

Configuring NVMe on RoCEv2 with ESXi

- Guidelines for using RoCEv2 Protocol in the Native ENIC driver on ESXi, on page 1
- ESXi nENIC RDMA Requirements, on page 1
- Installing NENIC Driver, on page 2
- Configuring and Enabling RoCEv2 on Cisco IMC, on page 3
- ESXi NVMe RDMA Host Side Configuration, on page 4

Guidelines for using RoCEv2 Protocol in the Native ENIC driver on ESXi

General Guidelines and Limitations:

- Cisco IMC release 4.2(3b) supports RoCEv2 only on ESXi 7.0 U3.
- Cisco recommends you check UCS Hardware and Software Compatibility specific to your Cisco IMC release to determine support for ESXi. RoCEv2 on ESXi is supported on UCS M6 C-Series servers with Cisco UCS VIC 15000 Series adapters.
- RoCEv2 on ESXi is not supported on UCS VIC 1400 Series adapters.
- RDMA on ESXi nENIC currently supports only ESXi NVME that is part of the ESXi kernel. The current implementation does not support the ESXi user space RDMA application.
- Multiple mac addresses and multiple VLANs are supported only on VIC 15000 Series adapters.
- RoCEv2 supports maximum two RoCEv2 enabled interfaces per adapter.
- Pvrdma, VSAN over RDMA, and iSER are not supported.

Downgrade Limitations:

• Cisco recommends you remove the RoCEv2 configuration before downgrading to any non-supported RoCEv2 release.

ESXi nENIC RDMA Requirements

Configuration and use of RoCEv2 in ESXi requires the following:

- VMWare ESXi version 7.0 U3.
- Cisco IMC release 4.2.3 or later
- RoCEv2 is supported on Cisco UCS M6 C-Series servers with Cisco UCS VIC 15xxx adapters.
- nenic-2.0.4.0-10EM.700.1.0.15843807.x86_64.vib provides both standard eNIC and RDMA support.
- A storage array that supports NVMeoF connection. Currently, tested and supported on Pure Storage with Cisco Nexus 9300 Series switches.

Downgrade Limitations:

 Cisco recommends you remove the RoCEv2 configuration before downgrading to any non-supported RoCEv2 release.

Installing NENIC Driver

The enic drivers, which contain the rdma driver, are available as a combined package. Download and use the enic driver on cisco.com.

These steps assume this is a new installation.

Note While this example uses the /tmp location, you can place the file anywhere that is accessible to the ESX console shell.

Step 1 Copy the enic VIB or offline bundle to the ESX server. The example below uses the Linux **scp** utility to copy the file from a local system to an ESX server located at 10.10.10.10: and uses the location /tmp.

scp nenic-2.0.4.0-10EM.700.1.0.15843807.x86_64.vib root@10.10.10.10:/tmp

Step 2 Specifying the full path, issue the command shown below.

esxcli software vib install -v {VIBFILE}

or

esxcli software vib install -d {OFFLINE_BUNDLE}

Here is an example:

esxcli software vib install -v /tmp/nenic-2.0.4.0-10EM.700.1.0.15843807.x86_64.vib

Note Depending on the certificate used to sign the VIB, you may need to change the host acceptance level. To do this, use the command: esxcli software acceptance set --level=<level>

Depending on the type of VIB being installed, you may need to put ESX into maintenance mode. This can be done through the VI Client, or by adding the --maintenance-mode option to the above esxcli command.

Upgrading NENIC Driver

a. To upgrade NENIC driver, enter the command:

esxcli software vib update -v {VIBFILE}

or

esxcli software vib update -d {OFFLINE_BUNDLE}

b. Copy the enic VIB or offline bundle to the ESX server using Step 1 given above.

Configuring and Enabling RoCEv2 on Cisco IMC

Creating and Configuring the ESXi Adapter Policy in Cisco IMC

This procedure applies to configuring the ESXi adapter policy for RoCEv2.

Before you begin

Download and install the enic-nvme driver which supports RoCEv2.

- **Step 1** In the **Navigation** pane, click the **Networking** menu.
- **Step 2** Expand **Networking** and click on the adapter to configure RoCEv2 vNIC.
- Step 3 Select the vNICs tab.
- **Step 4** Perform one the following:
 - Click Add vNIC to create a new vNIC and modify the properties as mentioned in next step.
 - From the left pane, select an existing vNIC and modify the properties as mentioned in next step.

Step 5 Expand **General** pane.

