Virtual Interface Card

Overview of virtual interface card

Cisco UCS Virtual Interface Card (VIC) 1455 is a Quad Port 10/25G SFP28 Converged Network Adapter (CNA) Peripheral Component Interconnect Express (PCIe) card that is designed for UCS C-Series M5 and M6 rack servers. From IEC6400 Release 1.1.0, use the Cisco Integrated Management Controller (CIMC) to configure the VIC 1455 adapter card.

VIC

A VIC is a physical hardware component in the UCS system. It is a type of network adapter that creates multiple Virtual Network Interface Card (vNICs) on a single physical card.

vNIC

In the UCS environment, you can create and manage vNICs, which are logical interfaces assigned to virtual machines or service profiles.

Specifications of Cisco UCS VIC

- Quad Port: The VIC 1455 has four ports, allowing multiple network connections.
- 10/25G SFP28: The VIC ports support both 10 and 25 Gigabit Ethernet speeds using SFP28 transceivers.
- CNA: The VIC handles both Ethernet and Fibre Channel over Ethernet (FCoE) traffic, combining network and storage traffic onto a single adapter.
- PCIe: The VIC uses a PCIe interface to connect to the server's motherboard, ensuring high-speed data transfer.

Verify VIC status using gateway's CLI

Use the **ethernet** command to view the VIC status in the gateway.

```
Device#ethernet
Ethernet port status:
eth0/0 UP Full-duplex 1000
eth0/1 DOWN
SFP+ port status:
sfp1/0 DOWN
sfp1/1 DOWN
sfp1/2 DOWN
sfp1/3 DOWN

link aggregation: backup
Ethernet interface MTU:  1530
```

If the **ethernet** command output does not show the **SFP+ port status** section, assume that the gateway either does not recognize the VIC or is not configured with the VIC. To configure vNIC, refer either Configure the vNIC using CIMC GUI or Configure the vNIC using CIMC CLI.

Configure the vNIC using the CIMC GUI

Follow this procedure if any of the following conditions apply:

- If the VIC is installed after the product delivery.
- If the URWB software does not recognize the card.

Note Repeat these two configuration procedures to configure the vNIC properties for eth1, eth2, and eth3.

Before you begin

Ensure the gateway is powered on.

Configure the adapter card general settings using GUI

Procedure

Step 1 Log into the CIMC web application using your credentials.

Step 2 On the home page, click  at the top left to open the **Networking** menu.

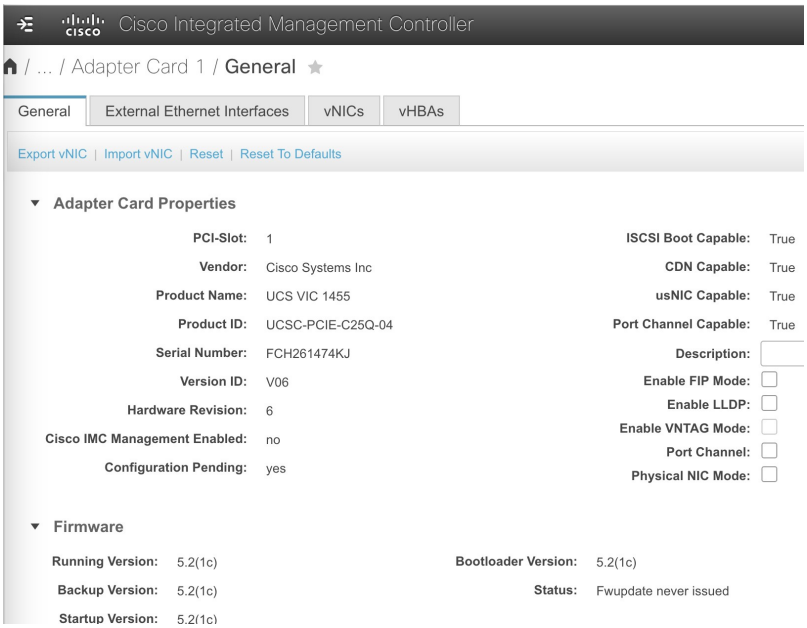
Step 3 Click **Networking** > **Adapter Card 1**.
General tab appears.

