



Release Notes for Cisco UCS Virtual Interface Card Drivers, Release 4.2

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Introduction

This document contains information on new features, resolved caveats, open caveats, and workarounds for Cisco UCS Virtual Interface Card (VIC) Drivers, Release 4.2 and later releases. This document also includes the following:

- Updated information after the documentation was originally published.
- Related firmware and BIOS on blade, rack, and modular servers and other Cisco Unified Computing System (UCS) components associated with the release.

The following table shows the online change history for this document.

Revision Date	Description
January 6, 2023	Initial release of VIC drivers for Cisco UCS Software Release 4.2(3b).
November 17, 2022	Updates made to the section - New Features in UCS Manager Release 4.2.2 for Release 4.2(2a).
July 8, 2022	Initial release of VIC drivers for Cisco UCS Software Release 4.2(2a).
February 15, 2022	Windows 2022, 2019, and 2016 NENIC and ENIC driver updates for 4.2(1l). Updated Open Caveats section.
October 25, 2021	Windows 2022, 2019, and 2016 NENIC, ENIC, and FNIC driver updates for 4.2(1i).
June 24, 2021	Initial release of VIC drivers for Cisco UCS Software Release 4.2(1d).

New Features in UCS Manager Release 4.2(3b)

Release 4.2.3 adds support for the following:

Release 4.2(3b) adds support for the following:

- Support of Cisco VIC 15238 MLOM 2-port adapter on Cisco UCS C-series M6 rack servers.

- Support of Cisco VIC 15411 MLOM adapter on Cisco UCS B Series M6 blade servers.



Note VIC 15411 and VIC 1480 cannot be installed together within a same blade server.

- Support for NVMe over ROCEv2 with ESXi for VIC 15000

New Features in UCS Manager Release 4.2(2a)

Release 4.2.2 adds support for the following:

Release 4.2(2a) adds support for the following:

- Support of Cisco VIC 15428 MLOM 4-port adapter on Cisco UCS C-series M6 rack servers.
- Support of Precision Time Protocol (PTP) with VIC 15000 Series adapters on all current distributions of the Linux operating system.
- Support for 16K ring size on VIC 15000 Series adapters with enic driver on Linux operating systems and nenic driver on Windows and ESX operating systems.



Note VIC 15000 Series adapters and VIC 1300 Series adapters cannot be used together in the same server.

- fNIC support for FDMI on ESX 6.7 and 7.0.
- FDMI support for Redhat Enterprise Linux 8.6 and 9.0.
- FDMI is now supported for VIC 15428 adapters on all current Linux releases.
- Host software-based NVME over TCP is supported with VIC 1400 and 15000 series adapters.



Note No TCP HW offload is supported.

New Features in UCS Manager Release 4.2

Release 4.2.1 adds support for the following:

Release 4.2(1d) adds support for the following:

- Support for NVMe over Fabrics (NVMeoF) using IPv4 or IPv6 RDMA over Converged Ethernet version 2 (RoCEv2) on Red Hat Enterprise Linux 7.9
- Support for Cisco UCS VIC 1467 and VIC 1477 adapters on Cisco C-series M6 rack servers.

- Support for NVMe over Fibre Channel (FC-NVMe) on UCS 6300 series Fabric Interconnects, UCS 6454, and UCS 64108 Fabric Interconnects with Cisco UCS VIC 13xx series adapters on RHEL 7.8, RHEL 7.9, and RHEL 8.2. This support is also available on Cisco C220 and C240 M5 Standalone rack servers with Cisco UCS 13xx series adapters.

Release 4.2(1i) adds support for the following:

- Support for NVMe over Fabrics (NVMeoF) using IPv4 or IPv6 RDMA over Converged Ethernet version 2 (RoCEv2) on Red Hat Enterprise Linux 7.8 and 8.2.

VIC Driver Updates for Release 4.2.3



Note VIC drivers for all operating systems listed in the HCL are cryptographically signed by Cisco.

ESX ENIC Driver Updates

ESX NENIC Version 1.0.45.0

NENIC Version 1.0.45.0 is supported with ESX 7.0U1, ESX 7.0U2, ESX 7.0U3, ESX 8.0.