- a) On the MAC address dropdown, select the Auto checkbox or enter the desired address.
- b) Select which VLAN you want use use from the drop-down list.
- c) Click OK.
- Step 6 Expand RoCE Properties.
- **Step 7** Select **RoCE** checkbox.
- **Step 8** Modify the following vNIC properties:

Property	Field	Value
Ethernet Interrupt	Interrupt count field	256
	Coalescing Time field	125
	Interrupt Mode field	MSIx
	Coalescing Type field	MIN
Ethernet Receive Queue	Count field	1
	Ring Size field	512

Property	Field	Value
Ethernet Transmit Queue	Count field	1
	Ring Size field	256
Completion Queue	Count field	2
RoCE Properties	Queue Pairs field	1024
	Memory Regions field	131072
	Resource Groups field	8
	Class of Service drop-down list	5

Step 9 Click Save Changes.

Step 10

```
10 Select Reboot.
```

ESXi NVMe RDMA Host Side Configuration

NENIC RDMA Functionality

One major difference between the use case for RDMA on Linux and ESXi is in ESXi terminology. The physical interface (vmnic) MAC is not used for RoCEv2 traffic. Instead, the VMkernel port (vmk) MAC is used.

The outgoing RoCe packets uses vmk MAC in ethernet source mac field and incoming RoCE packets use the vmk MAC in the ethernet destination mac field. The vmk MAC address is a VMware mac address assigned to the vmk interface when it is created.

Linux implementation used the physical interface MAC in source MAC address field in the ROCE packets. This Linux MAC is usually a Cisco MAC address configured to the VNIC.

If you ssh into the host and use the esxcli network ip interface list command, you can see the MAC address.

```
vmk⊖
  Name: vmk0
  MAC Address: 2c:f8:9b:a1:4c:e7
  Enabled: true
  Portset: vSwitch0
   Portgroup: Management Network
  Netstack Instance: defaultTcpipStack
   VDS Name: N/A
   VDS UUID: N/A
   VDS Port: N/A
   VDS Connection: -1
   Opaque Network ID: N/A
   Opaque Network Type: N/A
   External ID: N/A
  MTU: 1500
   TSO MSS: 65535
  RXDispQueue Size: 2
  Port ID: 67108881
```

You must create a vSphere Standard Switch to provide network connectivity for hosts, virtual machines, and to handle VMkernel traffic. Depending on the connection type that you want to create, you can create a new vSphere Standard Switch with a VMkernel adapter, only connect physical network adapters to the new switch, or create the switch with a virtual machine port group.

Create Network Connectivity Switches

Use these steps to create a vSphere Standard Switch to provide network connectivity for hosts, virtual machines, and to handle VMkernel traffic.

Before you begin

Download the enic and enic-rdma drivers.

- **Step 1** In the vSphere Client, navigate to the host.
- Step 2 On the Configure tab, expand Networking and select Virtual Switches.
- Step 3 Click on Add Networking.

The available network adapter connection types are:

Vmkernel Network Adapter

Creates a new VMkernel adapter to handle host management traffic

Physical Network Adapter

Adds physical network adapters to a new or existing standard switch.

• Virtual Machine Port Group for a Standard Switch

Creates a new port group for virtual machine networking.

- **Step 4** Select connection type **Vmkernel Network Adapter**.
- Step 5 Select New Standard Switch and click Next.
- **Step 6** Add physical adapters to the new standard switch.
 - a) Under Assigned Adapters, select New Adapters.
 - b) Select one or more adapters from the list and click **OK**. To promote higher throughput and create redundancy, add two or more physical network adapters to the Active list.
 - c) (Optional) Use the up and down arrow keys to change the position of the adapter in the Assigned Adapters list.
 - d) Click Next.
- **Step 7** For the new standard switch you just created for the VMadapter or a port group, enter the connection settings for the adapter or port group.
 - a) Enter a label that represents the traffic type for the VMkernel adapter.
 - b) Set a VLAN ID to identify the VLAN the VMkernel uses for routing network trafic.
 - c) Select IPV4 or IPV6 or both.
 - d) Select an MTU size from the drop-down menu. Select Custom if you wish to enter a specific MTU size. The maximum MTU size is 9000 bytes.

Note You can enable Jumbo Frames by setting an MTU greater than 1500.

e) Select a TCP/IP stack. After setting the TCP/IP stack for the VMkernel adapter. To use the default TCP/IP stack, select it from the available services.

Note Be aware that the TCP/IP stack for the VMkernel adapter cannot be changed later.

