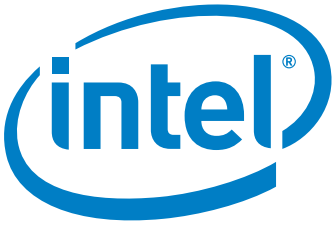
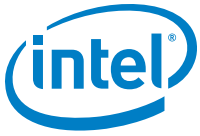


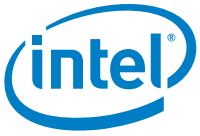
Intel® True Scale Fabric Suite Software

Release Notes

December 2016

Doc. Number: J47929 Revision: 001US





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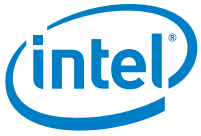


Tables

1.0 Overview of the Release

1.1 Introduction

These Release Notes provide a brief overview of the changes introduced into the Intel® True Scale Fabric Suite Software (IFS) software by this release. This release notes document includes only the IFS software and must be used in conjunction with the Intel® *OFED+ Host Software Release Notes* for a complete package. References to more detailed information are provided where necessary. 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.

These Release Notes list the new features of the release, as well as the system issues that were closed in the development of Release 7.4.2.0.6.

1.2 Audience

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

1.3 If You Need Help

If you need assistance while working with the True Scale Fabric Suite Software, contact your Intel approved reseller or Intel® True Scale Technical Support:

- By E-mail:
  fabricsupport@intel.com
- On the Support tab at website:
  Fabric Products

For OEM-specific server platforms supported by this release, contact your OEM.

1.4 New Features and Enhancements

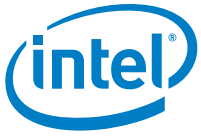
This section list the new features and enhancements for this release, as well as the previous release.

1.4.1 Release 7.4.2.0.6 Enhancements

- • Added support for
  - — RHEL 6.8
  - — CentOS 6.8
  - — Scientific Linux 6.8
  - — OFED-3.18-2

1.4.2 Release 7.4.1.0.24 Enhancements

- • Added support for
  - — RHEL 6.7
  - — RHEL 7.2
  - — SLES 11 SP4
  - — SLES 12 SP1
  - — CentOS 6.7
  - — CentOS 7.2
  - — Scientific Linux 6.7
  - — Scientific Linux 7.2
  - — OFED-3.18-1
  - — MIC support
  - — Intel® Broadwell



1.5 Operating Environments Supported

The following Operating Systems are supported in this release:

Table 1-1. Operating Environments Supported

Operating System	Update/ SP	Version
RHEL 6 X86_64 (AMD Opteron and Intel EM64T)	Update 7	2.6.32-573.el6.x86_64
	Update 8	2.6.32-642.el6.x86_64
RHEL 7 X86_64 (AMD Opteron and Intel EM64T)	Update 1	3.10.0-229.el7.x86_64
	Update 2	3.10.0-327.el7.x86_64
SLES 11 X86_64 (AMD Opteron and Intel EM64T)	SP3	3.0.76-0.11-default
	SP4	3.0.101-0.63.1-default
SLES 12 X86_64 (AMD Opteron and Intel EM64T)	Update 1	3.12.128-4.6.x86_64
	SP1	3.12.49-11.1.x86_64
Community Enterprise Operating System (CentOS) X86_64 (AMD Opteron and Intel EM64T) (6.x)	Update 7	2.6.32-573.el6.x86_64
	Update 8	2.6.32-642.el6.x86_64
Community Enterprise Operating System (CentOS) X86_64 (AMD Opteron and Intel EM64T) (7.x)	Update 1	3.10.0-229.el7.x86_64
	Update 2	3.10.0-327.el7.x86_64
Scientific Linux X86_64 (6.x)	Update 7	2.6.32-573.el6.x86_64
Scientific Linux X86_64 (7.x)	Update 1	3.10.0-229.el7.x86_64
	Update 2	3.10.0-327.el7.x86_64

CPU model of Linux kernel can be identified by `uname -m` and `/proc/cpuinfo` shown in Table 1-2.

Table 1-2. CPU Model of Linux Kernel

Model	uname	/proc/cpuinfo
EM64T	x86_64	Intel CPUs
Opteron*	x86_64	AMD CPUs

Note: Other combinations (such as i586 uname) are not currently supported.

