



Technical Note

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Configuring the HP StorageWorks Modular Smart Array 1000 (msa1000) for external boot with HP Proliant Blade Servers

Abstract: HP supports this function only in Microsoft Windows 2000 or Windows 2003 Server environments.

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Prerequisites

There are few mandatory steps needed before installing of the operating system:

- Verify that you have the latest version of the BL20p system firmware. The system firmware is located on www.hp.com/go/blades under the server support page.
- The iLO FW will need to be upgraded to version 1.40 or later. The iLO firmware is located under the specific server support page at www.hp.com/go/blades
- Obtain the latest copy of the MSA1000 Support Software CD. The MSA1000 Support Software CD is located on <http://www.hp.com/go/msa1000> and follow the “software, firmware and drivers” link.
- Verify that the HBA firmware is at the latest supported version. As of the writing of this tech note, latest supported firmware versions are:

fca 2101	BIOS / boot BIOS firmware 3.91a1 / 1.63a1
fca 2214 / fca 2214 DC	BIOS version 1.34
BL20P mezzanine HBA card	BIOS version 1.34

If firmware versions are needed for your HBA, they can be downloaded at:

<http://h18006.www1.hp.com/storage/saninfrastructure.html>

- Follow the supported MSA1000 SAN interconnect matrices. These matrices are located on <http://www.hp.com/go/msa1000>
- Obtain 1.40 or later version of Rapid Deployment Pack (RDP) at: <http://h18004.www1.hp.com/products/servers/management/rdp.html>

After all mandatory steps are completed, the next step is to create a LUN (logical drive) for the server to boot from.

Configuring a Boot LUN on the MSA1000

NOTE: The computer being used for browsing to the iLO web interface is the CD ROM drive for the virtual CD option.

1. Browse to the iLO web interface.
2. Select the Virtual Devices tab.
3. Install the MSA1000 Support CD in the drive.
4. Connect the virtual CD drive.
5. Power cycle the blade server.

The blade server will now boot to the MSA1000 Support Software CD.

6. Select the ACU option, and use the ACU to configure an Array, then create a Logical Volume or LUN (for the rest of the documentation purposes, the Logical Volume shall be referred to as a LUN).

7. After you have created a LUN, exit the ACU and exit the MSA1000 Support Software CD. Your server will reboot.
8. Disconnect the Virtual CD from the Virtual Media page.

Configuring the Server BIOS

The Server BIOS must now be redirected to boot from the HBA port.

1. At the prompt, for Servers BIOS, Press F9 to start the RBSU (ROM Based Setup Utility).
2. Choose the Boot Controller Order, select the primary HBA port, and move it to Controller Order 1.
3. Select PCI Devices –
4. Select the Smart Array Controller
5. Select Disable
6. Exit and save the RBSU changes.

Configuring the HBA Adapter for Proliant BL20p Servers and FCA2214 / FCA2214DC

1. During the boot process, a Qlogic HBA message is displayed. At the prompt to enter the Fast!util, press ctrl-Q to enter the Fast!util.
2. In the Select Host Adapter Menu, choose the adapter you want to boot, then press Enter.
3. In the Fast!Util Options Menu, choose Configuration Settings, then press Enter.
4. In the Configuration Settings menu, choose Host Adapter Settings, then press Enter.
5. In the Host Adapter Settings menu, change the Host Adapter BIOS to Enabled by pressing Enter.
6. In the Selectable Boot Settings menu, enable the Selectable Boot option, then move the cursor to the Primary Boot Port Name, LUN:, then press Enter.
7. In the Select Fibre Channel Device menu, choose the device to boot from, then press Enter.
8. In the Select LUN menu, choose the supported LUN.
9. Save the changes by pressing ESC twice.
10. Exit Fast!Util

Configuring the FCA 2101 HBA Adapter

1. As the server boots, the menu for the HBA is displayed. Press <Alt E> to start the Emulex BIOS Utility.
2. At the list of HBAs in the server, press 1 -> Enter to select the display HBA

3. You are presented with two selections. Note the options at the bottom of the screen to navigate through the menus.
4. Press 2 -> Enter to select Configure This Adapter's Parameters.
5. You are presented with 9 options, press 1 -> Enter to Enable or Disable BIOS.
6. Press 1 -> Enter to enable the BIOS
7. Press the PageUp key to return to the previous menu.
8. Press the PageUp to return to the first menu.
9. Press 1 -> Enter to Configure Boot Devices
10. You are presented with a list of saved boot devices.
11. Press 1 -> Enter to select Primary Boot.
12. You are prompted to select the desired boot device.
13. Press 00 -> Enter to clear selected boot entry.
14. Press 1 -> Enter to select Primary Boot.
15. Press 01 -> Enter to select the entry with the LUN that is presented by the MSA1000
16. You are prompted to enter in a two-digit LUN number, enter 00 -> Enter.
17. You are presented with a list of available LUNs visible to the HBA.
18. Press 01-> Enter to select the first LUN (logical drive 1) on the MSA1000
19. You are prompted to select how to boot the device.
20. Press 1 -> Enter.
21. You are returned to the list of saved boot devices.
22. Press x->y to exit the menu and reboot the server.