- f) Configure IPV4 and/or IPV6 settings.
- **Step 8** On the **Ready to Complete** page, click **Finish**.
- **Step 9** Check the VMkernel ports for the VM Adapters or port groups with NVMe RDMA in the vSphere client, as shown in the Results below.

The VMkernel ports for the VM Adapters or port groups with NVMe RDMA are shown below.

Example

Summary	Monitor	Configu	re	Permissio	ons VM	s Reso	urce Pools	Datastores	Net	works	Updates					
Storage	Adapters	×	VM	1kerne	el adap	ters										
Storage I	Devices	- 1	AD	D NETW	ORKING	REFRES	н									
Host Cac	he Configuration	n			Device	т	Network La	bel	т	Switch	т	IP Address	т	TCP/IP Stack	т	Enabled Se
Protocol	Endpoints		:	»	vmk0		Managem	ent Network		vSwitch	С	10.193.176.52		Default		Managem
I/O Filter	s	_	:	>>	vmk1		vmk284			vSwitch1		50:284::210		Default		
Networking	g	~	:	>>	vmk2		vmk283			vSwitch2	2	50.2.83.210		Default		
Virtual sv	witches		-													
VMkerne	l adapters															
Physical	adapters	_														
RDMA ac	lapters															
TCP/IP co	onfiguration	- 1														
Virtual Mad	chines	~														

The VRDMA Port groups created with NVMeRDMA supported vmnic appear as below.

Summary Monitor	Configu	re Permissions	VMs Resour	ce Pools Da	tastores Ne	works Upda	tes		
Storage	~	RDMA adapt	ters						
Storage Adapters Storage Devices	- 1	Name	T Driver	т S	State T	Paired Uplink	T ROCE v1	T Roce v2	T IWARP T
Host Cache Configuration		vmrdma0	nenic	,	Active	vmnic2	Disabled	Enabled	Disabled
Protocol Endpoints	- 1	vmrdma1	nenic	4	Active	vmnic3	Disabled	Enabled	Disabled
VO Filters									
Networking	~								
Virtual switches	- 1								
VMkernel adapters	- 1								
Physical adapters	_								
RDMA adapters	- 1								
CP/IP Consiguration		RDMA Device: vmrd	ma1						
Virtual Machines	Ť	Properties Box	ind VMkernel Ada	oters					
VM Startup/Shutdown	- 1								
Agent VM Settings		VMkernel Adapter	TCP/IP Stack	IP Address					
Swap File Location			Default	50 2 82 210					
System	~	TIME	Crevenult	50.2.03.210					
Licenting									
Licensing									

What to do next

Create vmhba ports on top of vmrdma ports.

Creating VMHBA Ports in ESXi

Use the following steps for creating vmhba ports on top of the vmrdma adapter ports.

Before you begin

Create the adapter ports for network connectivity.

- **Step 1** Go to vCenter where your ESXi host is connected.
- Step 2 Click on Host>Configure>Storage adapters.

Summary M	Monitor	Configu	re Permissions VMs R	esource Pools Datastores	Networks U	Jpdates			
Storage		~	Storage Adapters						
Storage Ada	pters		+ Add Software Adapter 😸 Refe	ish 🚡 Rescan Storage 🔄	Rescan Adapter X R	lemove			
Storage Devi	ices		Adapter	y Type y	r Stotus Y	Identifier Y	Targets y	Devices y	Paths Y
Host Cache C	Configuration	· .	 Model: Cisco 12G Modular Raid 	Controller with 2GB cache					1
Protocol End	ipoints		vmhbe5	SAS	Unknown	-	2	2	2
VO Filters			Model: Cisco UCS VIC Fnic Con	troller					
Networking		~	G- vmhba0	Fibre Channel	Offline	10.00.2c#8.9b79.8d.be 20.00.2c#8.9b79.8d.be	0	0	0
Matural qualitati	har		vmhba2	Fibre Channel	Offline	10.00.2c18.9b.79.8d.bf 20.00.2c18.9b.79.8d.bf	0	0	0
Virtual switch	nes .			Fibre Channel	Offline	10.00.2c#8.9b:51.b3:3c 20.00.2c#8.9b:51.b3:3c	0	0	0
V Mikemerada	apters		vmhba4	Fibre Channel	Offline	10.00.2c#8.9b.51.b3.3d 20.00.2c#8.9b.51.b3.3d	0	0	0
Physical adap	pters		Model: Lewisburg SATA AHCI C	ontroller					
RDMA adapt	ers		vmhbat	Block SCSI	Unknown	-	0	0	0
TCP/IP config	guration							Copy A	Il 8 Items
Virtual Machine	es .	~							
VM Startup/S	Shutdown								
Agent VM Se	ttings								
Default VM C	ompatibility								
Swap File Lo	cation								

Step 3 Click +Add Software Adapter . The following dialog box is displayed.

