Open Fabrics Enterprise Distribution (OFED)
 Version 3.5-rc5
 Release Notes
 January 2013

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===============================================================================
1. Overview
===============================================================================
These are the release notes of OpenFabrics Enterprise Distribution (OFED)
release 3.5. The OFED software package is composed of several software modules,
and is intended for use on a computer cluster constructed as an InfiniBand
Fabric, an iWARP Network or a RoCE Fabric.

Note: If you plan to upgrade the OFED package on your cluster, please upgrade
all of its nodes to this new version.

1.1 OFED 3.5 Contents
-----------------------
The OFED package contains the following components:
 - OpenFabrics core and ULPs:
 - IB HCA drivers (mthca, mlx4, qib, ehca)
 - iWARP RNIC driver (cxgb3, cxgb4, nes)

 - ROCE and Ethernet support

- core
 - Upper Layer Protocols: IPoIB, SRP Initiator and target, iSER
 Initiator and target, RDS, uDAPL, qlgc\_vnic and NFS-RDMA\*.
 - OpenFabrics utilities:
 - OpenSM (OSM): InfiniBand Subnet Manager
 - Diagnostic tools
 - Performance tests
 - Extra packages:
 - infinipath-psm: Performance-Scaled Messaging API, an accelerated
 interface to Intel(R) HCAs
 - Sources of all software modules (under conditions mentioned in the modules'
 LICENSE files)
 - Documentation

1.2 Supported Platforms and Operating Systems
---------------------------------------------
 o CPU architectures:
 - x86\_64
 - x86
 - ppc64
 - ia64

 o Linux Operating Systems:
 - RedHat EL6.2 2.6.32-220.el6
 - RedHat EL6.3 2.6.32-279.el6
 - SLES11 SP2 3.0.13-0.27-default
 - kernel.org 3.5 \*

 \* Minimal QA for these versions.

1.3 HCAs and RNICs Supported
----------------------------
This release supports IB HCAs by IBM, Intel and Mellanox Technologies, iWARP RNICs by Chelsio Communications and Intel and RoCE adapters by Emulex, IBM and Mellanox.

InfiniBand Adapters
 o IBM HCAs:
 - GX Dual-port SDR 4x IB HCA
 - GX Dual-port SDR 12x IB HCA
 - GX Dual-port DDR 4x IB HCA
 - GX Dual-port DDR 12x IB HCA

 o Intel (formerly QLogic) HCAs:
 - Intel(R) True Scale DDR PCIe x8 and x16 HCAs
 - Intel(R) True Scale QDR PCIe x8 Gen2 HCAs

 o Mellanox Technologies HCAs (SDR, DDR and QDR Modes are Supported):

- ConnectX(R) and ConnectX EN (fw-25408 Rev 2.9.1000)
 - ConnectX-2 (fw-ConnectX2 Rev 2.9.1000)
 - ConnectX-3 (fw-ConnectX3 Rev 2.10.0700) (FDR and FDR10 Modes are Supported)

 For official firmware versions please see:
 http://www.mellanox.com/content/pages.php?pg=firmware\_download

iWARP Adapters
 o Chelsio RNICs:
 - S310/S320 10GbE Storage Accelerators
 - R310/R320 10GbE iWARP Adapters

 o Intel RNICs:
 - NE020 10Gb iWARP Adapter

RoCE Adapters

 o Emulex

- Emulex® OneConnect Universal CAN for RoCE

 o IBM

- IBM Flex System EN4132 2-port 10 GbE RoCE

 o Mellanox

- ConnectX-2 EN (fw-ConnectX2 Rev 2.9.1200)
 - ConnectX-3 EN (fw-ConnectX3 Rev 2.10.0800)

1.4 Switches Supported
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This release was tested with switches and gateways provided by the following
companies:
 - Flextronics

- Intel (formerly QLogic)
 - Mellanox
 - Oracle (Sun)

1.5 Third Party Packages
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The following third party packages have been tested with OFED 3.2:
- MVAPICH2 - 1.8
- Intel MPI - 4.0.3
- Open MPI - 1.6/1.6.1

1.6 OFED Sources
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All sources are located under git://git.openfabrics.org/

Linux:
------
URL: git://git.openfabrics.org/compat-rdma/linux-3.5.git
Branch: for-ofed-3.5

- Linux kernel subtree that includes files relevant for the OFED project only.
 Based on v3.5. Used to shorten git clone time.
 Note: the regular Linux git tree can be used as well.

compat:
-------
URL: git://git.openfabrics.org/compat-rdma/compat.git
Branch: ofed

- Based on compat project (https://github.com/mcgrof/compat). The compat module
 provides functionality introduced in newer kernels to older kernels through a
 set of header files and exported symbols.
 See https://github.com/mcgrof/compat/wiki for details.
- Used to replace kernel\_addons in the previous OFED kernel tree.

compat-rdma:
------------
URL: git://git.openfabrics.org/compat-rdma/compat-rdma.git
Branch: master

User level Sources are downloaded from http://www.openfabrics.org/downloads/
as written in the BUILD\_ID

The kernel sources are based on Linux 3.5 mainline kernel. Its patches
are included in the OFED sources directory.
For details see HOWTO.build\_ofed.

