

# VSI OpenVMS 16 Gb Fibre Channel HBA Configuration Guide

Part Number: DO-DVICNG-01A

April 2019

**Operating System Version:** VSI OpenVMS Integrity Version 8.4-2L1

## Introduction

This document provides instructions on how to add an HPE rx2800 i4 or i6 Integrity Server to an existing OpenVMS cluster currently running VSI OpenVMS Integrity Version 8.4-2L1.

This document also provides instructions to boot your rx2800 i4 or i6 server directly from your 16 Gb Fibre Channel device. Go to *Enabling the 16 Gb HBA for System Booting* on Page 11 for those instructions.

VSI assumes that the cluster has an existing system disk running VSI OpenVMS Version 8.4-2L1. If not, you will need to upgrade the system disk in your cluster.

Ensure you have access to the software and documentation for the following:

- VSI OpenVMS V8.4-2L1 Operating Environment
- The Update Kit, `VMS842L1I_UPDATE-V0100`. This Update Kit includes the VSI Fibre Channel Patch Kit named `VMS842L1I_FIBRESCSI-V0200`. The FIBRESCSI Patch Kit, when applied as a part of the Update Kit, enables booting your OpenVMS system from the 16 Gb Fibre Channel HBA.

OpenVMS users under support contract with VSI can contact VSI Support at [support@vmssoftware.com](mailto:support@vmssoftware.com) for access to this and other OpenVMS patches. OpenVMS users under support contract with HPE need to obtain all OpenVMS patch kits from HPE patch management site at:

<https://support.hpe.com/help/en/Content/productSupport/patch/patchManagement.html>.

## Why is this Update Needed?

The VSI OpenVMS Integrity Version 8.4-2L1 Operating Environment needs additional software to enable full support of your new rx2800 i4 or i6 server. Specifically, VSI is providing you with a patch to support the B9F23A/B9F24A Fibre Channel 16 Gb HBAs.

The Patch Kit provides updated Fibre Channel device drivers to enable operation of the 16 Gb HBA. Without installing this kit first, the rx2800 i4 or i6 server (with 16 Gb HBAs installed) will be unable to access Fibre Channel-based storage through the 16 Gb HBA.

The necessity for this patch will be remedied in a future release of VSI OpenVMS for Integrity.

**Note:** The Update Kit automatically updates the EFI partition. Refer to the notes included in the Update Kit with filename `VMS842L1I_UPDATE-V0100.RELEASE_NOTES`.

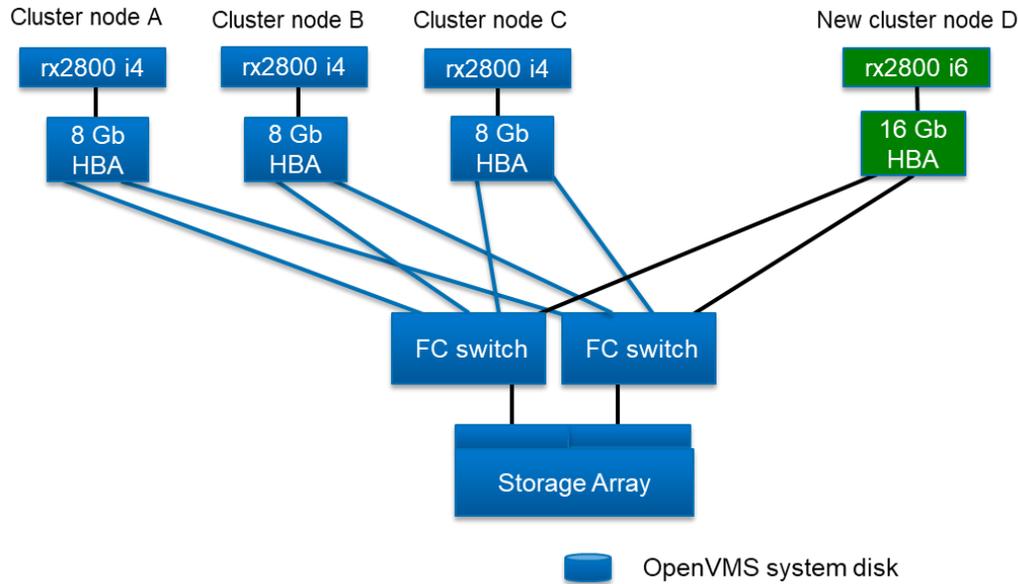
## Customer Use Cases

VSI Product Management has identified three use cases that most of our customers will find helpful. If your site differs from these use cases, please contact VSI Support for additional help at [support@vmssoftware.com](mailto:support@vmssoftware.com).

### ***Use Case 1: Adding an rx2800 i4 or i6 server to an existing cluster***

You want to add a new rx2800 i4 or i6 server to an existing cluster and have it boot from an existing SAN-based system disk, which is a LUN (Logical Unit Number) located behind the 16 Gb HBA. Figure 1 illustrates this design.

Figure 1



Perform the following steps:

1. Ensure that the system disk in the cluster is running V8.4-2L1.
2. Use PCSI to install the Update Kit on the OpenVMS system disk. This updates the EFI partition automatically on the OpenVMS system disk.
3. Engage your SAN team to connect the fibre ports from the 16 Gb HBA on the new server to the Fibre Channel switches and update switch zoning, if in use.
4. Engage your SAN team to modify the SAN configuration to recognize the new 16 Gb HBA and to enable presentation of the LUNs to the rx2800 i4 or i6 server.
5. Configure your rx2800 i4 or i6 server to boot from your 16 Gb Fibre Channel HBA. Follow the instructions in *Enabling the 16 Gb HBA for System Booting* on Page 11.
6. Using one of the pre-existing cluster nodes, create a root on the V8.4-2L1 system disk for the new rx2800 i4 or i6 server. Refer to the *VSI OpenVMS Integrity Installation and Upgrade Manual* at [http://www.vmssoftware.com/documents\\_list.html](http://www.vmssoftware.com/documents_list.html), and add the new server to the cluster. For more information, you can consult *Guidelines for OpenVMS Cluster Configurations* at: [https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-c04622356](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c04622356)
7. When the new cluster node boots and pauses momentarily with a list of optional EFI utilities, enter S to Launch UEFI Shell, as shown in Figure 2, before the timeout value expires. Note the default timeout value is only 7 seconds.

Figure 2

```
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Note, menu interfaces might only display on the primary console device.
The current primary console device is:
Serial PciRoot(0x30304352)/Pci(0x1C,0x5)/Pci(0x0,0x5)
The primary console can be changed via the 'conconfig' UEFI shell command,
or the 'Console Configuration' option in the Boot Maintenance Manager menu.

Press:  ENTER - Start boot entry execution
        B / b - Launch Boot Manager (menu interface)
        D / d - Launch Device Manager (menu interface)
        M / m - Launch Boot Maintenance Manager (menu interface)
        S / s - Launch UEFI Shell (command line interface)
        I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Automatic boot entry execution will start in 7 second(s).
Waiting for user input.
```

- At the Shell> prompt, enter `fsn:`, where `fsn` is the EFI name of any file-structured device that is a fibre volume (see Figure 3). In Figure 3, `fs0` is the first file-structured device that is a fibre volume, but in the following examples, `fs3` is used.