Storage	 Storage Adapte 	ers				
Storage Adapters Storage Devices Host Cache Confi	Add Software Adapte	r 10.193.176.52		×	ψ Tarpets	
Protocol Endpoint	O Add software ISCSI adapter				2	
VO Filters	A new software ISCSI adapter will	be added to the list. After it has been a	added, select the adapter and use the Adapter			
Networking	Details section to complete the co	nfiguration.		2c.f8.9b:79.8d.be	0	
Virtual switches				2c18:90:79:8d:bf	0	
VMkernel adapter	Add software NVMe over RDMA ad	lapter		2c18:96:51:63:3c	0	
Physical adapters	Enable software NVMe adapter or	h the selected RDMA device.		2c:18:96:51:63:3d	0	
RDMA adapters	PDWA device:	umretmaD/				
TCP/IP configurat	Nome device.	indiado				
Virtual Machines	O Add Software FCoE Adapter				1	
VM Startup/Shute	Discover software FCoE adapters	associated with the following physical	network adapter.			
Agent VM Setting						
Default VM Comp	Physical Network Adapter:	vmnic0	*			
Swap File Locatio	VLAN ID:	0	Range: 0 - 4094			
System	Priority Class	2	Baccos: 0 - 7			
Licensing	Privily Class.	-	Na 20. 0 - 7			
Host Profile	Controller MAC Address:	2c:f8:9b:a1:4c:e6				
Time Configuratio						
Authentication Se				_		
Certificate			CANCEL OK			
Power Manageme						
Advanced System S	Settings					

Step 4 Select **Add software NVMe over RDMA adapter** and the vmrdma port you want to use.

Step 5 Click OK.

The vmhba ports for the VMware NVMe over RDMA storage adapter is displayed as shown as in the example below.

Summary Monitor	Config	Permissions VMs Resou	irce Pools Data	stores	Networks	Up	dates					
Storage	~	Storage Adapters										
Storage Adapters		+ Add Software Adapter 😸 Refresh	🛃 Rescan Storage	GR	escan Adapter	× Ref	nove					
Storage Devices		Adapter	v Type	٣	Status	Ŧ	klentifier	Ŧ	Targets	Y Devices	Y Paths	Ŧ
Host Cache Configuration	•	 Model: Cisco 12G Moduler Reid Cont 	roller with 2GB cache									
Protocol Endpoints		@ vmhbe5	SAS		Unknown				2	2	2	
VO Filters		 Model: Cisco UCS VIC Fric Controlle 	e .									
Networking	~	G vmhba0	Fibre Char	nel	Offine		10 00 2c f8 9b 79 8d be 20 00 2c f8 9b 79 8d be		0	0	0	
Virtual switches		G vmrbe2	Fibre Cher	nel	omine		10:00:2c:f8:95:79:8d:bf 20:00:2c:f8:95:79:8d:bf		0	0	٥	
VMkernel adapters		wmba3	Fibre Char	nel	Offine		10 00 2c f8 9b 51 b3 3c 20 00 2c f8 9b 51 b3 3c		0	0	0	
Physical adapters		G vmhbe4	Fibre Cher	nel	offine		10:00:2c#8:90:51:b3:3d 20:00:2c#8:90:51:b3:3d		0	0	0	
RDMA adapters		 Model: Lewisburg SATA AHCI Control 	ller									
TCP/IP configuration			Block SCS		Unknown		-		0	0	0	
Minhard Marchinese		 Model, VMware NVME over RDMA S 	torage Adapter									
VIPTUAL MACHINES	Ť	G vmbbo64	ROMA		Unknown				0	0	٥	
VM Startup/Shutdown		@ vmtbo65	RDMA		Unknown		-		1	1		
Agent VM Settings												
Default VM Compatibility	· · · ·	1									Copy Al	8 items
Swap File Location		Properties Devices Paths	amespaces Cor	trollers								
System	~		_									
Licensing		ADD CONTROLLER REMOVE										
Host Profile		Name y Su	bsystem NGN		Transport	Type	FUSE Support	Mode	4	Firmware	Aersion	

What to do next

Configure NVME.

