Cornelis™ Omni-Path Express™ Fabric Switches

Release Notes for V10.8.5

November 2022
Doc. No. A00084, Rev. 2.0

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1. Overview of the Release

This document provides a brief overview of the changes introduced into the Cornelis Omni-Path Express Fabric Software (OPX Fabric Software) in this release. References to more detailed information are provided where necessary. The information contained in this document is intended as supplemental information only; it should be used in conjunction with the documentation provided for each component.

These Release Notes list the features supported in this software release, open issues, and issues that were resolved during release development.

1.1. Audience

The information provided in this document is intended for installers, software support engineers, service personnel, and system administrators.

1.2. Software License Agreement

The software provided is under license agreements and may contain third-party software under separate third-party licensing. Please refer to the license files provided with the software for specific details.

1.3. If You Need Help

Technical support for OPX products is available 24 hours a day, 365 days a year.

For additional details:

- Visit the Cornelis Support page at http://www.cornelisnetworks.com/support
- Contact Cornelis Networks Customer Support at support@cornelisnetworks.com

1.4. New Features

The following features have been added in the following releases:

- Release 10.8.5
  - Security Update for the managed switch
- Release 10.8.4
  - Enhanced cable support
- Release 10.8.3
  - Rebranded Switch firmware to Cornelis Networks

1.5. Supported in this Release

- The list of supported hardware is in Section 1.6 "Supported Hardware".

1.6. Supported Hardware

The following table lists the hardware supported in this release. The table does not include OEM-specific hardware, such as custom switches.

Table 1. Supported Hardware

Hardware	Description
Cornelis Omni-Path Express Edge Switch 100 Series 100SWE48Q	Managed 48-port Edge Switch
Cornelis Omni-Path Express Edge Switch 100 Series 100SWE48U	Externally-managed 48-port Edge Switch
Cornelis Omni-Path Express Edge Switch 100 Series 100SWE48UFH	Externally-managed 48-port Edge Switch, hot-swap power and fans
Cornelis Omni-Path Express Edge Switch 100 Series 100SWE48QFH	Managed 48-port Edge Switch, hot-swap power and fans
Cornelis Omni-Path Express Director Class Switch 100 Series 100SWD24	Director Class Switch 100 Series, up to 1152 ports
Cornelis Omni-Path Express Director Class Switch 100 Series 100SWD06	Director Class Switch 100 Series, up to 288 ports

1.7. Product Constraints

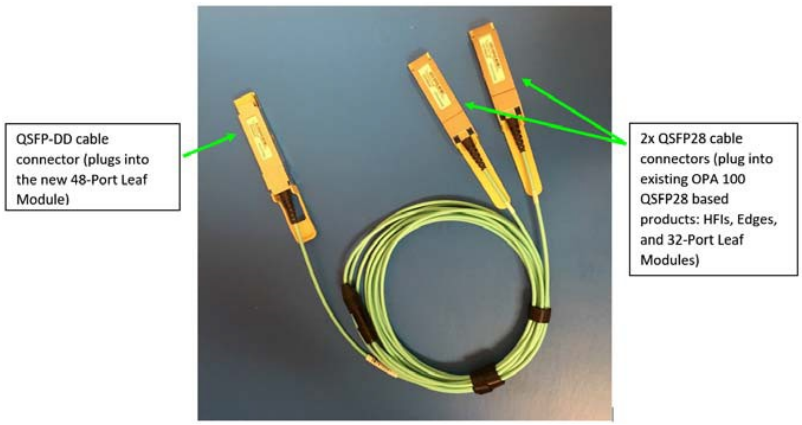
- If you are upgrading from Release 10.5, refer to Technical Advisory #23 (TA0023-10.5_Fabric_Manager_Workaround.pdf) for detailed instructions on how to remove the workaround and restore normal FM performance for this release.
- Power class 2 AOCs are supported. You must use Release 10.5 (or newer) host software and Release 1.5 (or newer) UEFI firmware for proper operation. Integrated HFI (-F) requires a specific BIOS level to support power class 2 AOC; contact your BIOS vendor for more information.
- The PM congestion weight for `XmitWaitPct` is set to 0 by default which causes the counter to be ignored. Setting a value other than 0 may lead to overreporting of congestion.
- The use of AOC cable type QSFPDD-to-2x-QSFP28 100 Gb/s is required to interconnect the OPX Director Class Switch 48-Port Leaf Module to the current QSFP28 products:
  - OPX HFAs
  - OPX Edge Switches
  - OPX Director Class Switch 32-Port Leaf Modules

There are 24 QSFP-DD ports on the 48-Port Leaf Module that are double-density QSFP. They accept the QSFP-DD style cable connector. Refer to the following figure.

