

<p>Doc. reference: NS-HT-003 Version 2.0</p>	<h1>bullion How To</h1>	
<p>Product:</p>	<p>novascale bullion</p>	<p>Issued : December 2, 2013</p>
<p>Subject:</p>	<p>Procedure to update firmware of Emulex, LSI and Intel adapters</p>	
<p>Abstract:</p>	<p>This note explains how to update the firmware & boot code of PCIe adapters:</p> <p>Emulex Fiber Chanel & CNA:</p> <ul style="list-style-type: none"> - lpe1150 - lpe1250 - lpe11002 - lpe12002 - OCE11102 <p>LSI MegaRAID SAS 9261-8i,</p> <p>Intel Ethernet:</p> <ul style="list-style-type: none"> - I350 T2/T4 - X520 SR2/DA2 	

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1. Emulex Fiber Channel and CNA adapters

1.1 Flashing the Firmware and Boot Code from the vCenter

The procedure applies to all FC & CNA Emulex adapter supported on “novascale bullion”:

lpe1150, lpe1250, lpe11002, lpe12002, OCE11102

It allows updating the firmware and the Boot Code from the vCenter Server, while the novascale bullion server is operating under ESXi.

Pre-requisites:

The “CIM provider” package and the “OneCommand Manager for VMware vCenter Plug-in” packages are required.

They can be downloaded as well as the associated documentation from Emulex web site.

For vSphere 4.1:

<http://www.emulex.com/downloads/emulex/vmware/vsphere-41/management.html>

For vSphere 5.0:

<http://www.emulex.com/downloads/emulex/vmware/vsphere-50/management.html>

The firmware, the Boot Code and the associated documentation can be downloaded from:

<http://www.emulex.com/downloads/emulex.htm>

or from the web Support server

http://support.bull.com/ols/product/platforms/ns/ns-bullion/dl/no-frmf/g/adapt_fw/FC-FW-online

Note: For the type of Boot Code, choose the “x86 BootBIOS” package.

1.1.1 Installation of “CIM provider” on the ESXi server:

Package for vSphere 4.1: elx-esx-4.1.0-emulex-cim-provider-3.4.15.5-offline_bundle-478687.zip.

From <http://www.emulex.com/downloads/emulex/vmware/vsphere-41/previous-releases.html>

Please, read the documentation delivered with the package, for detailed instructions.

Copy the “CIM provider” package on the ESXi server, and then open a session on the ESXi server.

Install the “CIM provider” package by issuing the command:

```
# esxupdate --maintenancemode --nosigcheck update --bundle elx-esx-4.1.0-emulex-cim-provider-3.4.15.5-offline_bundle-478687.zip
```

```
Unpacking cross_emulex-cim-provider_410.3.4.15.5-..
```

```
##### [100%]
```

```
Removing packages: emulex-cim-provider
```

```
##### [100%]
```

```
Installing packages: cross_emulex-cim-provider_41..
```

```
##### [100%]
```

```
Running [cim-install.sh]...
```

```
ok.
```

```
Running [vmkmod-install.sh]...
```

```
ok.
```

```
Running [/sbin/esxcfg-secpolicy -p /etc/vmware/secpolicy]...
```

```
ok.
```

The update completed successfully, but the **system needs to be rebooted for the changes to be effective.**

Package for vSphere 5.x: VMW-ESX-5.0.0-emulex-cim-provider-3.6.12.1-01-799300.zip

From <http://www.emulex.com/downloads/emulex/vmware/vsphere-50/management.html>

Please, read the documentation delivered with the package, for detailed instructions.

Copy the “CIM provider” package under /tmp on the ESXi server, then open a session on the ESXi server.

Install the “CIM provider” package by issuing the commands:

```
# cd /tmp
```

```
# unzip VMW-ESX-5.0.0-emulex-cim-provider-3.6.12.1-01-799300.zip
```

```
# esxcli software vib install -d /tmp/VMW-ESX-5.0.0-emulex-cim-provider-3.6.12.1-01-offline_bundle-799300.zip --maintenance-mode
```

Once the update completed successfully, the **system needs to be rebooted for the changes to be effective.**

1.1.2 Installation of “OneCommand Manager for VMware vCenter Plug-in“ on a vCenter server.

Package for vSphere 4.1: elxocm-vmware-vcenter-setup.exe version 1.1.0

From <http://www.emulex.com/downloads/emulex/vmware/vsphere-41/previous-releases.html>

Package for vSphere 5.x: ELXOCM-VMware-vCenter-1.4.10-Setup.exe

From:<http://www.emulex.com/downloads/emulex/vmware/vsphere-50/management.html>

Please, read the documentation delivered with the package to proceed with the installation.

