

Using VSI OpenVMS Version 8.4-2L1 on an HPE rx2800 i6 Integrity Server

Part Number: DO-DVIINS-00A

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

Introduction

This document provides instructions on how to add an HPE rx2800 i6 Integrity Server (hereafter referred to as the rx2800 i6 server) to an existing OpenVMS cluster currently running VSI OpenVMS Integrity Version 8.4-2L1.

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
- VSI Fibre Channel patch kit named `VMS842L1I_FIBRESCSI-V0200`

OpenVMS users under support contract with VSI can contact VSI Support at 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 central.

Why is this patch needed?

The VSI OpenVMS Integrity Version 8.4-2L1 Operating Environment needs additional software to enable full support of your new rx2800 i6 server. Specifically, VSI is providing you with a patch to support the B9F23A/B9F24A Fibre Channel 16 Gb HBAs, which are the only Fibre Channel HBAs supported on the rx2800 i6 server with VSI OpenVMS. The patch kit provides updated Fibre Channel device drivers to enable operation of the 16 Gb HBA. Without installing this kit first, the rx2800 i6 server 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: This document also provides instructions to boot your rx2800 i6 server directly from your 16 Gb Fibre Channel device. See *Enabling the 16Gb HBA for System Booting on Page 6* for those instructions.

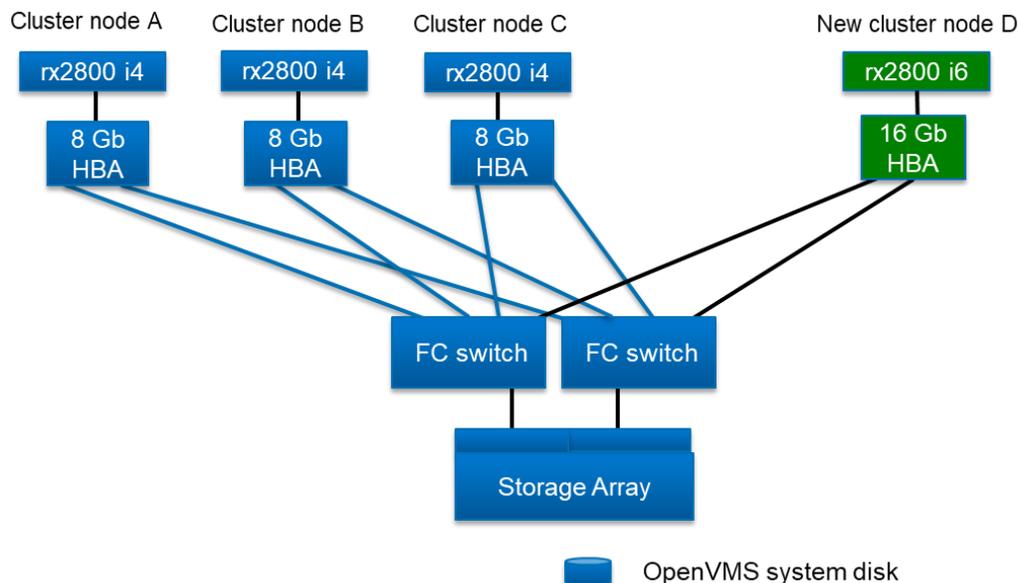
Customer Use Cases

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

Use Case 1: Adding an rx2800 i6 server to an existing cluster

You want to add a new rx2800 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:

