



Mellanox Innova™ IPsec 4 Lx Ethernet Adapter Card Software and Firmware Bundle Release Notes

Rev 17.01.00



NOTE:

THIS HARDWARE, SOFTWARE OR TEST SUITE PRODUCT ("PRODUCT(S)") AND ITS RELATED DOCUMENTATION ARE PROVIDED BY MELLANOX TECHNOLOGIES "ASIS" WITH ALL FAULTS OF ANY KIND AND SOLELY FOR THE PURPOSE OF AIDING THE CUSTOMER IN TESTING APPLICATIONS THAT USE THE PRODUCTS IN DESIGNATED SOLUTIONS. THE CUSTOMER'S MANUFACTURING TEST ENVIRONMENT HAS NOT MET THE STANDARDS SET BY MELLANOX TECHNOLOGIES TO FULLY QUALIFY THE PRODUCT(S) AND/OR THE SYSTEM USING IT. THEREFORE, MELLANOX TECHNOLOGIES CANNOT AND DOES NOT GUARANTEE OR WARRANT THAT THE PRODUCTS WILL OPERATE WITH THE HIGHEST QUALITY. ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT ARE DISCLAIMED. IN NO EVENT SHALL MELLANOX BE LIABLE TO CUSTOMER OR ANY THIRD PARTIES FOR ANY DIRECT, INDIRECT, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING, BUT NOT LIMITED TO, PAYMENT FOR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY FROM THE USE OF THE PRODUCT(S) AND RELATED DOCUMENTATION EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.



Mellanox Technologies
350 Oakmead Parkway Suite 100
Sunnyvale, CA 94085
U.S.A.
www.mellanox.com
Tel: (408) 970-3400
Fax: (408) 970-3403

© Copyright 2017. Mellanox Technologies Ltd. All Rights Reserved.

Mellanox®, Mellanox logo, Accelio®, BridgeX®, CloudX logo, CompustorX®, Connect-IB®, ConnectX®, CoolBox®, CORE-Direct®, EZchip®, EZchip logo, EZappliance®, EZdesign®, EZdriver®, EZsystem®, GPUDirect®, InfiniHost®, InfiniBridge®, InfiniScale®, Kotura®, Kotura logo, Mellanox CloudRack®, Mellanox CloudXMellanox®, Mellanox Federal Systems®, Mellanox HostDirect®, Mellanox Multi-Host®, Mellanox Open Ethernet®, Mellanox OpenCloud®, Mellanox OpenCloud Logo®, Mellanox PeerDirect®, Mellanox ScalableHPC®, Mellanox StorageX®, Mellanox TuneX®, Mellanox Connect Accelerate Outperform logo, Mellanox Virtual Modular Switch®, MetroDX®, MetroX®, MLNX-OS®, NP-1c®, NP-2®, NP-3®, Open Ethernet logo, PhyX®, PlatformX®, PSIPHY®, SiPhy®, StoreX®, SwitchX®, Tiler®, Tiler logo, TestX®, TuneX®, The Generation of Open Ethernet logo, UFM®, Unbreakable Link®, Virtual Protocol Interconnect®, Voltaire® and Voltaire logo are registered trademarks of Mellanox Technologies, Ltd.

All other trademarks are property of their respective owners.

For the most updated list of Mellanox trademarks, visit <http://www.mellanox.com/page/trademarks>

Release Update History

Release	Date	Description
17.01.00	January 31, 2017	<ul style="list-style-type: none"> Updated Section 1.1, “Contents of Innova IPsec Bundle,” on page 4 Updated Chapter 3, “Known Issues” on page 6 Updated Chapter 4, “Bug Fixes History” on page 8
December Bundle	January 05, 2016	<ul style="list-style-type: none"> Updated Section 1.1, “Contents of Innova IPsec Bundle,” on page 4 Added Section 1.1.5, “Scripts,” on page 4 Updated Chapter 2, “Changes and New Features History” on page 5 Updated Chapter 3, “Known Issues” on page 6 Updated Chapter 4, “Bug Fixes History” on page 8
Beta 10GbE and 40GbE	September 29, 2016	<ul style="list-style-type: none"> Updated Section 1.1, “Contents of Innova IPsec Bundle,” on page 4 Updated Chapter 3, “Known Issues” on page 6 Added Chapter 4, “Bug Fixes History” on page 8
Alpha 10GbE and 40GbE	August 31, 2016	Removed “Mellanox OFED Version”
Alpha 10GbE and 40GbE	July 21, 2016	First Release

1 Overview

These are the release notes for Rev 17.01.00 of Innova IPsec 4 Lx EN Adapter Card Bundle. Please refer to [Section 1.1, “Contents of Innova IPsec Bundle,” on page 4](#) for the list of supported software, firmware and firmware tools versions.