ESX NENIC_ENS Version 1.0.6.0

NENIC_ENS version 1.0.6.0 is supported with ESX 7.0 U1, ESX 7.0 U2, ESX 7.0 U3 and ESX 8.0.

ESX FNIC Driver Updates

Native FNIC Version 5.0.0.37

Native FNIC driver version 5.0.0.37 is supported on ESX 7.0 U1, ESX 7.0 U2, ESX 7.0 U3 and ESX 8.0.



Note Driver version 5.0.0.37 supports both native FC and FC NVME functionality.

ESX FC NVME is supported with VIC 1400 and 15000 series adapters.

FDMI is supported with Native FNIC driver version 5.0.0.x on VIC 1400 and 15000 series adapters.

Interrupt mode INT-x is not supported with ESX nfnic and nenic drivers.

RDMA Support Driver Updates

ESX NENIC_RDMA Version 2.0.4.0 NENIC_RDMA version 2.0.4.0 is supported with ESX 7.0U3, and ESX 8.0.

Linux ENIC Driver Updates

ENIC Version 918.x

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4, 8.5, 8.6, 9.0
- XenServer 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3, 15 SP4
- Ubuntu Server 18.04.6, 20.04, 20.04.1, 20.04.2, 20.04.3, 20.04.4, 20.04.5, 22.04, 22.04.1
- CentOS 7.9

Linux FNIC Driver Updates

Unified FNIC Driver Update 2.0.0.87

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4, 8.5, 8.6, 9.0
- XenServer 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3, 15 SP4
- CentOS 7.9



Note fNIC multiqueue is supported on RHEL 7.9, 8.2, 8.3, 8.4, 8.5, 8.6 and 9.0, and SLES 12 SP5, SLES 15 SP1, SLES 15 SP2, SLES 15 SP3 and SLES 15 SP4.

FC-NVME is supported for VIC 14xx adapter on RHEL 7.9, 8.2, 8.3, 8.4, 8.5, 8.6 and 9.0 and SLES 12 SP5, 15 SP1, 15 SP2, SLES 15 SP3 and SLES 15 SP4.

FDMI is supported for VIC 14xx and VIC 15xxx adapters on RHEL 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, 8.4, 8.6, and 9.0, and SLES 12 SP3, SLES 12 SP4, SLES 12 SP5, SLES 15, SLES 15 SP1, SLES 15 SP2, SLES 15 SP3 and SLES 15 SP4.

SLES 15 FC-NVMe is supported with DM multi-pathing and native multi-pathing is not supported. RHEL inbox nvme-cli 1.14 is not working as expected with FC-NVME. Using RHEL 8.4 binaries(nvme-cli 1.12) with RHEL 8.5 FC- NVME is recommended.

Windows 2022, 2019 and 2016 NENIC/ENIC Driver Updates

Windows Server 2022 and 2019 NENIC Version 5.11.14.1

- This driver update provides an VMMQ & RDMA driver for VIC 1400 and 15000 Series Adapters and Supported QoS Changes.

Windows Server 2016 NENIC Version 5.8.25.9

- This driver update provides an RDMA driver for VIC 1400 and 15000 Series Adapters and Supported QoS Changes.

Windows Server 2022, 2019 and 2016 ENIC Version 4.4.0.12

- This driver update provides a Spectre-compliant driver for VIC 1300 Series adapters.

Windows 2022, 2019 and 2016 FNIC Driver Updates

Windows Server 2022, 2019 and 2016 FNIC Version 3.3.0.11

- This driver update provides a Spectre-compliant fNIC driver for VIC 15XXX, 14XX and VIC 13XX adapters.

VIC Driver Updates for Release 4.2.2



Note VIC drivers for all operating systems listed in the HCL are cryptographically signed by Cisco.

ESX ENIC Driver Updates

Native ENIC driver versions 1.0.X.0 are for ESXi 6.5 and later releases.

ESX NENIC Version 1.0.42.0

Native NENIC driver version 1.0.42.0 is supported with ESX 6.7 U3, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

ESX NENIC_ENS Version 1.0.2.0

NENIC_ENS version 1.0.2.0 is supported with ESX 6.7 U3.