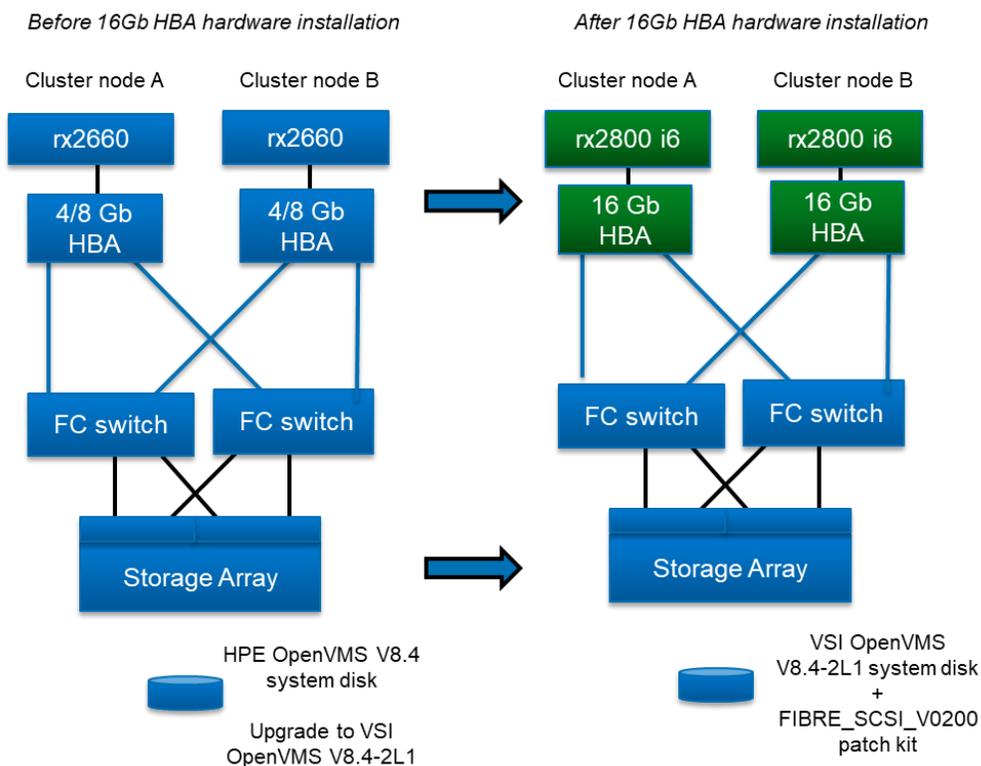
1. Ensure that the system disk in the cluster is running V8.4-2L1.
2. Use PCSI to install the 16 Gb HBA kit, `VMS842L1I_FIBRESCSI-V0200`, on the OpenVMS system disk.
3. Update the EFI partition on the OpenVMS system disk by executing the following command procedure:

```
$ @SYS$UPDATE:UPDATE_IPB_IN_EFI
```
4. 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.
5. 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 i6 server.
6. Create a root on the V8.4-2L1 system disk for the new rx2800 i6 server. Refer to the *VSI OpenVMS Integrity Installation and Upgrade Manual* and add the new server to the cluster. For more information, you may want to consult *Guidelines for OpenVMS Cluster Configurations* at: https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c04622356.
7. This document provides instructions to boot your rx2800 i6 server directly via your 16 Gb Fibre Channel HBA. See *Enabling the 16Gb HBA for System Booting* on Page 6.

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

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

Figure 2



Perform the following steps:

1. Upgrade your HPE OpenVMS V8.4 system disk to VSI OpenVMS V8.4-2L1. 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.
2. Use PCSI to install the 16Gb HBA kit, `VMS842L1I_FIBRESCSI-V0200`, on the OpenVMS system disk.
3. Update the EFI partition on the OpenVMS system disk by executing the following command procedure:

```
$ @SYS$UPDATE:UPDATE_IPB_IN_EFI
```
4. 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.
5. Engage your SAN team to modify the SAN configuration to recognize the new 16 Gb HBAs and to enable presentation of the LUNs (Logical Unit Number) to the rx2800 i6 servers.

6. Create roots on the V8.4-2L1 system disk for the new rx2800 i6 servers. Refer to the *VSI OpenVMS Integrity Installation and Upgrade Manual* to add new nodes to the cluster. For more information, you may want to consult *Guidelines for OpenVMS Cluster Configurations* at: https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-c04622356.
7. Boot the new nodes into the cluster.

