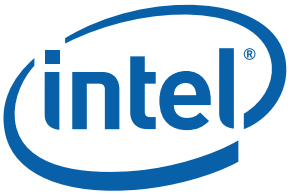

NVM Downgrade Using the Intel® Ethernet NVM Update Tool

Quick Usage Guide for Microsoft® Windows

Networking Division (ND)

July 2016

Revision 1.0
334690-001

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® 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® 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® 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® 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® 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.

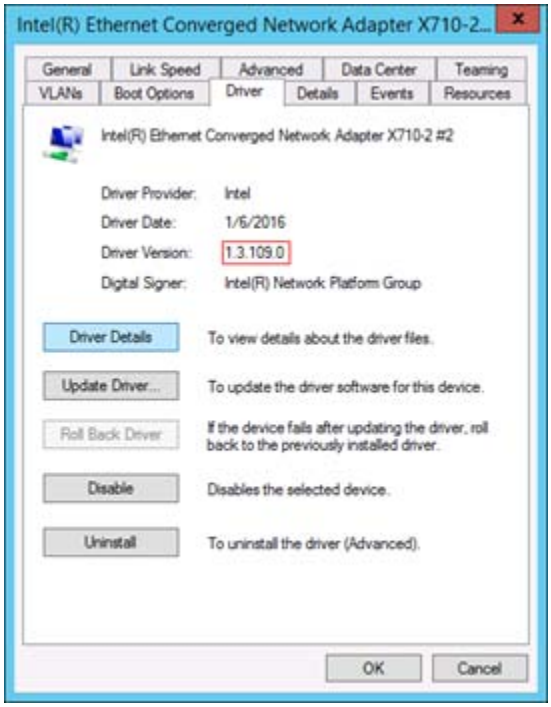

Figure 1. Driver Tab

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.

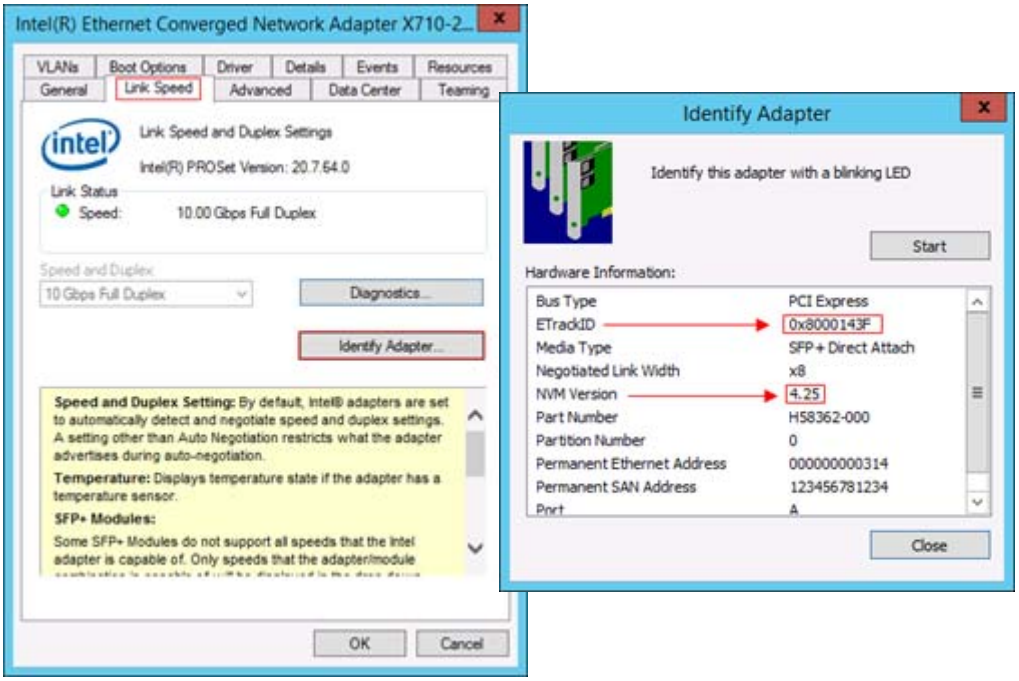

Figure 2. Firmware Version and ETrackID

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 -l 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 [******+...]

Num Description                              Device-Id B:D   Adapter Status
=== ======================================== ========= ===== ====================
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.

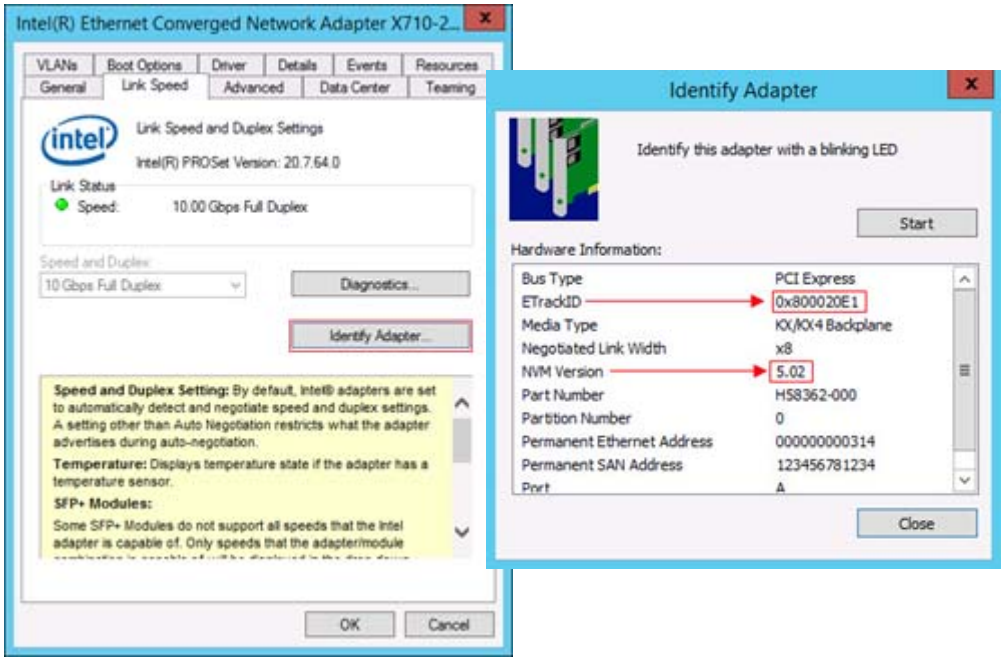

Figure 4. New Version Information

- **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® 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-controller-xl710-family.html
- http://www.intel.com/content/dam/www/public/us/en/documents/product-briefs/ethernet-x710-brief.pdf
- http://www.intel.com/content/dam/www/public/us/en/documents/product-briefs/xl710-10-40-gbe-controller-brief.pdf

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