1.6 Qualified Parallel File Systems

Lustre and IBM* General Parallel File System (GPFS) listed below have been tested for use with this release of the Intel® OFED+ host software using the operating systems listed below:

- Lustre* 2.8
  - RHEL 6.7 (both server and client)
  - RHEL 7.2 (both server and client)
  - SLES11 SP4 (client)
- IBM GPFS 4.2.1
  - RHEL 6.8
  - RHEL 7.2

Refer to the *Intel® OFED+ Host Software User Guide* for the latest configuration recommendations for optimizing Lustre and GPFS performance with Intel® True Scale Fabric.

1.7 Intel Interface for NVIDIA* GPUs

NVIDIA's CUDA parallel computing platform and programing models have been tested for use with this release of the Intel® OFED+ host software using the operating systems listed in Table 1-3:

Table 1-3. NVIDIA's CUDA Tested with IFS

Distributions	CUDA 7
RHEL 6.7	X
RHEL 6.8	X
RHEL 7.1, 7.2	X
SLES 11.4	X

1.8 Compilers Supported

1.8.1 MPI

This release supports the following MPI implementations:

Table 1-4. MPI Compilers

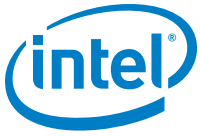
MPI Implementation	Runs Over	Compiled With
Open MPI 1.10.4	PSM Verbs	GCC, Intel, PGI
MVAPICH version 1.2.0	PSM Verbs	GCC, Intel, PGI
MVAPICH2 version 2.1.1	PSM Verbs	GCC, Intel, PGI
Platform MPI 9.1	PSM Verbs	GCC (default)
Intel MPI version 2017 Build 20160721	TMI/PSM, uDAPL	Icc 17.0.0

1.8.2 MVAPICH, MVAPICH2 and Open MPI

MVAPICH, MVAPICH2 and Open MPI have been have been compiled for PSM to support the following versions of the compilers:

Table 1-5. MVAPICH, MVAPICH2 and Open MPI

Compiler name	Distro	Compiler Version
(GNU) gcc	RHEL6	gcc (GCC) 4.4.7 20120313 (Red Hat 4.4.7-17)
(GNU) gcc	RHEL7	gcc (GCC) 4.8.5 20150623 (Red Hat 4.8.5-4)
(GNU) gcc	SLES11	gcc (SUSE Linux) 4.3.4 [gcc-4_3-branch revision 152973]
(PGI) pgcc	RHEL6	pgcc 10.5-0 64-bit target on x86-64 Linux -tp nehalem-64
(PGI) pgcc	RHEL7	pgcc 14.4-0 64-bit target on x86-64 Linux -tp sandybridge
(PGI) pgcc	SLES12	pgcc 10.5-0 64-bit target on x86-64 Linux -tp nehalem-64
(Intel) icc	RHEL6	icc (ICC) 17.0.0
(Intel) icc	RHEL7	17.0.0
(Intel) icc	SLES11.4	icc (ICC) 16.0.2
(Intel) icc	SLES12.1	icc (ICC) 15.0.1



1.9 Hardware Supported

Table 1-6 list the hardware supported in this release.

Table 1-6. Hardware Supported

HCAs
QLE7340
QLE7342
QME7342
QME7362
QMH7342
MHQH29-*
MHQH19-*
MHQH19B-XTR
MHQH29B-XTR
MHQH29B-XSR
MCX354A-QCAT
MCX353A-QCAT
NC543i (HP SL390 G7 in-built InfiniBand Host Channel Adapter)
CX-3 LOM down QDR
46M2199
46M2203

1.10 Software Supported

1.10.1 Remote Node Software Versions Supported in this Release

The Intel®True Scale Fabric Suite FastFabric management node can manage nodes with the following software:

- Host with FastFabric for OFED Enablement Tools 4.2 or later

Note: While the Intel®True Scale Fabric Suite FastFabric Management Node requires Intel® OFED+ Host Software 1.5.3 or later to run Intel®True Scale Fabric Suite FastFabric 7.2, Intel® FastFabric can manage cluster nodes running Intel® OFED+ Host Software 1.2.5 or Intel® OFED+ Host Software 1.3, OFED 1.4 or OFED 1.5, and Intel® IB Tools 4.2 or later.

