



MLNX_EN for Linux Release Notes

Rev 4.1-1.0.2.0



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Release Update History

Release	Date	Description
Rev 4.1-1.0.2.0	July 9, 2017	Initial release of this version.

1 Overview

These are the release notes of MLNX_EN for Linux Driver, Rev 4.1-1.0.2.0 which operates across all Mellanox network adapter solutions supporting the following uplinks to servers:

Uplink/HCAs	Driver Name	Uplink Speed
ConnectX®-3/ ConnectX®-3 Pro	mlx4	<ul style="list-style-type: none"> Ethernet: 10GigE, 40GigE and 56GigE^a
ConnectX®-4	mlx5	<ul style="list-style-type: none"> Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, 50GigE, 56GigE^a, and 100GigE
ConnectX®-4 Lx		<ul style="list-style-type: none"> Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, and 50GigE
ConnectX®-5		<ul style="list-style-type: none"> Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, 50GigE, and 100GigE
ConnectX®-5 Ex		<ul style="list-style-type: none"> Ethernet: 1GigE, 10GigE, 25GigE, 40GigE, 50GigE, and 100GigE

- a. 56 GbE is a Mellanox propriety link speed and can be achieved while connecting a Mellanox adapter cards to Mellanox SX10XX switch series or connecting a Mellanox adapter card to another Mellanox adapter card.

1.1 Supported Platforms and Operating Systems

The following are the supported OSs in MLNX_EN Rev 4.1-1.0.2.0 :

Table 1 - Supported Platforms and Operating Systems

Operating System	Platform
RHEL6.2/CentOS6.2	x86_64
RHEL6.3/CentOS6.3	x86_64
RHEL6.4/CentOS6.4	x86_64
RHEL6.5/CentOS6.5	x86_64
RHEL6.7/CentOS6.7	x86_64
RHEL6.8/CentOS6.8	x86_64
RHEL6.9/CentOS6.9	x86_64
RHEL7.0/CentOS7.0	x86_64
RHEL7.1/CentOS7.1	x86_64
RHEL7.2/CentOS7.2	x86_64/PPC64 (Power8)/PPC64LE (Power8)
CentOS7.2 with Kernel 4.9 for NVMeoF	ARMv8(AMD) for Softiron
RHEL7.3/CentOS7.3	x86_64/PPC64 (Power8)/PPC64LE (Power8)/ ARMv8 (Qualcomm)
Debian 7.8 + Kernel 4.1.35	x86_64

Table 1 - Supported Platforms and Operating Systems

Operating System	Platform
Debian 7.11	x86_64
Debian 8.7	x86_64
Debian 8.7 Kernel 4.1	x86_64
Debian 8.7 Kernel 4.4	x86_64
Fedora 20	x86_64
Fedora 21	x86_64
Fedora 24	x86_64
OL 6.6	x86_64
OL 6.8	x86_64
OL 7.1	x86_64
SLES11 SP2	x86_64
SLES11 SP3	x86_64
SLES11 SP4	x86_64/PPC64 (Power 8)
SLES12 SP1	x86_64
SLES12 SP2	x86_64/PPC64LE (Power 8)
Ubuntu 14.04	x86_64
Ubuntu 16.04 with Kernel 4.9 - Bandera for ARM	ARMv8 (Qualcomm) [beta]
Ubuntu 16.04	x86_64/PPC64LE (Power8)
Ubuntu 16.10	x86_64/PPC64LE (Power 8)
Ubuntu 17.04	x86_64/PPC64LE (Power 8)
Kernels 4.10-4.11	x86_64
WindRiver 6.0	x86_64 SR-IOV + PV



32 bit platforms are no longer supported in MLNX_EN

1.1.1 Tested Hypervisors in Paravirtualized and SR-IOV Environments

Table 2 - Tested Hypervisors in Paravirtualized and SR-IOV Environments

Tested Hypervisors	HCAa	Operating System
SR-IOV	ConnectX-3/ ConnectX-3 Pro	SLES11 SP3 KVM
		SLES11 SP4 KVM
		SLES12 SP2 KVM
		Ubuntu 14.04 KVM
		Ubuntu 16.04 KVM
		Ubuntu 16.10 KVM
		Ubuntu 16.10 KVM-PPC
		RHEL 6.9 KVM
		RHEL 7.3 KVM
	ConnectX-4	SLES11 SP3 KVM
		SLES11 SP4 KVM
		SLES12 SP2 KVM
		Ubuntu 14.04 KVM
		Ubuntu 16.04 KVM
		Ubuntu 16.10 KVM
		RHEL6.9 KVM
		RHEL7.3 KVM
	ConnectX-4 Lx	SLES11 SP4 KVM
		Ubuntu 16.04 KVM
		Ubuntu 14.04 KVM
ConnectX-5	Ubuntu16.10 KVM	
	RHEL6.9 KVM	
	RHEL7.3 KVM	
Paravirtualized	ConnectX-3/ ConnectX-3 Pro	SLES12 SP2 KVM
		Ubuntu 16.10 KVM

1.2 Supported HCAs Firmware Versions

MLNX_EN Rev 4.1-1.0.2.0 supports the following Mellanox network adapter cards firmware versions:

Table 3 - Supported HCAs Firmware Versions

HCA	Recommended Firmware Rev.	Additional Firmware Rev. Supported
ConnectX®-3	2.40.7000	2.36.5150
ConnectX®-3 Pro	2.40.7000	2.36.5150

Table 3 - Supported HCAs Firmware Versions

HCA	Recommended Firmware Rev.	Additional Firmware Rev. Supported
ConnectX®-4	12.20.1010	12.18.2000
ConnectX®-4 Lx	14.20.1010	14.18.2000
ConnectX®-5	16.20.1010	16.19.1200
ConnectX®-5 Ex	16.20.1010	16.19.1200

For the official firmware versions, please see:

http://www.mellanox.com/content/pages.php?pg=firmware_download

2 Changes and New Features in Rev 4.1-1.0.2.0

The following are the changes and/or new features that have been added to this version of MLNX_EN

Table 4 - Changes and New Features in Rev 4.1-1.0.2.0

HCA's	Feature/Change	Description
mlx5 Driver	RoCE Diagnostics and ECN Counters	Added support for additional RoCE diagnostics and ECN congestion counters under <code>/sys/class/infiniband/mlx5_0/ports/1/hw_counters/</code> directory. For further information, refer to the Understanding mlx5 Linux Counters and Status Parameters Community post.
	rx-fcs Offload (ethtool)	Added support for rx-fcs ethtool offload configuration. Normally, the FCS of the packet will be truncated by the ASIC hardware before sending it to the application socket buffer (skb). Ethtool allows to set the rx-fcs not to be truncated, but to pass it to the application for analysis. For more information and usage, refer to Understanding ethtool rx-fcs for mlx5 Drivers Community post.
	DSCP Trust Mode	Added the option to enable PFC based on the DSCP value. Using this solution, VLAN headers will no longer be mandatory for use. For further information, refer to the HowTo Configure Trust Mode on Mellanox Adapters Community post.
	RoCE ECN Parameters	ECN parameters have been moved to the following directory: <code>/sys/kernel/debug/mlx5/<PCI BUS>/cc_params/</code> For more information, refer to the HowTo Configure DCQCN (RoCE CC) for ConnectX-4 (Linux) Community post.
	Flow Steering Dump Tool	Added support for <code>mlx_fs_dump</code> , which is a python tool that prints the steering rules in a readable manner.
	Secure Firmware Updates	Firmware binaries embedded in MLNX_EN package now support Secure Firmware Updates. This feature provides devices with the ability to verify digital signatures of new firmware binaries, in order to ensure that only officially approved versions are installed on the devices. For further information on this feature, refer to Mellanox Firmware Tools (MFT) User Manual.
	PeerDirect	Added the ability to open a device and create a context while giving PCI peer attributes such as name and ID. For further details, refer to the PeerDirect Programming Community post.

Table 4 - Changes and New Features in Rev 4.1-1.0.2.0

HCA's	Feature/Change	Description
	Probed VFs	Added the ability to disable probed VFs on the hypervisor. For further information, see HowTo Configure and Probe VFs on mlx5 Drivers Community post.
	Local Loopback	Improved performance by rendering Local loopback (unicast and multicast) disabled by mlx5 driver by default while local loopback is not in use. The mlx5 driver keeps track of the number of transport domains that are opened by user-space applications. If there is more than one user-space transport domain open, local loopback will automatically be enabled.
	1PPS Time Synchronization (at alpha level)	Added support for One Pulse Per Second (1PPS), which is a time synchronization feature that allows the adapter to send or receive 1 pulse per second on a dedicated pin on the adapter card. For further information on this feature, refer to the HowTo Test 1PPS on Mellanox Adapters Community post.
	Fast Driver Unload	Added support for fast driver teardown in shutdown and kexec flows.
ConnectX-5/ ConnectX-5 Ex	NVMeoF Target Offload	Added support for NVMe over fabrics (NVMeoF) offload, an implementation of the new NVMeoF standard target (server) side in hardware. For further information on NVMeoF Target Offload, refer to HowTo Configure NVMeoF Target Offload .
All	RDMA CM	Changed the default RoCE mode on which RDMA CM runs to RoCEv2 instead of RoCEv1. RDMA_CM session requires both the client and server sides to support the same RoCE mode. Otherwise, the client will fail to connect to the server. For further information, refer to RDMA CM and RoCE Version Defaults Community post.
	Bug Fixes	See Section 4, "Bug Fixes History" , on page 42.

For additional information on the new features, please refer to MLNX_EN User Manual.

2.1 Unsupported Functionalities/Features/HCA's

The following are the unsupported functionalities/features/HCA's in MLNX_EN:

- ConnectX®-2 Adapter Card

3 Known Issues

The following is a list of general limitations and known issues of the various components of this Mellanox EN for Linux release.

Table 5 - Known Issues

Internal Ref	Issue
995665	Description: Connection between NVMeoF host and target cannot be established in a hyper-threaded system with more than 64 CPUs on the NVMeoF host side.
	Workaround: On the host side, connect to NVMeoF subsystem using <code>--nr-io-queues <num_queues></code> flag. Note that <code>num_queues</code> must be lower or equal to <code>num_sockets</code> multiplied with <code>num_cores_per_socket</code> .
	Keywords: NVMeoF
1039346	Description: Enabling multiple namespaces per subsystem while using NVMeoF target offload is not supported.
	Workaround: To enable more than one namespace, create a subsystem for each one.
	Keywords: NVMeoF Target Offload, namespace
1030301	Description: Creating virtual functions on a device that is in LAG mode will destroy the LAG configuration. The bonding device over the Ethernet NICs will continue to work as expected.
	Workaround: N/A
	Keywords: LAG, SR-IOV
1047616	Description: When node GUID of a device is set to zero (0000:0000:0000:0000), RDMA_CM user space application may crash.
	Workaround: Set node GUID to a nonzero value.
	Keywords: RDMA_CM
1051701	Description: New versions of iproute which support new kernel features may misbehave on old kernels that do not support these new features.
	Workaround: N/A
	Keywords: iproute
1007830	Description: When working on Xenserver hypervisor with SR-IOV enabled on it, make sure the following instructions are applied: 1. Right after enabling SR-IOV, unbind all driver instances of the virtual functions from their PCI slots. 2. It is not allowed to unbind PF driver instance while having active VFs.
	Workaround: N/A
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
1005786	<p>Description: When using ConnectX-5 adapter cards, the following error might be printed to dmesg, indicating temporary lack of DMA pages: <pre> "mlx5_core ... give_pages:289:(pid x): Y pages alloc time exceeded the max permitted duration mlx5_core ... page_notify_fail:263:(pid x): Page allocation failure notification on func_id(z) sent to fw mlx5_core ... pages_work_handler:471:(pid x): give fail -12" </pre></p> <p>Example: This might happen when trying to open more than 64 VFs per port.</p> <p>Workaround: N/A</p> <p>Keywords: mlx5_core, DMA</p>
1008066	<p>Description: Performing some operations on the user end during reboot might cause call trace/panic, due to bugs found in the Linux kernel. For example: Running <code>get_vf_stats</code> (via <code>iptool</code>) during reboot.</p> <p>Workaround: N/A</p> <p>Keywords: mlx5_core, reboot</p>
1009488	<p>Description: Mounting MLNX_EN to a path that contains special characters, such as parenthesis or spaces is not supported. For example, when mounting MLNX_EN to <code>"/media/CDROM(vcd)"/</code>, installation will fail and the following error message will be displayed: <pre> # cd /media/CDROM\(vcd\) / # ./install sh: 1: Syntax error: "(" unexpected </pre></p> <p>Workaround: N/A</p> <p>Keywords: Installation</p>
982144	<p>Description: When offload traffic sniffer is on, the bandwidth could decrease up to 50%.</p> <p>Workaround: N/A</p> <p>Keywords: Offload Traffic Sniffer</p>
982534	<p>Description: In ConnectX-3, when using a server with page size of 64K, the UAR BAR will become too small. This may cause one of the following issues:</p> <ol style="list-style-type: none"> 1. mlx4_core driver does not load. 2. The mlx4_core driver does load, but calls to <code>ibv_open_device</code> may return ENOMEM errors. <p>Workaround:</p> <ol style="list-style-type: none"> 1. Add the following parameter in the firmware's ini file under [HCA] section: <pre>log2_uar_bar_megabytes = 7</pre> 2. Re-burn the firmware with the new ini file. <p>Keywords: PPC</p>