Note: For more information about booting via a 16 Gb HBA, see *Enabling the 16 Gb HBA for System Booting* on page 6.
8. Physically disconnect and remove the old servers using approved and precautionary methods. Refer to your HPE server hardware documentation.
9. 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.

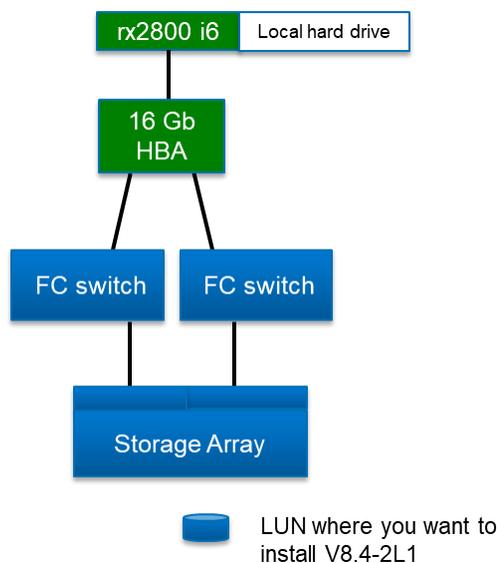
If you created new roots, then you can optionally delete the old roots once they are no longer needed.

Use Case 3: Enabling a System Boot from a 16 Gb HBA Fibre Channel Device

You have a new rx2800 i6 server, and you want to boot the server from a 16 Gb Fibre Channel device. See Figure 3.

Important: Until you install the `VMS842L1I_FIBRESCSI-V0200` patch kit, the rx2800 i6 server will be unable to access Fibre Channel-based storage through the 16 Gb HBA. You may initially need to install VSI OpenVMS V8.4-2L1 and the patch kit to a locally attached (SAS) hard drive, then boot that drive and copy the patched system disk to a Fibre Channel disk.

Figure 3



You need to install VSI OpenVMS Version 8.4-2L1 to a local hard drive on your new rx2800 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.

1. Use PCSI to install the 16 Gb HBA kit, VMS842L1I_FIBRESCSI-V0200, on the OpenVMS system disk.
2. Update the EFI partition on the OpenVMS system disk by executing the following command procedure:

```
$ @SYS$UPDATE:UPDATE_IPB_IN_EFI
```

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 (Logical Unit Number) to the rx2800 i6 server.
5. Boot the local hard drive with the V8.4-2L1 and Fibre-SCSI-16Gb kit.
6. Mount the SAN-based LUN that is the selected new fibre system device with the following command:

```
$ MOUNT/FOREIGN $1$DGAnnn
```

7. Backup the local hard drive that has the V8.4-2L1 operating system and VMS842L1I_FIBRESCSI-V0200 kit to the SAN-based LUN with the following command:

```
$ BACKUP/IMAGE/IGNORE=INTERLOCK SYS$SYSDEVICE: $1$DGAnnn:
```

8. When the backup completes, enter the following before creating a boot entry for the fibre system disk:

```
$ DISMOUNT $1$DGAnnn:  
$ MOUNT/OVER=ID $1$DGAnnn:
```

9. Add a console boot entry and set the boot flags for the selected Fibre system disk by entering:

```
$ @SYS$MANAGER:BOOT_OPTIONS
```

Select menu item 1 and reply to the prompts with the device name and boot flags for the new fibre system disk. This creates a new entry for the SAN-based LUN you have created to be the fibre system disk. For additional information about adding a boot option and setting boot flags, refer to http://h41379.www4.hpe.com/doc/83final/ba322_90045/apbs05.html

10. Shut down the system that was booted from the local hard drive.
11. Follow the instructions and figures in the next section, *Enabling the 16 Gb HBA for Booting*, to make you 16 Gb HBA bootable.

Enabling the 16Gb HBA for System Booting

IMPORTANT: You must follow these steps to boot your rx2800 i6 server via a 16 Gb Fibre Channel HBA.