ESX NENIC_ENS Version 1.0.6.0

NENIC_ENS version 1.0.6.0 is supported with ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

ESX FNIC Driver Updates

Native FNIC Version 4.0.0.87/5.0.0.34

Native FNIC driver version 4.0.0.87 is supported on ESX 6.7 U3, ESX 7.0, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

Native FNIC driver version 5.0.0.34 is supported on ESX 7.0, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.



Note Driver version 5.0.0.34 supports both native FC and FC NVME functionality.

ESX FC NVME is supported with 1400 and 15000 series adapters.

Only one native fnic driver is supported at a time: either the 4.0.0.x or 5.0.0.x version.

FDMI is supported for VIC 14xx and VIC 15428 adapters on ESX 6.7 with Native FNIC driver version 4.0.0.87.

FDMI is supported for VIC 14xx and VIC 15428 adapters on ESX 7.0 with Native FNIC driver version 5.0.0.34.

Interrupt mode INT-x is not supported with ESX nfnic and nenic drivers.

Linux ENIC Driver Updates**ENIC Version 877.x**

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4, 8.5, 8.6
- XenServer 7.1, 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3
- Ubuntu Server 18.04.5, 20.04, 20.04.1, 20.04.2, 20.04.3, 20.04.4
- CentOS 7.9

Linux FNIC Driver Updates**Unified FNIC Driver Update 2.0.0.85**

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4, 8.5, 8.6
- XenServer 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3
- CentOS 7.9



Note fNIC multiqueue is supported on RHEL 7.9, 8.2, 8.3, 8.4, 8.5 and 8.6, and SLES 12 SP5, SLES 15 SP1, SLES 15 SP2, and SLES 15 SP3.

FC-NVME is supported for VIC 14xx adapter on RHEL 7.9, 8.2, 8.3, 8.4, 8.5 and 8.6, and SLES 12 SP5, 15 SP1, 15 SP2, and SLES 15 SP3.

FDMI is supported for VIC 14xx and VIC 15428 adapters on RHEL 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, 8.4, 8.6, and 9.0, and SLES 12 SP3, SLES 12 SP4, SLES 12 SP5, SLES 15, SLES 15 SP1, SLES 15 SP2, and SLES 15 SP3.

SLES 15 FC-NVMe is supported with DM multi-pathing and native multi-pathing is not supported. RHEL inbox nvme-cli 1.14 is not working as expected with FC-NVME. Using RHEL 8.4 binaries(nvme-cli 1.12) with RHEL 8.5 FC- NVME is recommended.

Non-Unified FNIC Driver Update 1.6.0.51

- XenServer 7.1

Windows 2022, 2019 and 2016 NENIC/ENIC Driver Updates**Windows Server 2022 and 2019 NENIC Version 5.11.14.1**

- This driver update provides an VMMQ & RDMA driver for VIC 1400 and 15000 Series Adapters and Supported QoS Changes.

Windows Server 2016 NENIC Version 5.8.25.9

- This driver update provides an RDMA driver for VIC 1400 and 15000 Series Adapters and Supported QoS Changes.

Windows Server 2022, 2019 and 2016 ENIC Version 4.4.0.12

- This driver update provides a Spectre-compliant driver for VIC 1300 Series adapters.

Windows 2022, 2019 and 2016 FNIC Driver Updates

Windows Server 2022, 2019 and 2016 FNIC Version 3.3.0.11

- This driver update provides a Spectre-compliant fNIC driver for VIC 15XXX, 14XX and VIC 13XX adapters.

VIC Driver Updates for Release 4.2



Note VIC drivers for all operating systems listed in the HCL are cryptographically signed by Cisco.

ESX ENIC Driver Updates

Native ENIC driver versions 1.0.X.0 are for ESXi 6.5 and later releases.

ESX NENIC Version 1.0.35.0

Native NENIC driver version 1.0.35.0 is supported with ESX 6.7 U3, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

ESX NENIC_ENS Version 1.0.2.0

NENIC_ENS version 1.0.2.0 is supported with ESX 6.7 U3.

