BROADCOM®

Release Notes

Emulex® Drivers for RHEL 8.0

Release 12.2.360.0

Purpose and Contact Information

These release notes describe the new features, resolved issues, FC and NVMe driver known issues, and FC and NVMe technical tips associated with this release of the Emulex® drivers for RHEL 8.0.

For the latest product documentation, go to www.broadcom.com. If you have questions or require additional information, contact an authorized Broadcom® Technical Support representative at ecd-tech.support@broadcom.com.

New Features

RHEL 8.0 is supported on the following series of Emulex adapters:

- LPe12000
- LPe16000
- LPe31000
- LPe32000
- LPe35000

Resolved Issues

There are no resolved issues in this release.

FC Driver Known Issues

1. PCI Hot Plug might cause applications, such as the Emulex OneCommand® Manager application or third-party applications that use the Emulex libraries (for example, an HBA API), to malfunction.

   Workaround

   a. Stop all applications that are accessing the FC HBA API interface (Emulex OneCommand Manager application or third-party applications) before performing PCI Hot Plug of an FC adapter.

   b. Use the following command to stop the Emulex OneCommand Manager application:
   `#/usr/sbin/ocmanager/stop_ocmanager`

   c. After performing PCI Hot Plug of the adapter, restart the applications.

2. SCSI errors might occur on deletion of vPorts or PCI Hot Unplug.

   On occasion, the kernel might report SCSI errors when deleting vPorts through the `sysfs` interface or performing a PCI Hot Unplug of an Emulex adapter:

   ```
   kernel: Synchronizing SCSI cache for disk
   kernel: FAILED
   ```

   Or:

   ```
   SCSI error: return code = 0x00010000
   ```

   Workaround

   None. Ignore these messages; they do not indicate a functional failure.

3. An issue exists while deleting vPorts when devices are in use.

   Emulex provides management utilities that allow you to delete vPorts. However, no mechanism exists for the FC driver to detect whether devices accessed through that vPort are in use. This situation means that you can delete a vPort when devices accessible through the vPort are mounted or when I/O is outstanding to the device. When file systems are mounted on vPorts and vPorts are deleted, the file systems still appear to be mounted; however, they are inaccessible.

   Workaround

   Before deleting vPorts, you must prepare the system affected by the vPort deletion accordingly, by unmounting all the devices accessible through the vPorts and ensuring there is no outstanding I/O.

4. Devloss timeout occurs after swapping ports.

   The driver might not finish discovery when two initiator ports are swapped. This situation causes all devices accessible through one or both of these initiator ports to time out and all I/O to fail.

   Workaround

   Do one of the following:

   – When swapping cables, replace each cable, one at a time, and allow discovery to finish before replacing the next cable. To determine if discovery is finished, read the `state sysfs` parameter.
   – When swapping cables, allow the devloss timeout to occur before replacing the cables (this action fails all outstanding I/O).

5. The Linux Loader (LILO) boot loader is not supported on i386 and x86_64 architectures.

   The LILO boot loader on i386 and x86_64 architectures is not supported for this driver. If the LILO boot loader is used, after the FC driver package is installed and upon reboot, an incorrect initial ramdisk is used, and the system might not boot correctly.

   Workaround

   The boot loader supported with this driver is Grand Unified Bootloader (GRUB), which is the default boot loader for most of the Linux distributions. LILO is an older boot loader used on i386 and x86_64 architectures only. GRUB works correctly with the driver package installation script.

6. Enabling the ExpressLane™ feature on a LUN, when maximum LUNs are already enabled for ExpressLane, might result in an error.

   Workaround

   Use the `/usr/sbin/lpfc/lpfc_clean_xlane_conf.sh` script to clear any unwanted entries and retry enabling ExpressLane.

7. The error message `Failed to issue SLI_CONFIG ext-buffer` might be displayed when multiple queue operations are performed.

   Workaround

   During firmware update operations, do not perform queue operations, such as resetting the adapter, the bus, the target, or the host.