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

1. As the system boots, enter D (not case sensitive) to launch the Device Manager (see Figure 4) before the timeout value expires.

Figure 4

```
(C) Copyright 1996-2010 Hewlett-Packard 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.

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 29 second(s).
```

2. Figure 5 shows the Device Manager menu. If your controller contained a UEFI device configuration application, one entry per port displays, for example HP SN1000Q. Select the port through which you want the system to boot. Press Enter.

If your controller does not contain a UEFI device configuration application, then the controller requires *no special configuration to boot*. You can exit this menu and continue to boot. Press X.

Figure 5

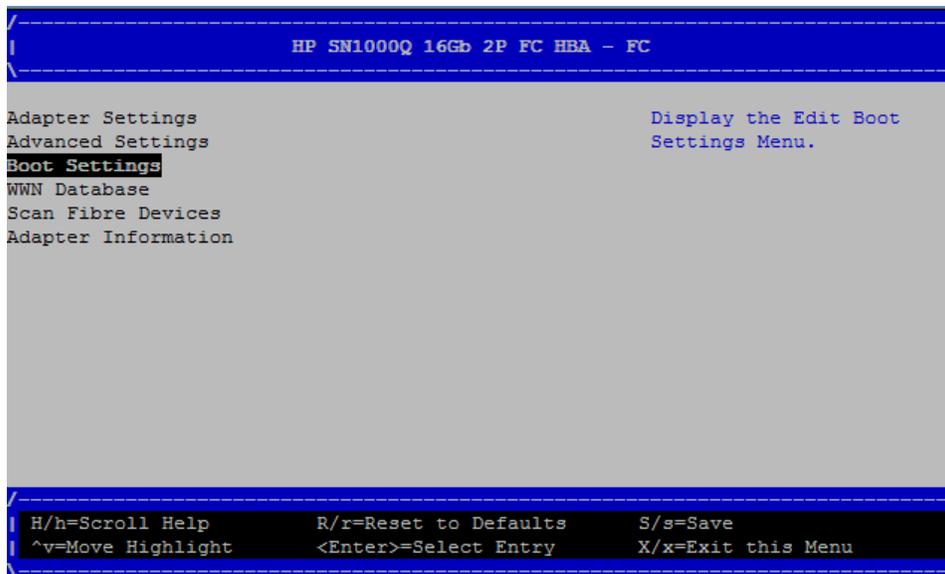
```
Device Manager