The list of maintainers is available under:
http://www.openfabrics.org/downloads/MAINTAINERS

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2. Change log
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OFED-3.5-rc5 Main Changes from OFED 3.5-rc4
-------------------------------------------------------------------------------
perftest-2.0-0.25.g971259d

OFED-3.5-rc4 Main Changes from OFED 3.5-rc3
-------------------------------------------------------------------------------
RDMA/nes: Fixes for OFED-3.5 RC3
RDMA/cxgb4: Keep the maximum number of stag limited to T4\_MAX\_NUM\_STAG
Updated packages:
 infinipath-psm-3.1-364.1140\_open

OFED-3.5-rc3 Main Changes from OFED 3.5-rc2
-------------------------------------------------------------------------------
RDMA/nes: Fix for terminate timer crash
RDMA/nes: Fix for crash when adding timer and timer is pending
RDMA/nes: Fix for incorrect multicast address
RDMA/nes: Fix for crash when adding timer
RDMA/nes: Locking fix to prevent race conditions
RDMA/nes: Changing nes driver version
RDMA/nes: Fixes for PAU handling
cxgb4: Initialize data structures before using.
cxgb4: Fix initialization of SGE\_CONTROL register
cxgb4: Add embedded firmware and its configuration file support
cxgb4/iw\_cxgb4: Add LE hash collision bug fix for active and passive offloaded connections
cxgb4: Fix unable to get UP event from the LLD
cxgb4: Remove unnecessary #ifdef condition
cxgb4: Fix build warnings introduced after T4 configuration file support
cxgb4: Add support for T4 configuration file
iw\_cxgb4: only log rx\_data warnings if cpl status is non zero.
RDMA/cxgb4: fix mpa version mismatch
RDMA/cxgb4: abort connections that receive unexpected streaming mode data
RDMA/cxgb4: Insert hwtid in pass\_accept\_req instead in pass\_establish
RDMA/cxgb4: Remove the limitation on maximum number of STAGs
linux-next-cherry-picks: Fix build failure for kernel < 3.2
IB/qib: remove EBUSY patch
ib\_srp: Avoid that module removal can trigger a deadlock
ib\_srp: Unbreak build on SLES 11 SP2
ib\_srp: Add post-3.5 upstream patches
ib\_srp: Avoid use-after-free during module unload on pre-2.6.36 kernels

Updated packages:
 mstflint-1.4-1.23.g5c2032a
 perftest-2.0-0.8.gaeb562e
 qperf-0.4.9

OFED-3.5-rc2 Main Changes from OFED 3.5-rc1
-------------------------------------------------------------------------------
compat-rdma: Add SRP backport
compat-rdma: /etc/init.d/openibd: Fix LSB header
compat-rdma: IB/qib: linux-3.6 patches backported
compat-rdma: iw\_cxgb4: Fix bug 2369 in OFED bugzilla
compat-rdma: IB/qib: fix compliance regression in 3.5
compat-rdma: RDMA/nes: Add linux-next-pending patches
compat-rdma: RDMA/nes: Updated backports
compat-rdma: NFSRDMA RHEL6.3 backport
compat-rdma: NFSRDMA SLES11SP2 backport
compat-rdma: linux-next-cherry-picks: RDMA/ucma.c: Different fix for ucma context uid=0, causing iWarp RDMA applications to fail in connection establishment

Updated packages:
 infinipath-psm-3.0.1-115.1015\_open
 perftest-1.4.0-0.80.gd1763bd
 qperf-0.4.7-0.2.gf3f7001

OFED-3.5-rc1 Main Changes from OFED 3.2-rc1
-------------------------------------------------------------------------------
1. Based on linux-3.5 kernel
2. Updated packages:
 ibacm-1.0.7
 librdmacm-1.0.16
 dapl-2.0.36