Figure 3

```
D / d - Launch Device Manager (menu interface)
M / m - Launch Boot Maintenance Manager (menu interface)
S / s - Launch UEFI Shell (command line interface)
I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Automatic boot entry execution will start in 26 second(s).
Searching for devices.
HP Smart Array P410i Controller (version 6.42) 2 Logical Drives
Currently the controller is in RAID mode
Launching UEFI Shell.
UEFI Shell version 2.30 [2.0]
Current running mode 1.1.2
Device mapping table
fs0 :HardDisk - Alias hd18bnrglrmjgfguwt250231254295773184b blk0
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x3790000000000000)/HD(1,GPT,95D0E321-2A17-1E9-84BC-E0071B20F584)
fs1 :HardDisk - Alias hd18bnrglrmjgfguwt250512729272483840b blk1
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x37A0000000000000)/HD(1,GPT,74BD9CD0-2965-1E9-ABA3-AA000400FEFF)
fs2 :HardDisk - Alias hd18bnrglrmjgfguwt250512729272483840d blk2
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x37A0000000000000)/HD(3,GPT,74BD9CD1-2965-1E9-ABA3-AA000400FEFF)
fs3 :HardDisk - Alias hd18bowmbedokrjfpf250231254295773184b blk3
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x21010002AC018ECC,0x3790000000000000)/HD(1,GPT,95D0E321-2A17-1E9-84BC-E0071B20F584)
fs4 :HardDisk - Alias hd18bowmbedokrjfpf250512729272483840b blk4
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x21010002AC018ECC,0x37A0000000000000)/HD(1,GPT,74BD9CD0-2965-1E9-ABA3-AA000400FEFF)
```

- Invoke the OpenVMS EFI Show Utility by entering the following command at the prompt (see Figure 4):

```
\EFI\VMS\VMS_SHOW.EFI
```

Figure 4

```
Shell>
Shell>
Shell> fs3:
fs3:\> \EFI\VMS\VMS_SHOW.EFI

Searching 4 NET Device entries...
Searching 14 UEFI Device entries...
Searching 59 PCI Device entries...
Searching 65 VMS Device entries...

VMS: DKA1      EFI: fsE      Vol: V8_4_2L1  DevInfo: HP      LOGICAL VOLUME 6.42
VMS: DKA0      EFI: fsC      Vol: V8_4_2L1  DevInfo: HP      LOGICAL VOLUME 6.42
VMS: $1$DGA890 EFI: fs1      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs3      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fs4      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs0      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs9      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fs7      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs6      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fsA      Vol:           DevInfo: Fibre Device

fs3:\>
fs3:\>
```

Find the system disk containing the newly-created root and note the first corresponding fsn listed for it. For example, in Figure 4, if the system disk is \$1\$DGA890, use fs1.

10. At the prompt, boot your system by invoking VMS\_LOADER by entering the following command, using the fsn value found from the prior step and where m is the newly-created root:

```
fsn:\EFI\VMS\VMS_LOADER.EFI -FL m,0]
```

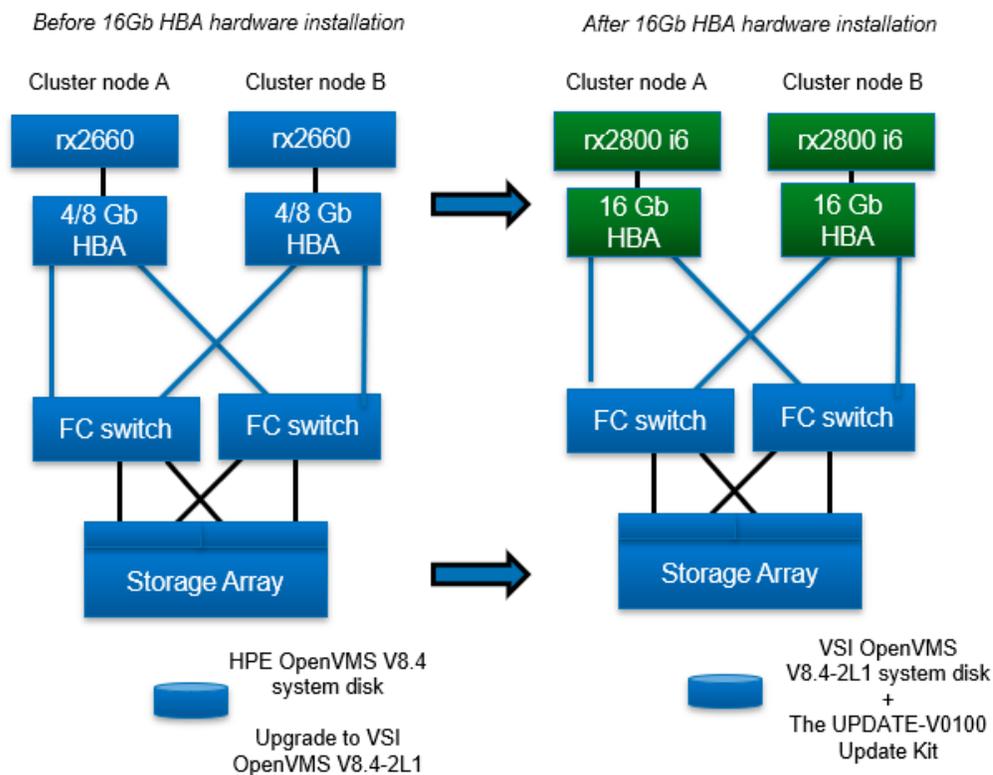
If your system root has not been previously booted, your new system will boot, run AUTOGEN, and then shutdown to reboot. When the node reboots, enter S to Launch UEFI Shell. At the Shell> prompt, execute the same VMS\_LOADER command. Once the system completes booting, login to the system.

11. Create new boot entries for the Fibre Channel devices (@SYS\$MANAGER:BOOT\_OPTIONS.COM) and reboot using one of the new Fibre Channel boot entries.
12. Follow the instructions in *Applying the Final HBA Setting* on Page 22.

## Use Case 2: Updating your servers and the OpenVMS operating system

You have an existing 2-node cluster that contains i2 or earlier servers and is running HPE OpenVMS Version 8.4. You want to completely replace the servers with new rx2800 i4 or i6 servers and update the software to VSI OpenVMS V8.4-2L1. Figure 5 illustrates this design.

Figure 5



Perform the following steps:

1. Ensure that the system disk in the cluster is running V8.4-2L1.
2. Use PCSI to install the Update Kit on the OpenVMS system disk. This updates the EFI partition automatically on the OpenVMS system disk.
3. Engage your SAN team to connect the fibre ports from the 16 Gb HBA on the new server to the Fibre Channel switches and update switch zoning, if in use.
4. Engage your SAN team to modify the SAN configuration to recognize the new 16 Gb HBA and to enable presentation of the LUNs to the rx2800 i4 or i6 server.
5. Configure your rx2800 i4 or i6 server to boot from your 16 Gb Fibre Channel HBA. Follow the instructions in the *Enabling the 16 Gb HBA for System Booting* on Page 11.
6. Using one of the pre-existing cluster nodes, create a root on the V8.4-2L1 system disk for the new rx2800 i4 or i6 server. Refer to the *VSI OpenVMS Integrity Installation and Upgrade Manual* at [http://www.vmssoftware.com/documents\\_list.html](http://www.vmssoftware.com/documents_list.html), and add the new server to the cluster. For more information, you can consult *Guidelines for OpenVMS Cluster Configurations* at: [https://support.hpe.com/hpsc/doc/public/display?docId=emr\\_na-c04622356](https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c04622356)
7. When the new cluster node boots and pauses momentarily with a list of optional EFI utilities, enter S to Launch UEFI Shell, as shown in Figure 6, before the timeout value expires. Note the default timeout value is only 7 seconds.

