Emulex Drivers for Windows Release Notes

Versions: FC and FCoE Version 10.6.114.0
NIC Version 10.6.126.0
iSCSI Version 10.6.116.0

Date: July 2015

Purpose and Contact Information

These release notes describe new features, resolved known issues, current known issues, and technical tips associated with this Emulex® drivers for Windows release.

For the latest product documentation, go to www.Emulex.com. If you have questions or require additional information, contact an authorized Emulex technical support representative at tech.support-elx@avagotech.com, 800-854-7112 (US/Canada toll free), +1 714-885-3402 (US/International), or +44 1189-772929 (Europe, Middle East, and Africa)

New Features

1. **Supports OCe14000B-series adapters.**
2. **Discontinued support for LPe11000-series adapters.**
3. **Supports RDMA over Converged Ethernet (RoCE) v2 (Layer 3 routing) specification (on OCe14000B adapters only).**
4. **Adds client support for Windows 10.**
5. **Optional installation support for the iSCSI Boot Firmware Table (iBFT) crash dump driver.**
6. **Supports OneInstall silent installation.**

Resolved Issues

1. **Packet drops no longer occur when using a 40GbE Cisco switch to connect more than six clients to an adapter configured for RoCE. Completion queue errors are no longer reported on the seventh client trying to connect.**
2. **Performance enhancement of Windows RoCE driver.**

Known Issues

1. **A complete memory dump will not finish in a boot from storage area network (SAN) configuration using iBFT with Internet Protocol version 6 (IPv6).**

   Workaround

   Do not specify complete dumps when using iBFT with IPv6. Choose Automatic or Kernel memory dumps.

2. **In a boot from SAN configuration using iBFT, if the Internet Small Computer System Interface (iSCSI) target is on a different Internet Protocol version 4 (IPv4) subnet than the initiator, memory dump will not work.**

   Because of a limitation in the Emulex iSCSI crashdump driver (ocibftcd.sys), for memory dumps to work in IPV4 configurations, the iSCSI initiator and target must be on the same subnet. If the iSCSI initiator and target are on different subnets, crashdump will stop at 0% and no memory.dmp file will be generated after a reboot.

   Workaround

   None.

3. **Windows Server 2008 and Windows Server 2008 R2 are supported, although new features are not supported on those operating systems. For documentation of features supported on those operating systems, see the *Emulex Drivers Version 10.4 for Windows User Manual* available on the Emulex website.**

4. **Only a maximum of 64 targets can be discovered using the Add Portal option in the iSCSI Target Discovery dialog box.**

   Workaround

   Targets can be added manually or discovered through iSNS.

5. **While Emulex drivers for Windows 7 and Windows 8/8.1 are supported, they are Emulex-signed only. You must accept the Emulex certificate to install the client kits.**

   Support is provided by Emulex, but not by Microsoft.

   Workaround

   None.

6. **If you configure the link speed in a BIOS utility, the link speed may be overridden by the Emulex driver for Windows according to its LinkSpeed setting.**

   Workaround

   Configure the link speed in both the Emulex driver for Windows and the Boot BIOS or UEFI driver.

7. **Disabling remote direct memory access (RDMA) using the PowerShell cmdlet "Set-NetOffloadGlobalSetting -NetworkDirect Disabled" is not supported.**

   Issuing the command can result in an inconsistent RDMA state; specifically RDMA will be disabled globally at the operating system level, but will still be enabled at the adapter level.

   Workaround

   If you run the PowerShell cmdlet "Set-NetOffloadGlobalSetting -NetworkDirect Disabled", use the following command to enable RDMA at the operating system level once again:

   ```
   Set-NetOffloadGlobalSetting -NetworkDirect Enabled
   ```

   Alternatively, you can use the following PowerShell cmdlets to disable or enable RDMA:

   ```
   Disable-NetAdapterRdma and Enable-NetAdapterRdma
   ```

8. **Some switches strip the virtual local area network (VLAN) tag from the incoming frame with VLAN 0 or VLAN 1 and send the frame out without a VLAN tag (and so without VLAN priority) resulting in dropped frames.**

   If VLAN 0 or VLAN 1 is configured, the driver posts an informational message warning you of an incorrect configuration, however, the results of this error are not prevented.

   Workaround

   When running network interface card (NIC)+RoCE personality, if process flow control (PFC) is enabled, always configure the interface with a VLAN ensuring that the VLAN ID is greater than 1.

9. **When using OCe14000-series adapters with active RDMA operations, completion queue errors occur on the server when the client is rebooted.**

   Any RDMA operation issued by the server in response to an Server Message Block (SMB) client must be completed before the connections disappear from the server. When rebooting, any outstanding RDMA operations issued prior to the reboot will be continually retried by the server until it times out resulting in a completion queue error.

   Workaround

   None.