8. Revision A of the FOIT AFCT-57F3TMZ-ELX (16GFC longwave optic transceiver) does not support D_Port (also called ClearLink) for Brocade switches and MDS Diagnostic for Cisco switches.

   Workaround

   None.

9. Neither Revision A nor Revision B of the FOIT AFCT-57F3TMZ-ELX (16GFC longwave optic transceiver) or AFCT-57G5MZ-ELX (32GFC longwave optic transceiver) supports D_Port for Brocade® switches.

   Workaround

   None.

10. Boot from SAN is not supported if FC-SP-2 authentication (DHCHAP) is enabled.

    Workaround

    None.

11. Due to limitations in the FC-LS-3 RDP (Read Diagnostic Parameters) ELS (Extended Link Service) definition, FC switches do not issue RDP commands on trunked links.

    Workaround

    None.

12. The remote switched diagnostic test will fail with a Latency Err-Drop error, if you run diagnostics on multiple HBAs simultaneously.

    Workaround

    Run diagnostics on only one port at a time.

13. Brocade switches using Fabric Operating System (FOS) version 8.2.1B and earlier might encounter the following issues with DHCHAP authentication:
    - You might not be able to configure the secret pair between the switch and the HBA. When authentication is enabled on the switch, and authentication is disabled on the HBA, the switch disables the port, but it does not issue the expected status messages.
    - The Brocade switch authenticates the HBA port when authentication is disabled on the switch, or when a frame is dropped.

    Workaround

    None.

14. Loading a Broadcom ECD-signed driver on a system using legacy BIOS might result in an error message similar to the following:

    ```
    Request for unknown module key 'Broadcom Inc.: Emulex Connectivity Division:
    d17ecabc92cd490989959b37f05f0eda48c53895' err -11
    ```

    or

    ```
    PKCS#7 signature not signed with a trusted key
    ```

    Workaround

    None. This is a benign error message and can be ignored.

15. On LPe35000-series adapters with trunking enabled, if I/O is running on NVMe and FCP drivers and a LIP (Loop Initialization Protocol) is issued, a call trace is generated and the ports are reset.

    Workaround

    None.

16. On RHEL 8.0 inbox systems, the GUI displays incorrect trunking information.

    Workaround

    Use the RHEL 8.0 out-of-box driver.

NVMe Driver Known Issues

1. Running the `nvmetcli clear` command on an NVMe target when the NVMe initiator port is down might cause the target system to stop responding. Make sure that the NVMe initiator port is up and all the NVMe devices are disconnected from the initiator before running the `nvmetcli clear` command on the target.

   Workaround

   None.

2. The deliberate faulting of NVMe discovery commands (also called jamming) is not supported. If a discovery command is faulted during initial linkup or during the LIP linkup recovery time, NVMe discovery fails on the affected controller.

   Workaround

   Perform a LIP on the initiator link, and remove the condition that is faulting discovery.

3. If you are adding a subsystem dynamically on a target, you must issue a LIP on the initiator host port bound to the target. If you are adding new namespaces dynamically to existing subsystems, you must perform a manual scan on the initiator. See NVMe Driver Technical Tips for more information.

4. Configuring Initiator ports as NVMe over FC is not supported on ports configured as Fabric Assigned Port World Wide Names (FA-PWWN).

5. This release supports FC-NVMe specification version 1.18.

6. Target port reset using `hbacmd` or the Emulex OneCommand Manager application is not supported in this release.

7. Dynamic NVMe target management (including reconfiguration) and dynamic initiator rescan are not supported. Any reconfiguration requires a target server reboot.

   After the target server reboots and the configuration is activated, connected initiators might require a link bounce to rescan the target.

8. Due to an issue on Linux operating systems, NVMe I/O might stop if the initiator server administrator continually resets the NVMe controllers for more than one hour while the system is under I/O load.

   Workaround

   Perform a server reboot.

9. Unloading the FCP driver using the `modprobe -r` command might cause issues on the initiator before NVMe devices are disconnected.