Table 5 - Known Issues

Internal Ref	Issue
981362	Description: On several OSs, setting a number of TC is not supported via the tc tool.
	Workaround: Set the number of TC via the <code>/sys/class/net/<interface>/qos/tc_num</code> sysfs file.
	Keywords: Ethernet, TC
979457	Description: When setting IOMMU=ON, a severe performance degradation may occur due to a bug in IOMMU.
	Workaround: Make sure the following patches are found in your kernel: <ul style="list-style-type: none"> • iommu/vt-d: Fix PASID table allocation • iommu/vt-d: Fix IOMMU lookup for SR-IOV Virtual Functions Note: These patches are already available in Ubuntu 16.04.02 and 17.04 OSs.
	Keywords: Performance, IOMMU
942161	Description: On some kernels, there might be an issue in csum calculations of tunneled packets when the driver sets CHECKSUM_COMPLETE for the packet. This might print csum error messages to the dmesg log file.
	Workaround: Make sure your kernel version includes this fix .
	Keywords: Ethernet, checksum, tunneling
931574	Description: When using a kernel with Generic Receive Offload (GRO) support, UDP performance results will reveal degradation in comparison to the UDP performance results in MLNX_EN v1.5.x.
	Workaround: Turn off the GRO feature to get better UDP performance. Run: <code>#ethtool -K <interface> gro off</code>
	Keywords: GRO, UDP, performance
920707	Description: In SLES12 SP2, you may get a memory low warning at the netlink layer when configuring a large number of VFs.
	Workaround: N/A
	Keywords: SR-IOV, SLES12
969467	Description: On SLES PPC64, the removal of packages with names starting with kernel-mft-mlnx might fail with such an error: "Error: package kernel-mft-mlnx-kmp-default seems to contain modules for multiple kernel versions"
	Workaround: Use the following command to remove the kernel-mft packages: <code>rpm -e --noscripts \$(rpm -qa grep kernel-mft-mlnx)</code>
	Keywords: Installation

Table 5 - Known Issues

Internal Ref	Issue
918880	Description: The driver version shown in modinfo and ethtool outputs is 3.4-1.0.6 instead of 3.4-2.0.0.
	Workaround: N/A
	Keywords: Installation
-	Description: When upgrading from an earlier Mellanox OFED version, the installation script does not stop the earlier version prior to uninstalling it.
	Workaround: Stop the old OFED stack (<code>/etc/init.d/openibd stop</code>) before upgrading to this new version.
	Keywords: Installation
-	Description: When using bonding on Ubuntu OS, the "ifenslave" package must be installed.
	Workaround: N/A
	Keywords: Installation
-	Description: On PPC systems, the <code>ib_srp</code> module is not installed by default since it breaks the <code>ibmvscsi</code> module.
	Workaround: If your system does not require the <code>ibmvscsi</code> module, run the <code>mlnxofedinstall</code> script with the " <code>--with-srp</code> " flag.
	Keywords: Installation
690799	Description: OpenSM package removal fails with the following error on Ubuntu12.04: Removing opensm ... <code>/sbin/insserv: No such file or directory</code>
	Workaround: 1. Create the missing link by running this command: <code># ln -s /usr/lib/insserv/insserv /sbin/insserv</code> 2. Remove the package.
	Keywords: Installation
764204	Description: Weak Updates (KMP) support is broken on RHEL PPC64LE with errata kernels. MLNX_EN installation will pass, but no links will be created under the weak-updates directory for the new kernel. Therefore, the driver load will fail.
	Workaround: <ul style="list-style-type: none"> As of MLNX_EN v3.3, use the <code>mlnx_add_kernel_support.sh</code> script, or simply provide the <code>--add-kernel-support</code> flag to <code>mlnxofedinstall</code> script. Update the <code>kmod</code> package using the following link: https://rhn.redhat.com/errata/RHBA-2016-1832.html
	Keywords: Installation

Table 5 - Known Issues

Internal Ref	Issue
785119	<p>Description: When upgrading ConnectX-4/ConnectX-4 Lx firmware version from v12/14.14.2036 to a newer one (for example:12/14.16.1xxx), power cycle is necessary to enable working in Pass-Through mode. Using mlxfwreset instead of power cycle will print messages similar to the following when Passing-Through the device to Virtual Machine: <pre>"-device vfio-pci,host=04:00.0,id=host-dev0,bus=pci.0,addr=0x7: vfio: Error: Failed to setup INTx fd: No such device 2016-05-22T06:46:39.164786Z qemu-kvm: -device vfio-pci,host=04:00.0,id=hostdev0,bus=pci.0,addr=0x7: Device initialization failed."</pre></p> <p>Workaround: N/A</p> <p>Keywords: Installation</p>
-	<p>Description: "openibd stop" can sometime fail with the error: Unloading ib_cm [FAILED] ERROR: Module ib_cm is in use by ib_ipoib</p> <p>Workaround: Re-run "openibd stop"</p> <p>Keywords: Driver Unload</p>
-	<p>Description: Out-of-memory issues may rise during drivers load depending on the values of the driver module parameters set (e.g. log_num_cq).</p> <p>Workaround: N/A</p> <p>Keywords: Driver Start</p>
-	<p>Description: Occasionally, when trying to repetitively reload the NES hardware driver on SLES11 SP2, a soft lockups occurs that required reboot.</p> <p>Workaround: N/A</p> <p>Keywords: Driver Start</p>
-	<p>Description: If a Lustre storage is used, it must be fully unloaded before restarting the driver or rebooting the machine, otherwise machine might get stuck/panic.</p> <p>Workaround:</p> <ol style="list-style-type: none"> 1. Unmount any mounted Lustre storages: <pre># umount<lustre_mount_point></pre> 2. Unload all Lustre modules: <pre># lustre_rmmod</pre> <p>Keywords: Driver Start</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: Driver unload fails with the following error message: Unloading rdma_cm [FAILED] rmmmod: ERROR: Module rdma_cm is in use by: xprtrdma</p> <p>Workaround: Make sure that there are no mount points over NFS/RDMA prior to unloading the driver and run: <pre># modprobe -r xprtrdma</pre> In case that the xprtrdma module keeps getting loaded automatically even though it is not used, add a pre-stop hook for the openibd service script to always unload it. Create an executable file "/etc/infiniband/pre-stop-hook.sh" with the following content: <pre>#!/bin/bash modprobe -r xprtrdma</pre></p> <p>Keywords: Driver Start</p>
-	<p>Description: When loading or unloading the driver on HP ProLiant systems, you may see log messages like: dmar: DMAR:[DMA Write] Request device [07:00.0] fault addr 3df7f000 DMAR:[fault reason 05] PTE Write access is not set This is a known issue with ProLiant systems (see their support notice for Emulex adapters: http://h20564.www2.hp.com/hpsc/doc/public/display?docId=emr_na-c04446026&lang=en-us&cc=us) The messages are harmless, and may be ignored.</p> <p>Workaround: If you are <i>*not*</i> running SR-IOV on your system, you may eliminate these messages by removing the term "intel_iommu=on" from the boot line in file /boot/grub/menu.lst. For SR-IOV systems, this term must remain, you can ignore the log messages.</p> <p>Keywords: Driver Start</p>
677998	<p>Description: False alarm errors may be printed to dmesg.</p> <p>Workaround: N/A</p> <p>Keywords: Driver Start</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: On RHEL7 and SLES12, the following error is displayed in dmesg if the Mellanox's x.509 Public Key is not added to the system:</p> <pre>[4671958.383506] Request for unknown module key 'Mellanox Technologies signing key: 61feb074fc7292f958419386ffdd9d5-ca999e403' err -11</pre> <p>This error can be safely ignored as long as Secure Boot is disabled on the system.</p> <p>Workaround: For further information, please refer to the User Manual section “Enrolling Mellanox's x.509 Public Key On your Systems”.</p> <p>Keywords: UEFI Secure Boot</p>
-	<p>Description: Ubuntu12 requires update of user space open-iscsi to v2.0.873</p> <p>Workaround: N/A</p> <p>Keywords: UEFI Secure Boot</p>
-	<p>Description: The initiator does not respect interface parameter while logging in.</p> <p>Workaround: Configure each interface on a different subnet.</p> <p>Keywords: UEFI Secure Boot</p>
967356	<p>Description: [Ethernet]</p> <ul style="list-style-type: none"> Bare-metal ConnectX-4/ConnectX-4 Lx might suffer up to 15, degradation in some scenarios due to higher CPU utilization. PPC: ConnectX-4 might suffer up to 20, degradation in some scenarios. <p>Workaround: N/A</p> <p>Keywords: Performance</p>
956071	<p>Description: [mlx5] OOB TCP performance for small message sizes may suffer from lower BW than expected.</p> <p>Workaround: Disable adaptive-rx and set higher static moderation: <code>ethtool -C <interface> adaptive-rx off rx-frames 128 rx-usecs 128</code></p> <p>Keywords: Performance</p>
765777	<p>Description: Low VxLAN throughput due to broken GRO offload in most kernels older than kernel v4.6.</p> <p>Workaround: Use kernel version 4.6 or above.</p> <p>Keywords: Performance</p>

Table 5 - Known Issues

Internal Ref	Issue
414827	Description: Out-of-the-box throughput performance in Ubuntu 14.04 is not optimal and may achieve results below the line rate in 40GE link speed.
	Workaround: For additional performance tuning, please refer to Performance Tuning Guide.
	Keywords: Performance
-	Description: UDP receiver throughput may be lower than expected, when running over mlx4_en Ethernet driver. This is caused by the adaptive interrupt moderation routine, which sets high values of interrupt coalescing, causing the driver to process large number of packets in the same interrupt, leading UDP to drop packets due to overflow in its buffers.
	Workaround: Disable adaptive interrupt moderation and set lower values for the interrupt coalescing manually. <code>ethtool -C <eth>X adaptive-rx off rx-usecs 64 rx-frames 24</code> Values above may need tuning, depending the system, configuration and link speed.
	Keywords: Performance
417751	Description: Performance degradation might occur when bonding Ethernet interfaces.
	Workaround: N/A
	Keywords: Performance
656415	Description: In RHEL7.0, when the irqbalance service is started or restarted, it incorrectly re-balances the IRQs, including the banned ones.
	Workaround: N/A
	Keywords: Performance
651322	Description: In RH7.0/RH7.1, performance issue with ConnectX-4 cards over 100GbE link might occur when the process of forwarding the packets between the ports, which is done by the kernel, fib_table_lookup() function is called. For further information, please refer to: http://comments.gmane.org/gmane.linux.network/344243
	Workaround: Use RH7.2 to avoid such performance issues.
	Keywords: Performance