Figure 6

```
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Note, menu interfaces might only display on the primary console device.
The current primary console device is:
Serial PciRoot(0x30304352)/Pci(0x1C,0x5)/Pci(0x0,0x5)
The primary console can be changed via the 'conconfig' UEFI shell command,
or the 'Console Configuration' option in the Boot Maintenance Manager menu.

Press:  ENTER - Start boot entry execution
        B / b - Launch Boot Manager (menu interface)
        D / d - Launch Device Manager (menu interface)
        M / m - Launch Boot Maintenance Manager (menu interface)
        S / s - Launch UEFI Shell (command line interface)
        I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Automatic boot entry execution will start in 7 second(s).
Waiting for user input.
```

- At the Shell> prompt, enter `fsn:`, where `fsn` is the EFI name of any file-structured device that is a fibre volume (see Figure 3). In Figure 7, `fs0` is the first file-structured device that is a fibre volume, but in the following examples, `fs3` is used.

Figure 7

```
D / d - Launch Device Manager (menu interface)
M / m - Launch Boot Maintenance Manager (menu interface)
S / s - Launch UEFI Shell (command line interface)
I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Automatic boot entry execution will start in 26 second(s).
Searching for devices.
HP Smart Array P410i Controller (version 6.42) 2 Logical Drives
Currently the controller is in RAID mode
Launching UEFI Shell.
UEFI Shell version 2.30 [2.0]
Current running mode 1.1.2
Device mapping table
fs0 :HardDisk - Alias hd18bnrglrmjgfguwt250231254295773184b blk0
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x3790000000000000)/HD(1,GPT,95D0E321-2A17-1E9-84BC-E0071B20F584)
fs1 :HardDisk - Alias hd18bnrglrmjgfguwt250512729272483840b blk1
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x37A0000000000000)/HD(1,GPT,74BD9CD0-2965-1E9-ABA3-AA000400FEFF)
fs2 :HardDisk - Alias hd18bnrglrmjgfguwt250512729272483840d blk2
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x20010002AC018ECC,0x37A0000000000000)/HD(3,GPT,74BD9CD1-2965-1E9-ABA3-AA000400FEFF)
fs3 :HardDisk - Alias hd18bowmbedokrjfpf250231254295773184b blk3
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x21010002AC018ECC,0x3790000000000000)/HD(1,GPT,95D0E321-2A17-1E9-84BC-E0071B20F584)
fs4 :HardDisk - Alias hd18bowmbedokrjfpf250512729272483840b blk4
      PciRoot(0x30304352)/Pci(0x9,0x0)/Pci(0x0,0x0)/Fibre(0x21010002AC018ECC,0x37A0000000000000)/HD(1,GPT,74BD9CD0-2965-1E9-ABA3-AA000400FEFF)
```

- Invoke the OpenVMS EFI Show Utility by entering the following command at the prompt (see Figure 8):

```
\EFI\VMS\VMS_SHOW.EFI
```

Figure 8

```
Shell>
Shell>
Shell> fs3:
fs3:\> \EFI\VMS\VMS_SHOW.EFI

Searching 4 NET Device entries...
Searching 14 UEFI Device entries...
Searching 59 PCI Device entries...
Searching 65 VMS Device entries...

VMS: DKA1      EFI: fsE      Vol: V8_4_2L1  DevInfo: HP      LOGICAL VOLUME 6.42
VMS: DKA0      EFI: fsC      Vol: V8_4_2L1  DevInfo: HP      LOGICAL VOLUME 6.42
VMS: $1$DGA890 EFI: fs1      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs3      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fs4      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs0      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs9      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fs7      Vol:           DevInfo: Fibre Device
VMS: $1$DGA889 EFI: fs6      Vol:           DevInfo: Fibre Device
VMS: $1$DGA890 EFI: fsA      Vol:           DevInfo: Fibre Device

fs3:\>
fs3:\>
```

Find the system disk containing the newly-created root and note the first corresponding fsn listed for it. For example, in Figure 4, if the system disk is \$1\$DGA890, use fs1.

10. At the prompt, boot your system by invoking VMS\_LOADER by entering the following command, using the fsn value found from the prior step and where m is the newly-created root:

```
fsn:\EFI\VMS\VMS_LOADER.EFI -FL m,0]
```

If your system root has not been previously booted, your new system will boot, run AUTOGEN, and then shutdown to reboot. When the node reboots, enter S to Launch UEFI Shell. At the Shell> prompt, execute the same VMS\_LOADER command. Once the system completes booting, login to the system.

11. Create new boot entries for the Fibre Channel devices (@SYS\$MANAGER:BOOT\_OPTIONS.COM) and reboot using one of the new Fibre Channel boot entries.
12. Physically disconnect and remove the old servers using approved and precautionary methods. Refer to your HPE server hardware documentation.
13. If you are replacing systems, you have two options for managing your system roots now:
  - a. You can use the existing roots from each old system for each new replacement system.
  - b. You can create new roots for the new systems.

If you create new roots, then you can optionally delete the old roots once they are no longer needed.

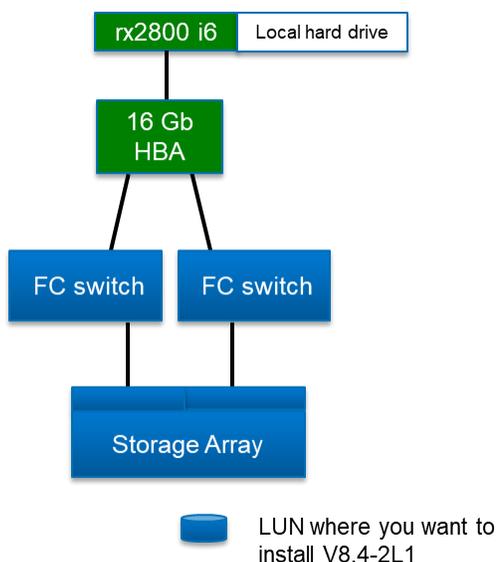
14. Follow the instructions in *Applying the Final HBA Setting* on Page 22.

## Use Case 3: Installing V8.4-2L1 via a 16 Gb HBA to a Fibre Channel System Disk for a Standalone Server

You have a new rx2800 i4 or i6 server, and you want to boot the server via your 16 Gb Fibre Channel device. See Figure 9.

**Important:** Until you install the Update Kit, the rx2800 i4 or i6 server will be unable to access Fibre Channel-based storage through the 16 Gb HBA. You initially need to install VSI OpenVMS V8.4-2L1 and the Update Kit to a locally attached (SAS) hard drive, then boot that drive and copy the patched system disk to a Fibre Channel disk.

Figure 9



Install VSI OpenVMS Version 8.4-2L1 to a local hard drive on your new rx2800 i4 or i6 server as follows. Refer to the VSI OpenVMS Version 8.4-2L1 Cover Letter and Release Notes for a list of documents you should review prior to beginning an OpenVMS installation at:

[http://www.vmssoftware.com/documents\\_list.html](http://www.vmssoftware.com/documents_list.html).

