



# Intel<sup>®</sup> Ethernet NVM Update Tool

Quick Usage Guide for EFI

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Networking Division (ND)

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## Revision History

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<b>Revision</b>	<b>Date</b>	<b>Comments</b>
1.1	February 10, 2016	Updates for Software Release 5 for i40e and EFI.
1.0	March 4, 2015	Initial release (Intel Public).



## 1.0 Introduction

This document demonstrates how to update the Non-Volatile Memory (NVM) on both the Intel® Ethernet Controller X710/XL710 and the Intel® Ethernet Converged Network Adapters using the Intel® Ethernet NVM Update Tool (NVM Update Tool). It is a guide to servicing NVM images, firmware, and drivers of the Intel® Ethernet 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 Update Both NVM and Driver at the Same Time

Keeping up with software changes, performance enhancements, or security updates requires the most current hardware drivers for supported systems. Previous updates to Intel network adapters were driver specific. With the Intel® X710/XL710 10/40 GbE adapters, both the firmware (device NVM image) and network drivers are field-serviceable, allowing the NVM image and network driver to be updated as a matched set. Updating the device image and driver together can increase key features including performance, manageability, media types, physical port counts, virtualization, offloads, remote boot options, VLAN support, teaming, and Receive Side Scaling.

**Note:** The EFI version of the NVM Update Tool allows the NVM update without updating to the most current i40e driver. It is recommended that the most current i40e driver be installed once the system has been booted into its running operating system.

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:** Updating to the most current 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 New Images

The [Intel Download Center \(X710 or XL710\)](#) is Intel's repository for the latest software and drivers for Intel products. The NVM Update Packages for Windows, Linux, ESX, FreeBSD, and EFI/EFI2 are located at:

<http://downloadcenter.intel.com/download/24769>

Use the Software/NVM matrix table in the [Intel® Ethernet Controller XL710 Feature Support Matrix](#) to ensure firmware image and driver compatibility. This document is continuously maintained and always up-to-date.

## 4.0 Preparing for the Update

Download the package of the NVM Update Tool, and perform the following steps:

1. Unzip the package contents to a flash drive or CD-ROM.
2. Insert the flash drive or CD-ROM into the system of the adapter to be updated.
3. Boot the system to the EFI shell.
4. Navigate to the correct location of the NUP tool executable and binary files as shown in [Figure 1](#).

```

EFI Shell version 2.00 [4.632]
Current running mode 1.1.2
Device mapping table
fs0 :Removable HardDisk - Alias hd26b0e0b blk0
      Acpi (PNP0A03,0)/Pci (1D10)/Usb (1,0)/Usb (4,0)/HD (Part1,Sig6705E75F)
blk0 :Removable HardDisk - Alias hd26b0e0b fs0
      Acpi (PNP0A03,0)/Pci (1D10)/Usb (1,0)/Usb (4,0)/HD (Part1,Sig6705E75F)
blk1 :HardDisk - Alias (null)
      Acpi (PNP0A03,0)/Pci (1F12)/Sata (0,0)/HD (Part1,SigE5114F81)
blk2 :HardDisk - Alias (null)
      Acpi (PNP0A03,0)/Pci (1F12)/Sata (0,0)/HD (Part2,SigE5114F81)
blk3 :BlockDevice - Alias (null)
      Acpi (PNP0A03,0)/Pci (1F12)/Sata (0,0)
blk4 :Removable BlockDevice - Alias (null)
      Acpi (PNP0A03,0)/Pci (1D10)/Usb (1,0)/Usb (4,0)

Press ESC in 1 seconds to skip startup.nsh, any other key to continue.
Shell> fs0:

fs0:\> cd \XL710\XL710\EFIx64

fs0:\XL710\XL710\EFIx64> nvmupdate64e.efi_

```

**Figure 1.** NUP Tool Executable and Binary Files

## 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:

```

nvmupdate64e.efi - command syntax
nvmupdate64e.efi -l fileoutput.txt - command with optional attribute

```

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

Run the tool like any CLI executable. An example of the EFI CLI version of the NVM Update Tool update and its output is shown in [Figure 2](#).

**Note:** A typical update takes several minutes to complete.



```
fs0:\XL710\XL710\EFIx64> numupdate64e.efi

Intel(R) Ethernet NVM Update Tool
NUMUpdate version 1.26.17.07
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
02) Intel(R) 82579LM Gigabit Network Comme 8086-1502 00:25 Not supported
03) Intel(R) 82574L Gigabit Network Connec 8086-10D3 04:00 Not supported

Options: Adapter Index List (comma-separated), [A]ll, e[X]it
Enter selection:1
Would you like to back up the NVM images? [Y]es/[N]o: n
Update in progress. This operation may take several minutes.
[...|*****]
Reboot is required to complete the update process.

Tool execution completed with the following status: All operations completed successfully
Press any key to exit.

fs0:\XL710\XL710\EFIx64>
```

Figure 2. Example Update and Output

**Note:** The NVM update may require a two-step process depending on the initial image revision. Use the Software/NVM Compatibility table to verify the latest image versions.

When the flash image write completes, the tool asks for a reboot of the system to complete the update process and load the new firmware. After the reboot, boot the host into the intended operating system, and update the network adapter to the most current driver.

**Note:** When updating from early NVM images, the NVM Update Tool may indicate that a power-cycle of the system is necessary.

**Note:** An NVM image downgrade process is available from Intel. Contact your Intel Representative for support of this process.



## **6.0 Summary**

Updating the NVM and network driver can increase performance, manageability, and reliability of the Intel® X710/XL710 Ethernet Converged Network Adapter. The update process has a built-in integrity feature to ensure that only Intel-approved firmware code is able to be updated after manufacturing. This procedure is performed each time an attempt is made to update one of the protected modules.

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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