HP ProLiant Networking Software Release Notes

HP Server Adapters (Gb)

Release Notes for Software Version 10.85

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I. PRODUCT SUPPORT FOR SOFTWARE VERSION 10.85

The adapters and upgrade modules listed below are supported options for selected HP ProLiant servers.

Standup adapters:

HP Ethernet 1Gb 2-port 332T Adapter

HP Ethernet 1Gb 2-port 361T Adapter

HP Ethernet 1Gb 4-port 331T Adapter

HP Ethernet 10Gb 2-port 530SFP+ Adapter

HP Ethernet 10Gb 2-port 560SFP+ Adapter

HP Ethernet 10Gb 2-port 530T Adapter

HP NC112T PCI Express Gigabit Server Adapter

HP NC360T PCI Express Dual Port Gigabit Server Adapter

HP NC364T PCI Express Quad Port Gigabit Server Adapter

HP NC365T 4-port Ethernet Server Adapter

HP NC522SFP Dual Port 10GbE Server Adapter

HP NC523SFP 10 Gigabit Dual Port Ethernet Server Adapter

HP NC524SFP Dual Port 10 GbE Gigabit Module

HP StorageWorks CN1000E Dual Port Converged Network Adapter

HP StorageWorks CN1100E Dual Port Converged Network Adapter

HP StorageWorks CN1000Q Dual Port Converged Network Adapter

HP NC550SFP Dual Port Server Adapter

HP NC552SFP Dual Port 10Gb Server Adapter

HP StoreFabric CN1100R Dual Port Converged Network Adapter

HP Ethernet 10Gb 2-port 561T Adapter

Embedded adapters:

HP Ethernet 1Gb 2-port 330i Adapter

HP Ethernet 1Gb 2-port 332i Adapter

HP Ethernet 1Gb 2-port 361i Adapter

HP Ethernet 1Gb 4-port 331i Adapter

HP Ethernet 1Gb 4-port 331i-SPI Adapter

HP Ethernet 1Gb 4-port 366i Adapter

HP NC107i Integrated PCI Express Gigabit Server Adapter

HP NC112i 1-port Ethernet Server Adapter

HP NC326i PCI Express Dual Port Gigabit Server Adapter

HP NC362i Integrated Dual Port Gigabit Server Adapter

HP NC362i Integrated Dual Port BL-c Gigabit Server Adapter

HP NC375i Quad Port Multifunction Gigabit Server Adapter

HP NC382i Integrated Dual Port PCI Express Gigabit Server Adapter

HP NC532i Dual Port 10GbE Multifunction BL-c Adapter

HP NC551i Dual Port FlexFabric 10Gb Adapter

HP NC553i 10Gb 2-port FlexFabric Converged Network Adapter

HP Ethernet 1Gb 2-port 363i Adapter

HP Ethernet 1Gb 2-port 367i Adapter

HP Ethernet 10Gb 2-port 562i Adapter

HP Ethernet 1Gb 364i Adapter

Mezzanine adapters:

HP Ethernet 1Gb 4-port 366M Adapter

HP Ethernet 10Gb 2-port 560M Adapter

HP Flex-10 10Gb 2-port 530M Adapter

HP Flex-10 10Gb 2-port 552M Adapter

HP FlexFabric 10Gb 2-port 554M Adapter

HP NC360m Dual Port 1GbE BL-c Adapter

HP NC364m Quad Port 1GbE BL-c Adapter

HP NC382m Dual Port 1GbE Multifunction BL-c Adapter

HP NC532m Dual Port Flex-10 10GbE Multifunction BL-c Adapter

HP NC542m Dual Port Flex-10 10GbE BL-c Adapter

HP NC550m Dual Port Flex-10 10GbE BL-c Adapter

HP NC551m Dual Port FlexFabric 10Gb Converged Network Adapter

HP NC552m 10Gb Dual Port Flex-10 Server Adapter

HP NC553m 10Gb Dual Port FlexFabric Converged Network Adapter

HP FlexFabric 10Gb 2-port 534M Adapter

FlexibleLOM for Racks adapters:

HP Ethernet 1Gb 4-port 331FLR Adapter

HP Ethernet 1Gb 4-port 366FLR Adapter

HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter

HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter

HP FlexFabric10Gb 2-port 554FLR-SFP+ Adapter

HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter

HP FlexFabric 10Gb 2-port 533FLR-T Adapter

HP Ethernet 10Gb 2-port 561FLR-T Adapter

HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter

FlexibleLOM for Blades adapters:

HP Ethernet 1Gb 2-port 361FLB Adapter

HP Ethernet 10Gb 2-port 560FLB Adapter

HP FlexFabric10Gb 2-port 554FLB Adapter

HP Flex-10 10Gb 2-port 530FLB Adapter

HP FlexFabric 10Gb 2-port 534FLB Adapter

II. SOFTWARE RELEASE NOTES

Operating system support

The Network Configuration Utility (NCU) supports Windows Server 2008 and Windows Server 2008 R2 only. The NCU does not support Windows 2012. With that OS, teaming functionality is implemented in the operating system.