Cautions:

- For registering “OCM for VMware vCenter”, take in consideration the default 'administrator' user account has not always the right permissions. In case of a such error, create a new user account with administrative privileges (and log in the vCenter using this new user account).

- For registering the plug-in in vCenter specify the default vCenter Server https port value: 443

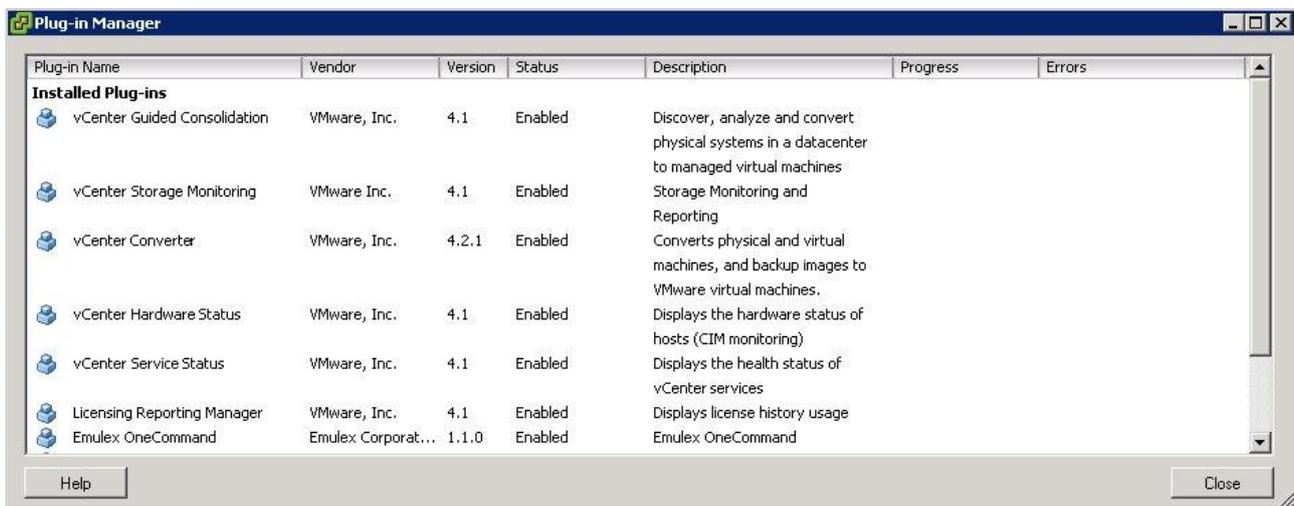
- The “OCM for VMware vCenter” plug-in requires an updated version of “Adobe Flash Player”.

To verify the OCM for VMware vCenter Installation:

- Log in to the vCenter Server through the VMware vSphere console.

- In the vSphere console select **Plug-ins** from the menu bar and select **Manage Plug-ins**.

The Plug-in Manager window appears.



In the Plug-in Manager window check the status of OCM for VMware vCenter (Emulex OneCommand) is 'enabled'.

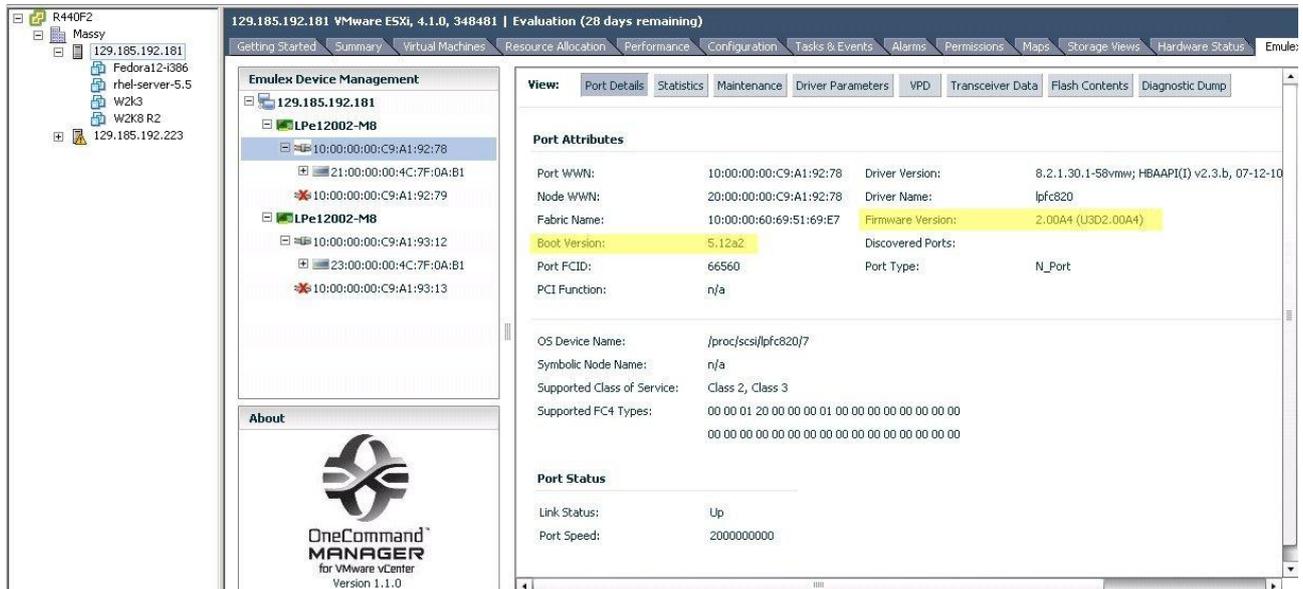
A new tab "Emulex OneCommand" is created, allowing managing Emulex adapters.

