

## **NVM Downgrade Using the Intel<sup>®</sup>** Ethernet NVM Update Tool

Quick Usage Guide for Microsoft<sup>®</sup> Windows

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## **Revision History**

Revision	Date	Comments
1.0	July 21, 2016	Initial release (Intel Public).



## **1.0** Introduction

This document demonstrates a special use case for the Intel<sup>®</sup> Ethernet NVM Update Tool (NVM Update Tool), the downgrade of an adapter NVM to a previous release version. It is a guide to servicing NVM images, firmware, and drivers of the Intel<sup>®</sup> Ethernet Controller X710/XL710 by customers and service technicians in the field.

**Note:** The information in this document is for experienced system administrators who are familiar with server, network, and data center concepts and technologies.

## 2.0 Downgrade Flow

While NVM upgrades and downgrades use the same tool set, the order of operations is reversed. The downgrade tool is executed first, followed by installation of the matched drivers.

The NVM Update Tool has a built-in integrity check that ensures only Intel-approved firmware updates on the Intel<sup>®</sup> X710/XL710 devices. Integrity validation of NVM updates is provided by a digital signature. NVM updates are validated prior to invalidating the old NVM configuration, so the old NVM and the configuration are still usable should the update fail.

- **Note:** Changing the NVM (with the NVM Update Package) and driver does not update the Option ROM. Intel recommends an Option ROM update after the NVM and driver are updated. Refer to the User Guides for Intel<sup>®</sup> Ethernet Adapters page for the most current Option ROM update process version.
- **Note:** When running SR-IOV, it is recommended that all Virtual Functions be disabled prior to the NVM Update process.

## **3.0 Obtaining Downgrade Images**

The Intel Download Center (X710 or XL710) is Intel's repository for software and drivers for Intel products. The Downgrade Packages for X710 and XL710 NVMs are located at:

https://downloadcenter.intel.com/download/26102

Use the Software/NVM matrix at the URL above to ensure firmware image and driver compatibility. This document is continuously maintained and always up-to-date.



# 4.0 Verifying Driver, Image Version, and Package Inventory

The Microsoft<sup>®</sup> Windows version of the NVM Update Tool and network drivers can be downloaded from the Intel Download Center (see the URL in Section 3.0 to ensure the correct NVM and driver files have been selected). Successful NVM downgrades involve execution of the NVM Update Tool (configured specifically to downgrade instead of upgrade) followed by installation of the matched previously released software package.

There are multiple ways to verify the system's current network driver and NVM image on Windows OS in both GUI and PowerShell. This paper shows procedures for both.

#### **GUI Procedure**

To verify the network driver and NVM image in GUI:

1. Navigate to the network adapter's properties. Within the adapter properties, the network driver version is found on the **Driver** tab, as shown in Figure 1.

General	Link Speed	Advan	ced	De	ta Center	Teaming
VLANs	Boot Options	Driver	Deta	als	Events	Resources
5	ntel(R) Bhemet (	Converged	Networ	k Adı	opter X710-2	2 #2
	Driver Provider:	Intel				
1	Driver Date:	1/6/201	6			
(	Driver Version:	1.3.109	0			
1	Digital Signer:	Intel(R) !	Vetwork	Plat	om Group	
Update Roll Ba	ck Ditver	To update t If the devic back to the	the driv e fails a previo	er sof fter u usly in	tware for thi pdating the stalled drive	s device. driver, roll rr.
De	lable	Disables the	e select	ed de	rvice.	
Uni	nstal	To uninstal	the dri	ver (A	dvanced).	

#### Figure 1. Driver Tab

2. The firmware version or ETrackID is found by clicking the **Identify Adapter** button on the **Link Speed** tab, as shown in Figure 2. The last 4 hex characters of the ETrackID is the identifier.



General	Link Speed	Advanced	Data Center	Teaming			
· ·	Link Speed	and Duplex Sett	nas		Identif	y Adapter	
Unk Sta	Intel(R) PR stus eed: 10.0	OSet Version: 20 DGbps Full Duple	7.64.0 x		Identify this a	dapter with a blinking LED	rt
10 Gbps	Full Duplex	-	Diagnostic	\$ xer	Bus Type ETrackID Media Type Negotiated Link Width	PCI Express 0x8000143F SFP+ Direct Attach x8	2
Speed and Duplex Setting: By default, Intel® adapters are set to automatically detect and negotiate speed and duplex settings. A setting other than Auto Negotiation restricts what the adapter advertises during auto-negotiation. Temperature: Displays temperature state if the adapter has a temperature sensor.					NVM Version — Part Number Partition Number Permanent Ethernet Address Permanent SAN Address Pnrt	<ul> <li>4.25</li> <li>H58362-000</li> <li>0</li> <li>000000000314</li> <li>123456781234</li> <li>A</li> </ul>	
Some 1 adapte	SFP+ Modules do n r is capable of. On	ot support all spe ly speeds that th	eds that the inte e adapter/module	~	Che of William	Clo	92

Figure 2. Firmware Version and ETrackID

#### **PowerShell Procedure**

To verify the network driver and NVM image in PowerShell:

1. Launch a PowerShell command-line shell and use the Get-IntelNetAdapter Cmdlet.

Get-IntelNetAdapter

2. Output of the **Get-IntelNetAdapter** command shows the running version of the network driver, ETrackID, and NVM version, as follows:

```
PS C:\Users\Administrator> Get-IntelNetAdapter | Format-List -Property DriverVersion, ETrackID, NVMVersion
```

(output truncated to single adapter)

DriverVersion : 1.3.109.0 ETrackID : 0x8000143F NVMVersion : 4.25

PS C:\Users\Administrator>

Again the last 4 hex characters in the NVMVersion denote the ETrackID.