Devices List
Port 1 - HP SN1000Q 16Gb 2P FC HBA          QLogic HBA Driver
Port 2 - HP SN1000Q 16Gb 2P FC HBA          Configuration
Intel(R) 82575EB Gigabit Network Connecti -
D0:BF:9C:40:A9:12
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
D0:BF:9C:40:A9:13
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
D0:BF:9C:40:B9:C6
IPv4 Network Configuration
Intel(R) 82575EB Gigabit Network Connecti -
D0:BF:9C:40:B9:C7
IPv4 Network Configuration

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

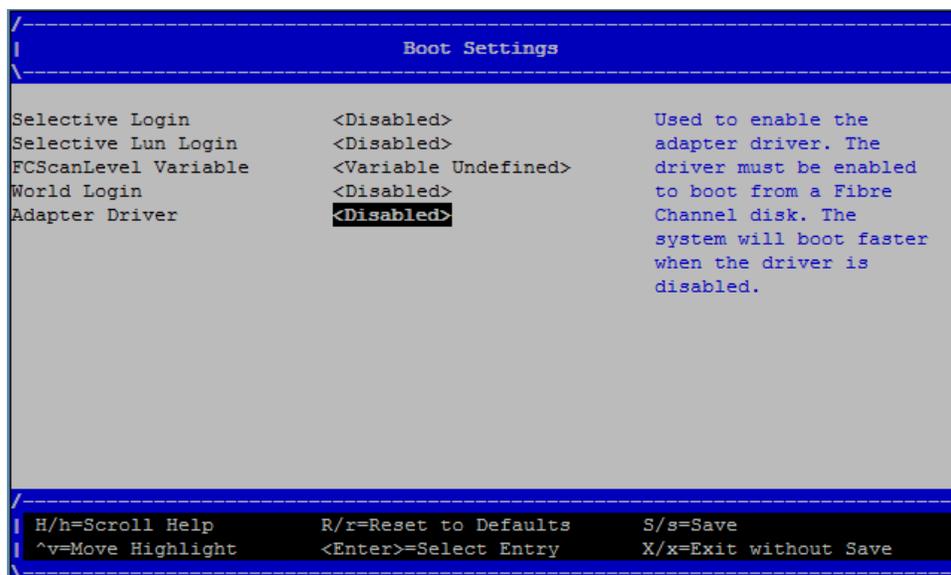
- Figure 6 shows the main device-specific configuration window. The Adapter Settings item will be selected when the menu is displayed. Select Boot Settings (as shown Figure 6). Press Enter to display the Boot Settings menu. In most cases, you can return to the previous menu by typing B (not case sensitive). Press Enter.