- Intel® Internally Managed 9000 series Switches with 4.1 or later firmware
- Intel® Externally Managed 9024FC Switches with 4.1 or later firmware
- Intel® Internally Managed 12000 series Switches with 5.0 or later firmware
- Intel® Externally Managed 12200 Switches with 5.0 or later firmware
- Intel® 12100 Switches with 5.0 or later firmware

The Intel®True Scale Fabric Suite Fabric Manager can manage nodes with the following software:

- Host with Intel® OFED+ Host Software 1.2 or later
- Intel® Internally Managed 9000 series Switches with 4.1 or later firmware
- Intel® Externally Managed 9024FC Switches with 4.1 or later firmware
- Intel® Internally Managed 12000 series Switches with 5.0 or later firmware
- Intel® Externally Managed 12200 Switches with 5.0 or later firmware
- Intel® 12100 Switches with 5.0 or later firmware

1.10.2 Remote Node Software Versions with Reduced Capability

The Intel®True Scale Fabric Suite FastFabric can manage nodes with the following software:

- Nodes running third-party IB Stacks
- OFED nodes without the Intel® IB Tools installed
- Third-party IB Switches

The Intel®True Scale Fabric Suite Fabric Manager can manage nodes with the following software:

- Nodes running third-party IB Stacks
- OFED Nodes with Intel® OFED+ 1.2 or earlier
- Third-party IB Switches

1.11 Installation Requirements

The following sections list any special or release-specific installation requirements for this release.

1.11.1 Package Installation Requirements:

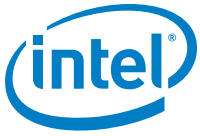
Intel® True Scale Fabric Suite Software (IFS) package should be installed on the head node and Intel® OFED+ Host Software package should be installed on all other nodes except the head node.

When using Intel®True Scale Fabric Suite FastFabric toolset to install other nodes, `IntelIB-Basic.`*`DISTRO`*`.`*`VERSION`*`.tgz` should be downloaded. This file is specified by default in `fastfabric.conf` through the `FF_PRODUCT` and `FF_PRODUCT_VERSION` parameters and is used to install all other nodes.

1.11.2 Software and Firmware Requirements

All IFS software on a given node must be at the same release level. The Intel® OFED+ Host Software is installed as part of the package. Prior to installing the Intel® True Scale Fabric Suite Software release, any versions of the SilverStorm IB stack (and any other vendor's IB stack) must be uninstalled.

Note: When using the Intel® True Scale Fabric Suite (IFS) Software installation wrapper, the wrapper install enforces this requirement.



1.12 Changes for this Release

The following sections describe the changes that have been made to the Intel® True Scale Fabric Suite Software package since the last release.

For detailed information about any of the previous releases listed, refer to the Release Notes for the specific version.

1.12.1 Changes to Industry Standards Compliance

Table 1-7 shows each Basic OFED version that is supported and the Intel® OFED+ Releases that include each

Table 1-7. Changes to Industry Standards Compliance

Basic OFED Software Package Supported	Intel® OFED+ Host Software Package
Version 1.5.4.1	Versions 7.2.1.1.22, 7.2.2.0.8
Version 3.5-2	Version 7.3.0.0.26, 7.3.1.0.12
Version 3-12.1	Version 7.4.0.0.21
Version 3-18.1	Version 7.4.1.0.24
Version 3-18.2	Version 7.4.2.0.6

1.13 Product Constraints

The following is a list of product constrains for this release:

1.13.1 FastFabric Toolset Product Constraints

- The product supports a default HCAs configuration of Port 1 on the HCAs as the active port and Port 2 on the HCAs as the standby port. The following FastFabric operations may not work correctly with a HCA configuration of 2 active ports, or a configuration which has Port 2 of the HCAs as the active port:
  - Host Setup using FastFabric->Configure IPoIB IP Address
  - Host Admin using FastFabric->Verify Hosts ping via IPoIB
- All commands that are to be run on the chassis (Intel® and SilverStorm switches and gateways) should be invoked with the `-noprompt` option to avoid command execution time-out. This applies both to chassis commands invoked from the FastFabric TUI (Run a command on all chassis), as well as those invoked from the command line using the FastFabric `cmdall` command.

1.13.2 Fabric Manager

- Virtual Fabrics in this release leverage IBTA standard Partitioning Features. However, some OFED applications have limitations with regard to partitioning.
  - FastFabric – FastFabric tools are fully supported. Intel recommends that FastFabric be installed on an admin node which is a Member in the Default Partition (0xffff).
  - IPoIB – Intel recommends configuring Virtual Fabrics so that the first PKey on the port is the one desired for IPoIB on the host. Refer to the Configuration section of the *Intel*® True Scale Fabric Software Installation Guide for detailed information.
  - mvapich1 – To control the PKey, the VIADEV_DEFAULT_PKEY must be exported at job startup. Refer to the Configuration section of the *Intel*® True Scale Fabric Software Installation Guide for detailed information.
  - Open MPI – To control the PKey, the OMPI_MCA_btl_openib_ib_pkey must be exported at job startup. Refer to the Configuration section of the *Intel*® True Scale Fabric Software Installation Guide for detailed information about this feature.
  - mvapich2 – To control the PKey, the MV2_DEFAULT_PKEY must be exported at job startup. Refer to the Configuration section of the *Intel*® True Scale Fabric Software Installation Guide for detailed information.

