

# Intel<sup>®</sup> Omni-Path Fabric Switches

Version 10.5.1 Release Notes

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*September 2017*



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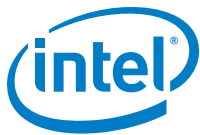
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## 1.0 Overview of the Release

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### 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 11](#).

### 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 New Features

- Added **DHCP Enable/Disable** radio buttons to the Chassis Viewer GUI **Set OOB LAN IP** screen(s).
- Support for Power Class 2 active optical cables (AOC). See Product Constraints for more information.

## 1.6 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 AOC are supported and require 10.5 level firmware on both ends of the cable. Specifically, 10.5 host software and 1.5 level UEFI are required 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 embedded version of the Fabric Manager supports a maximum of 100 HFI ports involving less than 20 switch ASICs. Calculate the number of switch ASICs in your fabric as follows:
  - 1 ASIC per Intel® Omni-Path Edge Switch 100 Series
  - 2 ASICs per Intel® Omni-Path Director Class Switch 100 Series Leaf module
  - 2 ASICs per Intel® Omni-Path Director Class Switch 100 Series Spine module

## 1.7 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](#).

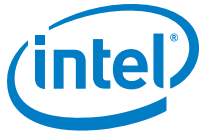
### 1.7.1 Firmware Components

This release has the following firmware:

- Internally-managed switches:  
STL1.q7.10.5.1.0.2.spkg
- Externally-managed edge:  
Intel\_PRREdge\_V1\_firmware.10.5.0.0.143.emfw

## 1.8 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.



## 1.9 Documentation Versions

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

**Table 1-2. Supported Documentation Versions**

Title	Doc. Number	Revision
<b>Key:</b>		
Shading indicates the URL to use for accessing the particular document.		
<ul style="list-style-type: none"> <li>Intel® Omni-Path Switches Installation, User, and Reference Guides: <a href="http://www.intel.com/omnipath/SwitchPublications">http://www.intel.com/omnipath/SwitchPublications</a></li> <li>Intel® Omni-Path Software Installation, User, and Reference Guides (includes HFI documents): <a href="http://www.intel.com/omnipath/FabricSoftwarePublications">http://www.intel.com/omnipath/FabricSoftwarePublications</a></li> <li>Drivers and Software (including Release Notes): <a href="http://www.intel.com/omnipath/Downloads">http://www.intel.com/omnipath/Downloads</a></li> </ul>		
<i>Intel® Omni-Path Fabric Quick Start Guide</i>	J57479	2.0
<b>New title:</b> <i>Intel® Omni-Path Fabric Setup Guide</i> (Old title: <i>Intel® Omni-Path Fabric Staging Guide</i> )	J27600	6.0
<i>Intel® Omni-Path Fabric Switches Hardware Installation Guide</i>	H76456	6.0
<i>Intel® Omni-Path Host Fabric Interface Installation Guide</i>	H76466	5.0
<i>Intel® Omni-Path Fabric Software Installation Guide</i>	H76467	7.0
<i>Intel® Omni-Path Fabric Switches GUI User Guide</i>	H76457	7.0
<i>Intel® Omni-Path Fabric Switches Command Line Interface Reference Guide</i>	H76458	7.0
<i>Intel® Omni-Path Fabric Suite FastFabric User Guide</i>	H76469	7.0
<i>Intel® Omni-Path Fabric Suite FastFabric Command Line Interface Reference Guide</i>	H76472	7.0
<i>Intel® Omni-Path Fabric Suite Fabric Manager User Guide</i>	H76468	7.0
<i>Intel® Omni-Path Fabric Suite Fabric Manager GUI User Guide</i>	H76471	7.0
<i>Intel® Omni-Path Fabric Host Software User Guide</i>	H76470	7.0
<i>Intel® Performance Scaled Messaging 2 (PSM2) Programmer's Guide</i>	H76473	7.0
<i>Intel® Omni-Path Fabric Performance Tuning User Guide</i>	H93143	9.0
<i>Intel® Omni-Path IP and Storage Router Design Guide</i>	H99668	5.0
<i>Building Lustre* Servers with Intel® Omni-Path Architecture Application Note</i>	J10040	1.0
<i>Building Containers for Intel® Omni-Path Fabrics using Docker* and Singularity* Application Note</i>	J57474	3.0
<i>Intel® Omni-Path Architecture Management API Programmer's Guide</i>	J68876	1.0
<i>Intel® Omni-Path Fabric Software Release Notes</i>	J80202	1.0
<i>Intel® Omni-Path Fast Fabric Manager GUI Release Notes</i>	J75209	2.0
<i>Intel® Omni-Path Fabric Switches Release Notes</i> (includes managed and externally-managed switches)	J80201	1.0