10. **After a Windows driver reload with NetworkDirect disabled, throughput by way of SMB gets capped to the highest link speed available as shown by the Get-SmbClientNetworkInterface PowerShell command on the client system. This issue is seen only if RDMA is not enabled on the adapter and SMB uses Transmission Control Protocol (TCP).**

    Workaround

    Do one of the following:

    - Set Multichannel Constraint so that only intended interface will be used for traffic.
    - Disable and then enable the port of the required interface.
    - Ensure that no other interfaces are enabled. This requires SMB to choose the only interface available that will not cap throughput.
    - Reboot the system.

11. **For optimal network virtualization using generic routing encapsulation (NVGRE) performance if Universal Multi-Channel (UMC) is used, enable a Hyper-V virtual switch on only one NIC function per port.**

    Workaround

    None.

12. **SMB Direct failover limitations using 4-port OCe14000-series adapters.**

    When using 4-port OCe14000-series adapters and one port fails, the RDMA connections will be torn down as the result of an out of resource failure.

    Workaround

    None.

13. **On OCe14000-series adapters, virtual machines (VMs) do not appear if the virtual switch is created before selecting an single root I/O virtualization (SR-IOV) supported profile.**

Workaround

Destroy and recreate the virtual switch. If you set the adapter to the NIC+SRIOV profile, and then create the virtual switch, SR-IOV works as intended.

14. **On OCe14401 adapters, the number of VMQueues are reduced when migrating the VM's.**

    Workaround

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

15. **The following information was omitted from the current release of the *Emulex Drivers Version 10.6 for Windows User Manual* under the topic SMB Multichannel:**

    Note: When adding or removing adapters from your system, you must readjust the multichannel constraints for optimal performance.

    Workaround

    None.

16. **The *Emulex Drivers Version 10.6 for Windows User Manual* states that OCe14000-series adapters support RoCE v2 ports.**

    Only OCe14000B-series adapters support RoCE v2 ports.

17. **The Physical Link Tracking parameter is not described in the *Emulex Drivers Version 10.6 for Windows User Manual.***

    This optional parameter enables or disables physical link tracking when SR-IOV is used. When SR-IOV is enabled, the virtual Ethernet bridging (VEB) switch is used and the driver link status does not reflect the physical link status. This parameter forces the driver link status to reflect the physical link status. By default physical link status tracking is enabled. Disable physical link tracking to allow physical function (PF) and VFs to communicate via the VEB switch regardless of the physical link status. When physical link status tracking is disabled, the driver always reports link as UP. When physical link tracking is disabled, teaming failover will not work. When SR-IOV is disabled, the driver always reports physical link status.

18. **Two new installation parameters are missing from the *Emulex Drivers Version 10.6 for Windows User Manual.***

    When running the NIC Driver Kit in silent mode, add the "crashdriver=1" parameter to enable the Emulex iSCSI Crash Dump Driver, also described as the iSCSI Boot Firmware Table (iBFT) crash dump driver. (The default is 0.) For example:

    ```
    start  /wait  elxdrvr-nic-<version>.exe  /q2  crashdriver=1
    ```

    When running OneInstall in silent mode, add the "ibft=1" to enable the Emulex iSCSI Crash Dump Driver also referred to as iSCSI Boot Firmware Table (iBFT) crash dump driver. (The default is 0.) For example:

    ```
    start  /wait  OneInstall-Setup-<version>.exe  /q2  ibft=1
    ```

Technical Tips

1. **SR-IOV and Hyper-V**

   Windows Server 2012 Hyper-V supports SR-IOV only with Windows Server 2012 and Windows 8/8.1 guest operating systems. Microsoft has designed SR-IOV as an optional

feature in the guest operating system, where the SR-IOV virtual function is always paired with an emulated NIC interface, which is similar to any non-SR-IOV virtual NIC.

The virtual Peripheral Component Interconnect (PCI) function may be added and removed dynamically from the guest operating system without interrupting the network traffic. With this design, Microsoft is able to support key features such as Live Migration and snapshots, even with SR-IOV enabled. These features do not depend on the existence of the SR-IOV hardware; they only save the state of the emulated network interface. When the virtual machine is restored, it will try to recreate the SR-IOV virtual NIC, but if the hardware is not available it can continue using the emulated NIC seamlessly.

2. **If you are running Windows Server 2012 R2, ensure that you have installed the latest Windows update. Otherwise, if shutdown is initiated while RoCE traffic is in progress, an operating system error may occur (often referred to as a BSOD). The computer may freeze and require restarting to make it operational.**

   While the April 2014 update is specifically required to avoid this issue, Emulex strongly recommends the you have Windows Update activated on your servers.

3. **RoCE traffic requires a lossless network. During heavy I/O, PFC traffic may be dropped at the switch.**

   Increase switch port egress buffers. Consult your switch vendor or switch documentation.