NOTE

Use of standard QSFP28-to-QSFP28 100 Gb/s cables with the OPX Director Class Switch 48-Port Leaf Module are not supported as they block one of the internal QSFP-DD ports and may fail to properly initialize.

Figure 1. QSFPDD-to-2x-QSFP28 100 Gb Cable



1.8. Installation Requirements

The FastFabric tool set must be installed to manage the externally-managed edge switch. FastFabric is installed along with the OPX Fabric Software, which can be downloaded from: https://customercenter.cornelisnetworks.com. Log in to select the Release Library and enter your search criteria.

1.8.1. Best Practices

Note the following Cornelis recommendations:

- Update to the latest versions of OPX firmware and software to obtain the most recent functional and security updates.
- To improve security:
  - administrators should log out users and disable multi-user logins prior to performing provisioning and similar tasks.
  - update the default HTTPS certificate (refer to the *Cornelis Omni-Path Express Fabric Switches GUI User Guide*, "Updating the Certificate" for details).
  - using 48-bit CRC when the peak bandwidth is not critical in the fabric. 10.8.2.0 firmware introduced a feature to improve the detection of failing cables while also providing avoidance of possible downstream issues.

Due to the improved detection of failing cables provided by 10.8.2.0 firmware, it is possible that failing cables that were not previously detected by earlier firmware will now be detected by the 10.8.2.0 firmware. It is expected that the 48-bit CRC and the 10.8.2.0 firmware detection methods will have similar detection robustness. When a failing cable is identified, it is important to replace the cable at the earliest possible convenience.

- To improve security, Cornelis recommends configuring the `MgmtAllowed` setting and consider limiting access to port configuration changes by limiting access to Userspace Management Datagrams (UMADs). Refer to the *Cornelis Omni-Path Express Fabric Software Installation Guide*, "About User Queries Settings" for more information.
- Ensure all fabrics contain at least one managed switch to troubleshoot potential issues with externally-managed edge switches.

1.9. Firmware Components

- Managed switches:

  `STL1.q7.10.8.5.0.3.spkg`

- Externally-managed edge:

  `Intel_PRREdge_V1_firmware.10.8.4.0.5.emfw`

2. Issues

This section lists the resolved and open issues in the OPX Switches.

2.1. Issues Resolved in this Release

The following table lists the resolved issues for this release.

Table 2. Resolved Issues

ID	Description	Resolved in Release
STL-62724	Resolution of several security vulnerabilities including: • CVE-2021-3712 • CVE-2020-1971 • CVE-2021-23840	10.8.5

2.2. Open Issues

The following table lists the open issues for this release.

Table 3. Open Issues

ID	Description	Workaround
	None	

3. Related Information

3.1. Documentation Library

Go to the Cornelis Customer Center to download the publications from the Release Library.

Use the tasks listed in this table to find the corresponding document.

Task	Document Title	Description
Using the OPX documentation set	*Cornelis Omni-Path Express Fabric Quick Start Guide*	A roadmap to Cornelis' comprehensive library of publications describing all aspects of the product family. This document outlines the basic steps for installing your OPX cluster and ensuring it is operational.
Setting up an OPX cluster	*Cornelis Omni-Path Express Fabric Setup Guide*	Provides a high-level overview of the steps required to stage a customer-based installation of the OPX Fabric. Procedures and key reference documents, such as OPX user and installation guides, are provided to clarify the process. Additional commands and best known methods are defined to facilitate the installation process and troubleshooting.
Installing hardware	*Cornelis Omni-Path Express Fabric Switches Hardware Installation Guide*	Describes the hardware installation and initial configuration tasks for OPX Director Class Switches and OPX Edge Switches.
	Cornelis Omni-Path Express Host Fabric Interface Installation Guide	Contains instructions for installing the OPX HFI in an OPX cluster.
	Cornelis Omni-Path Express Gateway Installation and Setup Guide	Describes the hardware installation and set up tasks for the OPX Gateways.
Installing Host Software Installing HFI firmware Installing switch firmware (externally-managed switches)	*Cornelis Omni-Path Express Fabric Software Installation Guide*	Describes using a Text-based User Interface (TUI) to guide you through the installation process. You have the option of using command line interface (CLI) commands to perform the installation or install using the Linux distribution software.
Managing a switch using Chassis Viewer GUI Installing switch firmware (managed switches)	*Cornelis Omni-Path Express Fabric Switches GUI User Guide*	Describes the graphical user interface (GUI) of the OPX Chassis Viewer GUI. This document provides task-oriented procedures for configuring and managing the OPX Switch family. Help: GUI embedded help files