ESX NENIC_ENS Version 1.0.4.0

NENIC_ENS version 1.0.4.0 is supported with ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

ESX FNIC Driver Updates

Native FNIC Version 4.0.0.73/5.0.0.15

Native FNIC driver version 4.0.0.73 is supported on ESX 6.7 U3, ESX 7.0, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.

Native FNIC driver version 5.0.0.15 is supported on ESX 7.0, ESX 7.0 U1, ESX 7.0 U2 and ESX 7.0 U3.



Note Driver version 5.0.0.15 supports both native FC and FC NVME functionality.
ESX FC NVME is supported with only 14xx adapters.
Only one native fnic driver is supported at a time: either the 4.0.0.x or 5.0.0.x version.

Linux ENIC Driver Updates**ENIC Version 868.x**

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4
- XenServer 7.1, 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3
- Ubuntu Server 18.04.5, 20.04, 20.04.1, 20.04.2, 20.04.3
- CentOS 7.9

Linux FNIC Driver Updates**Unified FNIC Driver Update 2.0.0.72**

This driver supports the following Linux Operating System versions:

- Red Hat Enterprise Linux 7.9, 8.2, 8.3, 8.4
- XenServer 8.2
- SuSE Linux Enterprise Server 12 SP5, 15 SP1, 15 SP2, 15 SP3
- CentOS 7.9



Note fNIC multiqueue is supported on RHEL 7.9, 8.2, 8.3, and 8.4 and SLES 12 SP5, SLES 15 SP1, SLES 15 SP2, and SLES 15 SP3.

FC-NVME is supported for VIC 14xx adapter on RHEL 7.9, 8.2, 8.3, and 8.4 and SLES 12 SP5, 15 SP1, 15 SP2, and SLES 15 SP3.

FDMI is supported for VIC 14x adapter on RHEL 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, and 8.4, and SLES 12 SP3, SLES 12 SP4, SLES 12 SP5, SLES 15, SLES 15 SP1, SLES 15 SP2, and SLES 15 SP3.

SLES 15 FC-NVME is supported with DM multi-pathing and native multi-pathing is not supported.

Non-Unified FNIC Driver Update 1.6.0.51

- XenServer 7.1

Windows 2022, 2019 and 2016 NENIC/ENIC Driver Updates**Windows Server 2022 and 2019 NENIC Version 5.9.25.7**

- This driver update provides an VMMQ & RDMA driver for VIC 1400 Series Adapters and Supported QoS Changes.

Windows Server 2016 NENIC Version 5.8.25.6

- This driver update provides an RDMA driver for VIC 1400 Series Adapters and Supported QoS Changes.

Windows Server 2022, 2019 and 2016 ENIC Version 4.4.0.12

- This driver update provides a Spectre-compliant driver for VIC 1300 Series adapters.

Windows 2022, 2019 and 2016 FNIC Driver Updates

Windows Server 2022, 2019 and 2016 FNIC Version 3.3.0.11

- This driver update provides a Spectre-compliant fNIC driver for VIC 14XX and VIC 13XX adapters.

Resolved Caveats

The following table lists the resolved caveats in Release 4.2

There are no resolved caveats in Release 4.2(1d).

Defect ID	Description	First Bundle Affected	Resolved In
CSCvq02558	The VIC 1400 Series Windows drivers on Cisco UCS B-Series and C-Series servers could not support more than 2 RDMA engines per adapter. Windows could only support RDMA on 4 vPorts on each RDMA Engine. You can Enable RDMA with the PS command on more than 4 vPorts on each RDMA Engine, but the driver would not allocate RDMA resources to more than 4 vPorts per engine. Executing a Get-NetAdapterRdma command on the host could show additional vPorts with RDMA Capable Flag as True. Using the Get-smbclientNetworkInterface command shows the actual number of RDMA vPort resources available for use. This issue is resolved.	4.0(3.51)B and C	4.2(1i)B and C
CSCvy11532	The Windows neNIC Driver failed to load (Yellow Bang) on VIC 14XX Series adapter on Cisco C245 M6 (AMD Based) Rack Servers with SMT / X2APIC features enabled. This issue is resolved.	4.2(0.232)C	4.2(1d)
CSCvx37120	When no BIOS Policy was used in the Service Profile for Cisco UCS M6 servers, the "\$" sign appeared in CDN Names for network interfaces in OS. This issue is resolved.	4.2(1a)A	4.2(1i)A
CSCvy75588	Call trace was seen on RHEL 8.4 when fc-nvme name space was not configured.	VIC FW 5.2(1a) Driver version 2.0.0.72-189.0	4.2(2a)A
CSCvz51592	SLES 15.3 intermittently crashed during sanboot with inbox driver.	Inbox fnic 1.6.0.53 Unified fnic 2.0.0.74-198.0	4.2(2a)A