Table 5 - Known Issues

Internal Ref	Issue
754646	Description: The default RX coalescing values yield to high CPU utilization when using VXLAN on VMs over PV.
	Workaround: Increase the RX microseconds and frames coalescing parameters for a better utilization using the ethtool -C command.
	Keywords: Performance
783496	Description: When using a VF over RH7.X KVM, low throughput is expected.
	Workaround: Install the following packages using the link below: <ul style="list-style-type: none"> • qemu-img-1.5.3-105.el7_2.1.bz1299846.0.x86_64.rpm • qemu-kvm-1.5.3-105.el7_2.1.bz1299846.0.x86_64.rpm • qemu-kvm-common-1.5.3-105.el7_2.1.bz1299846.0.x86_64.rpm http://people.redhat.com/~alwillia/bz1299846/
	Keywords: Performance
860311	Description: An allocation of high-order page in mlx5e_alloc_striding_rx_wqe fails with a call-trace.
	Workaround: No action is required on users end. A fragmented fallback flow will handle this failure.
	Keywords: mlx5 Driver
-	Description: Atomic Operations in Connect-IB are fully supported on big-endian machines (e.g. PPC). Their support is limited on little-endian machines (e.g. x86)
	Workaround: N/A
	Keywords: mlx5 Driver
435583	Description: EEH events that arrive while the mlx5 driver is loading may cause the driver to hang.
	Workaround: N/A
	Keywords: mlx5 Driver
434570	Description: The mlx5 driver can handle up to 5 EEH events per hour.
	Workaround: If more events are received, cold reboot the machine.
	Keywords: mlx5 Driver

Table 5 - Known Issues

Internal Ref	Issue
554120	<p>Description: When working with Connect-IB firmware v10.10.5054, the following message would appear in driver start. command failed, status bad system state(0x4), syndrome 0x408b33 The message can be safely ignored.</p>
	<p>Workaround: Upgrade Connect-IB firmware to the latest available version.</p>
	<p>Keywords: mlx5 Driver</p>
-	<p>Description: Changing the link speed is not supported in Ethernet driver when connected to a ConnectX-4 card.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: mlx5 Driver</p>
538843	<p>Description: Bonding active-backup mode does not function properly.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: mlx5 Driver</p>
-	<p>Description: Rate, speed and width using IB sysfs/tools are available in RoCE mode in ConnectX-4 only after port physical speed configuration is done.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: mlx5 Driver</p>
563022	<p>Description: ConnectX-4 port GIDs table shows a duplicated RoCE v2 default GID.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: mlx5 Driver</p>
947542	<p>Description: mlx5 hardware offload is supported when setting up to 4 VxLAN ports (one of these ports must be 4789). When attempting to set more VxLAN ports, these ports will still be supported, but a failure message will appear in the dmesg.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: Ethernet</p>
964991	<p>Description: TX queue rate limit may sometimes exceed the rate that was set by the user by up to 10,.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: Ethernet</p>

Table 5 - Known Issues

Internal Ref	Issue
911693	Description: In ConnectX-4 Lx and above, the minimal RX ring size is changed to 512, as a result of fundamental changes in receive flow structures.
	Workaround: N/A
	Keywords: Ethernet
948312	Description: [ConnectX-3 Pro] To enable/disable <code>rx-vlan-stag-hw-parse</code> by <code>ethtool</code> , <code>rxvlan</code> should be enabled/disabled accordingly (<code>ethtool -K rxvlan on/off</code>).
	Workaround: N/A
	Keywords: Ethernet
894547	Description: On SLES12 SP1 and SLES12 SP2, invalid <code>udev</code> rules might cause Ethernet interfaces renaming to fail, leaving some interfaces with names such as <code>renameXY</code> .
	Workaround: Modify the <code>udev</code> rules inside the <code>/etc/udev/rules.d/70-persistent-net.rules</code> file, such that every rule is unique to the target interface. For further details, refer to the Ethernet Related Issues table under the Troubleshooting section in MLNX_EN User Manual.
	Keywords: Ethernet
754709	Description: <code>mlx5</code> Ethernet auto-negotiation related issues: <ol style="list-style-type: none"> 1. The command <code>ethtool -s eth4 speed 25000 autoneg on</code> is not a valid <code>ethtool</code> command. <code>speed 25000</code> should not be passed in when <code>autoneg</code> is on. Instead, use <code>advertise 0x100000</code>. 2. <code>ethtool</code> version older than v4.6 does not report neither support nor advertise for new speeds, such as 25G, 100G. 3. When setting auto negotiation with <code>ethtool</code> version older than v4.6, advertised speed will be ignored, and the device will try to reach the highest supported speed available end-to-end.
	Workaround: N/A
	Keywords: Ethernet
843306	Description: [ConnectX-4/ConnectX-4 Lx] When configuring ETS, bandwidth values are limited between 1-100, and 0 is an invalid value.
	Workaround: N/A
	Keywords: Ethernet
704750	Description: [ConnectX-4/ConnectX-4 Lx] First ICMP6 packet may be lost as a result of first IP fragment loss when packets size is significantly bigger than MTU.
	Workaround: N/A
	Keywords: Ethernet

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: When creating more than 125 VLANs and SR-IOV mode is enabled, a kernel warning message will be printed indicating that the native VLAN is created but will not work with RoCE traffic.</p> <pre>kernel warning: mlx4_core 0000:07:00.0: vhc command ALLOC_RES (0xf00) slave:0 in_param 0x7e in_mod=0x107, op_mod=0x1 failed with error:0, status -28</pre> <p>Workaround: N/A</p> <p>Keywords: Ethernet</p>
-	<p>Description: Kernel panic might occur during FIO splice in kernels before 2.6.34-rc4.</p> <p>Workaround: Use kernel v2.6.34-rc4 which provides the following solution:</p> <pre>baff42a net: Fix oops from tcp_collapse() when using splice()</pre> <p>Keywords: Ethernet</p>
-	<p>Description: In PPC systems when QoS is enabled a harmless Kernel DMA mapping error messages might appear in kernel log (IOMMU related issue).</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet</p>
-	<p>Description: Transmit timeout might occur on RH6.3 as a result of lost interrupt (OS issue). In this case, the following message will be shown in dmesg:</p> <pre>do_IRQ: 0.203 No irq handler for vector (irq -1)</pre> <p>Workaround: N/A</p> <p>Keywords: Ethernet</p>
-	<p>Description: Mixing ETS and strict QoS policies for TCs in 40GbE ports may cause inaccurate results in bandwidth division among TCs.</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet</p>
-	<p>Description: Affinity hints are not supported in Xen Hypervisor (an irqblancer issue). This causes a non-optimal IRQ affinity.</p> <p>Workaround: To overcome this issues, run:</p> <pre>set_irq_affinity.sh eth<x></pre> <p>Keywords: Ethernet</p>

Table 5 - Known Issues

Internal Ref	Issue
433366	<p>Description: Reboot might hang in SR-IOV when using the <code>probe_vf</code> parameter with many Virtual Functions. The following message is logged in the kernel log: "waiting for eth to become free. Usage count =1"</p>
	<p>Workaround: N/A</p>
	<p>Keywords: Ethernet</p>
-	<p>Description: VXLAN may not be functional when configured over Linux bridge in RH7.0 faceor Ubuntu14.04. The issue is within the bridge modules in those kernels. In Vanilla kernels above 3.16 issues is fixed.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: Ethernet</p>
-	<p>Description: In RH6.4, ping may not work over VLANs that are configured over Linux bridge when the bridge has a <code>mlx4_en</code> interface attached to it.</p>
	<p>Workaround: N/A</p>
	<p>Keywords: Ethernet</p>
-	<p>Description: The interfaces LRO needs to be set to "OFF" manually when there is a bond configured on Mellanox interfaces with a Bridge over that bond.</p>
	<p>Workaround: Run: <code>ethtool -K ethX lro off</code></p>
	<p>Keywords: Ethernet</p>
539117	<p>Description: On SLES12, the bonding interface over Mellanox Ethernet slave interfaces does not get IP address after reboot.</p>
	<p>Workaround:</p> <ol style="list-style-type: none"> 1. Set "STARTMODE=hotplug" in the bonding slave's ifcfg files. More details can be found in the SUSE documentations page: https://www.suse.com/documentation/sles-12/book_sle_admin/?page=/documentation/sles-12/book_sle_admin/data/sec_bond.html 2. Enable the nanny service to support hot-plugging: Open the <code>/etc/wicked/common.xml</code> file. Change: <code><use-nanny>>false</use-nanny></code> to <code><use-nanny>>true</use-nanny></code> 3. Run: <code># systemctl restart wickedd.service wicked</code>
	<p>Keywords: Ethernet</p>
	<p>Keywords: Ethernet</p>

Table 5 - Known Issues

Internal Ref	Issue
989042	Description: <code>ethtool -x</code> command will not function on relatively old kernels that do not support <code>get/set_rxfh*</code> callbacks.
	Workaround: N/A
	Keywords: Ethernet
516136	Description: Ethertype proto 0x806 not supported by <code>ethtool</code>
	Workaround: N/A
	Keywords: Ethernet
-	Description: ETS configuration is not supported in the following kernels: <ul style="list-style-type: none"> • 3.7 • 3.8 • 3.9 • 3.10 • 3.2.37-94_fbk17_01925_g8e3b329 • 3.14 • 3.2.55-106_fbk22_00877_g6902630 • 3.2.28-76_fbk14_00230_g3c40d9e
	Workaround: N/A
	Keywords: Ethernet
-	Description: ETS is not supported in kernels that do not have MQPRIO as QDISC_KIND option in the <code>tc</code> tool.
	Workaround: N/A
	Keywords: Ethernet
592229	Description: When NC-SI is ON, the ports MTU cannot be set to lower than 1500.
	Workaround: N/A
	Keywords: Ethernet
600242	Description: GRO is not functional when using VXLAN in ConnectX-3 adapter cards.
	Workaround: N/A
	Keywords: Ethernet
596075	Description: <code>ethtool -X</code> : The driver supports only the 'equal' mode and cannot be set by using weight flags.
	Workaround: N/A
	Keywords: Ethernet

Table 5 - Known Issues

Internal Ref	Issue
600752	Description: Q-in-Q infrastructure in the kernel is supported only in kernel version 3.10 and up.
	Workaround: N/A
	Keywords: Ethernet
596537	Description: When SLES11 SP4 is used as a DHCP client over ConnectX-3 or ConnectX-3 adapters, it might fail to get an IP from the DHCP server.
	Workaround: N/A
	Keywords: Ethernet
560575	Description: When using a hardware that has Time Stamping enabled, the system time might be higher than the expected variance.
	Workaround: N/A
	Keywords: Ethernet
597758	Description: In Q-in-Q, ping failed when sending traffic with package size > 1468
	Workaround: N/A
	Keywords: Ethernet
665131	Description: Call trace may occur when configuring VXLAN or under high traffic stress.
	Workaround: N/A
	Keywords: Ethernet
-	Description: HW LRO does not function in ConnectX-4 adapter cards.
	Workaround: N/A
	Keywords: Ethernet
685069/689607	Description: ethtool header does not currently support the link speeds of 25/50/100. Therefore, these speeds cannot be seen as advertised/supported.
	Workaround: N/A
	Keywords: Ethernet
835239	Description: While running Q-in-Q packets with stag offloading, tcp-snoop/wireshark on host may show svlan ethertype as 0x8100 instead of 0x88A8.
	Workaround: Check the wire or a switch between the hosts, the wire-shark will show 0x88A8 ethertype as expected.
	Keywords: Ethernet