Step 4 From the **General** tab, expand **Adapter Card Properties** to update these fields:

a) Uncheck the **Enable FIP Mode** check box.

b) Uncheck the **Enable LLDP** check box.
c) Uncheck the **Port Channel** check box.

Note
All other settings in **Adapter Card Properties** and **Firmware** section should be same as in the screenshot.



Step 5 Click **Save Changes**.

Configure the adapter card vNIC settings using GUI

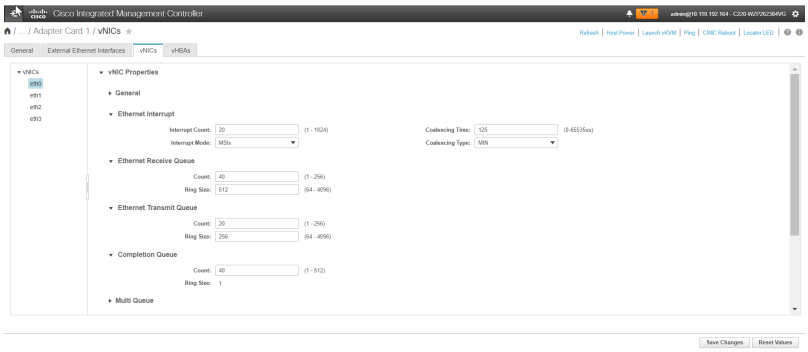
Before you begin

Perform steps 1 to 3 as mentioned in the Configure the adapter card general settings using GUI to reach the **Adapter Card 1** window and click **vNICs** tab.

Procedure

Step 1 In the **vNICs** section, click **Add vNIC** to create a new vNIC.

Note
You must create four vNIC interfaces and name them as eth0, eth1, eth2, and eth3. Ensure the vNIC settings should be same as shown in the screenshot.



Step 2 Expand **vNICs** drop-down list from left menu and click **eth0**.

Step 3 Expand **vNIC Properties** to display following sections:

- **General**
- **Ethernet Interrupt**
- **Ethernet Receive Queue**
- **Ethernet Transmit Queue**
- **Completion Queue**

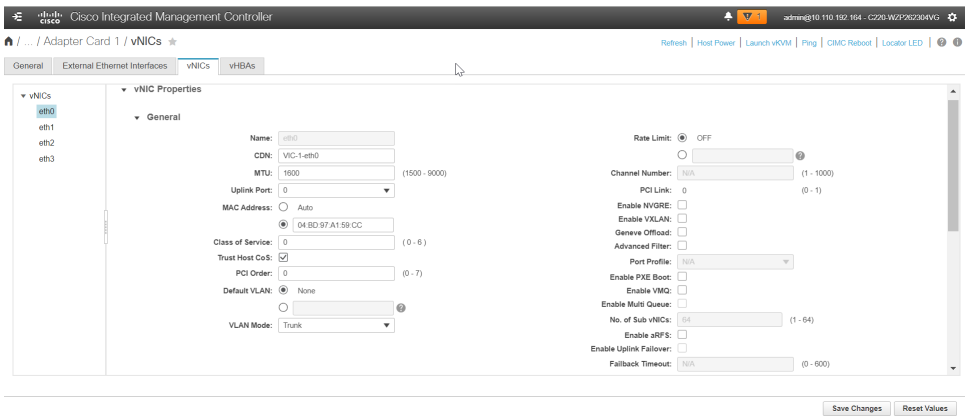
Step 4 Expand **General** to update these fields:

a) Enter 1600 in the **MTU** field.

b) Check the **Trust Host CoS** check box.

Note

- Set the MTU value to 1600. Using any other value may lead to unexpected results.
- All other settings in **General** section should be same as shown in the screenshot.



Step 5 Expand **Ethernet Interrupt** to update these fields:

a) Enter 20 in the **Interrupt Count** field.

b) Choose **MSIx** from the **Interrupt Mode** drop-down list.

