

Emulex[®] OCe14000-Series OneConnect[®] Adapters Firmware and Boot Code Release Notes

Version: 11.2.1153.23

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Purpose and Contact Information

These release notes describe new features, resolved known issues, current known issues, and technical tips associated with this release of the firmware and boot code for Emulex[®] OCe14000-series OneConnect[®] adapters.

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New Features

- Beginning with software release 11.2, LightPulse[®] adapters and OneConnect adapters have independent software kits. Before updating earlier drivers and applications to the software in release 11.2, refer to the *Emulex Software Kit Migration User Guide* for special instructions and considerations for using the 11.2 software kits for LightPulse and OneConnect adapters.
- iSCSI IQN is assigned on a per-port basis rather than globally.
- This release enables you to retain the bandwidth and logical port VLAN ID (LPVID) between protocol function changes on Unified Extensible Firmware Interface Human Interface Infrastructure (UEFI HII).

Resolved Issues

Firmware

1. **The connectivity status is correctly reported when the initiator link is brought down.**
2. **The Internet Small Computer Systems Interface (iSCSI) utility no longer allows the same static Internet Protocol (IP) address to be set on both ports.**

NIC UEFI

1. **Priority flow control (PFC) is now supported on Network Interface Controller (NIC) functions.**
2. **When the Preboot Execution Environment (PXE) Select utility is used to reset the adapter configuration, the port link speed now resets to the default value of 10 Gb/s. The link speed is no longer shown as N/A, and the link status is shown as up.**

iSCSI UEFI

1. Dell PowerEdge R720 systems no longer appear to be locked up when configuring the adapter in the NIC Unified Extensible Firmware Interface (UEFI) utility.
2. Changing the boot target to Primary on a non-boot target with mutual Challenge-Handshake Authentication Protocol (CHAP) configuration does not delete the target.
3. The server no longer freezes when an Erase Configuration is performed on an OCe14000-series adapter with iSCSI multipath I/O (MPIO) enabled on both ports and the boot target is configured on Port 0.

PXE BootBIOS

1. The Preboot eXecution Environment (PXE) Boot Support attribute on the PXESelect utility's Port Configuration page now matches the Option Read-only memory (ROM) attribute on the Unified Extensible Firmware Interface Network Interface Controller (UEFI NIC) Configuration page.

iSCSI BootBIOS

1. The iSCSISelect utility no longer attempts to connect to targets when the connect option is not selected in the iSCSI UEFI utility.

Known Issues

Firmware

1. **Firmware version 11.x includes new features that required new flash regions to support them. Firmware versions earlier than 10.0.803.37 did not have the ability to configure the flash regions to support these new features.**

If you are updating from a firmware version earlier than 10.0.803.37, use one of these methods to update the firmware to 11.0.x:

- Use the Offline Flash International Standards Organization (ISO) flash tool.
- Use the released 11.x version of the OneCommand® CNA graphical user interface (GUI) or OneCommand CNA Manager command line interface (CLI) application, OneCommand CNA for VMware vCenter application, Common Information Module (CIM) Provider utility, or online or offline utilities. You must perform the firmware update procedure twice to ensure that the flash regions are properly configured, and you must reboot the system after each firmware update.
- Use the network interface card (NIC) configuration utility that is currently installed. After the new firmware is installed, run the new NIC configuration utility.

If you are updating from firmware version 10.0.803.37 or later, use one of these methods to update the firmware to 11.0.x:

- Use the ISO flash tool.

- Use the released 11.x version of the OneCommand CNA GUI or OneCommand CNA CLI application, OneCommand CNA for VMware vCenter application, CIM Provider utility, or online or offline utilities, and reboot the system after the firmware update. (It is not necessary to perform the firmware update process twice.)
- Use the NIC configuration utility that is currently installed, and reboot the system after the firmware update. After the new firmware is installed, run the new NIC configuration utility.

Note: Do not use Linux inbox drivers when performing the firmware update.

After you have updated the firmware, you must not downgrade the firmware to a version earlier than 10.0.803.37.

2. **Changing personalities might disable a Cisco switch's operator mode for PFC.**

Workaround

Perform the following steps:

- a) Check the operator mode by typing:

```
show int eth 1/x priority-flow-control
```

- b) If the operator mode is off, for each affected port, you must then toggle the priority-flow-control mode to **off** and then back to **auto**.

At the switch type the following:

```
priority-flow-control mode off
```

```
priority-flow-control mode auto
```

3. **Maximum bandwidth settings for NIC functions are ignored when multichannel is enabled.**

The rate limiting features on Emulex OCe14000-series adapters are designed to provide a guaranteed rate to a given function (as noted in the minimum bandwidth setting in the Emulex management interface). The notion of work conservation applies to this approach; specifically, that any bandwidth left unused by other functions will be awarded to the function, even in excess of the guaranteed minimum. The maximum bandwidth parameter in the Emulex management interface is for a rate cap (that is, a bandwidth value must not be exceeded regardless of the behavior of other functions). The maximum bandwidth parameter was placed in the Broadcom management interface for other products; it is not currently available in the OCe14000-series adapters.