Make Windows 2008 configuration modifications in NCU only

HP highly recommends that you ONLY use the NCU to update adapter configurations and teaming configurations for Windows 2008. Windows 2008 operating system configuration updates could lead to problems.

Teaming issue on Windows Small Business Server 2008

Teamed adapters cannot be dissolved in the NCU unless your user account is assigned to the "Administrators" group and the "Network Configuration Operators" group.

Both the network administrator account (created during an SBS installation) and the built-in administrator account are assigned to the "Administrators" group by default. However, the built-in administrator account is disabled by default and must be enabled to be used in the NCU.

Complete the following steps to assign the user account to the Network Configuration Operators account.

1) Assign the "Network Configuration Operators" group to your user account.

2) If you are using the Built-in Administrator Account, enable it.

3) If you are using the Network Administrator Account, disable the User Account Control.

4) Reboot the server.

TOE and RSS are incompatible on HP NC-Series NetXen Adapters

TOE and RSS cannot be enabled simultaneously. If RSS is already enabled and then TOE is enabled, RSS is no longer functional. This applies to NC375i, NC522SFP, and NC524SFP adapters.

TOE license required for HP NC-Series QLogic/NetXen Adapters

The HP NC524SFP, NC522SFP, and NC375i adapters require a TOE license. To get a TOE license complete the following steps:

1. Go to www.qlogic.com.

2. Click 'Support' on the top menu bar, and then select 'License Key Activation Center.'

3. Click the 'To upgrade click here' link located under '10GbE Intelligent Ethernet Adapters.' If prompted, create a user account login.

4. Open the driver property window for your operating system, select the License and Support tab, and then click Install License. Follow the instructions as prompted.

Supported team types on FlexNIC-enabled (partitioned) HP NC-Series Adapters

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Only the following team types are supported on FlexNIC-enabled adapters. If the adapters do not have FlexNIC enabled then all team types are supported:

Network Fault Tolerance (NFT)

Network Fault Tolerance with Preference Order (NFT-PO)

Transmit Load Balancing with Fault Tolerance (TLB)

Transmit Load Balancing with Fault Tolerance and Preference Order (TLB-PO)

RSS issue for QLogic P3 Windows drivers

If you enable the driver parameter “Optimization” and select “IP Forwarding” from Device Manager, RSS is disabled for the device.

Hyper-V HP NCU teaming behavior

Jumbo Frames are not supported with Windows Server 2008 Hyper-V, but they are supported with Windows Server 2008R2 Hyper-V. Configure "Maximum Frame Size" to 1514 for Hyper-V Virtual Machine network traffic.

For TLB team type, Team member MAC (based on the team member selected to Tx packets for load balance) address is the source MAC for outbound packets from VMs. For NFT, SLB, 802.3ad, VMs UNIQUE MAC address is the source MAC for outbound packets from VMs.

PXE disabled on standup adapters

PXE is disabled by default on all HP NC-Series standup adapters. You must enable PXE using the dos-based diagnostics tools for your specific adapter located in the \apps\diags or \apps\nxp3_firmware directories. For more information, see the Readme.txt and BootAgent.txt files in those directories.

Configuring for Jumbo Frames using Maximum Frame Size option

When configuring your HP NC Series Server Adapters for Jumbo Frames using the "Maximum Frame Size" option, the displayed Maximum Frame size does not include the 4-byte CRC/FCS on the frames to be transmitted that is greater than 1514 bytes. Due to the interpretation of the IEEE specification by some switch vendors, the CRC/FCS bytes might or might not be included in their Jumbo Frame configuration. If allowed, you must adjust the Jumbo Frame size on the switch to at least 4 bytes larger than the maximum frame size set on the adapter. (It is acceptable to have the frame size larger on the switch than on the adapter.) If your switch does not allow for the granular manipulation of frame sizes, do not enable the maximum frame size (Jumbo Frames) for your adapters and contact your switch vendor for further assistance.

Installation of Multifunction (NC37x/NC38x) Gigabit Server Adapters using remote installation services (RIS) requires RIS drivers

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When performing RIS installations on Multifunction Gigabit Server Adapters, you must use the RIS driver. To obtain the driver, extract any of the Multifunction components (CP######.exe) to a folder, and then navigate to the \RIS folder.