## 5.0 Running the NVM Update Tool

The NVM Update Tool runs from a Command-Line Interface (CLI). There are optional CLI attributes for specific tasks and are recommended for advanced users only. As CLI syntax, the NVM Update Tool can be scripted to run across large environments. An example of the update syntax is as follows:

nvmupdatew64e.exe - command syntax nvmupdatew64e.exe -1 fileoutput.txt - command with optional attribute

**Note:** For assistance with optional CLI attributes, contact your Intel Representative.

An example of the Windows version of the NVM Update Tool update and its output is shown in Figure 3.

**Note:** A typical update will take several minutes to complete.

PS C:\Users\Administrator\XL710\Winx64> .\nvmupdatew64e.exe Intel(R) Ethernet NVM Update Tool NVMUpdate version 1.26.17.09 Copyright (C) 2013 - 2015 Intel Corporation. WARNING: To avoid damage to your device, do not stop the update or reboot or power off the system during this update. Inventory in progress. Please wait [\*\*\*\*\*+...] Device-Id B:D Adapter Status Num Description 01) Intel(R) Ethernet Converged Network Ad 8086-1572 01:00 Update available Options: Adapter Index List (comma-separated), [A]ll, e[X]it Enter selection: a Would you like to back up the NVM images? [Y]es/[N]o: n Update in progress. This operation may take several minutes. [...|\*\*\*\*\*\*] Please Power Cycle your system now and run the NVM update utility again to complete the update. Failure to do so will result in an incomplete NVM update. Tool execution completed with the following status: All operations completed successfully. Press any key to exit. PS C:\Users\Administrator\XL710\Winx64>

#### Figure 3. Example Update and Output

Once the flash image write is complete, the tool asks the user to "Press any key to exit". To verify the system's new NVM image on Windows OS, use either a GUI or command-line shell method.

• **GUI** — Navigate to the network adapter's properties, and click the **Identify Adapter** button on the **Link Speed** tab. The new NVM version and ETrackID is displayed, as shown in Figure 4.



General	Link Speed	Advano	ed	Data Center	Teaming	Identify	y Adapter	
Link Sta Spe	Link Speed Intel(R) PR us ed: 10.0	l and Duples OSet Versio OGbps Full I	: Settings n: 20.7.6 Duplex	4.0		Identify this a	dapter with a blinking LE	D
						Hardware Information:		Start
10 Gbps Speed to autor	and Duplex Set atically detect ar	ting: By det	aut, inte	Diagnostic Identify Ada B adapters a nd duplex set	x	Bus Type ETrackID Media Type Negotiated Link Width NVM Version Part Number Bartition Number	PCI Express 0x800020E1 KX/KX4 Badiplan x8 5.02 HS8362-000 0	
A settin advertis Tempera tempera SEP+ M	g other than Auto es during auto-n rature: Displays ture sensor.	Negotiation egotiation. temperature	restricts e state if	what the ad	apter tas a	Permanent Ethernet Address Permanent SAN Address Port	000000000314 123456781234 A	
Some S adapter	FP+ Modules do r is capable of. Or	iot support of ity speeds t	all speed	s that the inte dapter/module	~			Close

#### Figure 4. New Version Information

• **PowerShell** — Verify with Cmdlet in PowerShell with Get-IntelNetAdapter as follows:

PS C:\Users\Administrator> Get-IntelNetAdapter | Format-List -Property
DriverVersion, ETrackID, NVMVersion

(output truncated to single adapter)

DriverVersion : 1.3.109.0 ETrackID : 0x800020E1 NVMVersion : 5.02

PS C:\Users\Administrator>



## 6.0 Summary

The same tool set that is used to upgrade X710 and XL710 NVMs can also be used to downgrade them to a previous release version.

Intel Customer Support Services offers a broad selection of technical and customer support programs. For more information, contact your local Intel representative. Service and availability may vary by country.

For more information on the Intel<sup>®</sup> Ethernet X710/XL710 adapter family go to the following links.

- http://www.intel.com/content/www/us/en/network-adapters/converged-network-adapters/ ethernet-x710.html
- http://www.intel.com/content/www/us/en/embedded/products/networking/ethernet-controllerxl710-family.html
- http://www.intel.com/content/dam/www/public/us/en/documents/product-briefs/ethernet-x710brief.pdf
- http://www.intel.com/content/dam/www/public/us/en/documents/product-briefs/xl710-10-40gbe-controller-brief.pdf

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