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: After changing port type using <code>connectx_port_config</code> interface ports names can be changed. For example. <code>ib1</code> -> <code>ib0</code> if port1 changed to be Ethernet port and port2 left IB.</p> <p>Workaround: Use <code>udev</code> rules for persistent naming configuration. For further information, please refer to the User Manual</p> <p>Keywords: Port Type Management</p>
-	<p>Description: A working IP connectivity between the RoCE devices is required when creating an address handle or modifying a QP with an address vector.</p> <p>Workaround: N/A</p> <p>Keywords: Port Type Management</p>
-	<p>Description: IPv4 multicast over RoCE requires the MGID format to be as follows: <code>:ffff:<Multicast IPv4 Address></code></p> <p>Workaround: N/A</p> <p>Keywords: Port Type Management</p>
-	<p>Description: IP routable RoCE does not support Multicast Listener Discovery (MLD) therefore, multicast traffic over IPv6 may not work as expected.</p> <p>Workaround: N/A</p> <p>Keywords: Port Type Management</p>
-	<p>Description: DIF: When running IO over FS over DM during unstable ports, block layer BIOS merges may cause false DIF error.</p> <p>Workaround: N/A</p> <p>Keywords: Port Type Management</p>
-	<p>Description: <code>connectx_port_config</code> configurations is not saved after unbind/bind.</p> <p>Workaround: Re-run "<code>connectx_port_config</code>"</p> <p>Keywords: Port Type Management</p>
954924	<p>Description: Accelerated Receive Flow Steering (aRFS) does not work properly with more than 50 streams. Thus, packets are not forwarded based on the location of the application consuming the packet.</p> <p>Workaround: N/A</p> <p>Keywords: Flow Steering</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: Flow Steering is disabled by default in firmware version < 2.32.5100.</p> <p>Workaround: To enable it, set the parameter below as follow: log_num_mgm_entry_size should set to -1</p> <p>Keywords: Flow Steering</p>
-	<p>Description: IPv4 rule with source IP cannot be created in SLES 11.x OSs.</p> <p>Workaround: N/A</p> <p>Keywords: Flow Steering</p>
-	<p>Description: RFS does not support UDP.</p> <p>Workaround: N/A</p> <p>Keywords: Flow Steering</p>
516136	<p>Description: Setting ARP flow rules through ethtool is not allowed.</p> <p>Workaround: N/A</p> <p>Keywords: Flow Steering</p>
-	<p>Description: QoS is not supported in XenServer, Debian 6.0 and 6.2 with uek kernel</p> <p>Workaround: N/A</p> <p>Keywords: Quality of Service</p>
-	<p>Description: When QoS features are not supported by the kernel, mlnx-_qos tool may crash.</p> <p>Workaround: N/A</p> <p>Keywords: Quality of Service</p>
448981	<p>Description: QoS default settings are not returned after configuring QoS.</p> <p>Workaround: N/A</p> <p>Keywords: Quality of Service</p>
940345	<p>Description: In ConnectX-3, when the virtual function (VF) runs on a MLNX_EN version that is below v4.0, and the physical function runs on MLNX_EN v4.0 and higher, hardware counters in the VF will be set to zero and will not progress.</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet Performance Counters</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: In ConnectX-3, in a system with more than 61 VFs, the 62nd VF and onwards is assigned with the SINKQP counter, and as a result will have no statistics, and loopback prevention functionality for SINK counter.</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet Performance Counters</p>
-	<p>Description: In ConnectX-3, since each VF tries to allocate 2 more QP counter for its RoCE traffic statistics, in a system with less than 61 VFs, if there is free resources it receives new counter otherwise receives the default counter which is shared with Ethernet. In this case RoCE statistics is not available.</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet Performance Counters</p>
-	<p>Description: In ConnectX-3, when we enable function-based loopback prevention for Ethernet port by default (i.e., based on the QP counter index), the dropped self-loopback packets increase the IfRxErrorFrames/Octets counters.</p> <p>Workaround: N/A</p> <p>Keywords: Ethernet Performance Counters</p>
-	<p>Description: Older versions of <code>rescan_scsi_bus.sh</code> may not recognize some newly created LUNs.</p> <p>Workaround: If encountering such issues, it is recommended to use the '-c' flag.</p> <p>Keywords: Storage</p>
-	<p>Description: When loading the <code>ib_srp</code> driver, the <code>reconnect_delay</code> and <code>fast_io_fail_tmo</code> parameters should be set in this order. Otherwise, the loading may fail.</p> <p>Workaround: N/A</p> <p>Keywords: SRP</p>
-	<p>Description: SRP daemon does not start at boot.</p> <p>Workaround: Add <code>service srpd start</code> to <code>rc.local</code> or start it manually.</p> <p>Keywords: SRP</p>
-	<p>Description: <code>srp_daemon</code> fails to connect on ConnectX-4 VF.</p> <p>Workaround: N/A</p> <p>Keywords: SRP</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: The driver is tested with Storage target vendors recommendations for multipath.conf extensions (ZFS, DDN, TMS, Nimbus, NetApp).</p> <p>Workaround: N/A</p> <p>Keywords: SRP Interop</p>
-	<p>Description: DDN does not accept non-default P_Key connection establishment.</p> <p>Workaround: N/A</p> <p>Keywords: DDN Storage Fusion 10000 Target</p>
-	<p>Description: Ungraceful power cycle of an initiator connected with Targets DDN, Nimbus, NetApp may result in temporary "stale connection" messages when initiator reconnects.</p> <p>Workaround: N/A</p> <p>Keywords: Oracle Sun ZFS Storage 7420</p>
-	<p>Description: On SLES OSs, the <code>ib_iser</code> module does not load on boot.</p> <p>Workaround: Add a dummy interface using <code>iscsiadm</code>:</p> <ul style="list-style-type: none"> • <code># iscsiadm -m iface -I ib_iser -o new</code> • <code># iscsiadm -m iface -I ib_iser -o update -n iface.transport_name -v ib_iser</code> <p>Keywords: iSER Initiator</p>
-	<p>Description: Ubuntu16 requires update of user space open-iscsi to v2.0.874.</p> <p>Workaround: N/A</p> <p>Keywords: iSER Initiator</p>
-	<p>Description: The initiator does not respect interface parameter while logging in.</p> <p>Workaround: Configure each interface on a different subnet.</p> <p>Keywords: iSER Initiator</p>
-	<p>Description: iSCSID v2.0.873 can enter an endless loop on bind error.</p> <p>Workaround: N/A</p> <p>Keywords: iSER Initiator</p>
-	<p>Description: iSCSID may hang if target crashes during logout sequence (reproducible with TCP).</p> <p>Workaround: N/A</p> <p>Keywords: iSER Initiator</p>

Table 5 - Known Issues

Internal Ref	Issue
683370	<p>Description: iSER small read IO (< 8k) performance degrades compared to previous versions. iSER performs memory registration for each IO and avoids sending a global memory key to the target. Sending the global memory key to the wire should only be done in a trusted environment and is not recommended to use over the Internet protocol.</p> <p>Workaround: Set module param <code>always_register=N</code> <code>\$ modprobe ib_iser always_register=N</code></p> <p>Keywords: iSER Initiator</p>
-	<p>Description: iSER Target currently supports the following OSs (distribution kernel) only:</p> <ul style="list-style-type: none"> • RHEL 7.2/7.3 • SLES 12.1/12.2 • Ubuntu 14.04/15.04/16.04/16.10 <p>Workaround: N/A</p> <p>Keywords: iSER Target</p>
-	<p>Description: RHEL/CentOS 7.0: Discovery over RDMA is not supported.</p> <p>Workaround: N/A</p> <p>Keywords: iSER Target</p>
-	<p>Description: Connection establishment occurs twice which may cause iSER to log a stack trace.</p> <p>Workaround: N/A</p> <p>Keywords: ZFS Appliance</p>
-	<p>Description: The Erasure-coding logical block size must be aligned to 64 bytes</p> <p>Workaround: N/A</p> <p>Keywords: Erasure Coding Verbs</p>
-	<p>Description: Only w=1,2,4,8 are supported (w corresponds to the Galois symbol size - GF(2^w))</p> <p>Workaround: N/A</p> <p>Keywords: Erasure Coding Verbs</p>
-	<p>Description: <code>ibv_exp_ec_mem</code> must pass with the following restrictions:</p> <ul style="list-style-type: none"> • <code>num_data_sge</code> must be equal to K (property of the EC calc) • <code>num_code_sge</code> must be equal to M (property of the EC calc) <p>Workaround: N/A</p> <p>Keywords: Erasure Coding Verbs</p>

Table 5 - Known Issues

Internal Ref	Issue
960642	Description: [mlx5] min_tx_rate and max_tx_rate limit per virtual function is not supported on ConnectX-5 and ConnectX-5 Ex adapter cards.
	Workaround: N/A
	Keywords: SR-IOV
858628	Description: PCI error handling is not supported during driver reload. This might cause a kernel panic or calltrace.
	Workaround: N/A
	Keywords: SR-IOV
860385	Description: Creating 127 VFs may cause kernel panic in SLES11 SP4 KVM with Kernel 3.0.101-63 because of a IOMMU kernel bug.
	Workaround: N/A
	Keywords: SR-IOV
795697	Description: [mlx4] While spoof-check filters the incoming traffic to a VM, when this feature is disabled, traffic still does not reach the VM.
	Workaround: The driver must be restarted for the disablement of the feature to take effect and all traffic to be reached to the VM.
	Keywords: SR-IOV
784940	Description: Currently, the firmware cannot process many page requests in parallel as the driver processes page requests serially. Therefore, enabling/disabling a large number of VFs will often cause an driver slow-down.
	Workaround: N/A
	Keywords: SR-IOV
784954	Description: When SR-IOV is disabled, the VF driver receives pci_err_detected event and a teardown flow will be started. During the teardown flow, all firmware commands will fail because the function is already deleted.
	Workaround: N/A
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
819595	Description: [ConnectX-3 Pro] In case a VF is set to VST mode on the same port following QinQ configuration, that VF will insert C-VLAN not only to untagged packets, but also to tagged packets. The packets that are tagged twice will be dropped by the switch or by the destination host since they have two C-VLANs.
	Workaround: N/A
	Keywords: SR-IOV
775944	Description: Bonding VFs on the same physical port using bonding mode 0 requires configuration of <code>fail_over_mac=1</code> .
	Workaround: N/A
	Keywords: SR-IOV
-	Description: When using legacy VMs with MLNX_EN 2.x hypervisor, you may need to set the 'enable_64b_cqe_eqe' parameter to zero on the hypervisor. It should be set in the same way that other module parameters are set for <code>mlx4_core</code> at module load time. For example, add options <code>mlx4_core enable_64b_cqe_eqe=0</code> as a line in the file <code>/etc/modprobe.d/mlx4_core.conf</code> .
	Workaround: N/A
	Keywords: SR-IOV
381764	Description: <code>mlx4_port1_mtu</code> sysfs entry shows a wrong MTU number in the VM.
	Workaround: N/A
	Keywords: SR-IOV
385750/378528	Description: When working with a bonding device to enslave the Ethernet devices in active-backup mode and failover MAC policy in a Virtual Machine (VM), establishment of RoCE connections may fail.
	Workaround: Unload the module <code>mlx4_ib</code> and reload it in the VM.
	Keywords: SR-IOV
-	Description: Attaching or detaching a Virtual Function on SLES11 SP3 to a guest Virtual Machine while the <code>mlx4_core</code> driver is loaded in the Virtual Machine may cause a kernel panic in the hypervisor.
	Workaround: Unload the <code>mlx4_core</code> module in the hypervisor before attaching or detaching a function to or from the guest.
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
392172	Description: When detaching a VF without shutting down the driver from a VM and reattaching it to another VM with the same IP address for the Mellanox NIC, RoCE connections will fail
	Workaround: Shut down the driver in the VM before detaching the VF.
	Keywords: SR-IOV
-	Description: Enabling SR-IOV requires appending the <code>intel_iommu=on</code> option to the relevant OS in file <code>/boot/grub/grub.conf</code> or <code>/boot/grub2/grub.cfg</code> , depending on the OS installed. Without that SR-IOV cannot be loaded.
	Workaround: N/A
	Keywords: SR-IOV
-	Description: On various combinations of Hypervisor/OSes and Guest/OSes, an issue might occur when attaching/detaching VFs to a guest while that guest is up and running.
	Workaround: Attach/detach VFs to/from a VM only while that VM is down.
	Keywords: SR-IOV
-	Description: The known PCI BDFs for all VFs in kernel command line should be specified by adding <code>xen-pciback.hide</code> . For further information, please refer to http://wiki.xen.org/wiki/Xen_PCI_Passthrough
	Workaround: N/A
	Keywords: SR-IOV
-	Description: The inbox qemu version (2.0) provided with Ubuntu 14.04 does not work properly when more than 2 VMs are run over an Ubuntu 14.04 Hypervisor.
	Workaround: N/A
	Keywords: SR-IOV
-	Description: SR-IOV UD QPs are forced by the Hypervisor to use the base GID (i.e., the GID that the VF sees in its GID entry at its paravirtualized index 0). This is needed for security, since UD QPs use Address Vectors, and any GID index may be placed in such a vector, including indices not belonging to that VF.
	Workaround: N/A
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: Attempting to attach a PF to a VM when SR-IOV is already enabled on that PF may result in a kernel panic.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>
-	<p>Description: osmtest on the Hypervisor fails when SR-IOV is enabled. However, only the test fails, OpenSM will operate correctly with the host. The failure reason is that if an mcg is already joined by the host, a subsequent join request for that group succeeds automatically (even if the join parameters in the request are not correct). This success does no harm.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>
-	<p>Description: If a VM does not support PCI hot plug, detaching an mlx4 VF and probing it to the hypervisor may cause the hypervisor to crash.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>
-	<p>Description: QPerf test is not supported on SR-IOV guests in Connect-IB cards.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>
-	<p>Description: On ConnectX-3 HCAs with firmware version 2.32.5000 and later, SR-IOV VPI mode works only with Port 1 = ETH and Port 2 = IB.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>
-	<p>Description: Occasionally, the <code>lspci grep Mellanox</code> command shows incorrect or partial information due to the current <code>pci.ids</code> file on the machine.</p> <p>Workaround:</p> <ol style="list-style-type: none"> 1. Locate the file: <code>\$locate pci.ids</code> 2. Manually update the file according to the latest version available online at: https://pci-ids.ucw.cz/v2.2/pci.ids This file can also be downloaded using the following command: <code>update-pciids</code> <p>Keywords: SR-IOV</p>
-	<p>Description: SR-IOV is not supported in AMD architecture.</p> <p>Workaround: N/A</p> <p>Keywords: SR-IOV</p>