Select the ESXi bullion host, and then click on the "Emulex OneCommand" tab to get information about Emulex adapters.

(A warning message box relative to the security certificate is displayed. Click OK button in this box)

1.1.3 Getting the current Firmware and Boot Code versions

Expand the tree under “Emulex Device Management”, select a port, then click on the “Port Details” button in the 'View' area.



1.1.4 Flashing the Firmware and Boot Code

Caution: before starting the firmware update ensure the firewall is disabled on both sides: on the vCenter server and on the ESX server (or open the http & https ports).

On the ESX server the firewall can be temporarily disabled by the command:

```
# esxcli network firewall unload
```

Check the state by:

```
# esxcli network firewall get
```

```
Default Action: PASS
```

```
Enabled: false
```

```
Loaded: false
```

To enable again the firewall, after the firmware:

```
# esxcli network firewall load
```

Check the firewall is active:

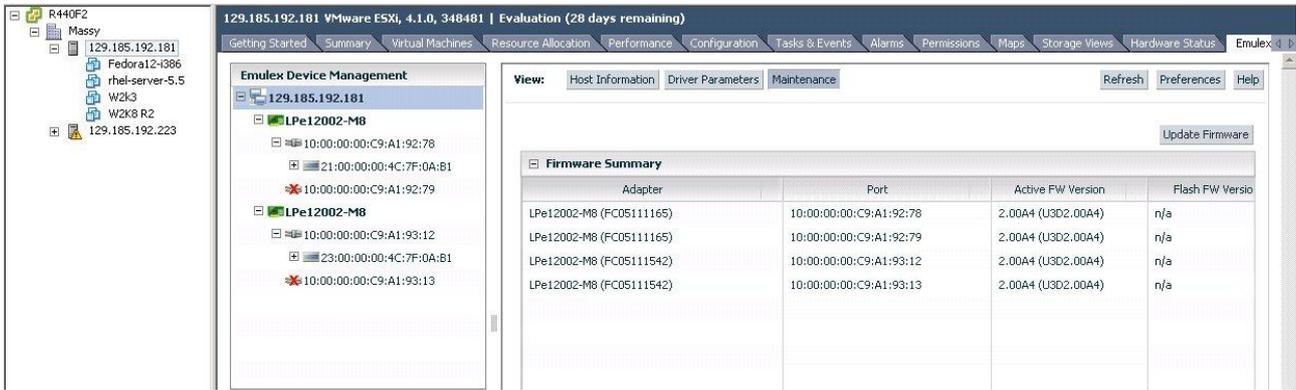
```
# esxcli network firewall get
```

```
Default Action: DROP
```