## 2.0 System Issues

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

### 2.1 Resolved Issues

Table 2-1 lists the resolved issues for this release.

**Table 2-1. Resolved Issues**

ID	Description	Resolved in Release
140199	In some scenarios involving device reboot, down links, fabrics with spare ports or fabrics with DCS: that the SM may skip setting some important SMA attributes. This can result in ports which are Active but unable to pass data, resulting in errors and failures from assorted applications depending on which nodes are communicating with each other.	10.5.1

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

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

ID	Description	Resolved in Release
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.	10.5
137499	HFI links may occasionally take several minutes to reach link up.	10.5
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.	10.5
137791	In Release 10.5, changes to settings in the Preemption section of the FM configuration file are only updated on HFI or switch ports when the port is bounced. See the <i>Intel® Omni-Path Fabric Suite Fabric Manager User Guide</i> for details.	10.5
138138	Director Class Switches: The Chassis Viewer Module Details page does not display properly on Firefox and Chrome.	10.5
138168	Use CLI command(s) to set the OOB LAN IP when DHCP is enabled.	10.5



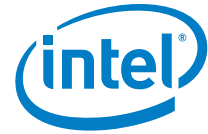


Table 2-2. Resolved Issues from Prior Release (Sheet 2 of 2)

ID	Description	Resolved in Release
138183	In Release 10.4, additional fields were added to the <code>opareport -o snapshot -r</code> XML output format that were not present in Release 10.3. Therefore, Release 10.3 snapshot files reported a "Mandatory Tag Not Found" parser error using Release 10.4 Fabric Manager tools. The resolution was to regenerate any such snapshot files using the <code>opareport</code> tool in Release 10.4.	10.5
138191	Use CLI command(s) to set the OOB LAN IP address.	10.5
138225	Edge Switches: Chassis Viewer reports incorrect part numbers for supplies and fans.	10.5
138807	When using <code>opagenchassis</code> to view updated IP address(es), the response is delayed.	10.5
138835	For offline transitions, make certain QSFP AOC transmitters are disabled.	10.5
139022	Very rarely, an AOC link transitioned from <code>Link_up</code> through Offline and returned to <code>Link_up</code> , even if the link quality was 5.	10.5
139073	An internal I2C error may result in a Director leaf reinitializing (momentarily going off-line), which may disrupt fabric operation. In Release 10.5, the switch firmware now handles I2C errors such that leaf operation is not impacted.	10.5

## 2.2 Open Issues

Table 2-3 lists the open issues for this release.

Table 2-3. Open Issues (Sheet 1 of 2)

ID	Description	Workaround
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.
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, reseal the cable. <b>NOTE:</b> 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 <code>ssh_config</code> 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



Table 2-3. Open Issues (Sheet 2 of 2)

ID	Description	Workaround
139236 139248 139425 139428 139664 139669	SNMP MIBS are included for customer evaluation. Some features may not be fully implemented.	None.
139550	Infrequently, an AOC may exhibit an unexpectedly high local link integrity error rate after the link comes up, relative to the error rate on previous link up occasions. This can be determined by observing a link quality of <5. These links may eventually experience a link width downgrade.	Bounce the link.
139650	In rare cases, AOCs with mismatched firmware on each end of the link may experience longer than expected link-up times.	If link-up times are unacceptably long, ensure both ends of links are running the same firmware version.
139672	On occasion, inter-switch links connected with AOCs, and running 10.4.2 or 10.4.3 firmware take in excess of 2 minutes for the link to come up. This issue can also occur when one side of the link is running 10.4.x and the other side is running 10.5.	If possible, update both sides of inter-switch links to 10.5.