Displaying vmnic and vmrdma Interfaces

ESXi creates a vmnic interface for each enic VNIC configured to the host.

Before you begin

Create Network Adapters and VHBA ports.

- **Step 1** Ssh into the host system.
- **Step 2** Enter **esxcfg-nics -I** to list the vmnics on ESXi.

Name	PCI	Driver	Link	Speed	Duplex	MAC Address	MTU	Description
vmnic0	0000:3b:00.0	ixgben	Down	OMbps	Half	2c:f8:9b:a1:4c:e6	1500	Intel(R) Ethernet Controller X550
vmnic1	0000:3b:00.1	ixgben	Up	1000Mbps	Full	2c:f8:9b:a1:4c:e7	1500	Intel(R) Ethernet Controller X550
vmnic2	0000:1d:00.0	nenic	Up	50000Mbps	Full	2c:f8:9b:79:8d:bc	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic3	0000:1d:00.1	nenic	Up	50000Mbps	Full	2c:f8:9b:79:8d:bd	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic4	0000:63:00.0	nenic	Down	OMbps	Half	2c:f8:9b:51:b3:3a	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic5	0000:63:00.1	nenic	Down	OMbps	Half	2c:f8:9b:51:b3:3b	1500	Cisco Systems Inc Cisco VIC Ethernet NIC

esxcli network nic list

Name	PCI Device	Driver	Admin Status	Link Status	Speed	Duplex	MAC Address	MTU	Description
vmnic0	0000:3b:00.0	ixgben	Up	Down	θ	Half	2c:f8:9b:a1:4c:e6	1500	Intel(R) Ethernet Controller X550
vmnic1	0000:3b:00.1	ixgben	Up	Up	1000	Full	2c:f8:9b:a1:4c:e7	1500	Intel(R) Ethernet Controller X550
vmnic2	0000:1d:00.0	nenic	Up	Up	50000	Full	2c:f8:9b:79:8d:bc	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic3	0000:1d:00.1	nenic	Up	Up	50000	Full	2c:f8:9b:79:8d:bd	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic4	0000:63:00.0	nenic	Up	Down	θ	Half	2c:f8:9b:51:b3:3a	1500	Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic5	0000:63:00.1	nenic	Up	Down	Θ	Half	2c:f8:9b:51:b3:3b	1500	Cisco Systems Inc Cisco VIC Ethernet NIC

Step 3 When the enic driver registers with ESXi the RDMA device for a RDMA capable VNIC, ESXi creates a vmrdma device and links it to the corresponding vmnic. Enter **esxcli rdma device list** to list the vmrdma devices.

[root@St	ockholmRa	ackServei	r:~] e	sxcli rdmo	a device list	
Name	Driver	State	MTU	Speed	Paired Uplink	Description
vmrdma0	nenic	Active	4096	50 Gbps	vmnic1	Cisco UCS VIC 15XXX (A0)
vmrdma1	nenic	Active	4096	50 Gbps	vmnic2	Cisco UCS VIC 15XXX (A0)
[root@St	ockholmR	ackServei	r:~] e	sxcli rdmo	a device vmknic	list
Device	Vmknic	NetStacl	<			
			-			
vmrdma0	∨mk1	default	TcpipS [.]	tack		
vmrdma1	vmk2	default	TcpipS [.]	tack		

Step 4 Use **esxcli rdma device list** to check the protocols supported by the vmrdma interface.

For enic, RoCE v2 will be the only protocol supported from this list. The output of this command should match the RoCEv2 configuration on the VNIC.

Step 5 Use **esxcli rdma device protocol list** to check the protocols supported by the vmrdma interface.

For enic, RoCE v2 will be the only protocol supported from this list. The output of this command should match the RoCEv2 configuration on the VNIC.



Step 6 Use **esxcli nyme adapter list** to list the NVMe adapters and the ymrdma and ymnic interfaces it is configured on.



Step 7 All vmhbas in the system can be listed using **esxcli storage core adapter list**.