1. Boot the V8.4-2L1 distribution media and install it on your local hard drive.
2. Use PCSI to install the Update Kit on the OpenVMS system disk. This updates the EFI partition automatically on the OpenVMS system disk.
3. Engage your SAN team to connect the Fibre Channel ports from the 16 Gb HBA on the new server to the Fibre Channel switches and update switch zoning, if in use.
4. Engage your SAN team to modify the SAN configuration to recognize the new 16 Gb HBA and to enable presentation of the LUNs to the rx2800 i4 or i6 server.
5. Configure your rx2800 i4 or i6 server to boot from your 16 Gb Fibre Channel HBA. . Follow the instructions in *Enabling the 16 Gb HBA for System Booting* on Page 11.
6. Perform an image backup of the VSI OpenVMS V8.4-2L1 installation on the locally-attached hard drive to the Fibre Channel LUN, as in the following example:

```
$ MOUNT/FOREIGN $1$DGAmmm
```

```
$ BACKUP/IMAGE/IGNORE=INTERLOCK/VERIFY DKAn: $1$DGAmmm:
```

```
$ DISMOUNT $1$DGAmmm
```

```
$ MOUNT/OVER=ID $1$DGAmmm
```

7. Create new boot entries for the Fibre Channel devices (@SYS\$MANAGER:BOOT\_OPTIONS.COM) and reboot using a new Fibre Channel boot entry.
8. Follow the instructions in *Applying the Final HBA Setting* on Page 22.
9. Reboot to the Fibre Channel LUN.

## Enabling the 16 Gb HBA for System Booting

To boot from a system disk accessed through the 16 Gb HBA, perform the following post-installation steps to enable the EFI boot driver for the 16 Gb HBA and to update its boot settings.

**Note:** During this procedure, if you make changes to the configuration menus and attempt to `Start boot entry execution` without first doing a `Reset System` through the `Boot Maintenance Manager`, you will need to reset the system by pressing `Enter` at the following prompt:

```
Configuration changed. Reset to apply it Now ?
Enter (YES) / Esc (NO)
```

1. Ensure the Update Kit has been installed.
2. Reboot your server, and when it pauses momentarily with a list of optional EFI utilities to launch, enter `D` (not case-sensitive) to `Launch Device Manager` (see Figure 10) before the timeout value expires. Note the default timeout value is only 7 seconds.

Figure 10

```
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Note, menu interfaces might only display on the primary console device.
The current primary console device is:
Serial PcieRoot(0x30304352)/Pci(0x1C,0x5)/Pci(0x0,0x5)
The primary console can be changed via the 'conconfig' UEFI shell command,
or the 'Console Configuration' option in the Boot Maintenance Manager menu.

Press:  ENTER - Start boot entry execution
        B / b - Launch Boot Manager (menu interface)
        D / d - Launch Device Manager (menu interface)
        M / m - Launch Boot Maintenance Manager (menu interface)
        S / s - Launch UEFI Shell (command line interface)
        I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Automatic boot entry execution will start in 7 second(s).
Waiting for user input.
```

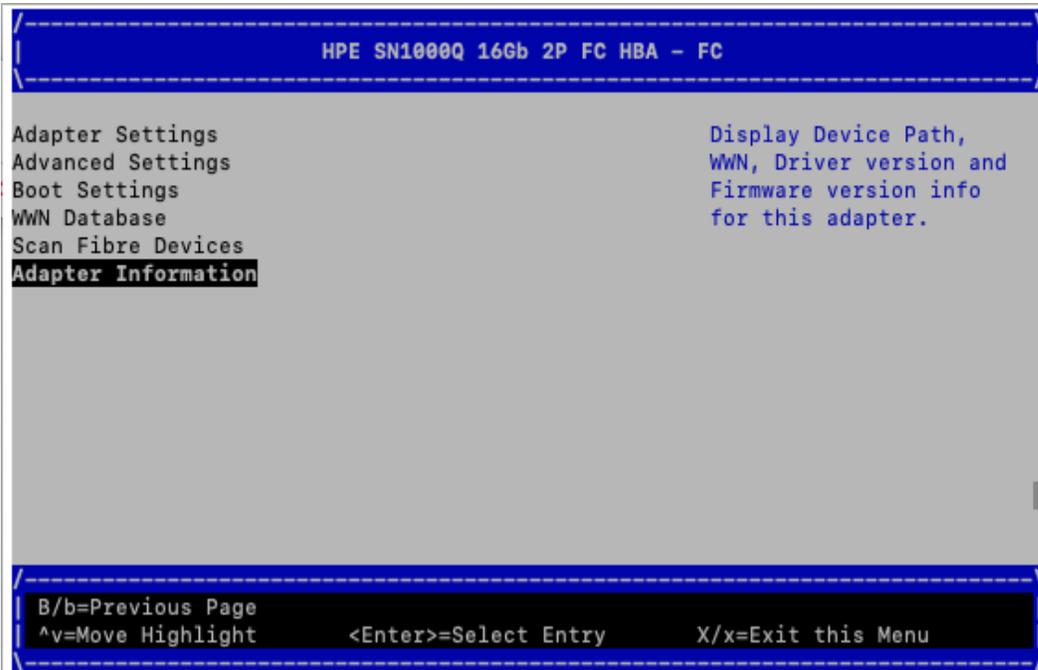
The Device Manager menu displays. Select a 16 Gb FC HBA port device (see Figure 11) and press `Enter`.

Figure 11



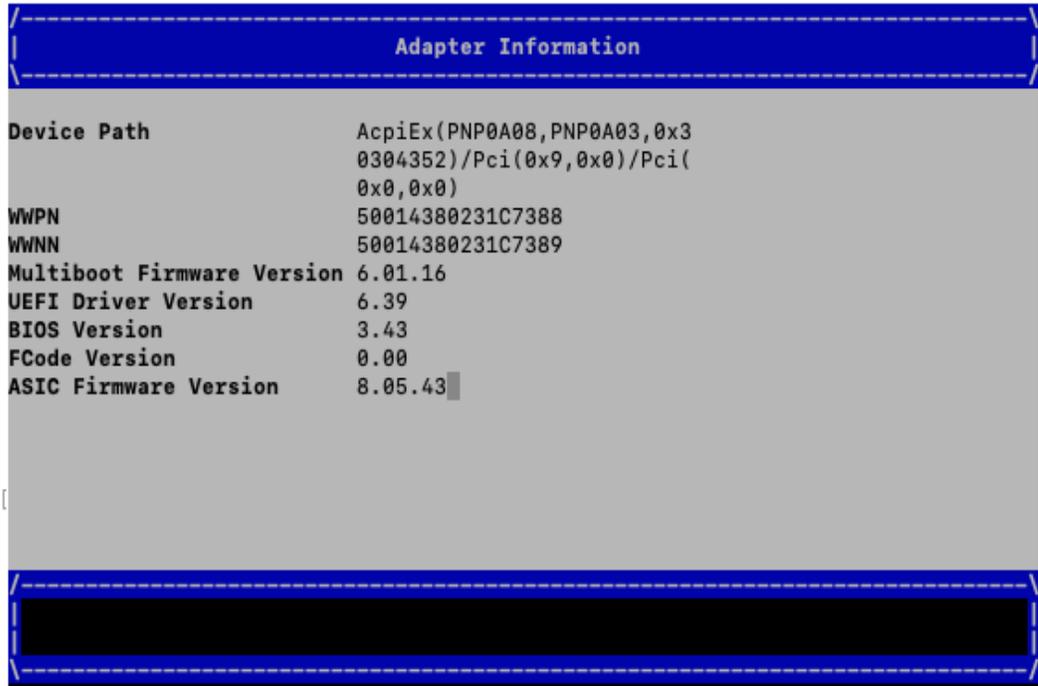
3. Scroll down the device-specific menu and select `Adapter Information` to check your firmware version (see Figure 12).