Figure 6



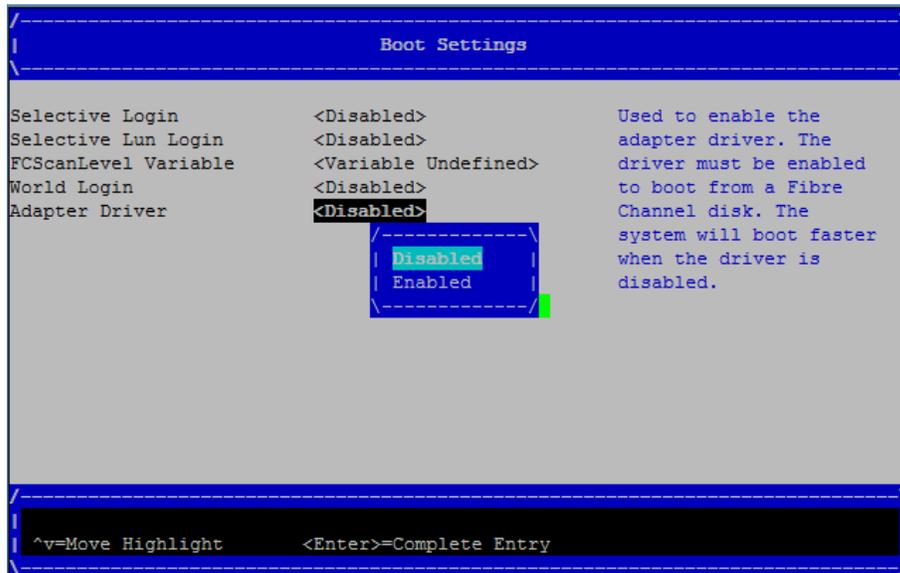
- Figure 7 shows that the Adapter Driver is disabled, which will disable UEFI from booting through the controller. You need to change the Adapter Driver setting by selecting the <Disabled> text next to Adapter Driver and press Enter.

Figure 7



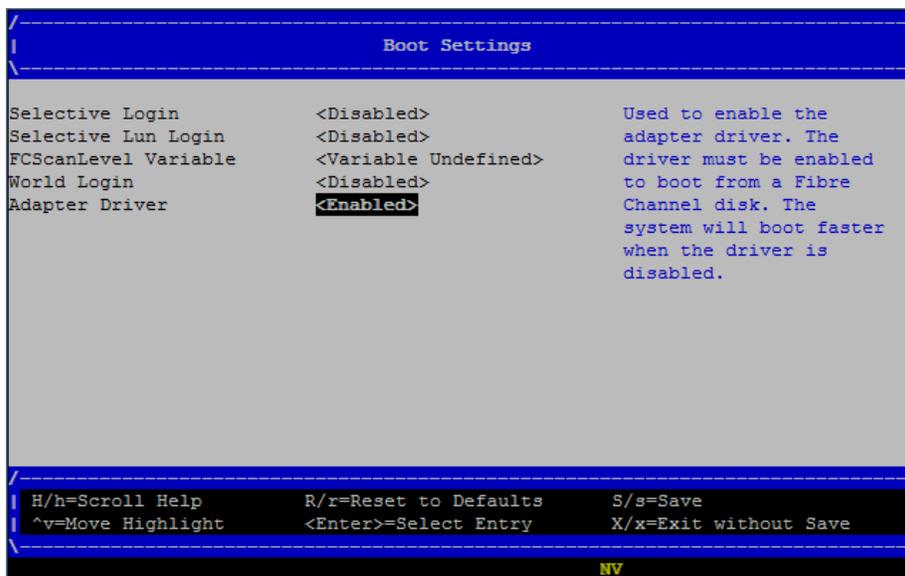
- Figure 8 shows the list of supported values for the Adapter Driver settings. Scroll to the Enabled item and press Enter.

Figure 8



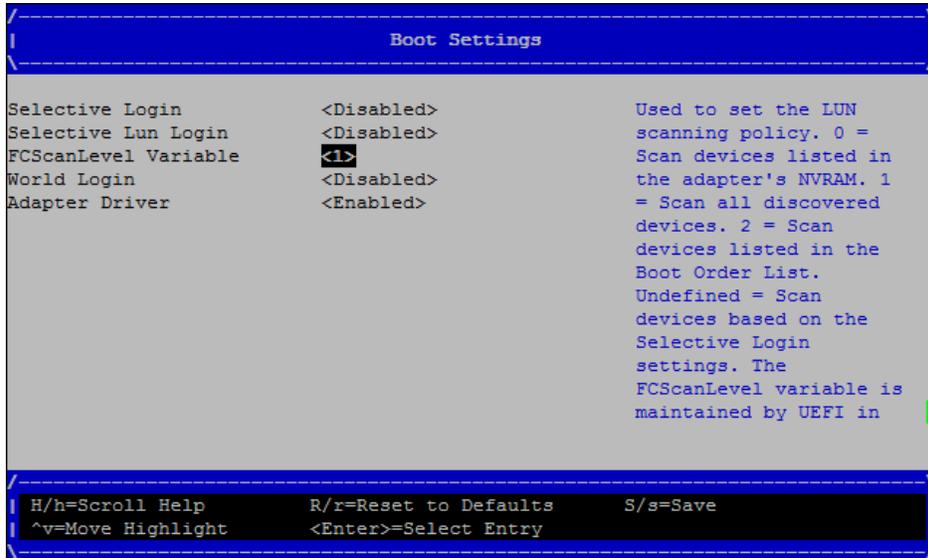
- When you choose the Enabled setting as shown in the previous figure, the characters **NV** appear at the bottom of the Boot Settings menu (see Figure 9). **NV** indicates that you have chosen a *new value* for one of the boot settings. You must press S to save the new settings. Note that pressing S does not exit the menu. Pressing X (to *Exit without