Step 6 Expand **Ethernet Receive Queue** to update these fields:

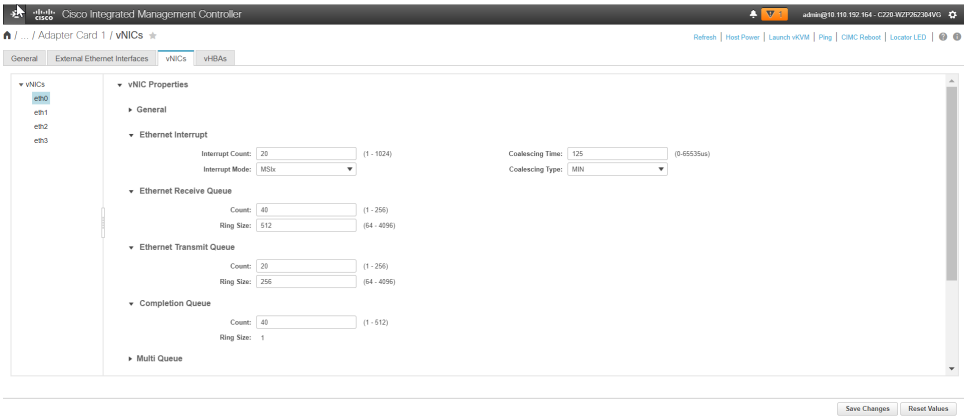
a) Enter 40 in the **Count** field.
b) Enter 512 in the **Ring Size** field.

Step 7 Expand **Ethernet Transmit Queue** to update these fields:

a) Enter 20 in the **Count** field.
b) Enter 256 in the **Ring Size** field.

Step 8 Expand **Completion Queue** to enter 40 in the **Count** field.

Note
All other settings in **Ethernet Interrupt, Ethernet Receive Queue**, **Ethernet Transmit Queue**, and **Completion Queue** sections should be same as shown in the screenshot.



Step 9 Click **Save Changes**.

Note
Repeat the configuration steps in the topic Configure the vNIC using the CIMC GUI to configure the vNIC properties for eth1, eth2, and eth3.

Step 10 Click **Host Power** > **Power Cycle** to reboot the gateway.
When gateway reboots, log into the CIMC through SSH using your credentials to check the VIC adapter status. For information on how to check VIC adapter status, see Verify VIC status using CIMC CLI.

Configure the vNIC using the CIMC CLI

Follow this procedure if any of the following conditions apply:

- If the VIC is installed after the product delivery.
- If the URWB software does not recognize the card.

Note Repeat these two CLI configuration procedures to configure the vNIC properties for eth1, eth2, and eth3.

Before you begin

Ensure the gateway is powered on.

Configure the adapter card general settings using CLI

Procedure

Step 1 Use the **scope chassis** command to enter the gateway.

```
Device# scope chassis
```

Step 2 Use the **scope adapter 1** command to enter the gateway's adapter.

```
Device /chassis# scope adapter 1
```

Step 3 Use the **set fip-mode disabled** command to disable FCoE initialization protocol (FIP) mode.

```
Device /chassis/adapter# set fip-mode disabled
```

Step 4 Use the **set lldp disabled** command to disable Link layer discovery protocol (LLDP) mode.

```
Device /chassis/adapter *# set lldp disabled
```

Step 5 Use the **set portchannel disabled** command to disable the port channel.

```
Device /chassis/adapter *# set portchannel disabled
```

Step 6 Use the **commit** command to update the changes.

```
Device /chassis/adapter *# commit
```

Configure the adapter card vNIC settings using CLI

If the gateway either does not recognize the VIC or is not configured with the VIC, update the following settings of vNIC Properties:

Procedure

Step 1 Configure the general settings using CLI
Step 2 Configure the ethernet receive queue settings using CLI
Step 3 Configure the ethernet transmit queue settings using CLI
Step 4 Configure the completion queue settings using CLI
Step 5 Configure the ethernet interrupt settings using CLI

Configure the general settings using CLI

Before you begin

Perform steps 1 and 2 of the Configure the adapter card general settings using CLI to reach the Adapter card 1 settings.

