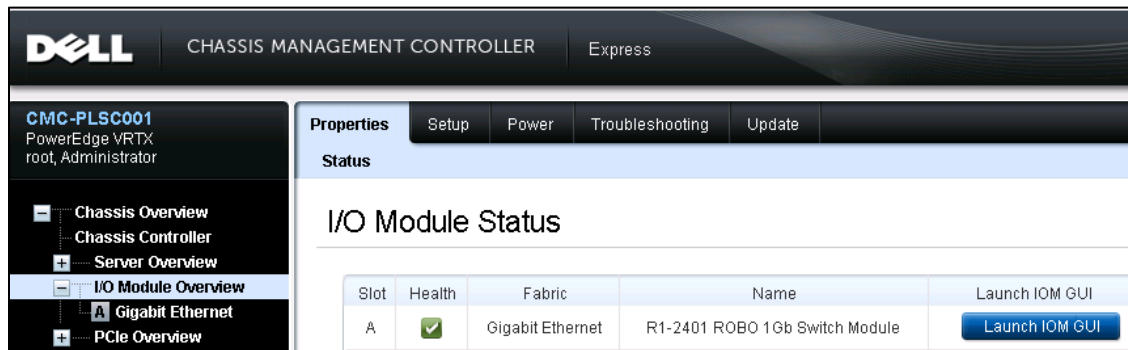


Note: Dell EMC recommends setting a unique username and password.

2.2 Logging into the PowerEdge VRTX Switch Module

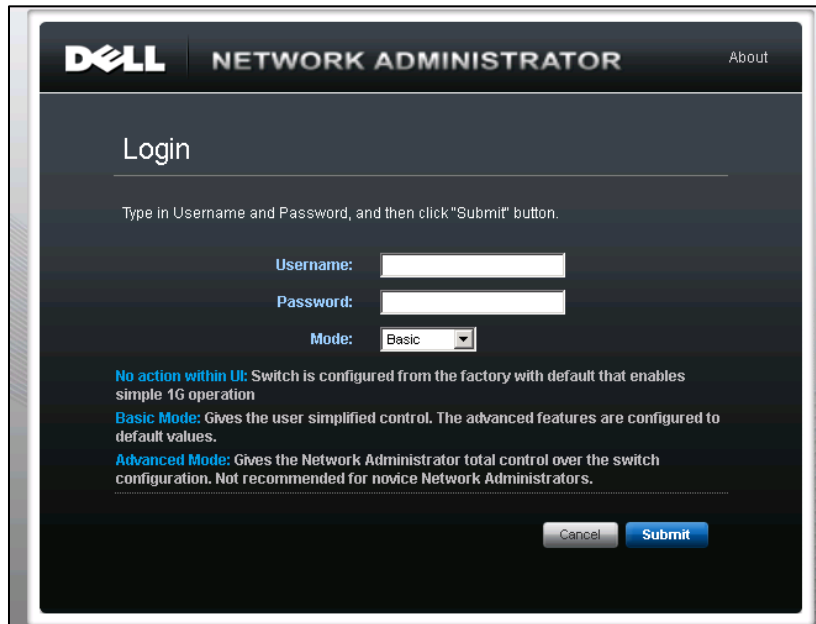
1. Navigate to the **I/O Module Overview** option in the Chassis Management Controller GUI's left pane. See Figure 10.

Figure 10 I/O Module Overview



2. Click on Launch I/O Module GUI.
3. The Login screen to the VRTX Switch Module displays. See Figure 11.

Figure 11 VRTX Switch Module Login Screen



4. Enter the default Username: **root** and Password: **calvin**, and click **Submit** in the login screen to display the VRTX Switch Module **Home** page.

Notes:

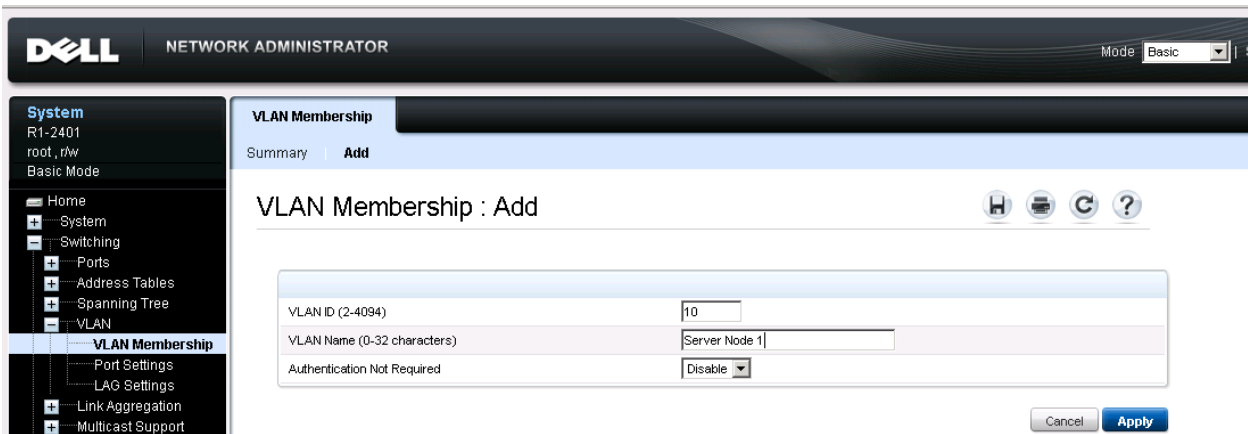
1. Dell EMC recommends setting a unique username and password.
2. By default, the 1GbE and 10GbE switch module obtains its IP address from the local DHCP server. However, the IP address can be assigned statically by selecting the <Setup> entry from the I/O Module Overview page. Changing this IP address will result in the current connection no longer working until the new IP address is used in the browser.

