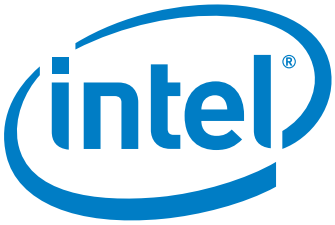
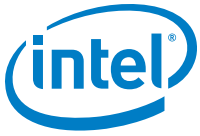


Intel® Omni-Path Fabric Switches

Version 10.4.2 Release Notes

June 2017

Order No.: J66908-1.0



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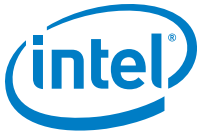


1.0 Overview of the Release

1.1 Introduction

These Release Notes provide a brief overview of the changes introduced into the Intel® Omni-Path Fabric Switches, listing the new features, system issues closed since the previous release, as well as any known issues. The information contained in this document is intended for supplemental use only; it should be used in conjunction with the documentation provided for each component. For details about the other documents for the Intel® Omni-Path product line, refer to Table 3-1, "Intel® Omni-Path Documentation Library" on page 10.

1.2 Audience

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

1.3 If You Need Help

If you need assistance while working with the Intel® Omni-Path Fabric Switches, contact your Intel representative.

1.4 Supported in this Release

The following items are supported for this release:

Table 1-1. Hardware Supported (Sheet 1 of 2)

Hardware	Description
Intel® Xeon® Processor E5-2600 v3 product family	Haswell CPU-based servers
Intel® Xeon® Processor E5-2600 v4 product family	Broadwell CPU-based servers
Next generation Intel® Xeon® Processor (codename Skylake)	Skylake CPU-based servers (pre-production samples)
Intel® Xeon Phi™ Processor x200 product family	Knights Landing CPU-based servers
Intel® Omni-Path Host Fabric Interface 100HFA016 (x16)	Single Port Host Fabric Interface (HFI)
Intel® Omni-Path Host Fabric Interface 100HFA018 (x8)	Single Port Host Fabric Interface (HFI)
Intel® Omni-Path Switch 100SWE48Q	Managed 48-port Edge Switch
Intel® Omni-Path Switch 100SWE48U	Externally-managed 48-port Edge Switch
Intel® Omni-Path Switch 100SWE48UFH	Externally-managed 48-port Edge Switch, hot-swap power and fans
Intel® Omni-Path Switch 100SWE48QFH	Managed 48-port Edge Switch, hot-swap power and fans
Intel® Omni-Path Switch 100SWE24Q	Managed 24-port Edge Switch

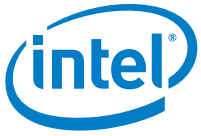


Table 1-1. Hardware Supported (Sheet 2 of 2)

Hardware	Description
Intel® Omni-Path Switch 100SWE24U	Externally-managed 24-port Edge Switch
Intel® Omni-Path Director Class Switch 100SWD24	Director Class Switch 100 Series, up to 768 ports
Intel® Omni-Path Director Class Switch 100SWD06	Director Class Switch 100 Series, up to 192 ports

1.5 Product Constraints

- Power class 2 and power class 3 Active Optical Cables (AOC) are not supported in this release.
- The embedded version of the Intel® Fabric Manager supports up to a maximum of 100 nodes within a fabric. This is due to the memory and processing resources available in the embedded environment.
- The Embedded Fabric Manager supports a maximum of 2 leaf and two spine modules in a Director Class switch configuration.

1.6 Installation Requirements

- The Intel® Omni-Path Fabric Suite FastFabric tool set needs to be installed to manage the externally-managed edge switch. FastFabric is installed along with the Intel® Omni-Path Fabric Software, which can be downloaded here.

1.6.1 Firmware Components

This release has the following firmware:

- Internally-managed switches: `STL1.q7.10.4.2.0.1.spkg`
- Externally-managed edge: `Intel_PRREdge_V1_firmware.10.4.2.0.1.emfw`

1.7 Miscellaneous

- Additional internal tracing is available to the firmware to improve link error-related diagnostic capabilities.
- In order to troubleshoot potential issues with externally-managed edge switches, Intel recommends that all fabrics contain at least one managed switch.