Workaround

None.

4. **An incorrect connectivity status might be reported when the initiator link is brought down.**

Workaround

None.

- 5. The host might fail to boot on certain vendor system basic input/output system (BIOS) versions when a single physical function (PF) is configured with Single Root I/O virtualization (SR-IOV) disabled.**

This situation is most commonly observed when a 1-port adapter is using the RDMA over Converged Ethernet (RoCE) protocol, but it can also occur when a 1-port adapter uses the NIC protocol with SR-IOV enabled.

Note: RoCE is available as Technical Preview only. Do not use RoCE in a production environment.

Note: This issue can also be observed on 2 and 4-port adapters that support link reconfigurability and are reconfigured for a single port.

Affected vendor systems include:

- Colfax/Intel system with S2600C0 motherboard
- SuperMicro X9SRL-F motherboard
- SuperMicro X9SCL/X9SCM

Workaround

None.

- 6. On OCe14401 adapters installed on Microsoft Windows systems, the number of virtual machine (VM) queues are reduced when migrating the VMs.**

Workaround

Refer to Knowledge Base article 3031598 on the Microsoft website for more information.

- 7. If you are using the OneCommand CNA Manager application to update firmware from a previous version to version 11.x, you must first update the OneCommand CNA Manager application or the Elxflash utility to version 11.x.**
- 8. During heavy input/output (I/O) traffic on Arista switches, priority flow control (PFC) traffic might be dropped at the switch.**

Workaround

Increase switch port egress buffers using the following commands:

```
platform trident mmu queue profile emulex
    egress unicast queue 5 threshold 4
platform trident mmu queue profile emulex apply
```

- 9. Boot from storage area network (SAN) does not work on x86 systems with OCe14000-series Fibre Channel over Ethernet (FCoE) adapters running Solaris 11.2 and later versions.**

Workaround

None.

10. You receive the error message `Link is up, no targets found`.

If a scan is performed and your target is not displayed, you might not have any mapped targets.

Workaround

Verify that the target is mapped.

11. When the newer Unified Extensible Firmware Interface (UEFI) NIC driver manages the adapter with the older firmware and issues a newer IOCTL, the older firmware returns the error status as `ILLEGAL_REQUEST/unrecognized opcode`.

Workaround

Update all adapters to the same or the latest firmware.

12. The Secure Firmware feature applies to OCe14000B-series adapters only.

13. Traffic is not adhering to the minimum bandwidth settings.

Workaround

None.

NIC UEFI

1. If boot firmware table (iBFT) boot is non-functional, and version 10.2.370.19 or later firmware is installed, you must update the firmware to version 11.x using the ISO flash image or using a version 11.x management application or firmware update utility. You must reboot the system after the firmware update.

If you updated the firmware from a version earlier than 10.0.803.37, you must perform the update process twice using a version 11.x management application or firmware update utility. You must reboot the system after each firmware update.

Workaround

None.

2. NIC traffic bandwidth is using 0 Mbp/s for most of the iperf connections (parallel threads) on OCe14000-series 1 Gb/s adapters.

On a 1 Gb/s port, traffic flows only on single connections when traffic is run using the iperf utility with multiple connections.

Workaround

Create a 1TX queue using the `ethtool -L` command. Traffic then flows on all TCP connections.

3. For OCe14000-series 1G LAN on motherboard (LOM) adapters, when running transmission control protocol (TCP) traffic using the iperf tool in bidirectional mode and unidirectional mode, NIC traffic bandwidth is 0 MB/s for most of the iperf connections (parallel threads).

Workaround

None.

iSCSI UEFI

1. **An iSCSI login does not display an error when providing invalid target information.**

Workaround

None.

PXE BootBIOS

1. **If iBFT boot is nonfunctional and version 10.2.370.19 or later firmware is installed, you must update the firmware to version 10.2.370.19 using the ISO flash image or using a version 10.2 management application or firmware update utility. You must reboot the system after the firmware update.**

If you updated the firmware from a version earlier than 10.0.803.37, you must perform the update process twice using a version 10.2 management application or firmware update utility. You must reboot the system after each firmware update.

Workaround

None.

2. **PXE virtual local area network (VLAN) is not supported in multichannel environments.**

Workaround

Set the logical port VLAN ID (LPVID) to the same value as the PXE VLAN.

iSCSI BootBIOS

1. **Changing the target's digest parameters might cause the boot logical unit number (LUN) to revert to LUN 0.**

Workaround

None. You must re-select the appropriate boot LUN.