2.3 Configuring VLANs

Note: The following information applies to the 1GbE switch module. The steps to configure the 10GbE switch module are similar (only the port numbering changes).

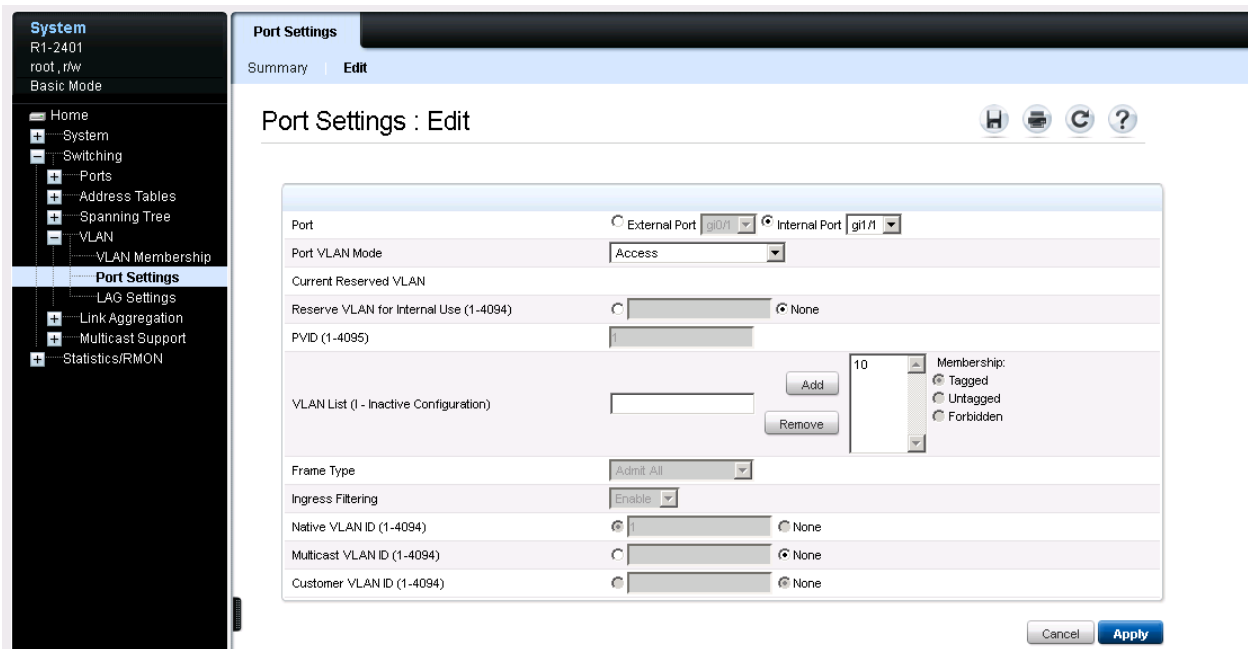
1. Expand **Switching**→**VLAN** in the VRTX Switch Module **Home** page's left pane and click **VLAN Membership**. See Figure 12.
2. Click **Add** in the VLAN membership pane.
3. Enter **10** in the VLAN ID field.
4. Enter **Server node 1** in the VLAN name field.
5. Click **Apply**.
6. Repeat steps 1 – 5 to configure the *VLAN 20* and *server node 2* VLANs.

Figure 12 VLAN membership



7. Click **Port Settings** in the left pane and click **Edit**. See Figure 13.
8. Select the **Internal Port** radio button on the Port Settings tab and select gi1/1 from the Internal Port drop-down menu, which is the server port in this example.
9. Select **Access** from the Port VLAN Mode drop-down menu.
10. Click **1** in the VLAN list field and click **Remove**.
11. Enter **10** in the VLAN list box, and click **Add**.
12. Click **Apply**.

Figure 13 Assigning VLANs to server nodes



13. Select **gi2/1** in the Internal Port drop-down menu.
14. Click **1** in the VLAN list and click **Remove**.
15. Enter **20** in the VLAN list and click **Add**.

16. Click **Apply**.
17. Click the floppy drive icon in the upper-right corner of the Port Settings: Edit page to save all new settings to the start-up configuration.

2.4 Configuring Trunk Ports

Note: The following information applies to the 1GbE switch module. The steps to configure the 10GbE switch module are similar (only the port numbering changes).

1. Expand **Port Settings** in the VRTX Switch Module **Home** page's left pane. See Figure 14.
2. Click **Edit** on the Port Settings tab.
3. Select the **External Port** radio button.
4. Select gi0/1 on the drop-down menu, which is the external port connected to the uplink switch. All the VLANs must be in the VLAN list field.
5. Select **Trunk** from the **Port VLAN Mode** drop-down menu.
6. Enter **10** in the **VLAN List** field, and click **Add**.
7. Click **Apply**.
8. Enter **20** in the **VLAN List** field and click **Apply**.
9. Click the floppy drive icon in the upper-right of the Port Settings : Edit page to save all the new settings to start-up configuration.