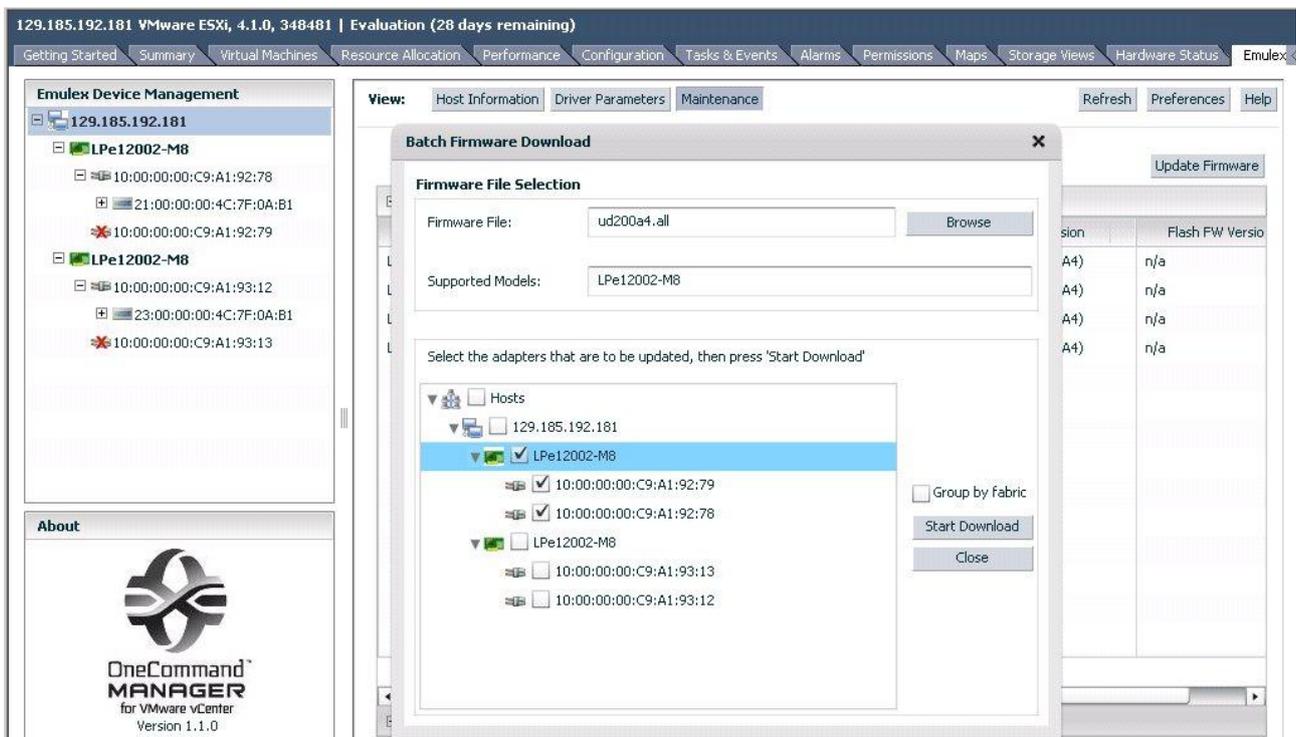
```
Enabled: true
```

```
Loaded: true
```

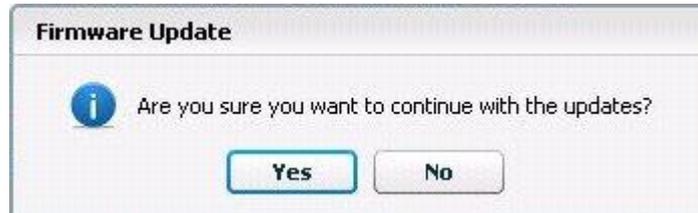
Select the Host in the tree under “Emulex Device Management”, and click on the “Maintenance” button



Then click on the “Update Firmware” button. The “Batch Firmware Download” window is displayed. Thru this interface, use the “Browse” button to select the ‘firmware’ or ‘Boot code’ file containing the new version. Select the adapters to be updated, at the level of Port, adapter, Host or Fabric. Then, click the “Start Download” button to initialize the firmware update



Click on the “Yes” button in the “Firmware Update” dialog box to continue with the update.



After a few minutes, the ended jobs appear in the “Completed job” area.

129.185.192.181 VMware ESXi, 4.1.0, 348481 | Evaluation (28 days remaining)

Getting Started Summary Virtual Machines Resource Allocation Performance Configuration Tasks & Events Alarms Permissions Maps Storage Views Hardware Status Emulex One

Emulex Device Management

129.185.192.181

- LPe12002-M8
 - 10:00:00:00:C9:A1:92:7E
 - 21:00:00:00:4C:7F:04
 - LUN 0000
 - LUN 0001
 - LUN 0002
 - LUN 0003
 - LUN 0004
 - LUN 0005
 - LUN 0006
 - 10:00:00:00:C9:A1:92:75
 - LPe12002-M8
 - 10:00:00:00:C9:A1:93:12

About

OneCommand[™] MANAGER
for VMware vCenter
Version 1.1.0

View: Port Details Statistics Maintenance Driver Parameters VPD Transceiver Data Flash Contents Diagnostic Dump Refr

Maintenance

Jobs

Adapter	Port	StartTime	Status Message
31	LPe12002-M8	10:00:00:00:C9:A1:92:79	Successfully completed.
31	LPe12002-M8	10:00:00:00:C9:A1:92:78	Successfully completed.