Task	Document Title	Description
Managing a switch using the CLI Installing switch firmware (managed switches)	*Cornelis Omni-Path Express Fabric Switches Command Line Interface Reference Guide*	Describes the CLI task information for the OPX Switch family. Help: -help for each CLI
Managing a fabric using FastFabric	*Cornelis Omni-Path Express Fabric Suite FastFabric User Guide*	Provides instructions for using the set of fabric management tools designed to simplify and optimize common fabric management tasks. The management tools consist of TUI menus and CLI commands. Help: -help and man pages for each CLI. Also, all host CLI commands can be accessed as console help in the Fabric Manager GUI.
Managing a fabric using Fabric Manager	*Cornelis Omni-Path Express Fabric Suite Fabric Manager User Guide*	The Fabric Manager uses a well-defined management protocol to communicate with management agents in every OPX HFI and switch. Through these interfaces the Fabric Manager can discover, configure, and monitor the fabric.
	Cornelis Omni-Path Express Fabric Suite Fabric Manager GUI User Guide	Provides an intuitive, scalable dashboard and set of analysis tools for graphically monitoring fabric status and configuration. This document is a user-friendly alternative to traditional command-line tools for day-to-day monitoring of fabric health. Help: Fabric Manager GUI embedded help files
Configuring and administering HFI and IPoIB driver Running MPI applications on OPX	*Cornelis Omni-Path Express Fabric Host Software User Guide*	Describes how to set up and administer the OPX HFI after the software has been installed. This document is for cluster administrators and Message-Passing Interface (MPI) application programmers.
Writing and running middleware that uses OPX software	*Cornelis Performance Scaled Messaging 2 (PSM2) Programmer's Guide*	Provides a reference for programmers working with the PSM2 Application Programming Interface (API). The Performance Scaled Messaging 2 API (PSM2 API) is a low-level user-level communications interface.
	Cornelis Omni-Path Express OPX_Provider Installation and Setup Application Note	Provides a reference for programmers working with the OPX provider.
Optimizing system performance	*Cornelis Omni-Path Express Fabric Performance Tuning User Guide*	Describes BIOS settings and parameters that have been shown to ensure best performance, or make performance more consistent, on the OPX Architecture. If you are interested in benchmarking the performance of your system, these tips may help you obtain better performance.

Task	Document Title	Description
Designing an IP or LNet router on OPX	*Cornelis Omni-Path Express IP and LNet Router Design Guide*	Describes how to install, configure, and administer an IPoIB router solution (Linux IP or LNet) for inter-operating between an OPX Fabric and a legacy InfiniBand fabric.
Building Containers for OPX Fabrics	*Building Containers for Cornelis Omni-Path Express Fabrics using Docker and Singularity Application Note*	Provides basic information for building and running Docker and Singularity containers on Linux-based computer platforms that incorporate OPX networking technology.
Writing management applications that interface with OPX	*Cornelis Omni-Path Express Management API Programmer's Guide*	Contains a reference for programmers working with the OPX Architecture Management (OPAMGT) Application Programming Interface (API). The OPAMGT API is a C-API permitting in-band and out-of-band queries of the FM's Subnet Administrator and Performance Administrator.
Using NVM over Fabrics on OPX	*Configuring Non-Volatile Memory Express (NVMe) over Fabrics on Cornelis Omni-Path Express Application Note*	Describes how to implement a simple OPX Architecture-based point-to-point configuration with one target and one host server.
Learning about new release features, open issues, and resolved issues for a particular release	*Cornelis Omni-Path Express Fabric Software Release Notes*	
	Cornelis Omni-Path Express Fabric Manager GUI Software Release Notes	
	Cornelis Omni-Path Express Fabric Switches Release Notes (includes managed and externally-managed switches)	
	Cornelis Omni-Path Express Fabric Unified Extensible Firmware Interface (UEFI) Release Notes	
	Cornelis Omni-Path Express Fabric Thermal Management Microchip (TMM) Release Notes	
	Cornelis Omni-Path Express Fabric Firmware Tools Release Notes	

3.1.1. How to Search the Cornelis Omni-Path Express Documentation Set

Many PDF readers, such as Adobe Reader and Foxit Reader, allow you to search across multiple PDFs in a folder.

Follow these steps:

1. Download and unzip all the publications into a single folder.
2. Open Acrobat Reader and use **CTRL-SHIFT-F** to open the Advanced Search window.
3. Select **All PDF documents in...**
4. Select **Browse for Location** in the dropdown menu and navigate to the folder containing the PDFs.
5. Enter the string you are looking for and click **Search**.

Use advanced features to further refine your search criteria. Refer to your PDF reader Help for details.