Figure 12



VSI strongly recommends that your firmware be ASIC Firmware Version 8.05.43 or higher (see Figure 13). Using an earlier firmware version may result in slightly different screens.

Figure 13



If you do need to upgrade your firmware, VSI strongly recommends you stop the procedure here. Go to your hardware supplier and download the firmware package. Follow the supplier instructions to install your new firmware and restart this procedure.

4. From the Adapter Information screen, return to the Device Manager menu (see Figure 14) by pressing X. If your HBA contained a UEFI device configuration application, one entry per port displays. Highlight the port through which you want the system to boot. Press `Enter`.

Figure 14

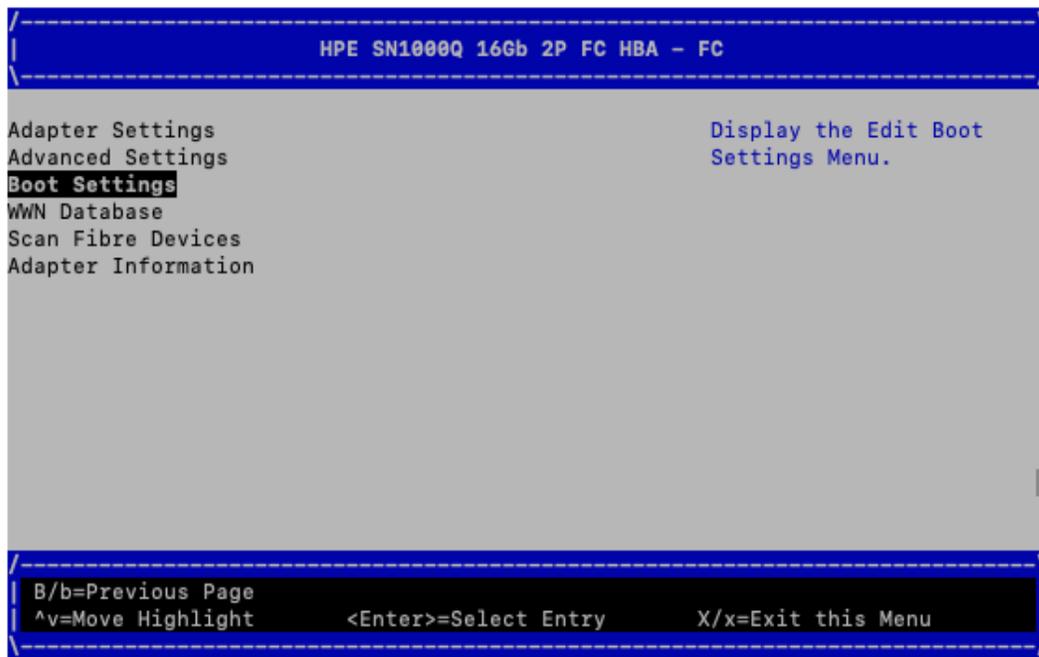


Proceed to Step 5.

**Note:** If your HBA does not contain a UEFI device configuration application, then the HBA *does not require a special configuration to boot*. You can exit this menu now by pressing X. This returns you to the list of EFI utilities to launch.

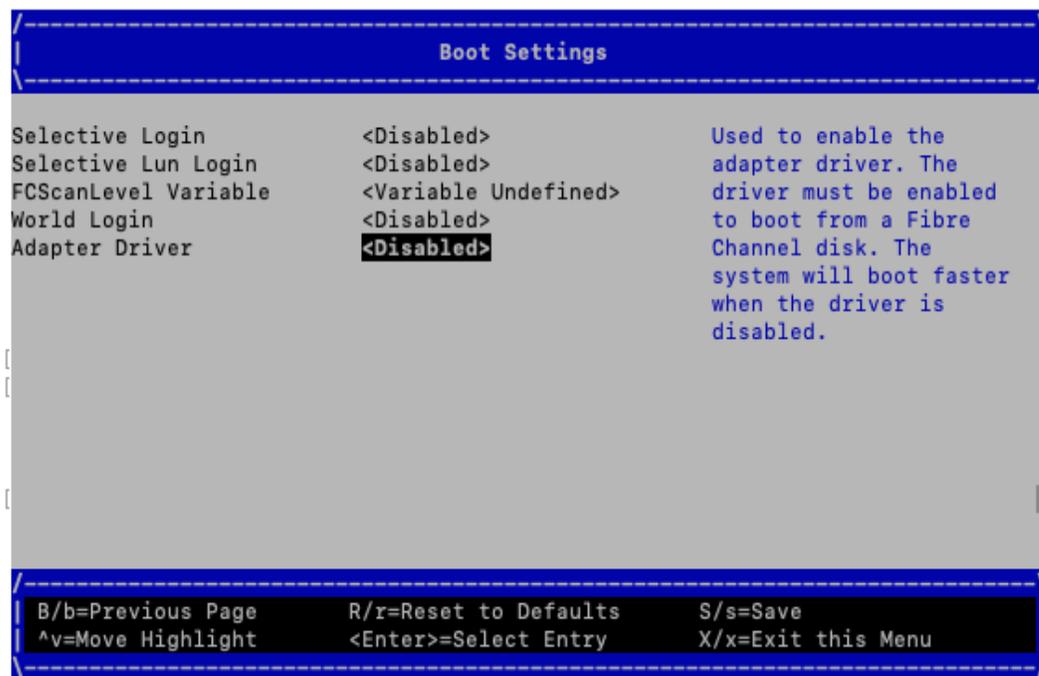
5. Figure 15 shows the main device-specific configuration window. The Adapter Settings item will be selected when the menu is first displayed (not shown). Highlight Boot Settings and press Enter to display the Boot Settings menu. In most cases, you can return to the previous menu by typing B.

Figure 15



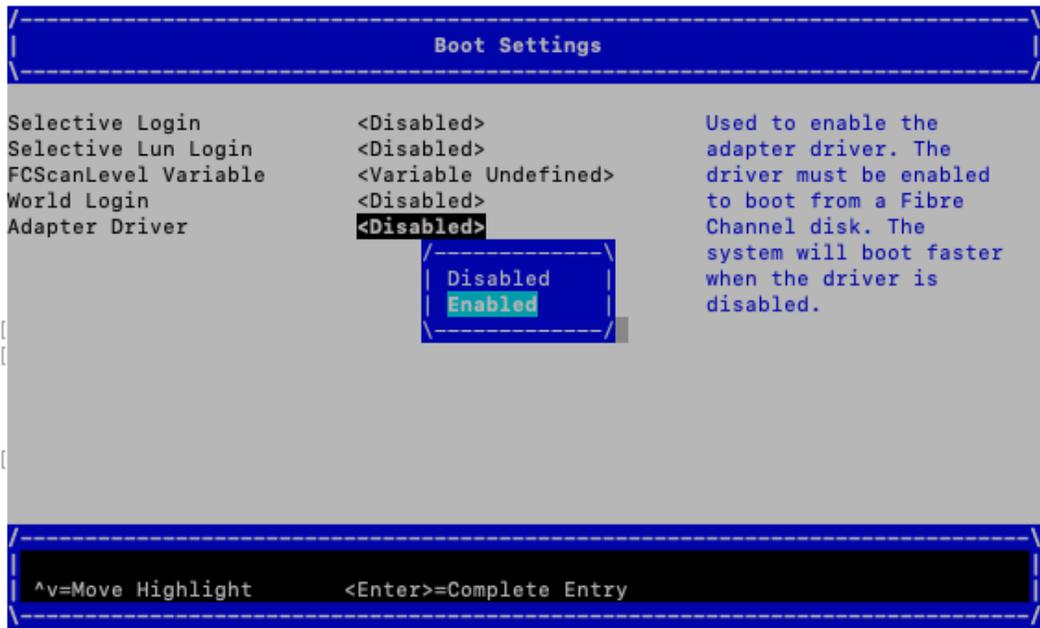
6. Figure 16 shows that the Adapter Driver is disabled, which disables UEFI from booting through the HBA. You need to change the Adapter Driver setting by highlighting the <Disabled> text next to Adapter Driver and pressing Enter.