Adapter	Port	StartTime	EndTime	Status Message
31	LPe12002-M8	03 Nov 2011 14:04	03 Nov 2011 14:04	Successfully completed.
31	LPe12002-M8	03 Nov 2011 14:04	03 Nov 2011 14:04	Successfully completed.

2 LSI MegaRAID SAS 9261-8i adapter

2.1 Updating the Firmware under ESXi

The procedure applies to the LSI MegaRAID SAS 9261-8i adapter.

2.1.1 Getting tool and package

Get the 'MegaCli' utility and the firmware package, and copy them on the file system of ESXi.
Note: With ESXi 5.0, get and copy the library 'libstorelib.so', in the same directory as MegaCli.

Firmware packages and utility can be downloaded from the web Support server:

http://support.bull.com/ols/product/platforms/ns/ns-bullion/dl/no-frmf/adapt_fw

Open a ssh session on the ESXi server, then go to the directory containing the 'MegaCli' utility and the firmware package.

In the following examples, the target is the LSI adapter #0 (**a0**). According to the configuration change the target number.

2.1.2 Reading the version of the currently installed package

Enter the command:

```
# ./MegaCli -ShowSummary -a0
```

```
System
```

```
CLI Version: 8.02.16
```

```
Hardware
```

```
Controller
```

```
ProductName : LSI MegaRAID SAS 9261-8i(Bus 0, Dev 0)
```

```
SAS Address : 500605b002f7e430
```

```
FW Package Version: 12.12.0-0036
```

```
Status : Need Attention
```

```
BBU
```

```
BBU Type : iBBU
```

```
Status : Healthy
```

2.1.3 Flashing the firmware

enter the command:

```
# ./MegaCli -AdpFwFlash -f <package_file_name> -a0
```

```
Adapter 0: LSI MegaRAID SAS 9261-8i
```

```
Vendor ID: 0x1000, Device ID: 0x0079
```

```
Package version on the controller: 12.12.0-0036
```

```
Package version of the image file: 12.12.0-0124
```

```
Download Completed.
```

```
Flashing image to adapter...
```

```
Adapter 0: Flash Completed.
```

```
Exit Code: 0x00
```

The server needs to be rebooted to activate the new version

Attention

If the currently installed firmware is older than 12.12.x-yyyy, the update will fail as shown hereafter:

```
# ./MegaCli -AdpFwFlash -f mr2108fw.rom -a0
```

```
Adapter 0: LSI MegaRAID SAS 9261-8i  
Vendor ID: 0x1000, Device ID: 0x0079
```

```
Package version on the controller: 12.7.0-0007  
Package version of the image file: 12.12.0-0124  
Download Completed.  
Flashing image to adapter...  
Firmware Failed to FLASH flash. Stop!!!
```

FW error description:

The requested command cannot be completed as the image is corrupted.

Exit Code: 0x13

The work around is to flash to an interim version of firmware first, such as 12.12.0-0073
You will then be able to flash to the latest available firmware.

The package version 12.12.0-0073 is available on SoL.

http://support.bull.com/ols/product/platforms/ns/ns-bullion/dl/no-frmf/g/adapt_fw/fw_lsi_12-12-0-0073

3 Intel Ethernet I350 and X520 Server Adapters

3.1 Flashing the Firmware under EFI Shell

The procedure applies to the Intel Ethernet I350 T2/T4 and X520 SR2/DA2 Server Adapters.

The firmware update procedure needs 2files:

- The utility for flashing "BOOTUTIL64E.EFI" (must be launched under Shell EFI environment)
- The package of firmware "BootIMG.FLB" (includes firmwares for 'boot PXE', iSCSI, FCoE)

Firmware package and utility can be downloaded from the web Support server:

http://support.bull.com/ols/product/platforms/ns/ns-bullion/dl/no-frmf/g/adapt_fw/FW-I350_X520

Procedure:

- . Copy the files on a USB memory key, and then plug the key on to a USB port of the bullion server.
or
- . Copy the files in a directory of a workstation, then mount this directory as a 'Virtual media' resource.

Boot the bullion server under Shell EFI environment.