1.8 Documentation Versions

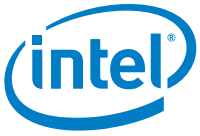
Table 1-2 lists the end-user document versions supported by this release.

Table 1-2. Supported Documentation Versions (Sheet 1 of 2)

Title	Doc. Number	Revision
Key: Shading indicates the URL to use for accessing the particular document.		
• Intel® Omni-Path Switches Installation, User, and Reference Guides: http://www.intel.com/omnipath/SwitchPublications		
• Intel® Omni-Path Software Installation, User, and Reference Guides (includes HFI documents): http://www.intel.com/omnipath/FabricSoftwarePublications		

Table 1-2. Supported Documentation Versions (Sheet 2 of 2)

Title	Doc. Number	Revision
• Drivers and Software (including Release Notes): http://www.intel.com/omnipath/Downloads		
Intel® Omni-Path Fabric Quick Start Guide	J57479	1.0
New title: *Intel® Omni-Path Fabric Setup Guide* (Old title: *Intel® Omni-Path Fabric Staging Guide*)	J27600	5.0
Intel® Omni-Path Fabric Switches Hardware Installation Guide	H76456	6.0
Intel® Omni-Path Host Fabric Interface Installation Guide	H76466	5.0
Intel® Omni-Path Fabric Software Installation Guide	H76467	6.0
Intel® Omni-Path Fabric Switches GUI User Guide	H76457	6.0
Intel® Omni-Path Fabric Switches Command Line Interface Reference Guide	H76458	6.0
Intel® Omni-Path Fabric Suite FastFabric User Guide	H76469	6.0
Intel® Omni-Path Fabric Suite FastFabric Command Line Interface Reference Guide	H76472	6.0
Intel® Omni-Path Fabric Suite Fabric Manager User Guide	H76468	6.0
Intel® Omni-Path Fabric Suite Fabric Manager GUI User Guide	H76471	6.0
Intel® Omni-Path Fabric Host Software User Guide	H76470	6.0
Intel® Performance Scaled Messaging 2 (PSM2) Programmer's Guide	H76473	6.0
Intel® Omni-Path Fabric Performance Tuning User Guide	H93143	8.0
Intel® Omni-Path IP and Storage Router Design Guide	H99668	5.0
Building Lustre Servers with Intel® Omni-Path Architecture Application Note*	J10040	1.0
Building Containers for Intel® Omni-Path Fabrics using Docker and Singularity* Application Note*	J57474	2.0
Intel® Omni-Path Fabric Software Release Notes	J66909	1.0
Intel® Omni-Path Fabric Fabric Manager GUI Release Notes	J60016	1.0
Intel® Omni-Path Fabric Switches Release Notes (includes managed and externally-managed switches)	J66908	1.0



2.0 System Issues

This section lists the resolved and known issues for the Intel® Omni-Path Fabric Switches.

2.1 Resolved Issues

Current release: None.

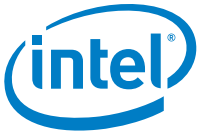
Table 2-1 lists the resolved issues from the prior release.

Table 2-1. Resolved Issues from Prior Release (Sheet 1 of 2)