   Workaround

   Unload the driver with `rmmod lpfc`, or if `modprobe –r lpfc` is required, wait for the device loss period of 60 seconds before unloading the driver.

10. On systems with version 1.7 or 1.8 of the `nvme-cli` installed, connection attempts might fail, and you might not see NVMe-FC storage.

    Console log messages and Systemd log messages indicate the failure to connect.

    Workaround

    Do one of the following:

    – Contact the operating system vendor to obtain a newer version of the `nvme-cli` utility. The `nvme-cli` must be at least revision 1.8.1.
    – Download and use the latest `nvme-cli` at https://github.com/linux-nvme/nvme-cli.

11. On LPe35000-series adapters with trunking enabled, if I/O is running on NVMe and FCP drives and a LIP is issued, a call trace is generated and the ports are reset.

    Workaround

    None.

12. On RHEL 8.0, I/O does not resume on NVMe namespaces after a storage node failover.

    Workaround

    None.

13. On RHEL 8.0, call traces are observed while running I/O on 4K block size namespaces.

    Workaround

    None.

FC Driver Technical Tips

1. Locked optics are supported on Emulex LPe31000-series and LPe32000-series adapters.

   The adapters perform the following operations:

   – Detect and enable both Broadcom or Emulex certified SFP optics.
   – For firmware revision 11.*x* and later, unqualified optics are disabled, the link is down, and an error message is written to the log file.
   – The `lpfc` out-of-box driver revision 11.*x* and later shows this message, and the link will not come up.
   `"3176 Port Name [wwpn] Unqualified optics - Replace with Avago optics for Warranty and Technical support"`

   When a 32 Gb/s optic is installed in an Emulex LPe31000-series, LPe32000-series, or LPe35000-series adapter, the link supports 32 Gb/s, 16 Gb/s, and 8 Gb/s speeds.

   When a 16 Gb/s optic is installed in an Emulex LPe31000-series or LPe32000-series adapter, the link supports 16 Gb/s, 8 Gb/s, and 4 Gb/s speeds.

2. D_Port and FA-PWWN cannot be enabled simultaneously.

   Workaround

   If D_Port is enabled and you want to enable FA-PWWN, you must first disable D_Port. If FA-PWWN is enabled and you want to enable D_Port, you must first disable FA-PWWN.

3. D_Port is enabled by default.

4. D_Port and DHCHAP cannot be enabled simultaneously.

   Workaround

   If D_Port is enabled and you want to enable DHCHAP, you must first disable D_Port. If DHCHAP is enabled and you want to enable D_Port, you must first disable DHCHAP.

NVMe Driver Technical Tips

1. Creation of N_Port ID Virtualization (NPIV) connections on initiator ports that are configured for NVMe over FC is not supported. However, initiator ports can connect to Fibre Channel Protocol (FCP) and NVMe targets simultaneously.
2. NVMe disks might not reconnect after a device timeout greater than 60 seconds has occurred.

   Workaround

   You must reboot the initiator, or perform a manual scan, or connect using the `nvme connect-all` CLI command.
3. To manually scan for targets or dynamically added subsystems, type the following command (all on one line):
   `nvme connect-all --transport=fc --host-traddr=nn-<initiator_WWNN>:pn-<initiator_WWPN> --traddr=nn-<target_WWNN>:pn-<target_WWPN>`

   where:
   - <*initiator_WWNN*> is the WWNN of the initiator, in hexadecimal.
   - <*initiator_WWPN*> is the WWPN of the initiator, in hexadecimal.
   - <*target_WWNN*> is the WWNN of the target, in hexadecimal.
   - <*target_WWPN*> is the WWPN of the target, in hexadecimal.

   For example:

   ```
   # nvme connect-all --transport=fc --host-traddr=nn-0x20000090fa942779:pn-0x10000090fa942779 --traddr=nn-0x20000090fae39706:pn-0x10000090fae397
   ```