Figure 16



7. Figure 17 shows the list of supported values for the Adapter Driver settings. Highlight the Enabled item and press Enter.

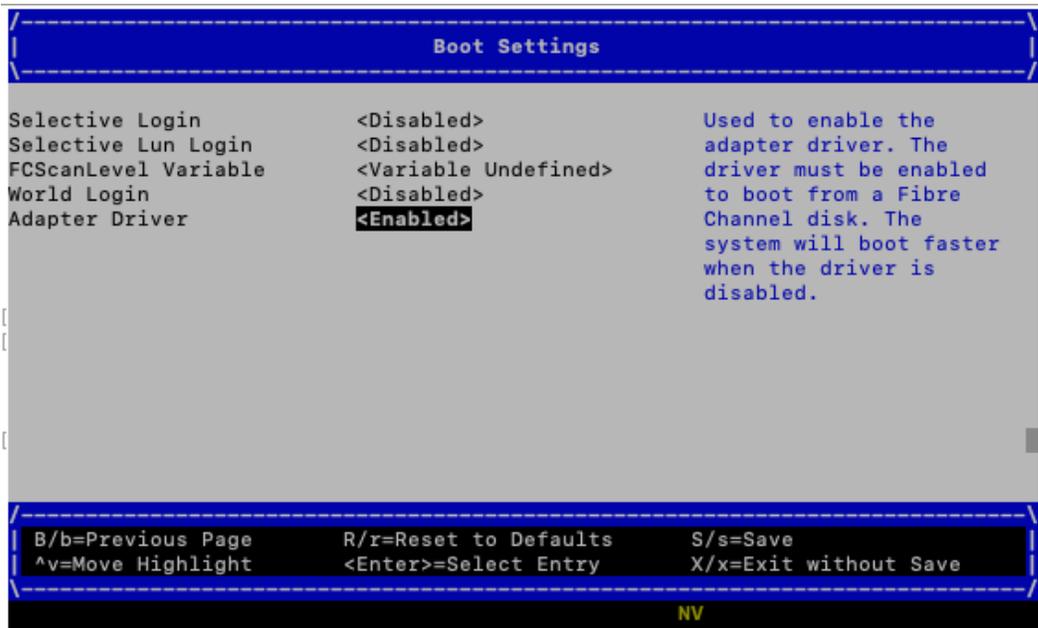
Figure 17



8. When you choose the Enabled setting as shown in Figure 17, the characters **NV** appear at the bottom of the Boot Settings screen (see Figure 18). **NV** indicates that you have chosen a *new value* for one of the boot settings.

**Important:** You must press S to save the new settings, and the **NV** will be removed.

Figure 18

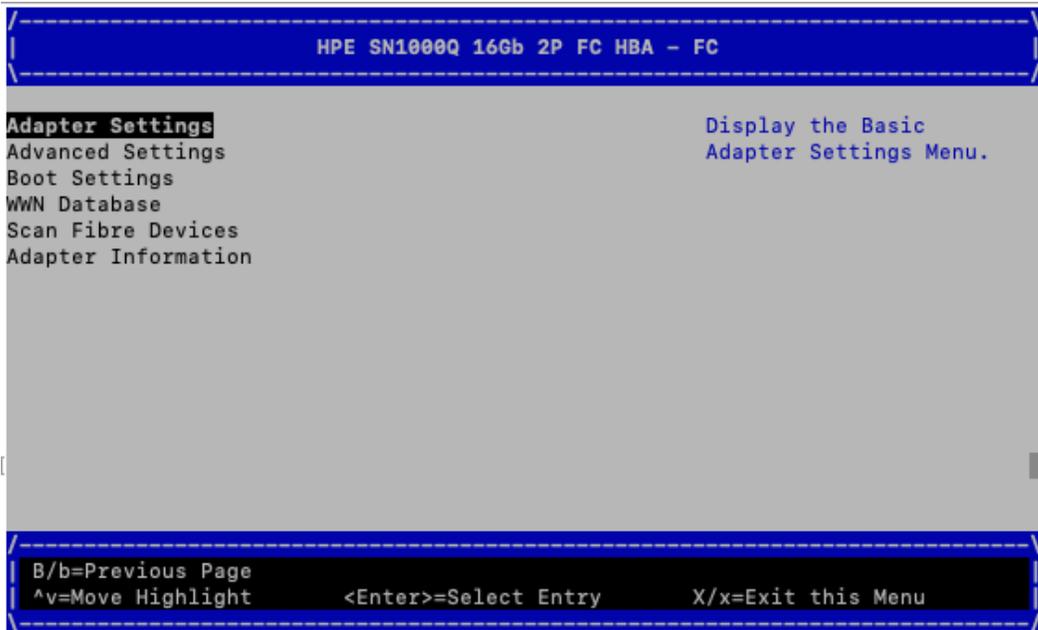


At this point, pressing **S** does not exit the menu and pressing **X** (to Exit without Save) does not save the new settings. If you have changed any settings and press **X** before saving, the system issues the following prompt:

Are you sure? (Y/N) .

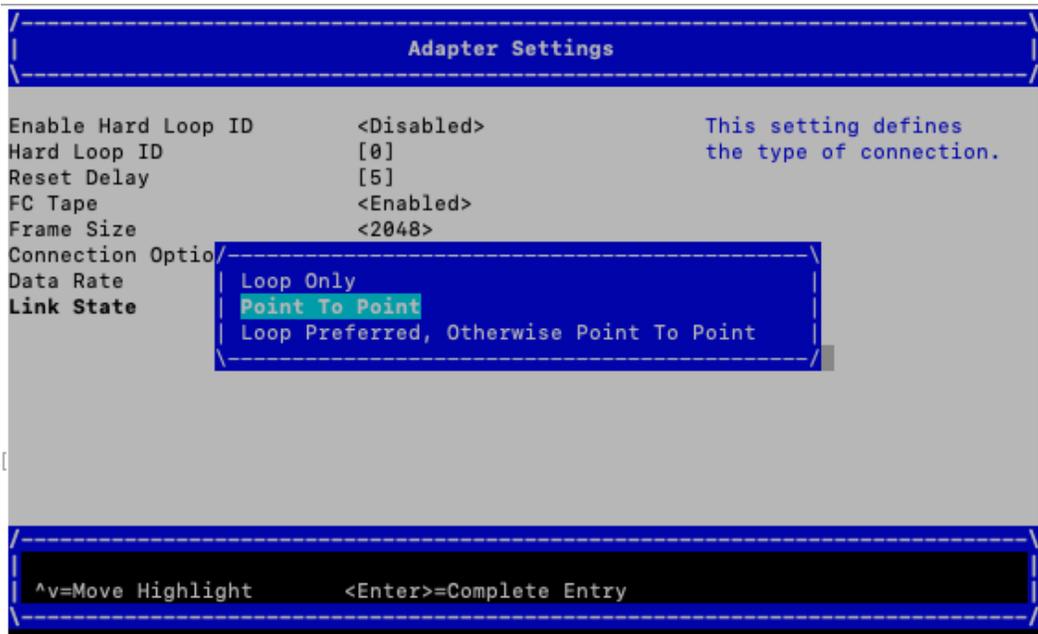
9. After the Boot Settings are saved, you need to set the connection option. Use the **B** key to navigate back to the main device-specific configuration menu and highlight Adapter Settings (see Figure 19). Press **Enter**.