Defect ID	Description	First Bundle Affected	Resolved In
CSCwa67341	NENIC warning message with Event ID 10 in the windows Event Log. When the warning is posted the QoS on this adapter is disabled.	4.2(1.147)C	4.2(2a)A

Open Caveats

The following table lists the open caveats in Release 4.2.

Defect ID	Description	Workaround	First Release Affected
CSCvy16861	In a Windows Hyper-V environment the VMQ feature is enabled. Event ID 113 is logged in the system event viewer when VMs are powered ON.	It has been determined that this issue does not have any functional or performance impact on the functioning of the VMQ feature. This issue will be investigated in a future release.	4.2(0.193)B
CSCvv76888	On a Cisco VIC 1300 Series adapters, using neNIC Driver version 4.3.0.6 and a 1300 Series adapter with a VMQ policy, a yellow bang appears when configured with a VMQ sub-vNIC value of 10 or less.	When a VMQ policy is created, ensure that there are at least 32 interrupts, even though the number of VMQs in the policy is lower. This will enable the driver to load and function correctly.	4.1(2.13)B
CSCvx81384	In a UCS Manager service profile where vHBAs are assigned with an FC adapter policy that has more than one I/O Queues, BSOD will be observed after loading the fNIC driver on Windows 2019. The issue is observed on VIC 1400 Series adapters on SAN and Local boot. The server showed BSOD or the below error: Stop code: PAGE FAULT IN NONPAGED AREA	Modify the FC adapter policy and set the I/O Queues to 1.	2.4(08)
CSCvr63930	On ESXi, a Cisco UCS B-series blade server and Cisco UCS C-series rack server with a a Cisco VIC 1440, VIC 1480,,1455, 1457, or 1467 adapter, the port link speed output is not updating after an uplink is Down /Up.	<ul style="list-style-type: none"> Reboot the ESXi host to get the correct port speed reporting. If a new UIF link needs to be added or deleted to the existing system, a reboot is required to reflect the correct speed in ESXi. 	3.1(1.152)B 2.1(2.56)A

Defect ID	Description	Workaround	First Release Affected
CSCvt66474	<p>On Cisco VIC 1400 Series adapters, the neNIC driver for Windows 2019 can be installed on Windows 2016 and the Windows 2016 driver can be installed on Windows 2019. However, this is an unsupported configuration.</p> <p>If the Windows 2019 neNIC driver is installed on Windows 2016, RDMA is not supported.</p> <p>If the Windows 2016 neNIC driver is installed on Windows 2019, the RDMA feature that is supposed to be enabled on Windows 2019 will be disabled.</p>	The driver binaries for WS2016 and WS2019 are in folders that are named accordingly. Install the right binary on the platform that is being built or upgraded.	4.1(1.49)C
CSCvz57245	On a B200 M6 blade server with UCS VIC 14425 adapter configured for SAN boot and with 4 vHBAs, LUNs go offline when one of the controller nodes is down or stuck and multiple reboots have occurred.	<p>Perform the following steps to bring the LUN back online:</p> <ol style="list-style-type: none"> 1. On Windows Server, go to Disk Management, 2. Right click on the disk that has gone offline and click on Online. This should return the LUN to service. 	4.2(1a)A
CSCwa93556	On M5 Blade and Rack servers with VIC 1440 and 1480 adapters, ESXi OS installation fails with FC boot when the adapter policy is set to INTX mode.	No workaround.	4.2(1.151)A
CSCwb79770	On a UCS C3260 standalone server with a VIC 15000 Series adapter, Vport connectivity fails when 16k RX RingSize is configured during Initial Configuration. This issue happens ONLY when the RX ring side is configured to values above 4K when first setting up the initial configuration. Once the host is rebooted or the interface is enabled or disabled, the issue disappears.	Disable, then re-enable the interface from Power Shell in Hyper-V.	3.3(0.11)A
CSCwa56085	A system assertion occurred on a VIC 1400 Series adapter while TCP traffic was running on the enic interfaces during the scan for hardware changes.		3.0(0.1)A