Go to the filesystem linked to the media containing the files (example with fs0):

```
fs0:
```

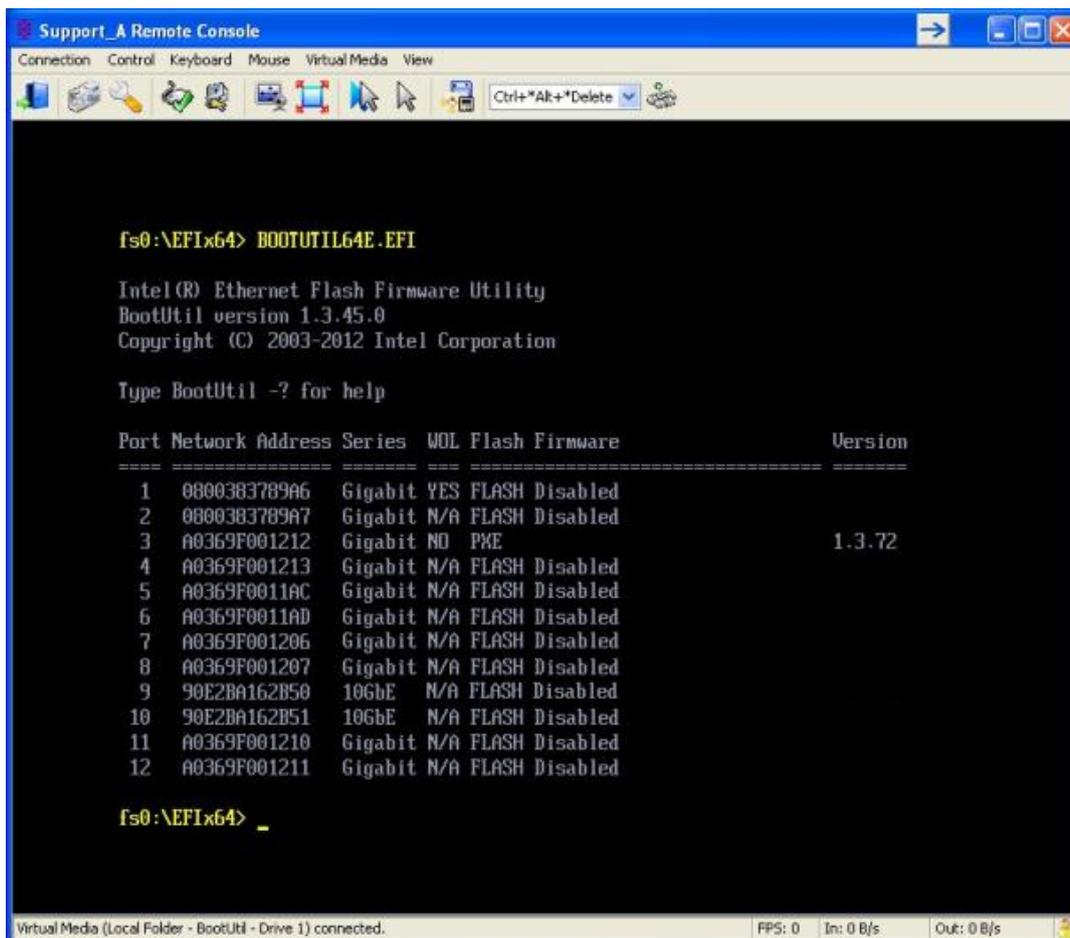
Check with the 'ls' command that the files are visible:

```
ls
```

List the Intel Ethernet adapters present in the system:

```
bootutil64e.efi
```

Example:



```
Support_A Remote Console
Connection Control Keyboard Mouse VirtualMedia View
Ctrl+*Alt+*Delete

fs0:\EFI\64> BOOTUTIL64E.EFI

Intel(R) Ethernet Flash Firmware Utility
BootUtil version 1.3.45.0
Copyright (C) 2003-2012 Intel Corporation

Type BootUtil -? for help

Port Network Address Series WOL Flash Firmware Version
-----
1 08003B3789A6 Gigabit YES FLASH Disabled
2 08003B3789A7 Gigabit N/A FLASH Disabled
3 A0369F001212 Gigabit NO PXE 1.3.72
4 A0369F001213 Gigabit N/A FLASH Disabled
5 A0369F0011AC Gigabit N/A FLASH Disabled
6 A0369F0011AD Gigabit N/A FLASH Disabled
7 A0369F001206 Gigabit N/A FLASH Disabled
8 A0369F001207 Gigabit N/A FLASH Disabled
9 90E2BA162B50 10GbE N/A FLASH Disabled
10 90E2BA162B51 10GbE N/A FLASH Disabled
11 A0369F001210 Gigabit N/A FLASH Disabled
12 A0369F001211 Gigabit N/A FLASH Disabled

fs0:\EFI\64> _

Virtual Media (Local Folder - BootUtil - Drive 1) connected. FPS: 0 In: 0 B/s Out: 0 B/s
```

If the mode 'flash firmware' is disabled the firmware version is not displayed, and the nit is mandatory to enable the 'flash firmware' mode before proceeding to the update.