Figure 19



10. Highlight the text next to Connection Option and press Enter. Select the value Point to Point (see Figure 20). If you have to make a change to the value, make sure that you save the selection by pressing S.

Figure 20



11. Use the B key to navigate back to the Device Manager menu.

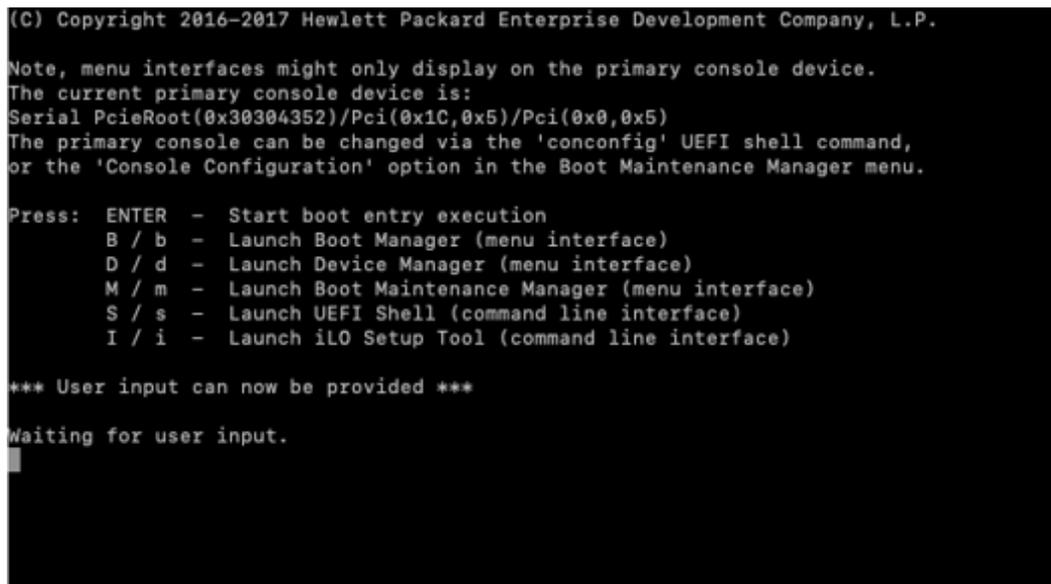
- Repeat these same Boot and Adapter Setting changes for each of the 16 Gb FC HBA ports, listed in the Device Manager menu, from which you want to boot the operating system (see Figure 21).

Figure 21



- When you have updated all the 16 Gb FC HBA ports from which you want to boot, press X to Exit and return to the list of optional EFI utilities to launch (see Figure 22).

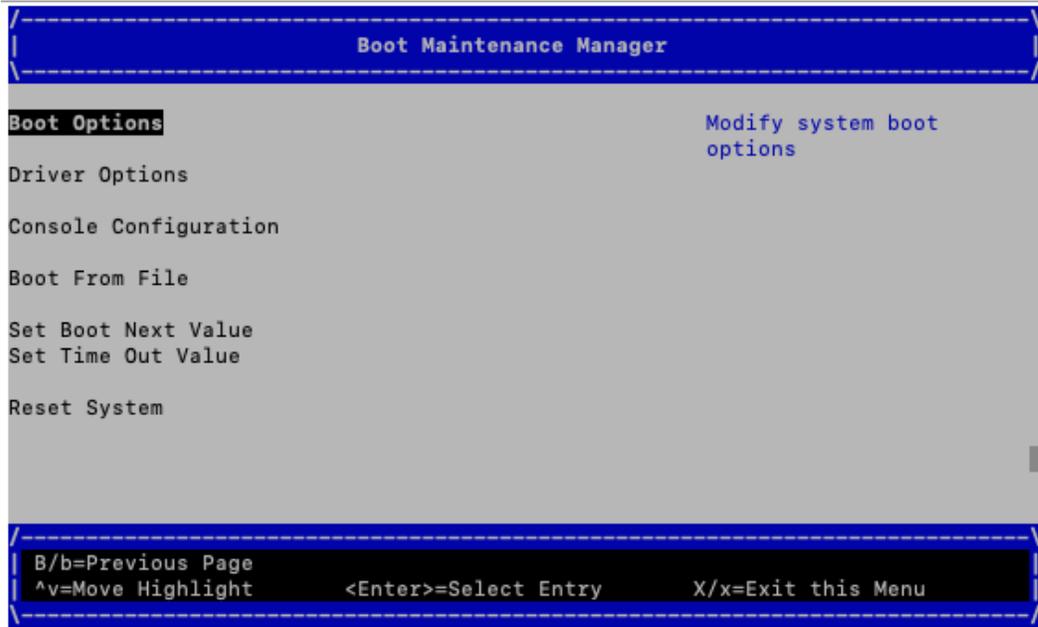
Figure 22



- The system must be reset to make the HBA Boot and Adapter Settings changes take effect. Press M to

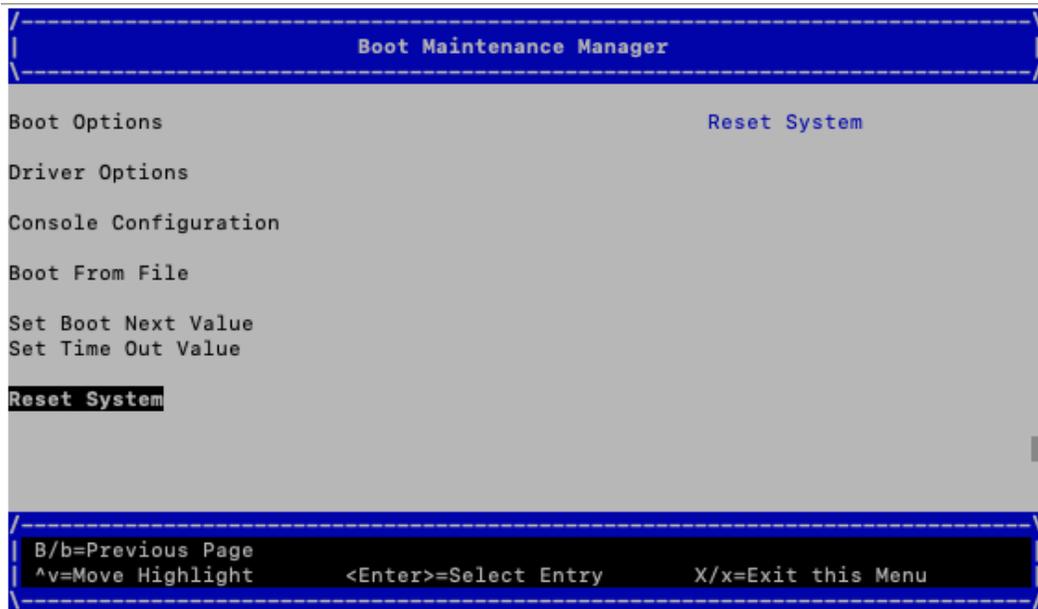
Launch Boot Maintenance Manager (see Figure 23).