Save*) does not save the new settings. If you have new settings, and Press X, the system issues the following prompt: Are you sure? (Y/N).

Figure 9



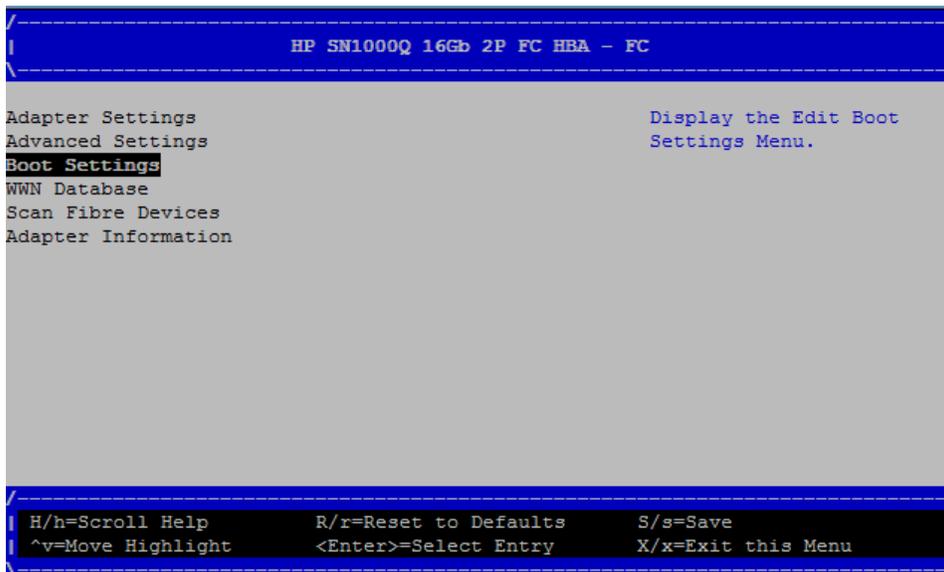
- You now need to set the FCScanLevel Variable to 1, as shown in Figure 10. Scroll to FCScanLevel Variable. Press Enter and select 1. Ensure that you Press S to save the new FCScanLevel setting. Then Press B to go to the Previous Page.

Figure 10



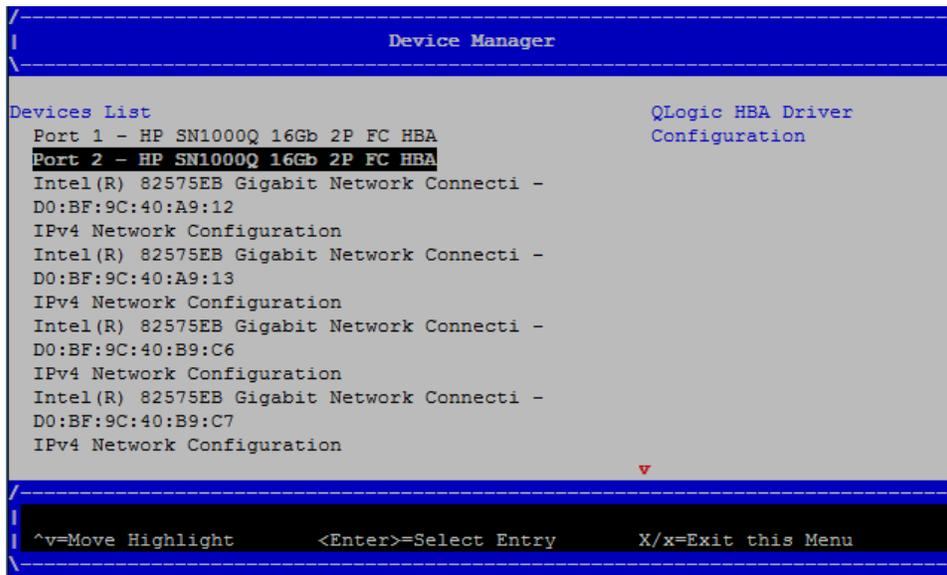
- You are now at the Boot Settings menu, as shown in Figure 11. Press X to exit this menu and return to the Device Manager menu.

Figure 11



- Repeat these same Boot Setting changes for each 16Gb FC HBA port listed in the Device Manager Devices List, as shown in Figure 12.

Figure 12



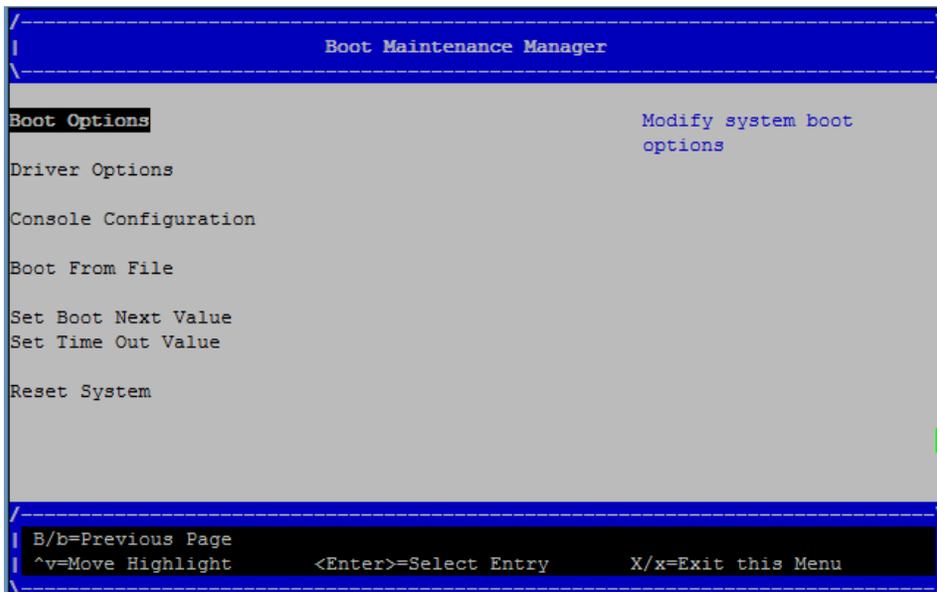
- When you have updated all the FC HBA ports, press X to Exit the Device Manager Menu, as shown in Figure 13.