Table 5 - Known Issues

Internal Ref	Issue
506512	Description: Setting 1 Mbit/s rate limit on Virtual Functions (Qos Per VF feature) may cause TX queue transmit timeout.
	Workaround: N/A
	Keywords: SR-IOV
-	Description: DC transport type is not supported on SR-IOV VMs.
	Workaround: N/A
	Keywords: SR-IOV
567908	Description: Attaching a VF to a VM before unbinding it from the hypervisor and then attempting to destroy the VM, may cause the system to hang for a few minutes.
	Workaround: N/A
	Keywords: SR-IOV
-	Description: When using SR-IOV make sure to set interface to down and unbind BEFORE unloading driver/removing VF/restarting VM or kernel will lock. (reboot needed) Basically, clean-up might not work perfectly so user should do it manually.
	Workaround: N/A
	Keywords: SR-IOV
601749	Description: Since the guest MAC addresses are configured to be all zeroes by default, in ConnectX-4 the administrator must explicitly set the VFs MAC addresses. otherwise the Guest VM will see MAC zero and traffic is not passed.
	Workaround: N/A
	Keywords: SR-IOV
649366	Description: Restarting the PF (Hypervisor) driver while Virtual Functions are assigned is not allowed in RH7 and above due to a <code>vfio-pci</code> bug.
	Workaround: N/A
	Keywords: SR-IOV
639046	Description: Due to an issue with SR-IOV loopback, prevention "Duplicate IPv6 detected" are seen in the VF driver.
	Workaround: N/A
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
655410	Description: [ConnectX-4/Connect-IB] Failed to enable SR-IOV due to errors in PCI or BIOS.
	Workaround: 1. Add <code>pci=realloc=on</code> to the grub command line. 2. Add more memory to the server. 3. Upgrade BIOS version.
	Keywords: SR-IOV
651119	Description: Kernel panic may occur while running IPv6 UDP on SR-IOV ConnectX-4 environment
	Workaround: N/A
	Keywords: SR-IOV
669910	Description: Bind/Unbind over ConnectX-4 Hypervisor may cause system lockup.
	Workaround: N/A
	Keywords: SR-IOV
650458	Description: Occasionally, IPv6 might not function properly and cause lockup on SR-IOV ConnectX-4 environment.
	Workaround: N/A
	Keywords: SR-IOV
688551	Description: In ConnectX-3 adapter cards, the extended counter <code>port_rcv_data_64</code> on the VF may not be updated in some flows.
	Workaround: N/A
	Keywords: SR-IOV
690656/690674	Description: When the physical link is down, any traffic from the PF to any VF on the same port will be dropped.
	Workaround: N/A
	Keywords: SR-IOV
691661	Description: When in LAG mode and the Virtual Functions are present (VF LAG), the IP address given to the bonding interface (in the hypervisor) cannot be used for RoCE as well.
	Workaround: Probe one of the VFs in the hypervisor and use for RoCE.
	Keywords: SR-IOV
691661	Description: Ethernet SR-IOV in ConnectX-4 requires firmware version 12.14.1100 and higher
	Workaround: N/A
	Keywords: SR-IOV

Table 5 - Known Issues

Internal Ref	Issue
737434	Description: VF vport statistics are not cleared upon ifconfig up/down.
	Workaround: N/A
	Keywords: SR-IOV
738464	Description: In SLES11 SP4, user cannot open all VFs announced in <code>sriov_totalvfs</code> . However he can set the <code>num_vfs</code> up to maximum <code>sriov_totalvfs-1</code> vfs.
	Workaround: N/A
	Keywords: SR-IOV
784127	Description: While disabling SR-IOV, all firmware teardown flow commands are expected to fail and error messages will be reported in the <code>dmesg</code> .
	Workaround: N/A
	Keywords: SR-IOV
784146	Description: Creating/destroying as many as 64 VFs may sometimes take longer time than usual on some setups.
	Workaround: N/A
	Keywords: SR-IOV
766105	Description: Due to a bug in some QEMU versions, interrupts do not function properly for Virtual Functions. This causes the driver initialization to fail, and such error message will be printed: <code>"mlx4_core 0000:0b:00.0: command 0x31 timed out (go bit not cleared) mlx4_core 0000:0b:00.0: NOP command failed to generate interrupt (IRQ 57), aborting"</code> .
	Workaround: Upgrade to the latest version of QEMU in the hypervisor.
	Keywords: SR-IOV
413372	Description: SR-IOV non persistent configuration (such as VGT, VST, Host assigned GUIDs, and QP0-enabled VFs) may be lost upon Reset Flow.
	Workaround: Reset Admin configuration post Reset Flow
	Keywords: Reset Flow
-	Description: Upon Reset Flow or after running restart driver, Ethernet VLANs are lost.
	Workaround: Reset the VLANs using the <code>ifup</code> command.
	Keywords: Reset Flow

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: Restarting the driver or running <code>connectx_port_config</code> when Reset Flow is running might result in a kernel panic</p> <p>Workaround: N/A</p> <p>Keywords: Reset Flow</p>
-	<p>Description: Networking configuration (e.g. VLANs, IPv6) should be statically defined in order to have them set after Reset Flow as of after restart driver.</p> <p>Workaround: N/A</p> <p>Keywords: Reset Flow</p>
-	<p>Description: After recovering from an EEH event, <code>mlx5_core/mlx4_core</code> unload may fail due to a bug in some kernel versions. The bug is fixed in Kernel 3.15</p> <p>Workaround: N/A</p> <p>Keywords: Reset Flow</p>
856033	<p>Description: The following PCIe bus error on Qualcomm ARM processor might appear when mapping a large number of DMA addresses: AER: Corrected error received: id=0000 PCIe Bus Error: severity=Corrected, type=Transaction Layer, id=0000(Receiver ID) device [17cb:0400] error status/mask=00002000/00004000 [13] Advisory Non-Fatal <code>mlx5_warn:mlx5_0:dump_cqe:257:(pid 0): dump error cqe</code> 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 12007806 25000063 8728c8d3</p> <p>Workaround: Edit the kernel parameters (in grub) and add <code>qiommu.identity_map_qiommmus=PCIE0_MMU,PCIE4_MMU</code> (The bus numbers depend on the ConnectX-4 slot.) Reboot the server.</p> <p>Keywords: General</p>

Table 5 - Known Issues

Internal Ref	Issue
-	<p>Description: On ConnectX-3 Ethernet adapter cards, there is a mismatch between the GUID value returned by firmware management tools and that returned by fabric/driver utilities that read the GUID via device firmware (e.g., using <code>ibstat</code>). <code>Mlxburn/flint</code> return <code>0xffff</code> as GUID while the utilities return a value derived from the MAC address. For all driver/firmware/software purposes, the latter value should be used.</p> <p>Workaround: N/A. Please use the GUID value returned by the fabric/driver utilities (not <code>0xffff</code>).</p> <p>Keywords: General</p>
552870/548518	<p>Description: On rare occasions, under extremely heavy MAD traffic, MAD (Management Datagram) storms might cause soft-lockups in the UMAD layer.</p> <p>Workaround: N/A</p> <p>Keywords: General</p>
-	<p>Description: Packets are dropped on the SM server on big clusters.</p> <p>Workaround: Increase the <code>recv_queue_size</code> of <code>ib_mad</code> module parameter for SM server to 8K. The <code>recv_queue_size</code> default size (4K)</p> <p>Keywords: General</p>
663434	<p>Description: On ConnectX-4/ConnectX-4 Lx, when running "<code>lspci</code>" in RH7.0/7.1, the device information is displayed incorrect or the device is unnamed.</p> <p>Workaround: Run <code>update-pciids</code></p> <p>Keywords: General</p>
767016	<p>Description: Resetting hardware counters after <code>netdev</code> goes up can break statistics scripts.</p> <p>Workaround: N/A</p> <p>Keywords: General</p>
-	<p>Description: When 2 different ports have identical GIDs, the CM might send its packets on the wrong port.</p> <p>Workaround: All ports must have different GIDs.</p> <p>Keywords: Connection Manager (CM)</p>

Table 5 - Known Issues

Internal Ref	Issue
781382	<p>Description: The number of local ports that rdma_cm ID can bind to is limited. This limitation depends on the OS dynamics.</p> <p>Workaround: Modify the range of available ports for binding, run: <code>sysctl net.ipv4.ip_local_port_range="MIN MAX"</code> The MIN and MAX values can range from 0 to 65535.</p> <p>Note: Modifying the range also affects the range of available ports for socket applications (TCP/IP) even though the pool is not mutual between the RDMA stack and the TCP/IP stack.</p> <p>Keywords: Connection Manager (CM)</p>
-	<p>Description: Fork support from kernel 2.6.12 and above is available provided that applications do not use threads. <code>fork()</code> is supported as long as the parent process does not run before the child exits or calls <code>exec()</code>. The former can be achieved by calling <code>wait(childpid)</code>, and the latter can be achieved by application specific means. The Posix <code>system()</code> call is supported.</p> <p>Workaround: N/A</p> <p>Keywords: Fork Support</p>
-	<p>Description: On rare occasions, ConnectX-3 Pro adapter card may fail to link up when performing parallel detect to 40GbE.</p> <p>Workaround: Restart the driver</p> <p>Keywords: Uplinks</p>
-	<p>Description: The device capabilities reported may not be reached as it depends on the system on which the device is installed and whether the resource is allocated in the kernel or the userspace.</p> <p>Workaround: N/A</p> <p>Keywords: Resources Limitation</p>
387061	<p>Description: <code>mlx4_core</code> can allocate up to 64 MSI-X vectors, an MSI-X vector per CPU.</p> <p>Workaround: N/A</p> <p>Keywords: Resources Limitation</p>
-	<p>Description: Setting more IP addresses than the available GID entries in the table results in failure and the "update_gid_table error message is displayed: <code>GID table of port 1 is full. Can't add <address>" message.</code></p> <p>Workaround: N/A</p> <p>Keywords: Resources Limitation</p>

Table 5 - Known Issues

Internal Ref	Issue
553657	<p>Description: Registering a large amount of Memory Regions (MR) may fail because of DMA mapping issues on RHEL 7.0.</p> <p>Workaround: N/A</p> <p>Keywords: Resources Limitation</p>
-	<p>Description: Occasionally, a user process might experience some memory shortage and not function properly due to Linux kernel occupation of the systems free memory for its internal cache.</p> <p>Workaround: To free up memory and allow it to be allocated in a user process, run the <code>drop_caches</code> procedure below. Performing the following steps will cause the kernel to flush and free pages, dentries and inodes caches from memory, causing that memory to become free.</p> <p>Note: As this is a non-destructive operation and dirty objects are not freeable, run <code>`sync'</code> first.</p> <ul style="list-style-type: none"> • To free the pagecache: <pre>echo 1 > /proc/sys/vm/drop_caches</pre> • To free dentries and inodes: <pre>echo 2 > /proc/sys/vm/drop_caches</pre> • To free pagecache, dentries and inodes: <pre>echo 3 > /proc/sys/vm/drop_caches</pre> <p>Keywords: Resources Limitation</p>
-	<p>Description: On ConnectX-4 Lx, the following may not be supported when using Multi-Packet WR flag (<code>IBV_EXP_QP_BURST_CREATE_ENABLE_MULTI_PACKET_SEND_WR</code>) on QP-burst family creation:</p> <ul style="list-style-type: none"> • ACLs • SR-IOV (eSwitch offloads) • priority and dscp forcing • Loopback decision. • VLAN insertion • encapsulation (encap/decap) • sniffer • Signature <p>Workaround: N/A</p> <p>Keywords: Accelerated Verbs</p>

4 Bug Fixes History

This table lists the bugs fixed in this release.