1.14 Product Limitations

There are no product limitations for this release.

1.15 Other Information

The following is a list of need-to-know information for this release:

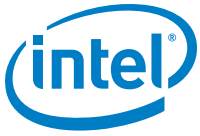
- If FastFabric is being used, after an upgrade review the FF_PRODUCT parameter in `/etc/sysconfig/fastfabric.conf`. This parameter must be adjusted to match value shown in `/etc/sysconfig/fastfabric.conf-sample`.
- The `iba_rfm` command has been deprecated. For a new installation or an upgrade from an earlier release, instances of `iba_rfm` command will be removed. The `iba_top` command should now be used.

1.15.1 FastFabric Toolset Information

The FastFabric Toolset is automatically uninstalled if the base OFED release is uninstalled.

1.15.2 Fabric Manager Information

When there are many changes in the fabric (ISLs, switches going down) it is possible that many loops are no longer viable and the distribution of ISLs in the loops is becoming unbalanced. These changes can cause the loop test utilization to drop. Restarting of loop test will stop all traffic and compute fresh loop routes with balanced distribution of ISLs in loops.



1.15.3 Verbs Performance

Whenever possible, Intel recommends installing at least one True Scale HCA on a PCIe bus connected to the CPU 1 Socket for optimal verbs performance. For details on finding the correct PCIe slot, consult the documentation for your server chassis or motherboard.

1.16 Documentation

Table 1-8 lists the end-user documentation for the current release. All related documentation is available on the Intel download site.

Documentation for Intel® Partners is available at the vendors website.

Table 1-8. Related Documentation for this Release

Document Title
Intel® Hardware Documents
Intel® True Scale 12000 Hardware Installation Guide
Intel® True Scale 12000 Users Guide
Intel® True Scale 12000 CLI Reference Guide
Intel® Adapter Hardware Installation Guide
Intel® OFED+ Documents
Intel® True Scale Fabric Software Installation Guide
Intel® OFED+ Host Software User Guide
Intel® *OFED+ Host Software Release Notes*
Intel® IFS Documents
Intel® True Scale Fabric Suite FastFabric User Guide
Intel® True Scale Fabric Suite Fabric Manager User Guide
Intel® True Scale Fabric Suite FastFabric Command Line Interface Reference Guide
Intel® True Scale Fabric Suite Software Release Notes
Intel® Fabric Viewer Documents
Intel® *True Scale Fabric Suite Fabric Viewer Online Help*
Intel® True Scale Fabric Suite Fabric Viewer Release Notes

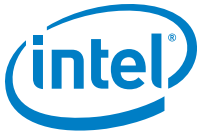
2.0 System Issues for Release 7.4.2.0.6

2.1 Introduction

This section provides a list of the resolved and open issues for this release of the True Scale Fabric Suite Software. The list of open issues includes a description and workaround.

2.2 Resolved Issues in this Release

None.



2.3 Known Issues

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

Table 2-1. Open Issues

Product/ Component/ PR Number	Description	Workaround
IFS/ Fabric Manager	When the **LogFile** parameter is in use, the Fabric Manager outputs to the named file instead of **syslog**. If a high LogLevel is selected, the log file can grow quickly and consume too much disk space.	Limit use of **LogFile** to short duration debug type operations and use **syslog** for normal Fabric Manager operations.
IFS/ Rolls/Kits	If the IFS kit is already installed, then running the **updatenode** command on the Installer and/or compute node (**updatenode <headnode/ compuetnode>** command) returns errors similar to the following: **compute000: Error: Package: opensm-devel-3.3.13-1.x86_64 (installed)** **compute000:Requires: opensm-libs = 3.3.13-1** **compute000:Removing: opensm-libs-3.3.13-1.x86_64 (installed)** **compute000: opensm-libs = 3.3.13-1** **compute000: Updated By: opensm-libs-3.3.15-1.el6.x86_64 (xCAT-rhels6.4-path0)**	These errors may be safely ignored.
IFS	If the **libedit** rpm is not present on a host, it should be installed prior to installing IFS. If the **libedit** libraries are not installed, the following error is displayed. Additionally, commands such as **iba_manage_switch** and **iba_switch_admin** would also fail with an error message similar to: **#/opt/iba/ib_tools/L8simlnx** **/opt/iba/ib_tools/L8simlnx: error while loading shared libraries: libedit.so.0: cannot open shared object file: No such file or directory** If the **libedit** rpm is not installed prior to the IFS installation, the capture operation would fail. However, installing the **libedit** rpm would fix the issue. A reinstall of IFS is not needed.	If not already present on the host, install the **libedit** rpm.