ID	Description	Resolved in Release
137708	Following a link bounce event, there is a possibility that a link will fail to reach the Armed/Active state. The likelihood of this issue depends largely on the link type: • Compute Nodes: These links are very unlikely to be affected. • FM Nodes: These links are the most exposed. If an FM link is affected and not recovered, there may be downstream effects over time.	10.4.1
137480	In an SSH session, when typing (or pasting) commands, there is occasionally a 1-to-3 second delay in the echo of the command back to the terminal. The delay happens more frequently when the terminal has been idle, but occasionally happens on an active terminal.	10.4.
133909	Link issue - Unexpected RcvError	10.4
134000	When Active Optical Cables (AOCs) are connected to externally-managed switches, links may come up at widths less than 4x.	10.4
134353	Very infrequently, when a link goes down, the logical link state can remain stuck in the 'Init' state.	10.4
133536	Cannot set default gateway for the IPv6 protocol in GUI.	10.4
135757	Chassis Viewer fails to display Daylight Saving Time (DST).	10.4
135991	Director Class: Verifying MM IP addresses has been updated and are no longer duplicated.	10.4
136002	When a link comes down, there is a possibility that the port—when it is next trying to come up—reports an illogical combination of states (e.g., the physical state is **Config**, but the logical state is **Init**), when it should be done. This combination can mislead fabric configuration software, that just looks at the logical state of a port.	10.4
136382	IPoIB does not work with IPv6 in Release 10.3.	10.4
136482	Due to high CPU utilization on the Management Module (MM) CPU, it has been observed that the Director Class switches may begin indicating thermal events. Customer network probing software may be associated with this high Management Module CPU utilization.	10.4

Table 2-1. Resolved Issues from Prior Release (Sheet 2 of 2)

ID	Description	Resolved in Release
136671	It has been observed that the Director and Edge switch chassis can stop accepting new SSH CLI connections.	10.4
136810	On an Omni-Path Director chassis, it has been observed that the SSH/Telnet output of the CLI can slow down significantly over time.	10.4
136826	Software is not clearing PortRcvErrors.	10.4
136872	Director Class; **cmured** heartbeat issues.	10.4
136998	httpMimeAcceptEncoding can consume excessive CPU time.	10.4
137026	Director Switch Home page online help calls the Edge Switch help page.	10.4
137028	Logout button missing from Chassis Viewer Leaf Details screen.	10.4
137035	Need to create a Leaf FRU Information help file.	10.4
137038	Need to create a Spine-specific Main Status and Navigation help file.	10.4
137053	On an Omni-Path Director chassis, thermal events have been noted in some customer environments. The issue was related to high CPU demand on the master Management Module (MM), leading to starvation of the thermal management threads.	10.4
137082	On Director-class chassis that have redundant Management Modules (MM) running 10.2 firmware, messages may appear in the log indicating that files have failed to copy to the slave MM.	10.4
137087	A Leaf Module in Slot 114 not detected unless another Leaf is installed in Slot 113	10.4
137128	Director Class: The CLI and/or shell runs slow.	10.4
137586	Director Class: Retry fan tray I2C access errors.	10.4
136219	Stack-based buffer overflows in the send_dg and send_vc functions in the libresolv library may allow remote attackers to cause a denial of service (crash) via a crafted DNS response. This is a variation of CVE-2015-7547 vulnerability, see https://web.nvd.nist.gov/view/vuln/detail?vulnId=CVE-2015-7547 For customers using Omni-Path switches with DNS name service, install Omni-Path switch firmware version 10.3.1 (or later).	10.3.1
135197	usb2i2c subsystem may hang on i2c failures	10.3
135109	sm_set_buffer_control_table: buffer control table query failed	10.3
133761	Chassis Viewer; missing syslog configuration	10.3
135869	i2cProxy send error mm1 xfered=0 expected=20	10.3



2.2 Open Issues

Table 2-2 lists the open issues for this release.