HBA Name	Driver	Link State	UID	Capabilities	Description
vmhba0	nfnic	Link-down	tc.10002ct89b798dbe:20002ct89b798dbe	Second Level Lun ID	(0000:1d:00.2) Cisco Corporation Cisco UCS VIC Fnic Controller
vmhba1	vmw_ahci	link-n/a	sata.vmhba1		(0000:00:11.5) Intel Corporation Lewisburg SATA AHCI Controller
vmhba2	nfnic	link-down	fc.10002cf89b798dbf:20002cf89b798dbf	Second Level Lun ID	(0000:1d:00.3) Cisco Corporation Cisco UCS VIC Fnic Controller
vmhba3	nfnic	link-down	fc.10002cf89b51b33c:20002cf89b51b33c	Second Level Lun ID	(0000:63:00.2) Cisco Corporation Cisco UCS VIC Fnic Controller
vmhba4	nfnic	link-down	fc.10002cf89b51b33d:20002cf89b51b33d	Second Level Lun ID	(0000:63:00.3) Cisco Corporation Cisco UCS VIC Fnic Controller
vmhba5	lsi_mr3	link-n/a	sas.5cc167e9732f9b00		(0000:3c:00.0) Broadcom Cisco 12G Modular Raid Controller with 2GB cache
vmhba64	nvmerdma	link-n/a	rdma.vmnic2:2c:f8:9b:79:8d:bc		VMware NVMe over RDMA Storage Adapter on vmrdma0
vmhba65	nvmerdma	link-n/a	rdma.vmnic3:2c:f8:9b:79:8d:bd		VMware NVMe over RDMA Storage Adapter on vmrdma1
[root@ESX	i7U3Bodega	:~]			

What to do next

Configure NVME.

NVMe Fabrics and Namespace Discovery

This process is performed through the ESXi command line interface,

Before you begin

Create and configure the adapter policy.

Step 1 Check asnd enable NVME on the vmrdma device.

esxcli nvme fabrics enable -p RDMA -d vmrdma0

The system should return a message showing if NVME is enabled.

Step 2 Discover the nyme on the array by entering the following command:

esxcli nvme fabrics discover -a vmhba64 -1 transport_address

figure with esxcli nvme fabrics discover -a vmhba64 -1 50.2.84.100

The output will list the following information: Transport Type, Address Family, Subsystem Type, Controller ID, Admin Queue, Max Size, Transport Address, Transport Service ID, and Subsystem NQN

You will see output on the NVMe controller.

Step 3 Perform NVMe fabric interconnect.

esxcli nvme fabrics discover -a vmhba64 -l transport_address p Transport Service ID -s Subsystem NQN

Step 4 The NVMe controller should show a list of the controllers connected to NVMe The NVMe namespace list should show all the NVMe drives discovered.

L

esxcli nvme controller list RDMA -d vmrdma0

[root@ESXi7U3Bodega:~] esxcli nvme co Name	ntroller Íist			Controller Number	Adapter	Transport Type	Is Online	l
nqn.2010-06.com.purestorage:flasharra nqn.2010-06.com.purestorage:flasharra [root@ESXi7U3Bodega:~] esxcli nvme na Name	y.Sab274df5b161455# y.Sab274df5b161455# mespace list Controller Number	258 259 Capacity in MB	vmhba64 vmhba65	RDMA RDMA	true true			
eui.00e6d65b65a8f34024a9374e00011745 eui.00e6d65b65a8f34024a9374e00011745 [root@ESXi7U3Bodega:~]	258 259	71493 71493	512 512	102400 102400				

Example

The following example shows esxcli discovery commands executed on the server.

```
[root@ESXiUCSA:~] esxcli nvme fabrics enable -p RDMA -d vmrdma0
NVMe already enabled on vmrdma0
[root@ESXiUCSA:~] esxcli nvme fabrics discover -a vmhba64 -1 50.2.84.100
Transport Type Address Family Subsystem Type Controller ID Admin Queue Max Size Transport
Address Transport Service ID Subsystem NQN
   ----- ------
                                           _____
_____
       IPV4 NVM 65535
RDMA
                                                31
                                                                50.2.84.100
      4420
                      nq.210-06.com.purestorage:flasharray:2dp1239anjk1484
[root@ESXiUCSA:~] esxcli nvme fabrics discover -a vmhba64 -1 50.2.84.100 p 4420 -s
nq.210-06.com.purestorage:flasharray:2dp1239anjk1484
```

```
Controller already connected
```

Deleting the ESXi RoCEv2 Interface Using Cisco IMC

Use these steps to delete the ESXi RoCEv2 configuration for a specific port.

Step 1	In the Navigation pane, click Networking.
Step 2	Expand Networking and select the adapter from which you want to remove RoCEv2 configuration.
Step 3	Select vNICs tab.
Step 4	Select the vNIC from which you want to delete the ESXi RoCEv2 configuration.
Step 5	Expand RoCE Properties tab and uncheck the RoCE check box.
Step 6	Click Save Changes.
Step 7	Reboot the server for the above changes to take effect.