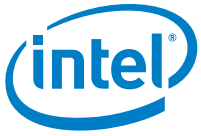


Table 2-1. Open Issues (Continued)

Product/ Component/ PR Number	Description	Workaround
IFS/MPI 131369	For dual-rail systems, by default HCA2, port 1 is chosen for running traffic. If this port is disabled, mvapich2-2.1 fails to find any other active port. This causes mpirun to fail with error(s).	Use the option **MV2_IBA_HCA=<HCA-name>** that is specified in the *MVAPICH2 User Guide* and specify and active HCA name. For example: **/usr/mpi/gcc/ mvapich2-2.1/bin/ mpirun_rsh -np 2 -hostfile /opt/iba/src/ mpi_apps/ mpi_hostsMV2_IBA_HCA =qib0 OMB-3.1.1/ osu_mbw_mr**
IFS/Other 133007	While running MPI between Xeon and Xeon-Phi within a host, the test fails with a **scif_mmap_failed** error.	Uninstall **infinipath-libs** and **infinipath-devel** rpms. Install **mpss-psm** and **mpss-psm-dev** rpms from **mpss/psm** directory.
IFS/Install/ Uninstall 131977	• OFED-3.18-1 requires kernel-source package to be "installed" for SLES12SP1. • OFED-3.18-1 fails to start drivers if it does not find the kernel-source package during installation time. This is a requirement in order to use OFED-3.18-1 or IFS 7.4.1 on SLES12SP1.	None
IFS/Install/ Uninstall 131984	If **openibd** is disabled using the **iba_config** (autostart none) option on SLES 12, after the system is rebooted **systemctl** should report **openibd** status as **masked**.	The user would need to run **iba_config** option to re-enable it and reboot the system. If **openibd** is needed to be started manually, the user would need to execute **unmask** and enable the option **systemctl** to start **openibd**. Commands to manually start **openibd** would be **/usr/bin/ systemctlunmask openibd** **/usr/bin/systemctl enable openibd** **/usr/bin/ systemctlstart openibd**
IFS/Install/ Uninstall 131780	Parallel studio 2016 is not supported in this release.	Continue using Parallel studio 2015.

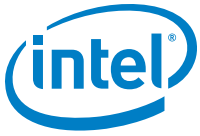


Table 2-1. Open Issues (Continued)

Product/ Component/ PR Number	Description	Workaround
IFS/Install/ Uninstall 131946	While installing **IntelIBIFS.<osid>.7.4.1.0.*** on RHEL and SLES systems, non-standard OFED RPMs may need to be removed before running the **INSTALL** script.	Some examples are: • qemu-kvm • gnome-boxes • libvirt-daemon-kvm • glusterfs-rdma • boost-devel • libboost_graph_parallell1_54_0 • libboost_mpi1_54_0 • libibnetdisc5
IFS/Install/ Uninstall 131005	SLES 12 systems have problems with modules not loading at boot.	On SLES12.x, set the **allow_unsupported_modul es** parameter to **1** in the file **/etc/modprobe.d/10-unsupportedmodules.conf**.
True Scale/ Driver 131486	**rdma-ndd** is a background service; it updates the node description as **hostname devicename**. However, the service **openibd** already sets the appropriate node description as **Hostname HCAn**.	Since **rdma-ndd** overwrites the correct node description, it needs to be disabled in order to expect correct behavior by the **openibd** service.
IFS/ FastFabric 131984	For a SLES12 host, if **openibd** is disabled using **iba_config**, (**autostart** none) option, after the system is rebooted **systemctl** would report **openibd** status as masked: **CMZ-DEV-114:~ # systemctl status openibd** **openibd.service** **Loaded: masked (/dev/null)** **Active: inactive (dead)**	To re-enable it and reboot the system, run the **iba_config** option. If **openibd** needs to be started manually, the user needs to execute the **unmask** and **enable** options of **systemctl** to start **openibd**. Commands to manually start **openibd** would be / **usr/bin/systemctl unmask openibd** **/usr/bin/systemctl enable openibd** **/usr/bin/systemctl start openibd**
True Scale/IFS 134031	In order to realize good intra-node performance, the kcopy module must be installed. SLES blocks the module from being installed.	Change the flag **allow_unsupported_modules 0** in **/etc/modprobe.d/10-unsupported-modules.conf** to **allow_unsupported_modules 1**

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