Figure 13



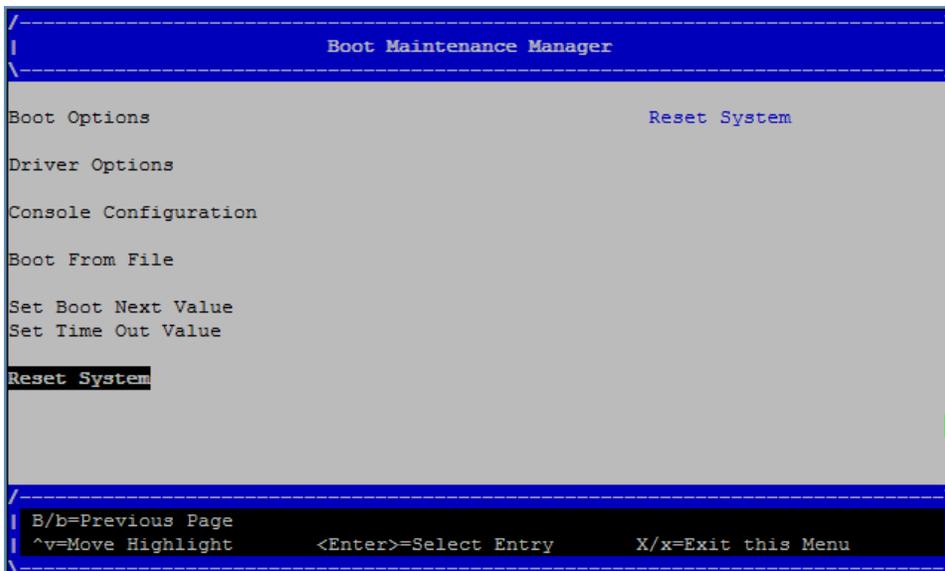
11. The system must be reset to make the HBA boot setting changes take effect. At the console menu, press M to Launch Boot Maintenance Manager, as shown in Figure 14.

Figure 14



12. Scroll down to highlight Reset System, as shown in Figure 15, and press Enter.

Figure 15



13. You have now enabled your rx2800 i6 server to boot via its 16 Gb Fibre Channel HBAs.
14. If you have not already created one, you can use `VMS_BCFG.EFI` to create an entry in the Boot menu for your Fibre Channel disk. For more information about `VMS_BCFG.EFI`, see *EFI Utilities for OpenVMS* section in the *HP OpenVMS System Management Utilities Reference Manual* at http://h41379.www4.hpe.com/doc/83final/6048/6048pro_028.html#efi_ch.

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