Figure 14 Assigning Trunk Ports

The screenshot displays the 'Port Settings : Edit' configuration page. The left navigation pane shows the following structure:

- System
 - R1-2401
 - root, r/w
 - Basic Mode
 - Home
 - System
 - Switching
 - Ports
 - Address Tables
 - Spanning Tree
 - VLAN
 - VLAN Membership
 - Port Settings**
 - LAG Settings
 - Link Aggregation
 - Multicast Support
 - Statistics/RMON

The main configuration area includes the following fields and options:

- Port:** External Port *gi0/1* (Selected), Internal Port *gi1/1*
- Port VLAN Mode:** Trunk
- Current Reserved VLAN:** (Empty)
- Reserve VLAN for Internal Use (1-4094):** None
- PVID (1-4095):** (Empty)
- VLAN List (1 - Inactive Configuration):** 1, 20 (with 'Add' and 'Remove' buttons)
- Membership:**
 - 1: Tagged
 - 2(0): Tagged
 - 3(0): Tagged
 - 4(0): Tagged
 - 5(0): Tagged
 - 6(0): Tagged
- Frame Type:** Admit All
- Ingress Filtering:** Enable
- Native VLAN ID (1-4094):** 1
- Multicast VLAN ID (1-4094):** None
- Customer VLAN ID (1-4094):** None

Buttons for 'Cancel' and 'Apply' are located at the bottom right of the configuration area.

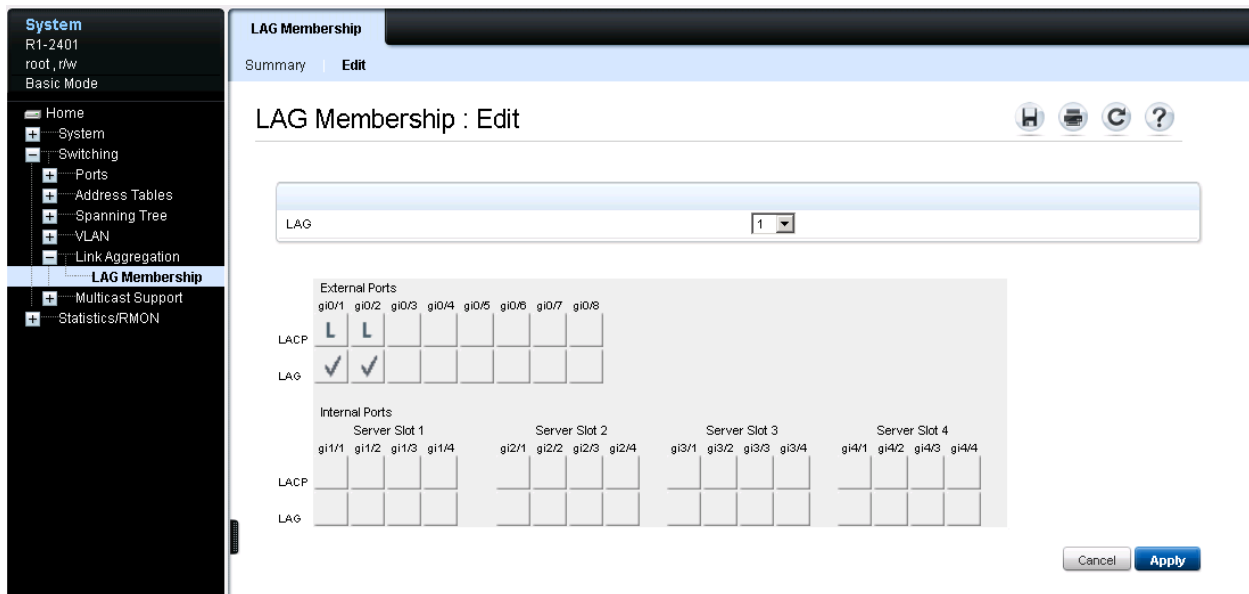
Note: Figure 14 is only an example and not representative of the previous settings made.

2.5 Configuring Link Aggregation Ports

Sometimes it is desirable to “aggregate” multiple ports together to obtain more bandwidth to support multiple downstream devices. Follow the steps below to configure LAG ports:

1. Expand **Link Aggregation** → **LAG Membership** in the left pane. See Figure 15.
2. Click **Edit** under the **LAG Membership** tab.
The default LAG Group is 1.
Add ports as members to this LAG group.
3. Click the **Gi0/1** LAG button under external ports.
This adds a check mark.
4. Click on the **LACP** button for the port.
This adds an **L** when LACP is used.
LACP is an industry-standard protocol that allows the two switches to exchange information and bring up the LAG without configuration errors. The non-LACP option tries to enable the ports even with configuration errors and potentially looping the switch connections.
5. Repeat steps 3 and 4 for **Gi0/2**.
6. Continue adding ports that form the LAG to the uplink switch, as needed.
7. Click **Apply**.