Behavior Changes and Known Limitations

Support for VIC Management Interface Driver for Windows 2016 and later is deprecated

Installing the driver iso containing VIC Management Driver on Windows 2016 or later might lead to system BSOD in certain scenarios.

Perform the following steps to uninstall the VIC management driver and avoid any potential issues:

1. In the Windows host, go to the **Device Manager** and select the appropriate Cisco VIC Internet Interface.
2. Right-click the appropriate Cisco VIC Internet Interface and select the **Uninstall Device** option.

A new window is displayed.

3. On the **Uninstall Device** window, select the **Delete the driver software for the device** checkbox to uninstall and delete the interface from the system device.

The Cisco VIC management interface is uninstalled and deleted.

4. Scan the hardware changes and ensure that the uninstalled VIC management interface is shown under the other devices as **PCI Device**.

You might get Yellow Bang error in Windows Device Manager, indicating that the driver is not loaded.



Note If the BSOD error persists, then reboot the operating system in the safe mode to uninstall the VIC management driver by performing the above steps.

Downloading the driver iso that does not contain VIC Management Driver causes Yellow Bang in Windows Device Manager, indicating that the driver is not loaded. This is expected and there is no functional impact.

System Crashes When the SFP Module is Hot Swapped with the VIC Management Driver Installed

On UCS C220 M5 servers, when the SFP module is hot swapped on VIC 1495 or VIC 1497 adapters, a Blue Screen of Death (BSOD) appears and the system reboots. This happens only with the VIC management driver on Microsoft Windows.

Q-in-Q Forwarding (14xx and 15xxx VNICs)

For double tagged frames (1Q + 1Q) generated by the host are sent out by the VICs, you must configure the following commands on the Linux host.

1. Disable VLAN TX offload on the 14xx or 15xxx VNICs that need to transmit out double tagged (1Q + 1Q) frames.

Perform this from the host and enter the following `ethtool` command:

```
ethtool -K <interface_name> txvlan off
```

2. To verify that the VLAN TX offload feature has been turned off, enter the following command:

```
ethtool -k <interface_name> | grep tx-vlan-offload
```

Support for Physical NIC Mode

Beginning from release 4.2(3b), physical NIC mode is supported completely and the term **Experimental** is removed from Physical NIC mode for Cisco UCS C-Series Rack Servers.

Link Speed on ESXCLI is not updated at Runtime after Link Down/UP

This issue occurs when VMware API is not updating the Link status to Driver.

To avoid this, run the following command at FI or Up Link switch:

```
sh interface port-channel (uplink Po)
```

vNIC MTU Configuration

MTU on VIC 1400 Series adapters in Windows is now derived from the Jumbo Packet advanced property rather than from the UCS configuration

For VIC 14xx adapters, you can change the MTU size of the vNIC from the host interface settings. The new value must be equal to or less than the MTU specified in the associated QoS system class. If this MTU value exceeds the MTU value in the QoS system class, packets could be dropped during data transmission.

RDMA Limitations

- The VIC 1400 Series Windows drivers on Blade and Rack servers do not support more than 2 RDMA engines per adaptor. Currently, Windows can only support RDMA on 4 VPorts on each RDMA Engine.
- RoCE version 1 is not supported with any fourth generation Cisco UCS VIC 1400 Series adapters.
- UCS Manager does not support fabric failover for vNICs with RoCEv2 enabled.
- RoCEv2 cannot be used on the same vNIC interface as NVGRE, NetFlow, and VMQ features.
- RoCEv2 cannot be used with usNIC.
- RoCEv2 cannot be used with GENEVE offload.