Example for enabling the 'flash firmware' mode on all ports:

```
bootutil64e.efi -ALL -flashenable
```

```
fs0:\EFI\x64> BOOTUTIL64E.EFI -ALL -flashenable
```

```
Intel(R) Ethernet Flash Firmware Utility  
BootUtil version 1.3.45.0  
Copyright (C) 2003-2012 Intel Corporation
```

```
Enabling boot ROM on port 1...Success
```

```
Reboot the system to enable the boot ROM on this port
```

```
Enabling boot ROM on port 2...Success
```

```
Reboot the system to enable the boot ROM on this port
```

```
Enabling boot ROM on port 3...Success
```

```
Reboot the system to enable the boot ROM on this port
```

```
Enabling boot ROM on port 11...Success
```

```
Reboot the system to enable the boot ROM on this port
```

```
Enabling boot ROM on port 12...Success
```

```
Reboot the system to enable the boot ROM on this port
```

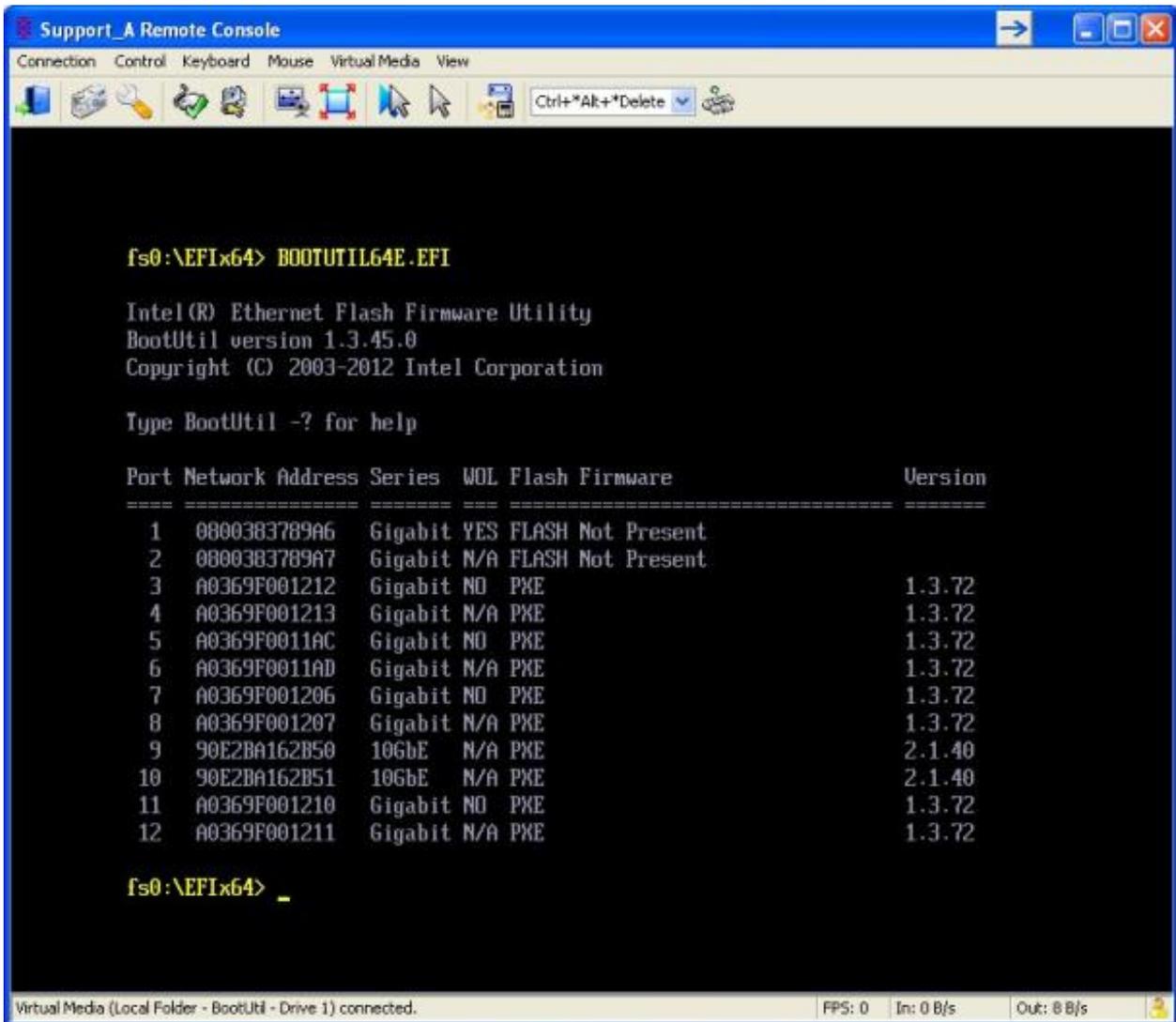
Port	Network Address	Series	WOL	Flash Firmware	Version
1	0800383789A6	Gigabit	YES	Reboot Required	
2	0800383789A7	Gigabit	N/A	Reboot Required	
3	A0369F001212	Gigabit	NO	Reboot Required	
4	A0369F001213	Gigabit	N/A	Reboot Required	
5	A0369F0011AC	Gigabit	NO	Reboot Required	
6	A0369F0011AD	Gigabit	N/A	Reboot Required	
7	A0369F001206	Gigabit	NO	Reboot Required	
8	A0369F001207	Gigabit	N/A	Reboot Required	
9	90E2BA162B50	10GbE	N/A	Reboot Required	
10	90E2BA162B51	10GbE	N/A	Reboot Required	
11	A0369F001210	Gigabit	NO	Reboot Required	
12	A0369F001211	Gigabit	N/A	Reboot Required	