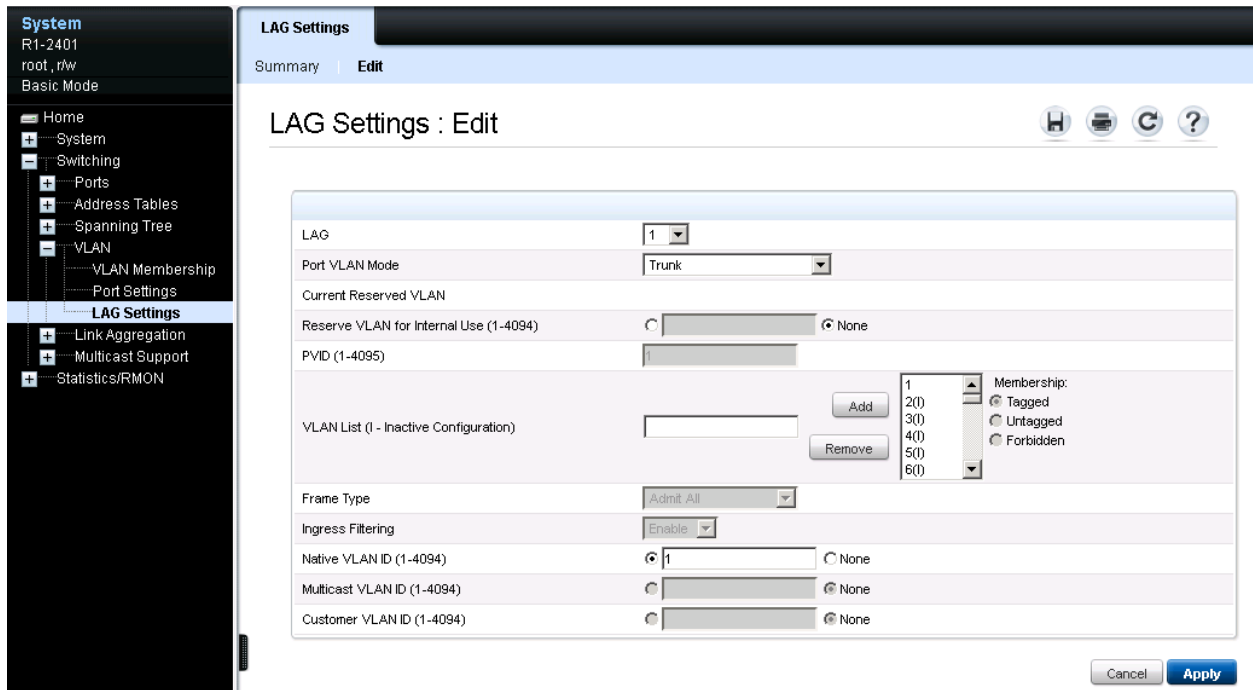
Figure 15 Assigning Ports to LAG Membership



Note: Add a LAG, and then an LACP to internal, server-facing ports on the same server with the understanding that this requires teaming/bonding the ports in the particular operating system being used.

8. Click **VLAN**→**LAG Settings**. See Figure 16.

Figure 16 Setting LAG as Trunk



Note: Figure 16 is only an example and not representative of the previous settings made.

9. Click **Edit**.
10. Change the Port VLAN Mode for **LAG 1** to **Trunk**.
11. Click **Apply**.
12. Click the floppy disk icon in the upper-right of the Port Settings : Edit page to save all new settings to the start-up configuration.
13. Click **logout** in the upper right corner of the window.

3 Connectivity, troubleshooting and product tips for VRTX Ethernet switches using CLI

The following sections contain steps to enable or troubleshoot basic connectivity. Most of these steps are CLI-only. Therefore, these sections focus on this method.

3.1 Prerequisites

The following procedures use the switch CLI, CMC CLI and blade server operating system (OS) to troubleshoot connectivity between the VRTX switch and the VRTX blade servers. These procedures require access to the VRTX switch and VRTX blade servers.

Note: See the next section on configuring the CMC for CLI access to locate instructions for connecting to the devices.

3.2 Configure the VRTX CMC for access to the CMC CLI, and switch CLI

Section 2.1 shows how to determine the IP address of the CMC. This is the same address used to access the CMC CLI.

You can also access the CLI more directly using the serial port on the back of the CMC card in the VRTX chassis.

The default serial connection settings are as follows:

- Baud rate – 115200
- User – root
- Password – calvin

3.2.1 Connect to the switch CLI from CMC CLI, SSH, and Telnet

Use the following command to connect to the switch CLI from the CMC CLI, SSH terminal or Telnet terminal.

```
$ connect switch
```

The keyboard command to exit the switch CLI and return to the CMC CLI is **Ctrl-^-** pressed simultaneously.

3.3 Basic connectivity and management from the switch CLI

The following sections contain the basic commands to enable connectivity and management through the switch CLI.

3.3.1 Check the status of all interfaces

Log in to the switch CLI and run **show interface status** to see all the interfaces and their current status.

```

VRTX-switch#show interfaces status

```

| Port | Type | Duplex | Speed | Neg | Flow ctrl | Link State | Back Pressure | Mdix Mode |
|-------|-----------|--------|-------|---------|-----------|------------|---------------|-----------|
| gi0/1 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Off |
| gi0/2 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/3 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/4 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/5 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/6 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/7 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi0/8 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi1/1 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi1/2 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi1/3 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi1/4 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi2/1 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi2/2 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi2/3 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi2/4 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi3/1 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi3/2 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi3/3 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi3/4 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi4/1 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi4/2 | 1G-Copper | Full | 1000 | Enabled | Off | Up | Disabled | Unknown |
| gi4/3 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |
| gi4/4 | 1G-Copper | -- | -- | -- | -- | Down | -- | -- |

| Ch | Type | Duplex | Speed | Neg | Flow control | Link State |
|-----|-------------|--------|-------|----------|--------------|------------|
| oob | 100M-Copper | Full | 100 | Disabled | Up | |

3.3.2 Check a specific port status from the switch CLI

Log in to the switch CLI and run **show interface status gi s/p** (where s= slot, p=port).