1.1 Contents of Innova IPsec Bundle

Content	Description
FPGA Image Version	<ul style="list-style-type: none"> 1161 - 10GbE 1160 - 40GbE
Firmware Version	14.18.0354
MFT Version ^a	mft-4.6.0-48 - 10GbE/40GbE
Driver/Kernel Components	<ul style="list-style-type: none"> kernel-4.9.0_rc6_37cc319_2017_01_22_16_06_10-1.x86_64.rpm kernel-devel-4.9.0_rc6_37cc319_2017_01_22_16_06_10-1.x86_64.rpm iproute2-4.9.0rc6_ipsec_offload-1.x86_64.
Scripts	<ul style="list-style-type: none"> xfrm-offload-transport.sh xfrm-offload-tunnel.sh

a. For MFT release notes, please refer to http://www.mellanox.com/page/management_tools.

1.2 Supported Platforms/Operating Systems

Operating System	Platform
RHEL 7.1	x86_64
RHEL 7.2	x86_64
Kernels	4.9.0

2 Changes and New Features History

Table 1 - Changes and New Features History

Feature/Change	Description
Rev 17.01.00	
Global Flow Control	Priority Flow Control (PFC) IEEE 802.1Qbb applies pause functionality to specific classes of traffic on the Ethernet link. For example, PFC can provide lossless service for the RoCE traffic and best-effort service for the standard Ethernet traffic. PFC can provide different levels of service to specific classes of Ethernet traffic (using IEEE 802.1p traffic classes).
Bug Fixes	See Section 4, “Bug Fixes History,” on page 8
December Bundle	
Mode	Transport Mode
Bug Fixes	See Section 4, “Bug Fixes History,” on page 8
Beta 10GbE and 40GbE	
Bug Fixes	See Section 4, “Bug Fixes History,” on page 8
Alpha 10GbE and 40GbE	
Security protocols	ESP over IPv4
Mode	Tunnel Mode
Cryptographic algorithms	AES-GCM 128/256-bit key, and 128-bit ICV

3 Known Issues

The following table describes known issues in this bundle release and possible workarounds. For list of known issues for ConnectX-4 Lx firmware, please refer to http://www.mellanox.com/page/firmware_table_ConnectX4LxEN.

Table 2 - Known Issues (Sheet 1 of 2)

Internal Ref.	Issue
-	<p>Description: This bundle is binary-incompatible with all previous bundles.</p> <p>Workaround: When upgrading to this bundle, the FPGA image must be updated first and all other components (kernel, tools and FW) upgraded immediately after.</p> <p>Keywords: Bundle, binary-incompatible, FPGA image</p>
-	<p>Description: Installing the current OFED package available on http://www.mellanox.com overrides the drivers in the kernel installation, thus losing capabilities of the IPsec offload solution.</p> <p>Workaround: N/A</p> <p>Keywords: OFED, IPsec offload</p>
869558	<p>Description: Driver cannot be unloaded when there are offloaded security associations (SAs) configured.</p> <p>Workaround: Before unloading the mlx_ipsec driver, all SAs must be flushed. For example: "ip x s f && ip x p f".</p> <p>Keywords: SAs, mlx_ipsec driver</p>
-	<p>Description: Packet Size (Actual Packet MTU) Limitation: The current offload implementation does not support IP fragmentation. The original packet size should be such that it does not exceed the interface's MTU size after the ESP transformation (encryption of the original IP packet which increases its length) and the headers (outer IP header) are added:</p> <ul style="list-style-type: none"> • Inner IP packet size \leq I/F MTU - ESP additions (20) - outer_IP (20) - fragmentation issue reserved length (56) • Inner IP packet size \leq I/F MTU - 96 <p>This mostly affects forwarded traffic into smaller MTU as well as UDP traffic. TCP does PMTU discovery by default and clamps the MSS accordingly.</p> <p>Workaround: N/A</p> <p>Keywords: MTU, limitation</p>
-	<p>Description: No LLC/SNAP support.</p> <p>Workaround: N/A</p> <p>Keywords: LLC/SNAP</p>
-	<p>Description: No support for FEC. When using switches, there may be a need to change its configuration.</p> <p>Workaround: N/A</p> <p>Keywords: FEC</p>
-	<p>Description: Configuring IPsec offloaded SA over VLAN is not supported.</p> <p>Workaround: N/A</p> <p>Keywords: VLAN</p>