Table 6 - Bug Fixes History

Internal Ref	Issue
965591	Description: Added support for Lustre.
	Keywords: Lustre
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
1038933	Description: Fixed a backport issue where IPv6 procedures were called while they were not supported in the underlying kernel.
	Keywords: iw_cm
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
1064722	Description: Added log debug prints when changing HW configuration via DCB. To enable log debug prints, run: <code>ethtool -s <devname> msglvl hw on/off</code>
	Keywords: DCB, msglvl
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
1022251	Description: Fixed SKB memory leak issue that was introduced in kernel 4.11, and added warning messages to the Soft RoCE driver for easy detection of future SKB leaks.
	Keywords: Soft RoCE
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
1044546	Description: Fixed the issue where a kernel crash used to occur when RXe device was coupled with a virtual (dummy) device.
	Keywords: Soft RoCE
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
1047617	Description: Fixed the issue where a race condition in the RoCE GID cache used to cause for the loss of IP-based GIDs.
	Keywords: RoCE, GID
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0

Table 6 - Bug Fixes History

Internal Ref	Issue
1006768	Description: Fixed the issue where an rdma_cm connection between a client and a server that were on the same host was not possible when working over VLAN interfaces.
	Keywords: RDMACM
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
801807	Description: Fixed an issue where RDMACM connection used to fail upon high connection rate accompanied with the error message: RDMA_CM_EVENT_UNREACHABLE.
	Keywords: RDMACM
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 4.1-1.0.2.0
869768	Description: Fixed the issue where SR-IOV was not supported in systems with a page size greater than 16KB.
	Keywords: SR-IOV, mlx5, PPC
	Discovered in Release: 4.0-2.0.0.1
	Fixed in Release: 4.1-1.0.2.0
919545	Description: Fixed the issue of when the Kernel becomes out of memory upon driver start, it could crash on SLES 12 SP2.
	Keywords: mlx_5 Eth Driver
	Discovered in Release: 3.4-2.0.0.0
	Fixed in Release: 4.0-2.0.0.1
864063	Description: Fixed the issue of when Spoof-check may have been turned on for MAC address 00:00:00:00:00:00
	Keywords: mlx4
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 4.0-2.0.0.1
869209	Description: Fixed an issue that caused TCP packets to be received in an out of order manner when Large Receive Offload (LRO) is on.
	Keywords: mlx5_en
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 4.0-2.0.0.1

Table 6 - Bug Fixes History

Internal Ref	Issue
890285	Description: Fixed the issue where memory allocation for CQ buffers used to fail when increasing the RX ring size.
	Keywords: mlx5_core
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 4.0-1.0.1.0
867094	Description: Fixed the issue where MLNX_EN used to fail to load on 4K page ARM architecture.
	Keywords: ARM
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 4.0-1.0.1.0
873538	Description: Fixed the issue where biosdavename running on Redhat 6.x with MLNX_EN may show the same name to ConnectX-3 Eth port 1 and ConnectX-3 Eth port 2.
	Keywords: biosdavename
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 3.4-2.0.0.0
876419	Description: Fixed the issue where kernel panic was observed on openibd stop as a result of querying non-existent bond slave.
	Keywords: mlx4_en
	Discovered in Release: 3.3-2.0.0.0
	Fixed in Release: 3.4-2.0.0.0
868665	Description: Fixed the issue where kernel panic in mlx4_en_get_phys_port_id may occur during server reboot.
	Keywords: mlx4_en
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-2.0.0.0
882227	Description: Fixed the issue of when EEH was injected and the mlx4 tear down code was called, the eqs were not released, causing a page fault.
	Keywords: mlx4_en
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 3.4-2.0.0.0
887348	Description: Fixed the issue of when prof_sel was invalid, mlx5_core failed upon debug print.
	Keywords: mlx5_core
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 3.4-2.0.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
898161	Description: Fixed the issue where a compilation error in kernels of v4.6 or above used to occur due to a large stack size in the <code>get_numa_phys_mask</code> function.
	Keywords: <code>mlx5_core</code>
	Discovered in Release: 3.4-1.0.0.0
	Fixed in Release: 3.4-2.0.0.0
854344	Description: Fixed the issue where <code>mlx_affinity</code> script on RHEL/CentOS7.x host did not disable or enable <code>irqbalancer</code> .
	Keywords: <code>irqbalancer</code>
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
824736	Description: Fixed wrong <code>skprio2UP</code> mapping by removing it and its scripts, such as <code>tc_wrap</code> , from the driver. This mapping should now be done using the kernel's <code>set_egress_map</code> commands. Note: Only for RDMACM over old kernels, the original <code>skprio2UP</code> mapping in <code>tc_wrap</code> remains valid as these kernels do not support <code>set_egress_map</code> .
	Keywords: QoS
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
826686	Description: Fixed the issue where server reboot could get stuck because of kernel panic in <code>mlx4_en_get_drvinfo()</code> that is called from asynchronous event handler.
	Keywords: <code>mlx4_en</code>
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
824130	Description: Fixed the issue where <code>ethtool</code> self test used to fail on interrupt test after timeout if <code>mlx4_ib</code> module was not loaded.
	Keywords: <code>mlx4_en</code>
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
786720	Description: Fixed a crash that used to occur when trying to bring the interface up in a kernel that did not support accelerated RFS (aRFS).
	Keywords: <code>mlx5 driver</code>
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3

Table 6 - Bug Fixes History

Internal Ref	Issue
781747	Description: Fixed the issue of when attempting to disable SR-IOV while there are any VF netdevs open, the operation would fail and the driver would hang.
	Keywords: SR-IOV
	Discovered in Release: 3.3-1.0.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
568602	Description: Fixed the issue of when repeating change of the <code>mlx5_num_vfs</code> value from 0 to non-zero might have caused kernel panic in the PF driver.
	Keywords: SR-IOV
	Discovered in Release: 3.0-2.0.0
	Fixed in Release: 3.4-1.0.0.03.4-1.0.0.3
748308	Description: Changed TX queue counter format to: <code>xq_[tc]*[ring/channel]</code> .
	Keywords: TX Queue Counter
	Discovered in Release: 3.2-2.0.0
	Fixed in Release: 3.3-1.0.0.0
751097	Description: Fixed RDMA sniffer functionality issues.
	Keywords: RDMA Sniffer
	Discovered in Release: 3.2-2.0.0
	Fixed in Release: 3.3-1.0.0.0
751096	Description: Fixed IPoIB Connected Mode in ConnectX-3 functionality issues.
	Keywords: IPoIB
	Discovered in Release: 3.2-2.0.0
	Fixed in Release: 3.3-1.0.0.0
769688	Description: Fixed the issue where in order to change the IPoIB mode (connected/datagram), the interface had to be taken down (via <code>ifconfig ibx down</code> or <code>ifdown ibx</code>). Now, the mode can be changed regardless of the interfaces state (up or down).
	Keywords: IPoIB
	Discovered in Release: 3.2-2.0.0
	Fixed in Release: 3.3-1.0.0.0
704756	Description: Added DCB PFC support through CEE netlink commands to prevent Priority Flow Control mode functionality issues on the host side.
	Keywords: <code>mlx4_en</code>
	Discovered in Release: 3.2-2.0.0
	Fixed in Release: 3.3-1.0.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
648680/655070	Description: Fixed an issue which added error messages to the dmesg when a VF used ethtool facilities.
	Keywords: SR-IOV
	Discovered in Release: 3.1-1.0.5
	Fixed in Release: 3.3-1.0.0.0
690772/690656	Description: Fixed an issue which caused any traffic from PF to any VF on the same port to drop when the physical link was down.
	Keywords: SR-IOV
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.3-1.0.0.0
708299	Description: Fixed kernels back-ports of XPS and affinity that did not have CONFIG_CPUMASK_OFFSTACK
	Keywords: mlx5 driver
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0
685082	Description: Added support for Rate Limit 0 to enable unlimited rate limiter and to prevent max rate zero traffic lose.
	Keywords: mlx5 driver
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0
667559	Description: Fixed an issue which enabled SR-IOV on RHEL 6.7 although SR-IOV was already enabled. A check was added to make sure SR-IOV is not enabled before enabling it.
	Keywords: SR-IOV
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0
682750	Description: Fixed race between the udev that changes the interface name of eth_i-poib driver and the eIPoIB daemon that configured the same interface.
	Keywords: eIPoIB
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.2-2.0.0.0
692520	Description: Fixed an issue which prevented ConnectX-4/ConnectX-4 Lx adapter cards from running Ethernet traffic on Big Endian arch machines.
	Keywords: Ethernet traffic
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
668346	Description: Set close NUMA node as default for RSS.
	Keywords: Performance
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0
696150	Description: Fixed an issue where the ARP request packets destined for a proxy VXLAN interface were not handled correctly when GRO was enabled.
	Keywords: mlx4_en
	Discovered in Release: 3.2-1.0.1.1
	Fixed in Release: 3.2-2.0.0.0
698795	Description: Fixed an issue which prevented the calculated software counters (the correct ones) from being shown and provided the error counters that were previously inactive.
	Keywords: Counters
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.2-2.0.0.0
597110	Description: Fixed an issue which prevented the driver from reaching VLAN when the VLAN was created over a Linux bridge.
	Keywords: Virtualization
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1
656298	Description: Fixed an issue in the driver (in ConnectX-4) that discarded s-tag VLAN packets when in Promiscuous Mode.
	Keywords: mlx5 driver
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1
647865	Description: Fixed an issue which prevented PORT_ERR event to be propagated to the user-space application when the port state was changed from Active to Initializing.
	Keywords: mlx5 driver
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.2-1.0.1.1
663975	Description: Fixed a rare issue which allowed the knem package to run depmod on the wrong kernel version.
	Keywords: HPC Acceleration packages
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1