Example for a Down port:

```
VRTX-switch#show interface status gi1/1
```

| Port | Type | Duplex | Speed | Neg | Flow ctrl | Link State | Back Pressure | Mdix Mode |
|-------|------|--------|-------|-----|-----------|-------------|---------------|-----------|
| gi1/1 | 1G | -- | -- | -- | -- | Down | -- | ---- |

Example for an Up port:

```
VRTX-switch#show interface status gi1/1
```

| Port | Type | Duplex | Speed | Neg | Flow ctrl | Link State | Back Pressure | Mdix Mode |
|-------|------|--------|-------|---------|-----------|------------|---------------|-----------|
| gi1/1 | 1G | Full | 1000 | Enabled | Off | Up | Disabled | Off |

3.3.3 Shut/no shut a switch port from the switch CLI

Log in to the switch CLI and go to interface configuration mode, identify the switch port you want to configure and enter the appropriate shut/no shut command:

```
VRTX-switch#config
VRTX-switch(conf)#interface gi1/1
VRTX-switch(conf-if)#shutdown
VRTX-switch(conf-if)#no shutdown
VRTX-switch(conf-if)#end
```

3.3.4 Save the running-configuration on a switch from the switch CLI

Type the following command from the switch CLI to save the running-config to be active in the event of a switch reload:

```
VRTX-switch#copy running-config startup-config
```

3.3.5 Reload a switch from the switch CLI

Log in to the switch CLI and type the following command to reload or reboot the switch:

```
VRTX-switch#reload
VRTX-switch#This command will reset the whole system and disconnect
your current session. Do you want to continue? (Y/N) [N] Y
```

Note: Be sure to save running-config from section 3.3.4 before reloading.

3.3.6 Assign an IP address to switch VLAN 1 from the switch CLI

Log in to the switch CLI and configure the VLAN 1 IP address.

Note: If you completed this configuration in previous sections with the CMC GUI. You do not need to do it again.

3.3.6.1 Connect the network to an external port on a VRTX switch

If using a DHCP IP Address

Use the following commands for VLAN 1 IP address assignment with DHCP:

```
VRTX-switch#config
VRTX-switch(conf)#interface vlan 1
VRTX-switch(conf-if)#ip address dhcp
VRTX-switch(conf-if)#end
```

If using Static IP Address

Use the following commands for VLAN 1 static IP address assignment. This example applies the IP address 192.168.3.100 to the switch.

Note: This address must match the applicable infrastructure where the VRTX is being installed.

```
VRTX-switch#config
VRTX-switch(conf)#interface vlan 1
VRTX-switch(conf-if)#ip address 192.168.3.100 /24
VRTX-switch(conf-if)#end
```

Confirm application of the IP address to the interface

Use the following command to verify VLAN 1 IP address configuration. In this example, *nnn.nnn.nnn.nnn* is specific to the infrastructure being used.

```
VRTX-switch#show ip interface
```

| Gateway | IP Address | Activity | Status | Type | IP Address | I/F | Type | Status |
|---------|------------------------|----------|--------|------|------------------------|--------|-------|--------|
| ----- | ----- | ----- | ----- | --- | ----- | ----- | ----- | ----- |
| | <i>nnn.nnn.nnn.nnn</i> | Active | | dhcp | <i>nnn.nnn.nnn.nnn</i> | vlan 1 | DHCP | Valid |

3.4 Troubleshooting and connectivity tips

This section covers general and connectivity troubleshooting. While it may not address all problems, it should cover the most common problems.

3.4.1 Password recovery and setting the switch to factory defaults

If device management access uses the switch's local user database and loses the password, there are two procedures to recover the password: through the CMC and through the switch's Startup Menu.

Set the switch to factory default and recover the password through the CMC

The following command resets the switch to factory default, enabling password recovery.

Note: Completion of this procedure loses the current switch configuration. Enter this command through the CMC CLI.

Log in and enter the following command:

```
$ racadm racresetcfg -m switch
```

The previous command restores the switch to the default configuration with default settings. Use the default username and password on the next boot.

Password recovery through the switch startup menu

You can only access the Startup Menu through a CMC connection to the switch and only on FW releases 2.0.0.39 and higher

To enter the **Startup** menu after logging into the CMC CLI, enter the following command:

```
$ connect switch
```

Log in to the switch console CLI and then reload the switch confirming the action with a **Y**

```
VRTX-switch# reload
VRTX-switch#This command will reset the whole system and disconnect
your current session. Do you want to continue? (Y/N) [N]Y
```

The switch automatically terminates the CMC switch connection. Quickly re-login to the switch to capture the switch during switch POST:

```
$ connect switch
```

1. When the prompt: **Autoboot in 2 seconds - press RETURN** displays during the switch boot process, press **RETURN** before 2 seconds have passed. The Startup Menu now displays.
2. Select option **[3] Password Recovery** from the Startup menu and press **Enter** to ignore the request for the current password when the switch boot process continues.
3. Select **[5] Back**. The boot process continues and ignores the password prompt.

4. Update password.

Note: If the service password-recovery command is enabled, complete configuration is retained. If the service password-recovery command is disabled, the switch is restored to the default configuration and uses default settings and default user/password on the next boot.

3.4.2 Troubleshooting flow chart

The troubleshooting flow chart shown in Figure 17 and Figure 18 provides server I/O connectivity troubleshooting. For additional explanation of the steps in the flow chart, see Section 3.4.3.