Configuration Fails When 16 vHBAs are Configured with Maximum I/O Queues

Cisco UCS Manager supports a maximum of 64 I/O Queues for each vHBA. However, when you configure 16 vHBAs, the maximum number of I/O Queues supported for each vHBA becomes 59. In Cisco UCS Manager Release 4.0(2), if you try to configure 16 vHBAs with more than 59 I/O queues per vHBA, the configuration fails.

VM-FEX

ESX VM-FEX and Windows VM-FEX are no longer supported.

Auto-negotiation

When a `palo_get_an_status mptool` command is issued, it now shows that auto-negotiation is turned on all the time.

Link Training

The Link Training option is not configurable from CIMC for VIC 13xx adapters.

INTx Interrupt Mode

INTx interrupt mode is not supported with the ESX nenic driver and nfnic driver.

FC-NVMe Failover

To protect against host and network failures, you must zone multiple initiators to both of the active controller ports. Passive paths will only become active if controller fails, and will not initiate a port flap. On operating systems based on older kernels that do not support ANA, dm multi-path will not handle the passive paths correctly and could send IOs to a passive path. These IO operations will fail.

FC-NVMe Namespaces

Starting with RHEL 8.5 nvme-cli version 1.14, the nvme list command will not display fc-nvme namespaces. Use nvme-cli from RHEL 8.4 or a nvme-cli version of 1.15 or later to view fc-nvme namespaces.

FC-NVMe ESX Configurations

VIC 15000 and 1400 Series adapters running ESXi currently only support a maximum FC-NVMe namespace block size 512B, while some vendors use a default 4KB block size for ESXi 7.0. The target FC-NVMe namespace block must therefore be specifically configured to 512B. Under Storage go to NVME and change the Block Size in NVMe from 4KB to 512B.

Configuration changes are also required to avoid a decrease in I/O throughput and/or BUS BUSY errors, caused by a mismatch between FC-NVMe Target controller Queue-depth and VM Device Queue-depth. To avoid this, run the following command to display all controllers discovered from ESXi Host:

```
# Esxcli nvme controller list
```

Check the list of controller queues and queue size for the controllers:

```
# vsish -e get /vmkModules/vmknvme/controllers/controller number/info
```

All Controllers on the same target will support same queue size, for exaple:

```
Number of Queues:4
Queue Size:32
```

To tune the VMs, change the `queue_depth` of all NVMe devices on the VMs to match the controller Queue Size. For example, if you are running a RHE VM, enter the command:

```
# Echo 32 > /sys/block/sdb/ device/queue_depth
```

Verify that the `queue_depth` was set to 32 by running the command:

```
# cat /sys/block/sdb/ device/queue_depth
```



Note This change is not persistent after reboot.



Note For additional driver configuration, it may be necessary to set the Adapter Policy to **FCNVMeInitiator** to create a FC-NVMe Adapter.

Adapter Policy can be found under **Server > Service Profile>Policies> Adapter Policies Create FC Adapter Policy>**

Adapter Policy can be found under **Server > Service Profile> Storage> Modify vHBAs**

Enabling FC-NVMe with ANA on ESXi 7.0

In ESXi 7.0, ANA is not enabled for FC-NVMe. This can cause failure of the Target side Path failover.

For a procedure to enable ANA, go to the following URL: https://docs.netapp.com/us-en/ontap-sanhost/nvme_esxi_7.html#validating-nvmefc

Related Cisco UCS Documentation

Documentation Roadmaps

For a complete list of all B-Series documentation, see the *Cisco UCS B-Series Servers Documentation Roadmap* available at the following URL: https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/overview/guide/UCS_roadmap.html

For a complete list of all C-Series documentation, see the *Cisco UCS C-Series Servers Documentation Roadmap* available at the following URL: https://www.cisco.com/c/en/us/td/docs/unified_computing/ucs/overview/guide/ucs_rack_roadmap.html.

For information on supported firmware versions and supported UCS Manager versions for the rack servers that are integrated with the UCS Manager for management, refer to [Release Bundle Contents for Cisco UCS Software](#).

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