As indicated, a server reboot is required.

Note: to execute the command on a specific port, enter the following command (for port N°6):

```
bootutil64e.efi -NIC=6 -flashenable
```

After the server reboot, the firmware versions are displayed:



In this view, ports 1 and port 2 are the ones of the embedded Ethernet controller (kawela), which is NOT upgradable with the 'bootutil' utility.

Command to flash all ports with the firmware in PXE mode (be sure the firmware package is applicable to all existing Ethernet controllers):

```
bootutil64e.efi -ALL -up=pxe -file=bootimg.flb -quiet
```

To flash one port (port N°6 for example):

```
bootutil64e.efi -NIC=6 -up=pxe -file=bootimg.flb -quiet
```

```
fs0:\EFI\x64> BOOTUTIL64E.EFI -all -up=pxe -file=booting.flb -quiet
```

```
Intel(R) Ethernet Flash Firmware Utility  
BootUtil version 1.3.45.0  
Copyright (C) 2003-2012 Intel Corporation
```

```
Adapter port is not bootable on port 1
```

```
Skipping port 2 (shared flash with previous port)
```

```
Programming flash on port 3 with flash firmware image
```

```
Flash update successful
```

```
Skipping port 4 (shared flash with previous port)
```

```
Programming flash on port 5 with flash firmware image
```

```
-
```

Remarks:

- Ports 1 & 2 linked to the kawela are not flashed.
- The firmware update is done only on the first port of multiple ports adapters.

```
Skipping port 10 (shared flash with previous port)
```

```
Programming flash on port 11 with flash firmware image
```

```
Flash update successful
```

```
Skipping port 12 (shared flash with previous port)
```

Port	Network Address	Series	WOL	Flash	Firmware	Version
1	0800383789A6	Gigabit	YES	FLASH	Not Present	
2	0800383789A7	Gigabit	N/A	FLASH	Not Present	
3	A0369F001212	Gigabit	NO	PXE		1.4.03
4	A0369F001213	Gigabit	N/A	PXE		1.4.03
5	A0369F0011AC	Gigabit	NO	PXE		1.4.03
6	A0369F0011AD	Gigabit	N/A	PXE		1.4.03
7	A0369F001206	Gigabit	NO	PXE		1.4.03
8	A0369F001207	Gigabit	N/A	PXE		1.4.03
9	90E2BA162B50	10GbE	N/A	PXE		2.2.08
10	90E2BA162B51	10GbE	N/A	PXE		2.2.08
11	A0369F001210	Gigabit	NO	PXE		1.4.03
12	A0369F001211	Gigabit	N/A	PXE		1.4.03

- Check the versions are the correct ones (with the package" preboot 17.3"):
 - Intel I350-T4 and Intel I350-T2, mode PXE: 1.4.03**
 - Intel X520-SR2, mode PXE: 2.2.08**
- Configure to "disabled" the 'Flash firmware' mode for adapters which was initially in this state:
bootutil64e.efi -ALL -flashdisable
or (for port N°6)
bootutil64e.efi -NIC=6 -flashdisable
- Restart the bullion server to take in account the new version.

END OF DOCUMENT