Figure 17 Troubleshooting Flow Chart (Part 1)

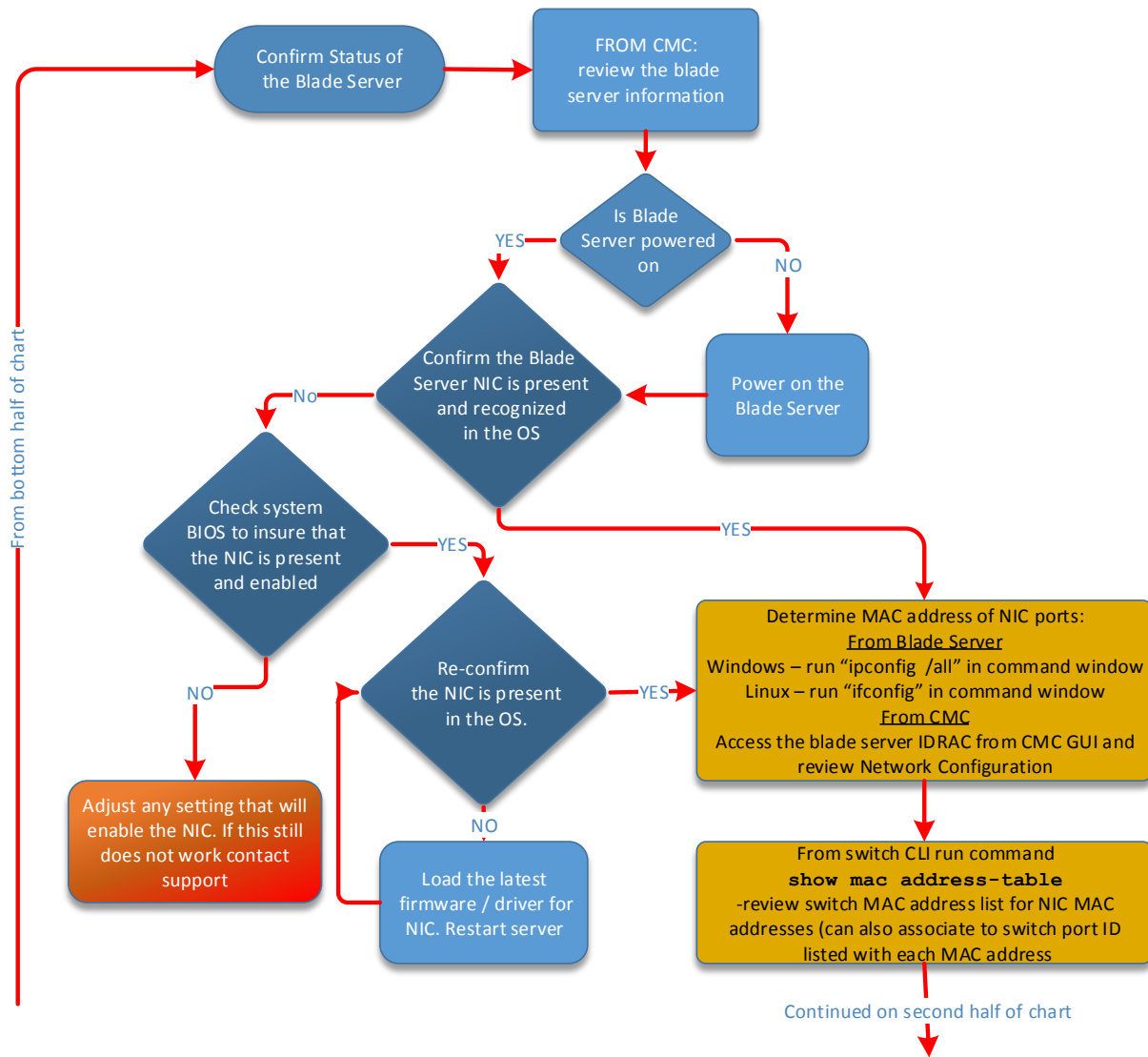
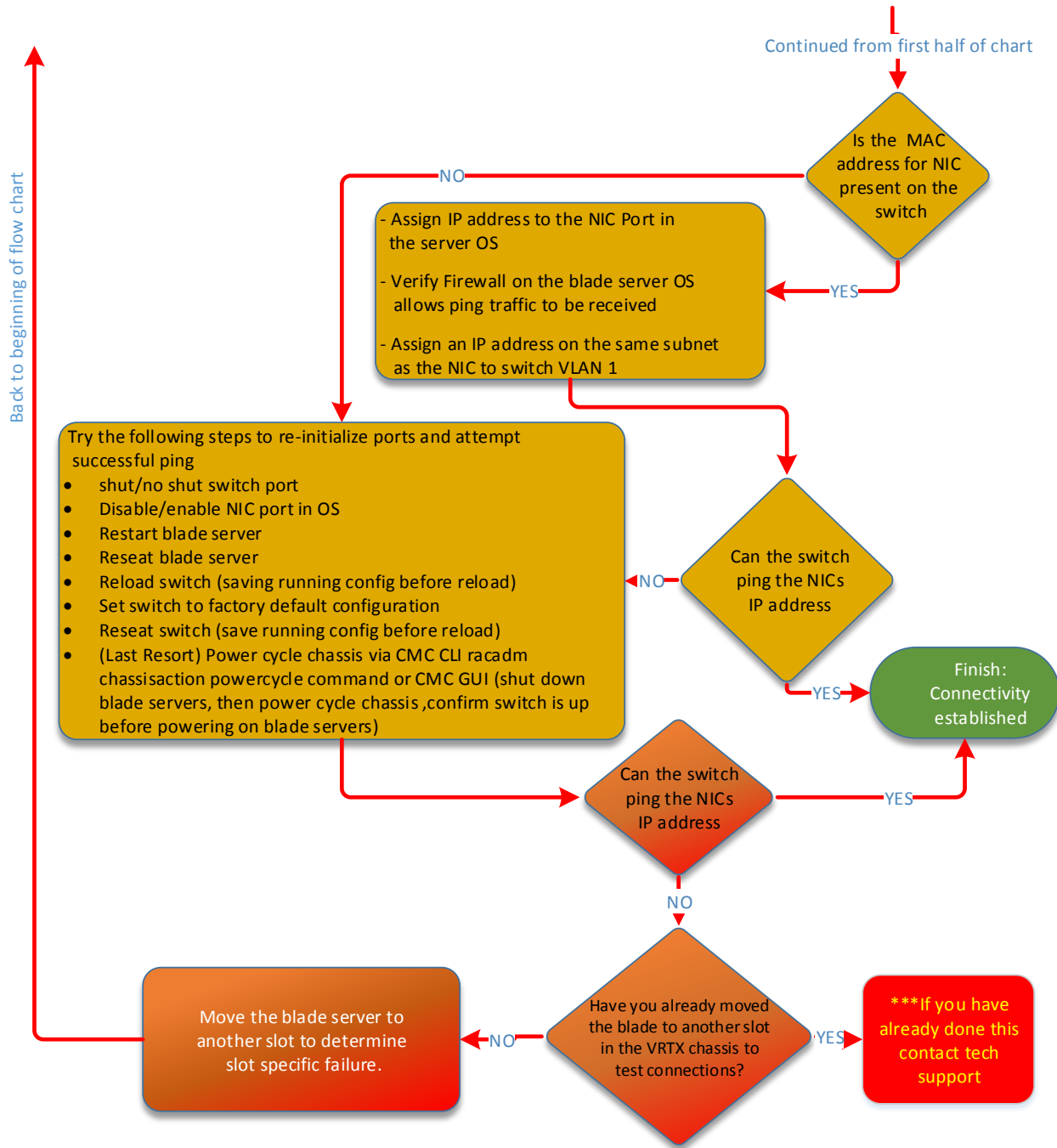