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

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

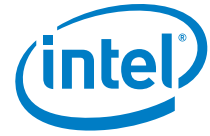
**Table 3-1. Intel® Omni-Path Documentation Library (Sheet 1 of 3)**

Task	Document Title	Description
<b>Key:</b>		
Shading indicates the URL to use for accessing the particular document.		
• Intel® Omni-Path Switches Installation, User, and Reference Guides: <a href="http://www.intel.com/omnipath/SwitchPublications">http://www.intel.com/omnipath/SwitchPublications</a>		
• Intel® Omni-Path Software Installation, User, and Reference Guides (includes HFI documents): <a href="http://www.intel.com/omnipath/FabricSoftwarePublications">http://www.intel.com/omnipath/FabricSoftwarePublications</a>		
• Drivers and Software (including Release Notes): <a href="http://www.intel.com/omnipath/Downloads">http://www.intel.com/omnipath/Downloads</a>		
Using the Intel® OPA documentation set	<i>Intel® Omni-Path Fabric Quick Start Guide</i>	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	<b>New title:</b> <i>Intel® Omni-Path Fabric Setup Guide</i> (Old title: <i>Intel® Omni-Path Fabric Staging Guide</i> )	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	<i>Intel® Omni-Path Fabric Switches Hardware Installation Guide</i>	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.
	<i>Intel® Omni-Path Host Fabric Interface Installation Guide</i>	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)	<i>Intel® Omni-Path Fabric Software Installation Guide</i>	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 using the Linux* distribution software.
Managing a switch using Chassis Viewer GUI Installing switch firmware (managed switches)	<i>Intel® Omni-Path Fabric Switches GUI User Guide</i>	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)	<i>Intel® Omni-Path Fabric Switches Command Line Interface Reference Guide</i>	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	<i>Intel® Omni-Path Fabric Suite FastFabric User Guide</i>	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.
	<i>Intel® Omni-Path Fabric Suite FastFabric Command Line Interface Reference Guide</i>	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	<i>Intel® Omni-Path Fabric Suite Fabric Manager User Guide</i>	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.
	<i>Intel® Omni-Path Fabric Suite Fabric Manager GUI User Guide</i>	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	<i>Intel® Omni-Path Fabric Host Software User Guide</i>	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	<i>Intel® Performance Scaled Messaging 2 (PSM2) Programmer's Guide</i>	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	<i>Intel® Omni-Path Fabric Performance Tuning User Guide</i>	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 an IP or storage router on Intel® OPA	<i>Intel® Omni-Path IP and Storage Router Design Guide</i>	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	<i>Building Lustre* Servers with Intel® Omni-Path Architecture Application Note</i>	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	<i>Building Containers for Intel® Omni-Path Fabrics using Docker* and Singularity* Application Note</i>	Provides basic information for building and running Docker* and Singularity* containers on Linux*-based computer platforms that incorporate Intel® Omni-Path networking technology.
Writing management applications that interface with Intel® OPA	<i>Intel® Omni-Path Architecture Management API Programmer's Guide</i>	Contains a reference for programmers working with the Intel® Omni-Path Architecture Management (Intel OPAMGT) Application Programming Interface (API). The Intel OPAMGT API is a C-API permitting in-band and out-of-band queries of the FM's Subnet Administrator and Performance Administrator.
Learning about new release features, open issues, and resolved issues for a particular release	<i>Intel® Omni-Path Fabric Software Release Notes</i>	
	<i>Intel® Omni-Path Fabric Manager GUI Release Notes</i>	
	<i>Intel® Omni-Path Fabric Switches Release Notes (includes managed and externally-managed switches)</i>	

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