 Management:
 libibumad-1.3.8
 infiniband-diags-1.6.1
 opensm-3.3.15

3. Removed libsdp, sdpnetstat

OFED-3.5-rc1 Main Changes from OFED 1.5.4.1
-------------------------------------------------------------------------------
1. Based on linux-3.5 kernel
2. kernel-ib RPM renamed to compat-rdma
3. Removed MPI packages
4. Updated packages:
 libibverbs-1.1.6
 libmlx4-1.0.4
 dapl-2.0.35
 ibacm-1.0.6
 perftest-1.4.0-0.66.g9074687

 Management:
 libibmad-1.3.9
 opensm-3.3.14
 infiniband-diags-1.6.0

OFED-1.5.4 Main Changes from OFED 1.5.3.2
-------------------------------------------------------------------------------
1. Add kernel 3.0 support
2. Add RHEL6.2 support
3. Add NFSRDMA to the list of packages to be installed by default on supported
 platforms
4. Add new InfiniBand link speeds: EDR/FDR/FDR10
5. OFA Kernel: See ofa\_kernel.changelog.txt

6. Updated packages:
 libibverbs-1.1.4-1.24.gb89d4d7
 libmlx4-1.0.1-1.20.g6771d22
 libnes-1.1.3
 libcxgb3-1.3.1
 libcxgb4-1.2.0
 dapl-2.0.34
 ibacm-1.0.5
 librdmacm-1.0.15
 infinipath-psm-2.9-926.1005\_open
 ibutils-1.5.7-0.1.g05a9d1a
 perftest-1.3.0-0.56.gd6f6093
 mstflint-1.4-1.18.g1adcfbf

 Management:
 libibmad-1.3.8
 infiniband-diags-1.5.12
 opensm-3.3.12

 MPI:
 mvapich2-1.7-5.2011svn5031

OFED-1.5.3.2 Main Changes from OFED 1.5.3.1
-------------------------------------------------------------------------------
1. Add RHEL5.7 support
2. Add RHEL6.1 support
3. Add kernel.org 2.6.37 - 2.6.39 support
4. ib-bonding-0.9.0-43 (SLES10 SP4 support)

OFED-1.5.3.1 Main Changes from OFED 1.5.3
-------------------------------------------------------------------------------
1. Fix QIB support on SLES10 SP3

OFED-1.5.3 Main Changes from OFED 1.5.2
-------------------------------------------------------------------------------
1. Updated packages:
 dapl-2.0.32
 librdmacm-1.0.14.1
 ibacm-1.0.4
 libibmad-1.3.7
 libibumad-1.3.7
 infiniband-diags-1.5.8
 opensm-3.3.9
 ibutils-1.5.7
 libibverbs-1.1.4-1.22.g7257cd3.tar.gz
 libmlx4-1.0.1-1.18.gb810a27.tar.gz
 libnes-1.1.1
 infinipath-psm-1.14
 libsdp-1.1.108-0.15.gd7fdb72
 mstflint-1.4-0.9.gc683022
 sdpnetstat-1.60-0.3.gb6e7425
 perftest-1.3.0-0.42.gf350d3d

 - MPI
 openmpi-1.4.3-1
 mvapich2-1.6-2

2. Added RHEL6 support
3. Added RHEL5.6 support
4. Improved RAW Ethernet QP support (requires ConnectX/ConnectX2 FW >= 2.8.0600)
5. NFSoRDMA was removed from the list of packages in the install script to
 prevent its installation by default.
 To force NFSoRDMA installation, add the following lines to the ofed.conf:
 nfsrdma=y
 rnfs-utils=y

 To get ofed.conf, run
 # ./install.pl -p

 After adding the lines above to ofed.conf, to install OFED run
 # ./install.pl -c ofed.conf

OFED-1.5.2 Main Changes from OFED 1.5.1
-------------------------------------------------------------------------------
1. Added RHEL5.5, SLES11 SP1 and kernel 2.6.33 support
2. /etc/modprobe.conf deprecated
 ib\_ipoib use /etc/modprobe.d/ib\_ipoib.conf
 ib\_sdp use /etc/modprobe.d/ib\_sdp.conf
 mlx4\_en use /etc/modprobe.d/mlx4\_en.conf
3. Added RAW Ethernet QP support in libibverbs
4. Added multicast support in perftest
5. Added new package: ibacm. See ibacm\_release\_notes.txt
6. Added new package infinipath-psm.
7. Updated packages:
 libibverbs to rev 1.1.4-0.14.gb6c138b
 libehca to rev 1.2.2-0.1.g69e1a88
 libmlx4 to rev 1.0-0.13.g4e5c43f
 libnes to rev 1.1.0
 librdmacm to rev 1.0.13
 dapl to rev 2.0.30
 compat-depl to rev 1.2.19
 libsdp to rev 1.1.103
 mstflint to rev 1.4-0.6.g63179f4
 perftest to rev 1.3.0-0.27
 rds-tools to rev 2.0.4
 Management:
 opensm to rev 3.3.7
 libibmad to rev 1.3.6
 libibumad to rev 1.3.6
 infiniband-diags to rev 1.5.7
 MPI:
 openmpi to rev 1.4.2-1
 mvapich2 to rev 1.5.1-2.p1
 mpitests to rev 3.2-923