Installing two or more iSCSI-enabled Multifunction adapters in your system

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If you install two or more Multifunction adapters that have iSCSI enabled on them, the number of free system page table entries can become low and cause system instability. HP recommends the following memory requirements:

One Multifunction adapter:

Minimum memory 500M, recommended memory 1G

Two or more Multifunction adapters:

Minimum memory 1G, recommended memory 2G

These RAM requirements do not apply if the adapters are not iSCSI enabled.

Jumbo Frames are not supported in the Hyper-V environment for Windows 2008 Server

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Jumbo Frames are not supported by Hyper-V Virtual Machines running on a Windows 2008 Server host operating system, but Windows 2008 Server R2 supports Jumbo Frames. Changing the Jumbo Frame property to a value other than 1514 for NICs, Teamed NICs, VLANs, and Teams with VLANs will not pass the traffic for VM network connectivity.

iSCSI boot is now available on NC55x Adapters

This release supports iSCSI boot on the NC55x family of NICs, mezzanines, and embedded adapters.

RHEL5.9 inbox driver support

This release supports the RHEL5.9 inbox driver. If iSCSI fails to build on RHEL5.9, use the inbox driver.

III. HARDWARE RELEASE NOTES

All adapters

HP NC524SFP Module and PCI IDs

The NC524SFP Module plugs into the NC375i adapter and replaces two of the NC375i 1 GB ports with two 10 GB ports. When plugging and unplugging the NC524SFP onto the NC375i, you must dissolve and recreate any teams that contained the NC375i as a member because a different PCI ID is assigned to the adapter when the NC524SFP module is plugged into it.

HP NC375x duplex

HP NC375x does not support 10/Half and 100/Half duplex.

HP CN1000Q

HP CN1000Q supports iSCSI.

Broadcom Multi-Function devices

Broadcom Multi-Function devices are a tiered driver model, and the driver components contain multiple drivers that support the device. The component version is the “virtual bus driver” version as contained in the component. The virtual bus driver is a system device listed under Device Manager. The network device is a separate driver that is also contained in the component. The network device version is different from the component version. NCU device properties display both driver versions, and the driver versions are also listed in Device Manager.

Broadcom 10GbE CNAs (Converged Network Adapters)

The Broadcom 10GbE CNAs have the following Linux and VMware installation and configuration requirements and known issues.

Linux installations: Configuring a Broadcom 10GbE CNA to enable FCoE (Fibre Channel over Ethernet)

Install the driver package, and then perform the following steps to enable FCoE on the adapter.

1) Install the inbox FCoE prerequisites (Open-FCoE).

For RHEL, the package is called fcoe-utils.

For SLES, the package is called open-fcoe.

The above packages and their dependencies are located on your OS installation media.

2) For SLES, turn on the fcoe and lldpad services:

chkconfig boot.lldpad on

chkconfig boot.fcoe on

3) Reboot the server to ensure that the newly installed drivers are active.

4) Create configuration files for all FCoE ethX interfaces:

cd /etc/fcoe

cp cfg-ethx cfg-<ethX FCoE interface name>

Your distribution might have a different naming scheme for Ethernet devices, such as pXpX or emX instead of ethX.

5) Modify /etc/fcoe/cfg-<interface>.

Set DCB_REQUIRED=yes to DCB_REQUIRED=no.

6) Turn on all ethX interfaces:

ifconfig <ethX> up

7) (For SLES) To configure your Ethernet interfaces with YaST to automatically start at boot, do one of the following:

Set a static IP address.

Enable DHCP on the interface.

8) Disable lldpad on Broadcom CNA interfaces, which is required because Broadcom utilizes an offloaded DCBX client.

lldptool set-lldp –i <ethX> adminStatus=disabled

IMPORTANT: In a FlexFabric environment, lldpad must be disabled on all NICs and HBA ports associated with a given physical interface

9) Check that /var/lib/lldpad/lldpad.conf is created, and then do one of the following:

Check that each <ethX> block does not specify “adminStatus”.

If “adminStatus”is specified, check that it is set to 0 (“adminStatus=0”) for all interfaces and not just those enabled for FCoE:

```
lldp :
{
eth5 :
{
tlvid00000001 :
{
info = "04BC305B017B73";
};
tlvid00000002 :
{
info = "03BC305B017B73";
};
};
```

10) Restart lldpad service to apply new settings.

For RHEL: # service lldpad restart

For SLES11: # rclldpad restart

11) Restart FCoE service to apply new settings.

For RHEL: # service fcoe restart

For SLES11: # rcfcoe restart

12) Check the installation to verify that the driver was correctly installed and that the host port is seen by the switch.