Figure 18 Troubleshooting Flow Chart (Part 2)



3.4.3 Additional explanation of troubleshooting steps

3.4.3.1 How to Confirm the NIC is present on blade server

Enter the LifeCycle Controller during Post or check the blade server information from the CMC.

1. During blade server POST, enter LifeCycle Controller mode (F10) and confirm NIC is listed in inventory
If it is not listed:
 - a. Verify installation of NIC in blade server.
 - b. Install NIC if necessary.If it is listed:
 - a. Restart or reseal blade server.
 - b. If after restart/reseal of blade server, blade server does not recognize NIC, a NIC may have failed. Please contact technical support.
2. From CMC, review blade server information and confirm listing of NIC in configuration
If it is not listed:
 - a. Verify NIC is installed in blade server
 - b. If NIC is not installed, install NICIf it is listed:
 - a. Restart or reseal blade server
 - b. If after restart/reseal of the blade server, the blade server does not recognize the NIC, a NIC may have failed. Please contact technical support.

Notes:

1. OS's may not enumerate NIC ports in order. Confirm the NIC's physical location, either in LifeCycle Controller Mode (F10), UEFI BIOS setup (F2) or within the OS to determine the corresponding switch port.

2. NICs are configured with IPv4 and IPv6 enabled by default. To reconfigure NIC defaults, use either the Dell LifeCycle Controller Mode (F10), UEFI BIOS setup (F2), the NIC Configuration Utility that ships with all NICs (may need to be installed, download from support.dell.com), or the advanced Network Settings options within the OS. The Network Settings options within the OS may be part of the adapter configuration settings and should be used for Intel NICs in lieu of a NIC Configuration Utility since they do not provide one.

3.4.3.2 The switch CLI shows the interface down and blade server NIC shows *not connected* or *link down* in OS

1. Confirm that the blade server is up.
 - a. From CMC, review the blade server information.
 - b. Confirm that the blade server is powered on. If not, power up the blade server.
 - c. Confirm the blade server NIC is present and recognized.
2. OS still shows *not connected*, but NIC is confirmed present

- a. Enter config mode from the switch CLI and execute shut/no shut on the switch port.
- b. Verify switch port link state. If up, re-initialization of the link was required to bring port up.
- c. If port is still down, follow these steps to re-initialize the ports to get a link “up” state.
 - i. Disable/Enable NIC port in OS.
 - ii. Restart blade server.
 - iii. Reseat blade server.
 - iv. Save running-config and reload switch.
 - v. Set switch to factory default configuration.
 - vi. Save running-config and reseat switch.
 - vii. (Last Resort) Power cycle chassis via CMC CLI or CMC GUI **racadm chassisaction powercycle** command.
 1. Shut down blade servers first, then power cycle chassis.
 2. Confirm switch is booted to login before powering on blade servers.
- d. Determine whether port down is slot specific.
 - i. Move blade server to new slot.
 - ii. Verify switch port status.
 1. If switch ports are down, note defective ports and contact technical support.
 2. If switch ports are up, point of failure for failing slot position could be with switch ports or slot.
 3. Optionally, test the rest of the slots.
 4. To determine whether the switch is the point of failure, further debug must be done. Next step is to contact tech support.