Table 6 - Bug Fixes History

Internal Ref	Issue
666992	Description: Fixed a race condition in the IB/umad layer that caused NULL pointer dereference.
	Keywords: IB/Core
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.2-1.0.1.1
657718	Description: Fixed an IPoIB issue that caused connectivity lost after servers restart in a cluster.
	Keywords: IPoIB
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1
619272	Description: Fixed an issue causing MLNX_EN to remove the mutt package upon driver uninstall.
	Keywords: Driver un-installation
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1
613514	Description: Added a warning message in dmesg, notifying the user that the PFC RX/TX cannot be enabled simultaneously with Global Pauses. In this case Global Pauses will be disabled.
	Keywords: PFC
	Discovered in Release: 3.1-1.0.3
	Fixed in Release: 3.2-1.0.1.1
606916	Description: Fixed an issue causing MADs to drop in large scale clusters.
	Keywords: IB MAD
	Discovered in Release: 3.1-1.0.0
	Fixed in Release: 3.1-1.0.3
589247/591877	Description: Fixed VXLAN functionality issues.
	Keywords: Virtualization
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
-	Description: TCP/UDP latency on ConnectX-4 was higher than expected.
	Keywords: Performance
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
-	Description: TCP throughput on ConnectX-4 achieved full line rate.
	Keywords: Performance
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
568718	Description: Fixed an issue causing inconsistent performance with ConnectX-3 and PowerKVM 2.1.1.
	Keywords: Performance
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
552658	Description: Fixed ConnectX-4 traffic counters.
	Keywords: Performance
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
572068	Description: Updated the desired num_entries in each iteration, and accordingly updated the offset of the WC in the given WC array.
	Keywords: num_entries
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.1-1.0.0
536981/554293	Description: Fixed incorrect port rate and port speed values in RoCE mode in ConnectX-4.
	Keywords: mlx5 driver
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
551898	Description: In RedHat7.1 kernel 3.10.0-299, when sending ICMP/TCP/UDP traffic over Connect-IB/ConnectX-4 in UD mode, the packets were dropped with the following error: UDP: bad checksum...
	Keywords: IPoIB
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
596458	Description: Fixed an issue which prevented openibd from starting correctly during boot.
	Keywords: openibd
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
589207	Description: Added a new module parameter to control the number of IRQs allocated to the device.
	Keywords: Ethernet
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
576326	Description: Fixed an issue on PPC servers which prevented PCI from reloading after EEH error recovery.
	Keywords: mlx5 driver
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
568169	Description: Added the option to toggle LRO ON/OFF using the "-κ" flags. The priv flag hw_lro will determine the type of LRO to be used, if the flag is ON, the hardware LRO will be used, otherwise the software LRO will be used.
	Keywords: mlx5_en
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
568168	Description: Added the option to toggle LRO ON/OFF using the "-κ" flags.
	Keywords: mlx5_en
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
551075	Description: Fixed race when updating counters.
	Keywords: mlx5_en
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
550275	Description: Fixed scheduling while sending atomic dmesg warning during bonding configuration.
	Keywords: mlx5_en
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
550824	Description: Added set_rx_csum callback implementation.
	Keywords: mlx5_en
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
535884	Description: Fixed mismatch between SL and VL in outgoing QP1 packets, which caused buffer overruns in attached switches at high MAD rates.
	Keywords: mlx4_ib
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.1-1.0.0
542722	Description: Fixed a problem on VFs where the RoCE driver registered a zero MAC into the port's MAC table (during QP1 creation) because the ETH driver had not yet generated a non-zero random MAC for the ETH port.t
	Keywords: SR-IOV/RoCE
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 3.1-1.0.0
561866	Description: Removed BUG_ON assert when checking if the ring is full.
	Keywords:
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.1-1.0.0
541149	Description: Added libvma support for Debian 8.0 x86_64 and Ubuntu 15.04
	Keywords: libvma
	Discovered in Release: 3.0-2.0.1
	Fixed in Release: 3.1-1.0.0
-	Description: Fixed an issue which prevented the failure to destroy QP upon IPoIB unload on debug kernel.
	Keywords: IPoIB
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.0-2.0.0
-	Description: Fixed an issue which prevented the driver version to be reported to the Remote Access Controller tools (such as iDRAC)
	Keywords: Configuration
	Discovered in Release: 3.0-1.0.1
	Fixed in Release: 3.0-2.0.0
-	Description: Passed the correct port number in port-change event to single-port VFs, where the actual physical port used is port 2.
	Keywords: SR-IOV
	Discovered in Release: 2.4-1.0.0
	Fixed in Release: 3.0-2.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
-	<p>Description: Enabled OpenSM, running over a ConnectX-3 HCA, to manage a mixed ConnectX-3/ConnectX-4 network (by recognizing the "Well-known GID" in mad demux processing).</p> <p>Keywords: SR-IOV</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
-	<p>Description: Fixed double-free memory corruption in case where SR-IOV enabling failed (error flow).</p> <p>Keywords: SR-IOV</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
-	<p>Description: Fixed a crash in EQ's initialization error flow.</p> <p>Keywords: Start-up sequence</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
542686	<p>Description: In PPC systems, when working with ConnectX-4 adapter card configured as Ethernet, driver load fails with BAD INPUT LENGTH. dmesg: "command failed, status bad input length(0x50), syndrome 0x9074aa"</p> <p>Keywords: mlx5 driver</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
-	<p>Description: Error counters such as: CRC error counters, RX out range length error counter, are missing in the ConnectX-4 Ethernet driver.</p> <p>Keywords: mlx5 driver</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
-	<p>Description: Changing the RX queues number is not supported in Ethernet driver when connected to a ConnectX-4 card.</p> <p>Keywords: mlx5 driver</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>

Table 6 - Bug Fixes History

Internal Ref	Issue
-	<p>Description: Hardware checksum call trace may appear when receiving IPV6 traffic on PPC systems that uses CHECKSUM COMPLETE method.</p> <p>Keywords: Ethernet</p> <p>Discovered in Release: 3.0-1.0.1</p> <p>Fixed in Release: 3.0-2.0.0</p>
-	<p>Description: Fixed ping/traffic issue occurred when RXVLAN offload was disabled and CHECKSUM COMPLETE was used on ingress packets.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.4-1.0.4</p> <p>Fixed in Release: 3.0-1.0.1</p>
-	<p>Description: CVE-2014-8159 Fix: Prevented integer overflow in IB-core module during memory registration.</p> <p>Keywords: Security</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.4-1.0.4</p>
-	<p>Description: Fixed the return value of max inline received size in the created QP.</p> <p>Keywords: mlx5_ib</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>
-	<p>Description: Resolved soft lock on massive amount of user memory registrations</p> <p>Keywords: mlx5_ib</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>
-	<p>Description: LRO fixes and improvements for jumbo MTU.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>
-	<p>Description: Fixed a crash occurred when changing the number of rings (ethtool set-channels) when interface connected to netconsole.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.2-1.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>

Table 6 - Bug Fixes History

Internal Ref	Issue
-	<p>Description: Fixed ping issues with IP fragmented datagrams in MTUs 1600-1700.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.2-1.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>
-	<p>Description: The default priority to TC mapping assigns all priorities to TC0. This configuration achieves fairness in transmission between priorities but may cause undesirable PFC behavior where pause request for priority n affects all other priorities.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.3-1.0.1</p> <p>Fixed in Release: 2.4-1.0.0</p>
-	<p>Description: Fixed an issue related to large memory regions registration. The problem mainly occurred on PPC systems due to the large page size, and on non PPC systems with large pages (contiguous pages).</p> <p>Keywords: mlx5_ib</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.3-2.0.5</p>
-	<p>Description: Fixed an issue in verbs API: fallback to glibc on contiguous memory allocation failure</p> <p>Keywords: mlx5_ib</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.3-2.0.5</p>
-	<p>Description: Fixed a memory corruption issue in multi-core system due to intensive IPoIB transmit operation.</p> <p>Keywords: IPoIB</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.3-2.0.5</p>
-	<p>Description: Fixed an issue to prevent process starvation due to MAD packet storm.</p> <p>Keywords: IB MAD</p> <p>Discovered in Release: 2.3-2.0.1</p> <p>Fixed in Release: 2.3-2.0.5</p>
433348	<p>Description: Fixed an issue which prevented the spread of events among the closet NUMA CPU when only a single RX queue existed in the system.</p> <p>Keywords: IPoIB</p> <p>Discovered in Release: 2.3-1.0.1</p> <p>Fixed in Release: 2.3-2.0.0</p>

Table 6 - Bug Fixes History

Internal Ref	Issue
-	Description: Returned the CQ to its original state (armed) to prevent traffic from stopping
	Keywords: IPoIB
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed a TX timeout issue in CM mode, which occurred under heavy stress combined with ifup/ifdown operation on the IPoIB interface.
	Keywords: IPoIB
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed "sleeping while atomic" error occurred when the driver ran many firmware commands simultaneously.
	Keywords: mlx4_core
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed an issue related to spreading of completion queues among multiple MSI-X vectors to allow better utilization of multiple cores.
	Keywords: mlx4_ib
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed an issue that caused an application to fail when attaching Shared Memory.
	Keywords: mlx4_ib
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed dmesg warnings: "NOHZ: local_softirq_pending 08".
	Keywords: mlx4_en
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed erratic report of hardware clock which caused bad report of PTP hardware Time Stamping.
	Keywords: mlx4_en
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.3-2.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
-	Description: Fixed race when async events arrived during driver load.
	Keywords: mlx5_core
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed race in mlx5_eq_int when events arrived before eq->dev was set.
	Keywords: mlx5_core
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Enabled all pending interrupt handlers completion before freeing EQ memory.
	Keywords: mlx5_core
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Defined mlnx.conf as a configuration file in mlnx-ofa_kernel RPM
	Keywords: mlnx.conf
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed counter index allocation for VFs which enables Ethernet port statistics.
	Keywords: SR-IOV
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: Fixed iSER DIX sporadic false DIF errors caused in large transfers when block merges were enabled.
	Keywords: iSER
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0
-	Description: RoCE v2 was non-functional on big Endian machines.
	Keywords: RoCE v2
	Discovered in Release: 2.3-1.0.1
	Fixed in Release: 2.3-2.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
-	<p>Description: Fixed registration memory failure when fork was enabled and contiguous pages or ODP were used.</p> <p>Keywords: Verbs</p> <p>Discovered in Release: 2.3-1.0.1</p> <p>Fixed in Release: 2.3-2.0.0</p>
-	<p>Description: Using both '-c --config' and '--add-kernel-support' flags simultaneously when running the mlnxofedinstall.sh script caused installation failure with the following on screen message "--config does not exist".</p> <p>Keywords: Installation</p> <p>Discovered in Release: 2.2-1.0.1</p> <p>Fixed in Release: 2.3-2.0.0</p>
-	<p>Description: XRC over ROCE in SR-IOV mode is not functional</p> <p>Keywords: XRC</p> <p>Discovered in Release: 2.0-3.1.0</p> <p>Fixed in Release: 2.2-1.0.1</p>
-	<p>Description: Fixed wrong calculation of packet true-size reporting in LRO flow.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.1-1.0.0</p> <p>Fixed in Release: 2.2-1.0.1</p>
-	<p>Description: Fixed kernel panic on Debian-6.0.7 which occurred when the number of TX channels was set above the default value.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.1-1.0.0</p> <p>Fixed in Release: 2.2-1.0.1</p>
-	<p>Description: Fixed a crash incidence which occurred when enabling Ethernet Time-stamping and running VLAN traffic.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.2-1.0.1</p>
-	<p>Description: Fixed the QP attribute mask upon smac resolving</p> <p>Keywords: IB Core</p> <p>Discovered in Release: 2.1-1.0.0</p> <p>Fixed in Release: 2.1-1.0.6</p>

Table 6 - Bug Fixes History

Internal Ref	Issue
-	Description: Fixed a send WQE overhead issue
	Keywords: mlx5_ib
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.1-1.0.6
-	Description: Fixed a NULL pointer de-reference on the debug print
	Keywords: mlx5_ib
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.1-1.0.6
-	Description: Fixed arguments to kzalloc
	Keywords: mlx5_ib
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.1-1.0.6
-	Description: Fixed the locks around completion handler
	Keywords: mlx4_core
	Discovered in Release: 2.1-1.0.0
	Fixed in Release: 2.1-1.0.6
-	Description: Restored port types as they were when recovering from an internal error.
	Keywords: mlx4_core
	Discovered in Release: 2.0-2.0.5
	Fixed in Release: 2.1-1.0.0
-	Description: Added an N/A port type to support port_type_array module param in an HCA with a single port
	Keywords: mlx4_core
	Discovered in Release: 2.0-2.0.5
	Fixed in Release: 2.1-1.0.0
-	Description: Fixed memory leak in SR-IOV flow.
	Keywords: SR-IOV
	Discovered in Release: 2.0-2.0.5
	Fixed in Release: 2.0-3.0.0
-	Description: Fixed communication channel being stuck
	Keywords: SR-IOV
	Discovered in Release: 2.0-2.0.5
	Fixed in Release: 2.0-3.0.0

Table 6 - Bug Fixes History

Internal Ref	Issue
-	<p>Description: Fixed ALB bonding mode failure when enslaving Mellanox interfaces</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-3.0.0</p> <p>Fixed in Release: 2.1-1.0.0</p>
-	<p>Description: Fixed leak of mapped memory</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-3.0.0</p> <p>Fixed in Release: 2.1-1.0.0</p>
-	<p>Description: Fixed TX timeout in Ethernet driver.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>
-	<p>Description: Fixed ethtool stats report for Virtual Functions.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>
-	<p>Description: Fixed an issue of VLAN traffic over Virtual Machine in paravirtualized mode.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>
-	<p>Description: Fixed ethtool operation crash while interface down.</p> <p>Keywords: mlx4_en</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>
-	<p>Description: Fixed memory leak in Connected mode.</p> <p>Keywords: IPoIB</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>
-	<p>Description: Fixed an issue causing IPoIB to avoid pkey value 0 for child interfaces.</p> <p>Keywords: IPoIB</p> <p>Discovered in Release: 2.0-2.0.5</p> <p>Fixed in Release: 2.0-3.0.0</p>

5 Change Log History

Table 7 - Change Log History

Category	Description
4.0-2.0.0.1	
PCIe Error Counting	[ConnectX-4/ConnectX-4 Lx] Added the ability to expose physical layer statistical counters to ethtool.
Standard ethtool	[ConnectX-4/ConnectX-4 Lx] Added support for flow steering and rx-all mode.
SR-IOV Bandwidth Share for Ethernet/RoCE (beta)	[ConnectX-4/ConnectX-4 Lx] Added the ability to guarantee the minimum rate of a certain VF in SR-IOV mode.
Adapter Cards	Added support for ConnectX-5 and ConnectX-5 Ex HCAs.
NFS over RDMA (NFSv4)	Removed support for NFSv4 drivers. These drivers are no longer provided along with the MLNX_EN package.
3.4-1.0.0.3	
Installation	[ConnectX@-3/ConnectX@-3 Pro/ConnectX@-4/ConnectX@-4 Lx] Installation script was renamed from <code>install.sh</code> to <code>install</code> .
	[ConnectX@-3/ConnectX@-3 Pro/ConnectX@-4/ConnectX@-4 Lx] The package is now shipped with pre-built binary RPMs per OS distribution. By default, the package will install drivers supporting Ethernet only. In addition, the package will include the following new installation options: <ul style="list-style-type: none"> • Full VMA support which can be installed using the installation option “<code>--vma</code>”. • Infrastructure to run DPDK using the installation option “<code>--dpdk</code>”. Notes: <ul style="list-style-type: none"> • DPDK itself is not included in the package. Users would still need to install DPDK separately after the MLNX_EN installation is completed. • RoCE support can be enabled by installing the VMA package. For further information, please refer to the Installation section in the User Manual.
	The package can be set as a local yum/apt-get repository. Refer to the User Manual for the updated installation instructions.
3.4-1.0.0.0	
VST Q-in-Q	[ConnectX@-3/ConnectX@-3 Pro] Added support for Q-in-Q encapsulation per VF in Linux (VST) for ConnectX-3 Pro adapter cards.
Package Content	[ConnectX@-3/ConnectX@-3 Pro] SR-IOV enabled firmware binaries for ConnectX-3 has been removed from MLNX_EN package (the installation flag “ <code>--enable-sriov</code> ” has been deprecated). To configure SR-IOV, please use the “ <code>mlxconfig</code> ” or “ <code>mstconfig</code> ” utilities.