2. **Adapter failover using MPIO with iSCSI boot might not work properly on VMware ESXi 5.0 systems.**

Workaround

None.

3. **A boot target might not be seen immediately after enabling Discover Boot Target using Dynamic Host Configuration Protocol (DHCP).**

Workaround

Use the iSCSI UEFI utility to configure the boot target.

4. **When entering the iSCSI BIOS on Windows Server 2008 x86 SP2 systems, an iSCSI Initiator Name mismatch error message might be displayed.**

The error message states:

```
Error: There is an iSCSI Initiator Name mismatch for the
OneConnect controllers in this system. Please use the iSCSI
Initiator Configuration screen to set a single iSCSI Initiator
Name for all controllers in the system.
```

Workaround

None.

FCoE x86 BootBIOS

1. **The Configure Boot Devices menu scans only for the next 16 LUNs from the starting LUN, which limits the number of LUNs that are displayed.**

Workaround

None.

Other Known Issues

1. **Certain Cisco breakout cables are not properly detected by the OCe14401B adapter.**

The following Cisco breakout cables do not provide the correct codes to the OCe14401B adapter to support the SFF-8436 standard:

- QSFP-4X10G-AOC10M
- QSFP-4X10G-AOC7M
- QSFP-4X10G-AOC5M
- QSFP-4X10G-AOC3M
- QSFP-4X10G-AOC2M
- QSFP-4X10G-AOC1M

If you are using one of these cables to connect an OCe14401B adapter to a Cisco Nexus-series switch, the following error is reported:

```
Optics faulted/incorrectly installed/not installed -Reseat optics, if
issue not resolved, replace. Link is Non Operational
```

Workaround

Use Arista, Brocade, or International Business Machines (IBM) breakout cables with OCe14401B adapters.

Technical Tips

1. **Under SLES 11, the bond 5 and 6 modes must be configured properly to work with the firmware.**

When configuring the bond mode, change the default setting to include "updelay=100". For example, the correct setting for bond 6 is `BONDING_MODULE_OPTS='mode=6 miimon=100 updelay=100'`.

2. **For Cisco switches, the access mode must be set in trunk mode, and native VLAN cannot be FCoE VLAN; that is, the FCoE VLAN must be in the allowed list. For example, if VLAN 2 is the FCoE VLAN and VLAN 1 is the Ethernet VLAN, you would enter the following:**
 - `Switchport mode trunk`
 - `Switchport trunk native vlan 1`
 - `Switchport trunk allowed vlan 1-2`
3. **For Brocade switches, trunk mode must be set in converged mode. For example, if VLAN 2 is the FCoE VLAN, you would enter the following:**
 - `Switchport mode converged`
 - `Switchport converged allowed vlan add 2`
4. **For best performance, disable the Spanning Tree Protocol (STP) on all networked switches if you are using the following:**
 - Adapter fault tolerance (AFT)
 - Automatic load balancing (ALB)
 - Static link aggregation teaming
5. **When using SR-IOV within VMs on Windows 2012 and Windows Server 2012 R2 systems, VM-to-VM communication on SR-IOV-enabled switches works; however, a difference exists in how data is transferred.**
 - When virtual Ethernet bridge (VEB) is enabled and physical link tracking is disabled, the virtual function (VF) link is always up and VF-VF is always used.
 - When VEB and physical link tracking are enabled (default):
 - a) When the physical link is up, VF to VF is used.
 - b) When the physical link is down, an emulated path through a virtual switch is used.
 - When virtual Ethernet port aggregator (VEPA) is enabled:
 - a) When the physical link is up, the VF to VF traffic flows through the external switch.
 - b) When the physical link is down, an emulated path through a virtual switch is used.
6. **Universal Multichannel (UMC) NIC channels on the same physical port cannot be placed in the same team on Windows and VMware systems.**

Each of the NIC channels is presented to the operating system as a separate and unique port running a NIC function. However, this situation can create an issue if the NIC channels on the same physical port are placed in the same team.

While teaming can provide increased reliability and increased bandwidth, this is not the case in this circumstance. Because the channels are assigned to the same physical port, reliability is not increased because it is still the same as a single physical port and not equal to two ports combined. In addition, bandwidth increases are not actually realized. Greater throughput could be achieved by assigning the combined bandwidths of the channels to a single channel, because the overhead of teaming would not be a factor in that case.

7. The Emulex OneConnect Firmware Update Utility might fail to update all OCe14000-series adapters due to the Secure Firmware feature.

The utility might display the following text:

```
Secure Firmware Mode is active - Flash updates are prohibited.  
Remove the Secure Firmware jumper to allow Flash updates with this tool.  
Please reboot your system after removing the Secure Firmware jumper.
```

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