3.4.3.3 The interface shows up from the CLI, but connectivity to the blade server NIC fails

1. Confirm blade server is up
 - a. From CMC, review blade server information.
 - b. If blade server is not powered on, power up blade server.
 - c. Confirm the blade server NIC is present and recognized.
2. Confirm that the network cable is plugged into the switch and the link light is on.
3. Determine whether NIC MAC addresses exist in the switch MAC address table.
 - a. Determine the MAC address of NIC ports.

From blade server

 - i. Windows: Run ipconfig in command window.
 - ii. Linux: Run *ifconfig* in command window.

From CMC

 - i. Access blade server iDRAC from CMC GUI and review Network Configuration.

- b. From switch CLI run command **show mac address-table**.
Review switch MAC address list for NIC MAC addresses (can also associate to switch port ID listed with each MAC address).

Note: More than one MAC can be present per NIC port if NIC is a CNA

4. Confirm ping traffic passes if NIC MAC addresses are present
From the switch CLI – enter in the appropriate address for *nnn.nnn.nnn.nnn* with *nnn.nnn.nnn.nnn* being the appropriate IP address on the infrastructure subnet.

```
VRTX-switch#ping nnn.nnn.nnn.nnn
Pinging nnn.nnn.nnn.nnn with 18 bytes of data:

18 bytes from nnn.nnn.nnn.nnn: icmp_seq=1. time=0 ms
18 bytes from nnn.nnn.nnn.nnn: icmp_seq=2. time=0 ms
18 bytes from nnn.nnn.nnn.nnn: icmp_seq=3. time=0 ms
18 bytes from nnn.nnn.nnn.nnn: icmp_seq=4. time=0 ms

----nnn.nnn.nnn.nnn PING Statistics----
4 packets transmitted, 4 packets received, 0% packet loss
round-trip (ms) min/avg/max = 0/0/0
```

5. If NIC MAC addresses are not present, restart blade server, repeat MAC address review after blade server restart
 - a. Assign IP Address to NIC port.
Do this via the blade server OS.
 - b. Verify Firewall on blade server OS allows ping traffic to be received.
 - c. Assign an IP Address on the same subnet as NIC to switch VLAN 1.
 - d. From switch ping NIC IP address.
 - If ping is successful, connectivity is established.
 - If ping is unsuccessful, try each step below to reinitialize ports and attempt successful ping.
 - Shut/no shut switch port.
 - Disable/Enable NIC port in OS.
 - Restart blade server.
 - Reseat blade server.
 - Save running-config and reload switch.
 - Set switch to factory default configuration.
 - Save running-config and reseat switch.
 - Last Resort - Power cycle chassis via CMC CLI **racadm chassisaction powercycle** command or CMC GUI (shut down blade servers, then power cycle chassis, confirm switch is up before powering on blade servers).
 - If ping is still unsuccessful, verify if connectivity failure is slot specific.
 - Move blade server to new slot.
 - a. Verify switch port status.
 - b. Verify if NIC MAC addresses are present.
 - c. If NIC MAC addresses are present, shut/no shut a switch port from the switch CLI, complete the following steps:

- i. Log in to the switch CLI and go to interface configuration mode.
 - ii. Identify the switch port you want to configure.
 - iii. Enter the appropriate shut/no shut command.
 - iv. Contact tech support, noting defective ports (i.e., if ports 1/1-4 did not connect properly, and ports 2/1-4 do, switch is defective for ports 1/1-4).
- o If NIC MAC addresses are still not present after slot move, repeat previous steps. If these steps fail, the switch as a whole may be failing:
 - a. Shut/no shut switch port.
 - b. Disable/Enable NIC port in OS.
 - c. Restart blade server.
 - d. Reseat blade server.
 - e. Save running-config and reload switch.
 - f. Save running-config and reseat switch.
 - g. (Last Resort) Power cycle chassis via CMC CLI or CMC GUI using the **racadm chassisaction powercycle** command (shut down blade servers, then power cycle chassis, confirm switch is up then power-on blade servers).

A Acronyms used in this document

The following table lists the acronyms that this document contains and their meanings:

| Acronym | Meaning |
|----------------|-------------------------------|
| CMC | Chassis management controller |
| CLI | Command line interface |
| GUI | Graphical user interface |
| IOM | I/O module |
| LAG | Link aggregation group |
| OOB | Out-of-band |
| OS | Operating system |
| PTM | Pass-through module |
| TOR | Top of rack |

B Additional resources

- Additional information for the Dell PowerEdge VRTX can be found at [Dell PowerEdge VRTX Product Page](#).
- The User Guide for the Dell PowerEdge VRTX contains additional configuration details. Download the latest User Guide at <http://www.dell.com/support>. This site is focused on meeting your needs with proven services and support.
- <http://DellTechCenter.com> is an IT Community where you can connect with Dell EMC Customers and Dell EMC employees to share knowledge, best practices, and information about Dell EMC products and installations.
- For information on VRTX training, please visit learndell.com/server or email Dell EMC Education Services at US_Training@Dell.com.

Support and feedback

Contacting technical support

Support Contact Information

Web: <http://Support.Dell.com/>

Telephone: USA: 1-800-945-3355

Feedback for this document

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