A. Correct FCoE operation requires proper DCB connectivity.

Proper DCB sync and operational DCB can be confirmed through BACS, BACScli, or by visiting the directly connected switch interface.

B. Run fcoeadm -i to see all created FCoE interfaces and their status.

If an FCoE interface is not present, then check that the operating system is configured to automatically enable the required network interfaces.

Linux installation and configuration known issues

Memory considerations

The Broadcom bnx2x driver uses virtual memory for DMA operations. Normally, the driver requires a virtual memory size of 8264 kB per physical function at the probe stage. At the open stage, the driver requires more than 256 kB of virtual memory per physical function. On architectures that the default vmalloc size is relatively small and not sufficient to load many interfaces, use vmalloc=<size> during boot to increase the size.

A 32-bit Linux operating system has a limited amount of memory space available for kernel data structures. You might need to decrease the amount of memory pre-allocated by the driver to use the Broadcom bnx2x driver on such a platform. To decrease the memory, limit the number of RX queues with the num_queues driver parameter, or limit the number of RX buffers for each queue with the ethtool -G option.

During the installation of a 32-bit Linux operating system, HP recommends setting bnx2x.num_queues=1 in the kernel command line when the system boots up from the installation media to install the OS. The bnx2x.num_queues=1 setting avoids potential out-of-memory issues.

Multipath configuration

HP recommends following the guidelines in Native Linux Device-Mapper Multipath for HP Storage Disk Arrays Reference Guide when configuring multipath on your Linux systems. For more information, search Native Linux Device-Mapper Multipath for HP Storage Disk Arrays Reference Guide on the SPOCK website (http://www.hp.com/storage/spock). Additionally for Broadcom CNAs, HP recommends adjusting the fast_io_fail_tmo value in multipath.conf for each storage array to 25 and adding the line "fast_io_fail_tmo 25" to any array that does not already have this value defined. The adjustment avoids a race condition that can result in unexpected target and LUN loss.

tboot

Trusted Boot (tboot) is not supported.

VMware installations: Configuring a Broadcom 10GbE CNA to enable FCoE

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1) Enable FCoE hardware offload on the CNA:

A. Access the host machine via SSH.

B. Determine which ports are FCoE capable:

esxcli fcoe nic list

The output looks something like the following example:

vmnic4

User Priority: 3

Source MAC: FF:FF:FF:FF:FF:FF

Active: false

Priority Settable: false

Source MAC Settable: false

VLAN Range Settable: false

C. Enable the FCoE interface:

esxcli fcoe nic discover -n vmnicX

where X is the interface number gained from esxcli fcoe nic list.

D. Verify that the interface is working:

esxcli fcoe adapter list

Check that the output of this command shows valid values for the following:

FCF MAC

VNPort MAC

Priority

VLAN ID for the fabric that is connected to the CNA

2) (Optional) Verify that the interface is working:

#esxcfg-scsidevs –a

The output looks something like the following example:

vmhba34 bnx2fc link-up fcoe.1000<mac address>:2000<mac address> () Software FCoE

vmhba35 bnx2fc link-up fcoe.1000<mac address>:2000<mac address> () Software FCoE

The label “Software FCoE” is a VMware term used to describe initiators that depend on the inbox FCoE libraries and utilities. The Broadcom FCoE solution is a fully state-connection-based hardware offload solution designed to significantly reduce the CPU burden encumbered by a non-offload software initiator.

The command output example is from an ESXi 5.0 system. The command output example on an ESXi 5.1 system replaces “Software FCoE” with “Broadcom Corporation FCoE Adapter.”

3) To verify that the driver installed correctly and that the host port is seen by the switch, verify that the host WWPN shows up in the switch FLOGI database:

For Cisco FCF: show flogi database

For Brocade FCF: fcoe --loginshow

VMware installation and configuration known issues

Boot from SAN on ESXi 5.0.x is not supported

Boot from SAN is not supported on ESXi 5.0.x.

Multipath configuration

To set up multipath on an ESXi 5.x host, you must add a default FCoE transport SATP rule. For instructions, search for the article 2045934 on the VMware Knowledge Base website (http://kb.vmware.com).

Boot from SAN requirements for Broadcom 10GbE CNAs

Boot from SAN configuration workaround for the Proliant BL660c

Boot from SAN on the Proliant BL660c might result in a BIOS hang or crash. A workaround is to

use the ROM-Based Setup Utility (RBSU) to disable the SmartArray controller before the blade is configured for Boot from SAN.

UEFI is not supported

UEFI (Unified Extensible Firmware Interface) iSCSI and FCoE Boot from SAN is not supported.