Table 2 - Known Issues (Sheet 2 of 2)

Internal Ref.	Issue
-	Description: UDP fragmentation does not work over an IPsec SA if esp4_offload module is loaded, regardless if offload is being used or not.
	Workaround: N/A
	Keywords: UDP
-	Description: FPGA user temperature thresholds do not return to default after FPGA reset.
	Workaround: N/A
	Keywords: FPGA reset, temperature
913720	Description: Wrong port speed rate when running ibstat.
	Workaround: N/A
	Keywords: ibstat
928143	Description: DUP occurs during firmware reset.
	Workaround: N/A
	Keywords: DUP
955929	Description: Heavy traffic may cause SYN flooding.
	Workaround: N/A
	Keywords: SYN flooding
959009	Description: After power cycle, loss of packets may accrue in 10GbE image.
	Workaround: N/A
	Keywords: Packet loss
-	Description: Priority Based Flow Control is not supported
	Workaround: N/A
	Keywords: Priority Based Flow Control

4 Bug Fixes History

The following table describes bug fixes in this bundle release. For list of bug fixes for ConnectX-4 Lx firmware, please refer to http://www.mellanox.com/page/firmware_table_ConnectX-4LxEN.

Table 3 - Bug Fixes History (Sheet 1 of 2)

Internal Ref.	Issue
-	<p>Description: Driver no longer causes errors when attempting to configure incompatible off-loaded XFRM.</p> <p>Keywords: Driver, XFRM</p> <p>Discovered in Release: Alpha 10GbE and 40GbE</p> <p>Fixed in Release: Beta 10GbE and 40GbE</p>
-	<p>Description: Added GSO support for offload.</p> <p>Keywords: GSO</p> <p>Discovered in Release: Alpha 10GbE and 40GbE</p> <p>Fixed in Release: Beta 10GbE and 40GbE</p>
-	<p>Description: FPGA load operation no longer causes the RDMA FPGA device to fail.</p> <p>Keywords: RDMA, load</p> <p>Discovered in Release: Alpha 10GbE and 40GbE</p> <p>Fixed in Release: December Bundle</p>
-	<p>Description: Added support of optical modules for 10GbE and 40GbE.</p> <p>Keywords: Optical modules</p> <p>Discovered in Release: Beta 10GbE and 40GbE</p> <p>Fixed in Release: December Bundle</p>
-	<p>Description: The link no longer encounters stability issues after burning 10GbE image using <code>mlx_fpga</code> tool.</p> <p>Keywords: Link, 10GbE</p> <p>Discovered in Release: December Bundle</p> <p>Fixed in Release: 17.01.00 Bundle</p>
-	<p>Description: Image loading or resetting no longer results in “FPGA error while loading” messages.</p> <p>Keywords: Error messages</p> <p>Discovered in Release: Beta 10GbE and 40GbE</p> <p>Fixed in Release: December Bundle</p>
-	<p>Description: Green/Amber LED no longer blinks when cable is unplugged.</p> <p>Keywords: LED</p> <p>Discovered in Release: Beta 10GbE and 40GbE</p> <p>Fixed in Release: 17.01.00 Bundle</p>

Table 3 - Bug Fixes History (Sheet 2 of 2)

Internal Ref.	Issue
-	Description: Added support of LR4 modules for 10GbE and 40GbE.
	Keywords: LR4
	Discovered in Release: December Bundle
	Fixed in Release: Rev 17.01.00 Bundle
-	Description: Automatically loading esp4_offload is supported.
	Keywords: esp4_offload
	Discovered in Release: December Bundle
	Fixed in Release: Rev 17.01.00 Bundle
-	Description: The following errors no longer occur during FPGA reset: <ul style="list-style-type: none"> • Error code 16 • Error code 107 • Internal link error • Syndrome 0x828381
	Keywords: FPGA reset, errors
	Discovered in Release: December Bundle
	Fixed in Release: Rev 17.01.00 Bundle