Table 2-2. Open Issues

ID	Description	Workaround
132341	Spurious I2C error messages may be observed in the CLI and diagnostic logs in director class chassis with firmware older the 10.1.	Ignore spurious fan module I2C path error messages.
132786	Downgrading from the production validated (PV) release to release 10.0.0.0.625 (or earlier) fails.	Do not downgrade the firmware to release 10.0.0.0.625 (or earlier).
134230	When a managed switch chassis is rebooted, AOC cables connected to that chassis may occasionally report Warning messages in the switch log. These messages are benign and typically clear shortly after they are reported.	None.
134409	In links exhibiting a high error rate, a rare PortRcvError is possible, resulting in a link down event. Such links should retrain and return to operation without user interaction. In cases where the Link Quality is less than or equal to 3, the interconnect in the link should be evaluated for possible replacement to prevent future PortRcvErrors from occurring.	Reboot or bounce the link.
134665	Cable links connected to Switch ports may return non-printable characters in Vendor Name and Serial Number fields. This occurs in a very small percentage of cables (less than 0.1%) and does not affect link performance on cables that have already successfully come up.	Disable, then re-enable the link. If this fails to resolve the issue, reseat the cable. **NOTE**: Bouncing the link will not be effective.
135838	There are slow responses to SSH or SCP requests to a switch from a system running SLES 12.2.	Adding the following command to the ssh_config file on the SLES 12.2 host may improve response time: `# MACs hmac-md5,hmac-sha1,umac-64@openssh.com,hmac-ripemd160 MACs hmac-md5`
137780	When links containing AOCs are coming up, there can be an immediate link width downgrade within 30-60 seconds of link up. The downgrade can often be addressed by bouncing the port. If the downgrade recurs (or the link quality of the link is less than or equal to 3), the interconnect should be evaluated for possible replacement.	Bounce the port.
139077	Omni-Path Director Class Switch Master Management Module (MM) receives the following log error message: **Failed to copy durable file to SLAVE switch!**	Contact Intel Technical Support.
139080	Omni-Path Director Class Switch Leaf Module(s) go offline unexpectedly.	Contact Intel Technical Support.

3.0 Related Information

3.1 Documentation

Intel® Omni-Path deliverables are available at the following URLs:

- Intel® Omni-Path Switches Installation, User, and Reference Guides
  www.intel.com/omnipath/SwitchPublications
- Intel® Omni-Path Fabric Software Installation, User, and Reference Guides
  www.intel.com/omnipath/FabricSoftwarePublications
- Drivers and Software (including Release Notes)
  www.intel.com/omnipath/downloads

Use the tasks listed in this table to find the corresponding Intel® Omni-Path document.

Table 3-1. Intel® Omni-Path Documentation Library (Sheet 1 of 3)

Task	Document Title	Description
Key: Shading indicates the URL to use for accessing the particular document.		
• Intel® Omni-Path Switches Installation, User, and Reference Guides: http://www.intel.com/omnipath/SwitchPublications		
• Intel® Omni-Path Software Installation, User, and Reference Guides (includes HFI documents): http://www.intel.com/omnipath/FabricSoftwarePublications		
• Drivers and Software (including Release Notes): http://www.intel.com/omnipath/Downloads		
Using the Intel® OPA documentation set	*Intel® Omni-Path Fabric Quick Start Guide*	A roadmap to Intel's comprehensive library of publications describing all aspects of the product family. It outlines the most basic steps for getting your Intel® Omni-Path Architecture (Intel® OPA) cluster installed and operational.
Setting up an Intel® OPA cluster	**New title:** *Intel® Omni-Path Fabric Setup Guide* (Old title: *Intel® Omni-Path Fabric Staging Guide*)	Provides a high level overview of the steps required to stage a customer-based installation of the Intel® Omni-Path Fabric. Procedures and key reference documents, such as Intel® Omni-Path user guides and installation guides are provided to clarify the process. Additional commands and BKMs are defined to facilitate the installation process and troubleshooting.
Installing hardware	*Intel® Omni-Path Fabric Switches Hardware Installation Guide*	Describes the hardware installation and initial configuration tasks for the Intel® Omni-Path Switches 100 Series. This includes: Intel® Omni-Path Edge Switches 100 Series, 24 and 48-port configurable Edge switches, and Intel® Omni-Path Director Class Switches 100 Series.
	Intel® Omni-Path Host Fabric Interface Installation Guide	Contains instructions for installing the HFI in an Intel® OPA cluster. A cluster is defined as a collection of nodes, each attached to a fabric through the Intel interconnect. The Intel® HFI utilizes Intel® Omni-Path switches and cabling.