Figure 23



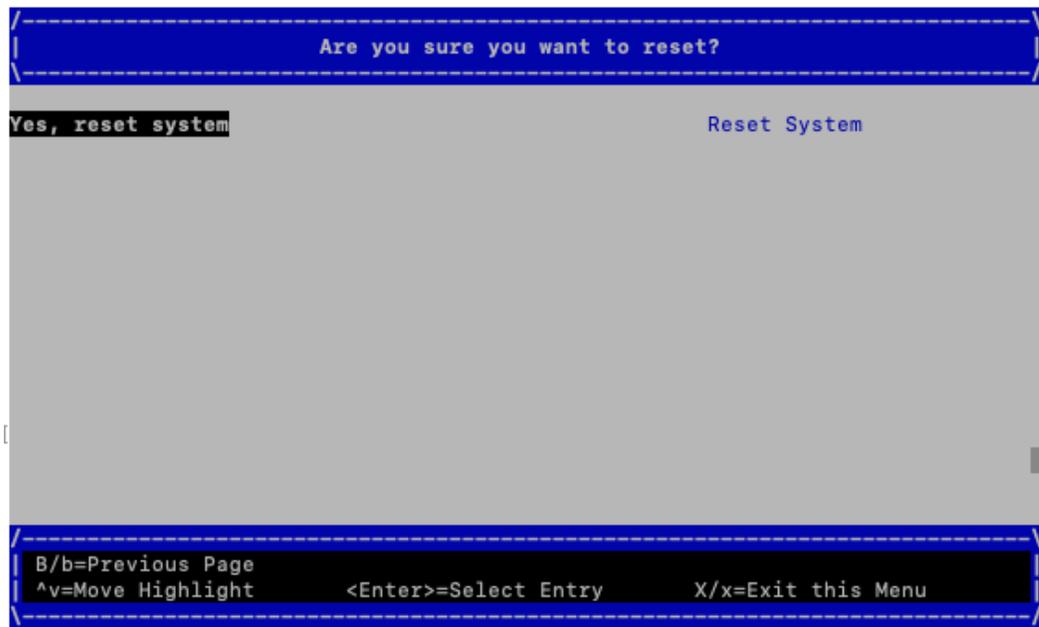
15. Highlight `Reset System` (see Figure 24), and press `Enter`.

Figure 24



16. The system displays a prompt (see Figure 25) to confirm the decision to reset the system. Press `Enter`.

Figure 25



17. The system will begin the boot process, then pause momentarily with a list of optional EFI utilities to launch. Make a selection appropriate for the next step in the use case from which this section was referred.

You have now enabled your rx2800 i4 or i6 server to boot via its 16 Gb Fibre Channel HBAs.

## Applying the Final HBA Setting

1. Reboot or reset the server to bring up the list of optional EFI utilities to launch as shown in Figure 26. Select **D** to Launch **Device Manager** before the timeout value expires. Note the default timeout value is only 7 seconds.

Once you press **D**, wait until the **Device Manager** menu appears.

Figure 26

```
(C) Copyright 2016-2017 Hewlett Packard Enterprise Development Company, L.P.

Note, menu interfaces might only display on the primary console device.
The current primary console device is:
Serial PciRoot(0x30304352)/Pci(0x1C,0x5)/Pci(0x0,0x5)
The primary console can be changed via the 'conconfig' UEFI shell command,
or the 'Console Configuration' option in the Boot Maintenance Manager menu.

Press:  ENTER - Start boot entry execution
        B / b - Launch Boot Manager (menu interface)
        D / d - Launch Device Manager (menu interface)
        M / m - Launch Boot Maintenance Manager (menu interface)
        S / s - Launch UEFI Shell (command line interface)
        I / i - Launch iLO Setup Tool (command line interface)

*** User input can now be provided ***

Waiting for user input.
```

2. Select the 16 Gb HBA port from which you will boot (see Figure 27).

Figure 27

```
Device Manager

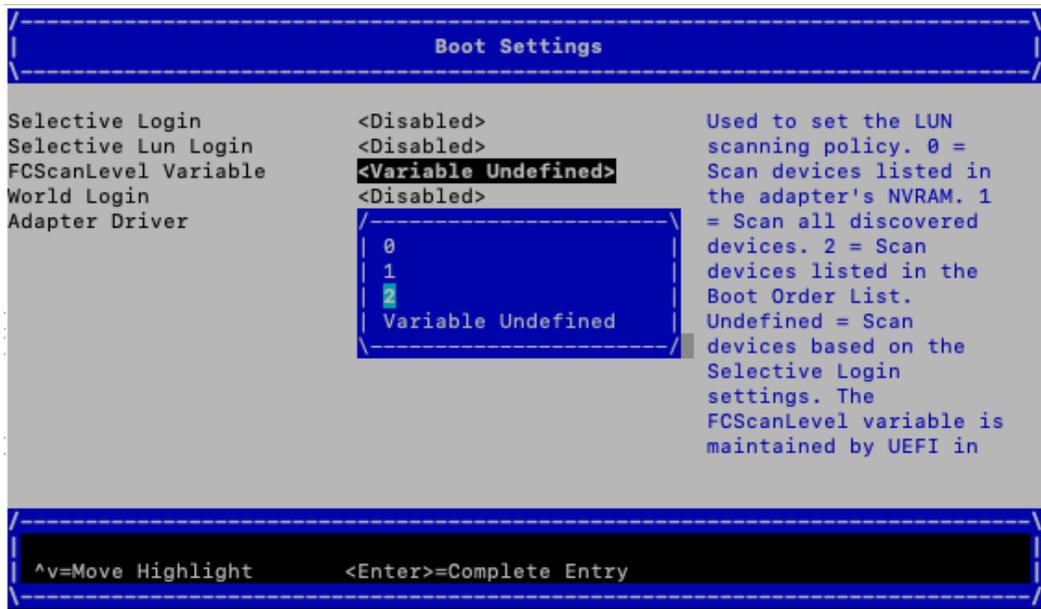
Devices List
HPE SN1000Q 16Gb 1P FC HBA - FC
HPE SN1000Q 16Gb 2P FC HBA - FC
HPE SN1000Q 16Gb 2P FC HBA - FC
Intel(R) 82575EB Gigabit Network Connecti -
E0:07:1B:20:F5:84
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
E0:07:1B:20:F5:85
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
E0:07:1B:20:16:68
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
E0:07:1B:20:16:69

QLogic HBA Driver
Configuration

^v=Move Highlight      <Enter>=Select Entry      X/x=Exit this Menu
```

3. Select the `Boot Settings` menu item.
4. Now set the `FCScanLevel Variable` to 2 (see Figure 28).
  - a. Scroll to the value for the `FCScanLevel Variable`.
  - b. Press `Enter` and select 2.
  - c. Ensure that you press `S` to save the new `FCScanLevel` setting.
  - d. Press `X` to return to the list of EFI utilities to launch.
5. Repeat Steps 2, 3, and 4 for each 16 Gb HBA port from which you want to boot.

Figure 28



5. Reset the system as described in *Enabling the 16 Gb HBA for System Booting* on Page 11. If this is not done and you attempt to Start boot entry execution without first doing a Reset System through the Boot Maintenance Manager, you will need to reset the system by pressing `Enter` at the following prompt:
 

```
Configuration changed. Reset to apply it Now ?
Enter (YES) / Esc (NO)
```
6. The system will begin the boot process then pause momentarily with a list of optional EFI utilities to launch. Make a selection appropriate for the next step in the use case from which this section was referred.

This completes the *Applying the Final HBA Setting* procedure.

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