Table 7 - Change Log History

Category	Description
Enhanced PCIe Error Recovery	<p>[ConnectX®-4/ConnectX®-4 Lx] Enhanced PCIe error recovery by adding the following behaviors to the flow:</p> <ul style="list-style-type: none"> • In case SR-IOV is enabled during the recovery process, it will not get automatically disabled and will require the administrator that enabled it to disable it. • When the driver goes down, VF PCI function will not be removed. • Ethernet interface attributes (MTU, state, ring size, etc...) will be recovered after the error recovery stage is completed. • The net device kernel layer will not be aware of any ongoing PCI error recovery process.
SR-IOV Max Rate Limit Ethernet/RoCE (beta level)	[ConnectX®-4/ConnectX®-4 Lx] Added the ability to rate-limit traffic per Virtual Function in SR-IOV mode.
Dynamically tuned Interrupt Moderation (DIM)	[ConnectX®-4/ConnectX®-4 Lx] Added support for dynamically controlling the interrupts per channel to ensure maximum packet rate with minimum interrupt rate. This feature is enabled by default.
Dump Configuration	[ConnectX®-4/ConnectX®-4 Lx] Added support for dump configuration which helps dumping driver and firmware configuration using ethtool. It creates a backup of the configuration files into a specified dump file.
Ethernet Counters	[ConnectX®-4/ConnectX®-4 Lx] Updated the list of counters the can be retrieved via ethtool for mlx5 driver, changed counters names and added new counters.
3.3-1.0.0.0	
VF MAC Address Anti-Spoofing	[ConnectX-4/ConnectX-4 Lx] Also known as MAC spoof-check, the VF MAC Address Anti-Spoofing prevents malicious VFs from faking their MAC addresses.
VF All-multi Mode	[ConnectX-4/ConnectX-4 Lx] Added support for the VF to enter all-multi RX mode, meaning that in addition to the traffic originally targeted to the VF, it will receive all the multicast traffic sent from/to the other functions on the same physical port. Note: Only privileged/trusted VFs can enter the all-multi RX mode.
VF Promiscuous Mode	[ConnectX-4/ConnectX-4 Lx] Added support for the VF to enter promiscuous RX mode, meaning that in addition to the traffic originally targeted to the VF, it will receive the unmatched traffic and all the multicast traffic that reaches the physical port. The unmatched traffic is any traffic's DMAC that does not match any of the VFs' or PFs' MAC addresses. Note: Only privileged/trusted VFs can enter the promiscuous RX mode.
Privileged VF	[ConnectX-4/ConnectX-4 Lx] Added support for determining privileged/trusted VFs so security sensitive features can be enabled for these VFs, such as entering promiscuous and all-multi RX modes.
DCBX	[ConnectX-4/ConnectX-4 Lx] Added support for standard DCBX CEE API.
Per Priority Counters	[ConnectX-4/ConnectX-4 Lx] Exposed performance counters per priority.

Table 7 - Change Log History

Category	Description
Accelerated Receive Flow Steering (aRFS)	[ConnectX-4/ConnectX-4 Lx] Boosts the speed of RFS by adding hardware assistance. RFS is an in-kernel-logic responsible for load balancing between CPUs by attaching flows to CPUs that are used by flow's owner applications.
Packet Pacing for UDP/TCP	[ConnectX-4/ConnectX-4 Lx] Performs rate limit per UDP/TCP connection.
OFED Scripts	Renamed the UP name that appears in mlnx_perf report to "TC", as the mlnx_perf script counts the packets and calculates the bandwidth on rings that belong to the same Traffic Class (TC).
3.2-1.0.1.1	
VXLAN Hardware Stateless Offloads	[ConnectX-4 / ConnectX-4 Lx] Provides scalability and security challenges solutions.
Priority Flow Control (PFC)	[ConnectX-4 / ConnectX-4 Lx] Applies pause functionality to specific classes of traffic on the Ethernet link.
Offloaded Traffic Sniffer/TCP Dump	[ConnectX-4 / ConnectX-4 Lx] Allows bypass kernel traffic (such as, RoCE, VMA, DPDK) to be captured by existing packet analyzer such as tcpdump.
Ethernet Time Stamping	[ConnectX-4 / ConnectX-4 Lx] Keeps track of the creation of a packet. A time-stamping service supports assertions of proof that a datum existed before a particular time.
LED Beaconing	[ConnectX-4 / ConnectX-4 Lx] Enables visual identification of the port by LED blinking.
Enhanced Transmission Selection standard (ETS)	[ConnectX-4 / ConnectX-4 Lx] Exploits the time periods in which the offered load of a particular Traffic Class (TC) is less than its minimum allocated bandwidth.
Virtual Guest Tagging (VGT+)	[ConnectX-3 / ConnectX-3 Pro] VGT+ is an advanced mode of Virtual Guest Tagging (VGT), in which a VF is allowed to tag its own packets as in VGT, but is still subject to an administrative VLAN trunk policy.
3.1-1.0.4	
Wake-on-LAN (WOL)	Wake-on-LAN (WOL) is a technology that allows a network professional to remotely power on a computer or to wake it up from sleep mode.
Hardware Accelerated 802.1ad VLAN (Q-in-Q Tunneling)	Q-in-Q tunneling allows the user to create a Layer 2 Ethernet connection between two servers. The user can segregate a different VLAN traffic on a link or bundle different VLANs into a single VLAN.
ConnectX-4 ECN	ECN in ConnectX-4 enables end-to-end congestions notifications between two end-points when a congestion occurs, and works over Layer 3.
Minimal Bandwidth Guarantee (ETS)	The amount of bandwidth (BW) left on the wire may be split among other TCs according to a minimal guarantee policy.
SR-IOV Ethernet	SR-IOV Ethernet at Beta level
3.0-1.0.1	
NICs	Added support for ConnectX®-4 Single/Dual-Port Adapter supporting up to 100Gb/s.

Table 7 - Change Log History

Category	Description
Ignore Frame Check Sequence (FCS) Errors	Upon receiving packets, the packets go through a checksum validation process for the FCS field. If the validation fails, the received packets are dropped. Using this feature, enables you to choose whether or not to drop the frames in case the FCS is wrong and use the FCS field for other info.
Ethtool	Updated ethtool to incorporate ConnectX®-4 adapter card functionalities.
2.3-2.0.1	
Bug Fixes	See “Bug Fixes History” on page 42.
Reset Flow	Added support for Enhanced Error Handling for PCI (EEH), a recovery strategy for I/O errors that occur on the PCI bus.
2.3-1.0.0	
Ethernet	Added support for arbitrary UDP port for VXLAN. From upstream 3.15-rc1 and onward, it is possible to use arbitrary UDP port for VXLAN. This feature requires firmware version 2.32.5100 or higher. Additionally, the following kernel configuration option <code>CONFIG_MLX4_EN_VXLAN=y</code> must be enabled.
	MLNX_EN no longer changes the OS sysctl TCP parameters.
2.2-1.0.1	
Reset Flow	Reset Flow is not activated by default. It is controlled by the <code>mlx4_core'internal_err_reset'</code> module parameter.
Ethernet	Ethernet VXLAN support for kernels 3.12.10 or higher
	Power Management Quality of Service: when the traffic is active, the Power Management QoS is enabled by disabling the CPU states for maximum performance.
	Ethernet PTP Hardware Clock support on kernels/OSes that support it
Performance	Out of the box performance improvements: <ul style="list-style-type: none"> • Use of affinity hints (based on NUMA node of the device) to indicate the IRQ balancer daemon on the optimal IRQ affinity • Improvement in buffers allocation schema (based on the hint above) • Improvement in the adaptive interrupt moderation algorithm
2.0-3.0.0	
Operating Systems	Additional OS support: <ul style="list-style-type: none"> • SLES11SP3 • Fedora16, Fedora17
Hardware	Added ConnectX®-3 Pro support
1.5.10	
General	See Section 4, “Bug Fixes History”, on page 42.
1.5.9	
Operating Systems	Added support for kernel.org 3.5

Table 7 - Change Log History

Category	Description
Performance	Improved latency by optimizing RX repost mechanism
1.5.8.3	
Operating Systems	Added support for RHEL6.3
1.5.8.2	
Operating Systems	Added support for new kernels: 3.1, 3.2, 3.3
1.5.8.2	
Performance	Moved to interrupt mode to handle TX completions
	Added IRQ affinity control scripts (please see README file for more details)
	Optimized Numa aware memory allocations
	Optimized interrupt usage for TX/RX completions
Installation	Added KMP compliant installation process
Linux Tools	Added support for Ethtool
1.5.7.2	
Operating Systems	Added support for new OS's:
	RHEL6.2
	RHEL5.8
	SLES11SP2
Performance	Added recording RX queue for GRO packets
	Added the usage of Toeplitz hash function for RSS calculation
Reports/Statistics	Enabled RXHASH report on supported systems
1.5.7	
Operating Systems	Added support for new OS's:
	RHEL6.1
	RHEL5.5
	RHEL5.7
	kernel.org (2.6.37, 2.6.38, 2.6.39, 3.0)
	RHEL6.1 KVM

Table 7 - Change Log History

Category	Description
Performance	Improved performance on PPC systems (Using GRO where LRO is not efficient)
	Added IPv6 support to LRO
	Incremented number of TX and RX queues
	Enabled NAPI usage at any given time
	Enabled TX completions spread among multiple MSI-X vectors
	Improved small packets packet rate
	Added 40GigE support (including Ethtool report)
	Added NUMA support
	Added general performance improvements
1.5.6	
Operating Systems	Added support for new OS's:
	RHEL6.0
	RHEL5.6
	SLES11SP1
	kernel.org (2.6.35, 2.6.36)
Performance	Added blue flame support for kernels > 2.6.28 (improves TX latency by 0.4 usec)
	Added RX acceleration feature that supports recvmmsg and recvmmsg system calls. See MLNX_EN_Linux_README for further details.
	Added option to use interrupts for TX completion (polling is the default)
	Added option to disable NAPI (enabled by default)
	Added support for control number of RX rings from module parameter
	Added interrupt vector per each RX ring. See /proc/interrupts
	Adaptive moderation improvements
	Added system tuning option to achieve better performance (idle loop polling)
Linux Tools	Added hardware revision report via Ethtool
Multicast Filtering	Added exact match multicast filtering
Driver Load	Link is brought up upon driver load
1.5.1.3	
Operating Systems	Added support for new OS's:
	RHEL5.5
	kernel.org (2.6.16 - 2.6.32)
Performance	Added UDP RSS support (on ConnectX-2 HW only)
	Improved VLAN tagging performance
Linux Tools	Ethtool -e support