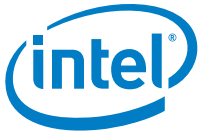


Table 3-1. Intel® Omni-Path Documentation Library (Sheet 2 of 3)

Task	Document Title	Description
Installing host software Installing HFI firmware Installing switch firmware (externally-managed switches)	*Intel® Omni-Path Fabric Software Installation Guide*	Describes using a Text 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 rpms individually.
Managing a switch using Chassis Viewer GUI Installing switch firmware (managed switches)	*Intel® Omni-Path Fabric Switches GUI User Guide*	Describes the Intel® Omni-Path Fabric Chassis Viewer graphical user interface (GUI). It provides task-oriented procedures for configuring and managing the Intel® Omni-Path Switch family. Help: GUI Online Help.
Managing a switch using the CLI Installing switch firmware (managed switches)	*Intel® Omni-Path Fabric Switches Command Line Interface Reference Guide*	Describes the command line interface (CLI) task information for the Intel® Omni-Path Switch family. Help: -help for each CLI.
Managing a fabric using FastFabric	*Intel® Omni-Path 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 command line interface (CLI) commands.
	Intel® Omni-Path Fabric Suite FastFabric Command Line Interface Reference Guide	Describes the command line interface (CLI) for the Intel® Omni-Path Fabric Suite FastFabric. 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	*Intel® Omni-Path Fabric Suite Fabric Manager User Guide*	The Fabric Manager uses a well defined management protocol to communicate with management agents in every Intel® Omni-Path Host Fabric Interface (HFI) and switch. Through these interfaces the Fabric Manager is able to discover, configure, and monitor the fabric.
	Intel® Omni-Path Fabric Suite Fabric Manager GUI User Guide	Provides an intuitive, scalable dashboard and set of analysis tools for graphically monitoring fabric status and configuration. It is a user-friendly alternative to traditional command-line tools for day-to-day monitoring of fabric health. Help: Fabric Manager GUI Online Help.
Configuring and administering Intel® HFI and IPoIB driver Running MPI applications on Intel® OPA	*Intel® Omni-Path Fabric Host Software User Guide*	Describes how to set up and administer the Host Fabric Interface (HFI) after the software has been installed. The audience for this document includes both cluster administrators and Message-Passing Interface (MPI) application programmers, who have different but overlapping interests in the details of the technology.
Writing and running middleware that uses Intel® OPA	*Intel® Performance Scaled Messaging 2 (PSM2) Programmer's Guide*	Provides a reference for programmers working with the Intel® PSM2 Application Programming Interface (API). The Performance Scaled Messaging 2 API (PSM2 API) is a low-level user-level communications interface.
Optimizing system performance	*Intel® Omni-Path Fabric Performance Tuning User Guide*	Describes BIOS settings and parameters that have been shown to ensure best performance, or make performance more consistent, on Intel® Omni-Path Architecture. If you are interested in benchmarking the performance of your system, these tips may help you obtain better performance.
Designing a storage router on Intel® OPA	*Intel® Omni-Path IP and Storage Router Design Guide*	Describes how to install, configure, and administer an IPoIB router solution (Linux* IP or LNet) for inter-operating between Intel® Omni-Path and a legacy InfiniBand* fabric.
Building a Lustre* Server using Intel® OPA	*Building Lustre* Servers with Intel® Omni-Path Architecture Application Note*	Describes the steps to build and test a Lustre* system (MGS, MDT, MDS, OSS, OST, client) from the HPDD master branch on a x86_64, RHEL*/CentOS* 7.1 machine.

Table 3-1. Intel® Omni-Path Documentation Library (Sheet 3 of 3)

Task	Document Title	Description
Building Containers for Intel® OPA Fabrics	*Building Containers for Intel® Omni-Path 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 Intel® Omni-Path networking technology.
Learning about new release features, open issues, and resolved issues for a particular release	*Intel® Omni-Path Fabric Software Release Notes*	
	Intel® Omni-Path Fabric Fabric Manager GUI Release Notes	
	Intel® Omni-Path Fabric Switches Release Notes (includes managed and externally-managed switches)	

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