OFED-1.5.1 Main Changes from OFED 1.5
-------------------------------------------------------------------------------
1. Added RoCEE support - see RoCEE\_README.txt
2. Added enhanced atomic operations to ConnectX (kernel only).
 See mlx4\_release\_notes.txt.
3. Updated Open MPI to rev 1.4.1-2ofed
4. Updated MVAPICH2 to rev 1.4.1
5. Updated DAPL to rev 2.0.27
6. Updated libnes to rev 1.0.1
7. Updated librdmacm to rev 1.0.11
8. Removed tvflash RPM
9. NFS-RDMA is not supported on SLES10 SP3
10. Fixed IPv6 support and IPv4 routing corner cases for RDMA CM
11. Bug fixes

OFED-1.5 Main Changes from OFED 1.4.2
-------------------------------------------------------------------------------
Note: For details regarding the various changes, please see the release notes
for each package in the docs directory.

 2.1 General changes
 o Kernel code based on 2.6.30
 o libraries location - all userspace libraries can be downloaded from
 http://www.openfabrics.org/downloads/
 See BUILD\_ID for exact locations
 o Qlogic moved the low level driver from ipath to qib.

 2.2 SDP
 o Performance improvements
 o Zero copy in beta level

 2.3 uDAPL
 o New UCM provider (ofa-v2-mlx4\_0-1u) with IB UD-based CM per process.
 It is more scalable than rdma\_cm (cma) or socket cm (scm).
 o Common code base with WinOF 2.1
 o Bug fixes

 2.4 perftest
 o Renamed tests:
 ib\_rdma\_bw -> rdma\_bw
 ib\_rdma\_lat -> rdma\_lat

 2.5 Management
 o OpenSM
 - Support for Mesh Analysis for LASH routing algorithm
 - Reloadable OpenSM configuration (preliminary implementation)
 - Routing paths sorted balancing (for UpDown and MinHops)
 - Weighted LID matrices calculation (for UpDown, MinHop and DOR)
 - I/O nodes connectivity (for FatTree)

 2.6 MPI:
 a. OSU MVAPICH 1.2.0
 b. Open MPI 1.4
 c. OSU MVAPICH2 1.4
 d. MPI tests 3.2

 2.7 iSER:
 o Available on:
 - kernel.org: 2.6.30 and higher
 - RHEL5.4

 2.8 NFS-RDMA
 o Added support for RHEL5.4, SLES10 SP3, kernel.org 2.6.25 and 2.6.30.
 Kernels 2.6.26 and 2.6.27 are not supported
 o NFS-RDMA is in Beta level

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3. Known Issues
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The following is a list of general limitations and known issues of the various
components of the OFED 3.5-rc2 release.

1. When upgrading from an earlier OFED version, the installation script does
 not stop the earlier OFED version prior to uninstalling it.
 Workaround: Stop the old OFED stack (/etc/init.d/openibd stop) before
 upgrading to OFED 3.5 or reboot the server after OFED installation.
2. Memory registration by the user is limited according to administrator
 setting. See "Pinning (Locking) User Memory Pages" in OFED\_tips.txt for
 system configuration.
3. Fork support from kernel 2.6.12 and above is available provided
 that applications do not use threads. fork() is supported as long as the
 parent process does not run before the child exits or calls exec().
 The former can be achieved by calling wait(childpid), and the latter can be
 achieved by application specific means. The Posix system() call is
 supported.
4. The qib driver is supported only on 64-bit platforms.
5. IPoIB: brctl utilities do not work on IPoIB interfaces. The reason for that
 is that these utilities support devices of type Ethernet only.
6. In case uninstall is failing, check the error log and remove
 the remaining RPMs manually using 'rpm -e <rpms list>'.
7. On SLES11.x, set allow\_unsupported\_modules parameter to 1 in file:
 /etc/modprobe.d/unsupported-modules. Without this the modules will not
 load.

Note: See the release notes of each component for additional issues.