Procedure

Step 1 Use the **scope host-eth-if eth0** command to enter the eth0 mode.

```
Device /chassis/adapter *# scope host-eth-if eth0
```

Step 2 Use the **set mtu 1600** command to configure the MTU value as 1600.

```
Device /chassis/adapter/host-eth-if *# set mtu 1600
```

Step 3 Use the **set trust-host-cos enable** command to enable the Trust Host CoS.

```
Device /chassis/adapter/host-eth-if *# set trust-host-cos enable
```

Configure the ethernet receive queue settings using CLI

Before you begin

Perform steps 1 and 2 of the Configure the adapter card general settings using CLI to reach the Adapter card 1 settings.

Procedure

Step 1 Use the **scope recv-queue** command to enter the ethernet receive queue mode.

```
Device /chassis/adapter/host-eth-if *# scope recv-queue
```

Step 2 Use the **set rq-count 40** command to configure the ethernet receive queue count value as 40.

```
Device /chassis/adapter/host-eth-if/recv-queue *# set rq-count 40
```

Step 3 Use the **set rq-ring-size 512** command to configure the ethernet receive queue ring size as 512.

```
Device /chassis/adapter/host-eth-if/recv-queue *# set rq-ring-size 512
```

Step 4 Use the **exit** command to exit from the ethernet receive queue.

```
Device /chassis/adapter/host-eth-if/recv-queue *# exit
```

Configure the ethernet transmit queue settings using CLI

Before you begin

Perform steps 1 and 2 of the Configure the adapter card general settings using CLI to reach the Adapter card 1 settings.

Procedure

Step 1 Use the **scope trans-queue** command to enter the ethernet transmit queue mode.

```
Device /chassis/adapter/host-eth-if *# scope trans-queue
```

Step 2 Use the **set wq-count 20** command to configure the ethernet transmit queue count value as 20.

```
Device /chassis/adapter/host-eth-if/trans-queue *# set wq-count 20
```

Step 3 Use the **set wq-ring-size 256** command to configure the ethernet transmit queue ring size as 256.

```
Device /chassis/adapter/host-eth-if/trans-queue *# set wq-ring-size 256
```

Step 4 Use the **exit** command to exit from the ethernet transmit queue.

```
Device /chassis/adapter/host-eth-if/trans-queue *# exit
```

Configure the completion queue settings using CLI

Before you begin

Perform steps 1 and 2 of the Configure the adapter card general settings using CLI to reach the Adapter card 1 settings.

Procedure

Step 1 Use the **scope comp-queue** command to enter the completion queue mode.

```
Device /chassis/adapter/host-eth-if *# scope comp-queue
```

Step 2 Use the **set cq-count 40** command to configure the completion queue count value as 40.

```
Device /chassis/adapter/host-eth-if/comp-queue *# set cq-count 40
```

Step 3 Use the **exit** command to exit from the completion queue.

```
Device /chassis/adapter/host-eth-if/comp-queue *# exit
```

Configure the ethernet interrupt settings using CLI

Before you begin

Perform steps 1 and 2 of the Configure the adapter card general settings using CLI to reach the Adapter card 1 settings.

Procedure

Step 1 Use the **scope interrupt** command to enter the ethernet interrupt mode.

```
Device /chassis/adapter/host-eth-if # scope interrupt
```

Step 2 Use the **set interrupt-count 20** command to configure the ethernet interrupt count value as 20.

```
Device /chassis/adapter/host-eth-if/interrupt # set interrupt-count 20
```

Step 3 Use the **exit** command to exit from the ethernet interrupt mode.

```
Device /chassis/adapter/host-eth-if/interrupt *# exit
```

Step 4 Use the **exit** command to exit from the eth0 mode.

```
Device /chassis/adapter/host-eth-if *# exit
```

Note
Repeat the steps as mentioned in the Configure the vNIC using the CIMC CLI to modify the vNIC properties for eth1, eth2, and eth3.

Step 5 Use the **commit** command to reflect the updates.

```
Device /chassis/adapter *# commit
```

Step 6 Use the **exit** command to exit from the adapter properties.

```
Device /chassis/adapter # exit
```

Step 7 Use the **exit** command to exit from the gateway.

```
Device /chassis # exit
```

Step 8 Upon successful configuration, use the **power cycle** command to reboot the gateway.

```
Device /chassis # power cycle
```