Configuring the RDP Server for Booting from a SAN

This section describes how to set up booting from a SAN in the Rapid Deployment Pack (RDP). The following instructions describe how to modify the scripted deployment jobs provided by the RDP, enabling you to deploy servers that boot from SAN.

1. Install the Boot from SAN support for Rapid Deployment Pack 1.40 SoftPaq:
 - a. Obtain the Fibre Channel Driver boot Support for Rapid Deployment Pack 1.40 SoftPaq, located on the MSA1000 Support CD under the /RDP directory and install the files on your Deployment Server.
 - b. Extract the files in the SoftPaq to a new folder (temporary) on your deployment server.
 - c. From the Command Prompt, navigate to the folder containing the extracted files.
 - d. Enter the command `cscript install.wsf` to install the files to the appropriate location on the deployment server.

2. Copy a scripted install job provided with the Rapid Deployment Pack to use for your Boot from SAN deployment job:
 - a. Right click the title bar of the Jobs pane, and choose create a new folder.
 - b. Enter the desired name for your Boot from SAN jobs folder.
 - c. Select either the Microsoft Windows 2000 or the Microsoft Windows 2003 Scripted Install Job for your target system hardware (BL or ML/DL). Right-click the job and choose Copy.
 - d. Right-click the Boot from SAN folder, and choose Paste to copy the job into the folder.
 - e. To rename the job, right-click the job and choose Rename.
 - f. Enter a descriptive name for the job.
3. Edit the copied job to enable Boot from SAN deployment:
 - a. Select the newly created job.
 - b. Highlight the first task, Run Script – Set Hardware Configuration and click Modify.
 - c. Add REM to the beginning of the set aryfile= line
 - d. Add REM to the beginning of the next line call f:\deploy\tools\scripts\setcfg.bat
 - e. Change the filename in the set hwrfile= line to a unique name for the hardware platform to indicate this is the Boot from SAN configuration. This file contains the hardware settings for Boot from SAN deployment. Make a note of the filename, since you will use it later in the procedure.
 - f. Click Finish
4. Delete the Run Script – Set Disk Partition or the first Run Script- (embedded) task.
5. In place of the deleted Run Script – Set Disk Partition or the first Run Script – (embedded) task, add a Distribute Disk Image task.
 - a. Choose the DOS_ONLY.IMG from the Images folder.
 - b. Deselect the Automatically perform configuration task after completing this imaging task check box.
 - c. Choose Finish.
 - d. Select the Deploy Image - .\Images\DOS_ONLY.IMG task and press the UP arrow three times to place it between the two Power Management – (Reboot) task. This places the Deploy Image task in the location of the deleted Run Script – Set Disk Partition task.
6. Edit the first Run Script – Install OS task.
7. Add the following test as a new line before the call to w2k.bat (for Microsoft Windows 2000 jobs) or wnet.bat (for Microsoft Windows 2003 jobs): Set skipformat=yes
8. Choose Finish to save the changes to the Run Script – Install OS task.
9. Click the new modified job, for task verification.
10. Edit the Microsoft Windows unattended install files(s) as follows:

For Microsoft Windows 2000:

1. From the extracted files folder, open the Express\deploy\cds\Compaq\ss.640\w2k\unattend.txt file (source file).
2. Open the express\deploy\cds\Compaq\ss.640\wnet\unatted.txt file (target file).
3. Copy the driver descriptions from the [MassStorageDrivers] section from the source to the target file.
4. Copy the driver names from the [OEMBootFiles] section of the source to the target file.

For Microsoft Windows 2003 Server:

1. From the extracted files folder, open the Express\deploy\cds\Compaq\ss.640\w2k\unattend.txt file (source file).
 - a. Open the express\deploy\cds\Compaq\ss.640\wnet\unatted.txt file (target file).
 - b. Copy the driver descriptions from the [MassStorageDrivers] section from the source to the target file.
 - c. Copy the driver names from the [OEMBootFiles] section of the source to the target file.
2. Capture the Hardware Configuration of the reference server:
 - a. Boot the reference server from the PXE or Bootworks Diskette so it is available in the RDP console
 - b. Drag the Capture Hardware Configuration job from the SmartStart Hardware Configuration Events folder to the reference server.
 - c. When the job completes, it creates the file CPQCAP-H.ini in the \express\deploy\configs\ directory.
 - d. Rename the CPQCAP-H.INI file to the name specified on the set hwrfile=line in the Run Script – Set Hardware Configuration in step tbd. This automatically sets your hardware configuration on each server deployed with you Boot from SAN job.

The customized job is now ready to deploy servers that boot from SAN.

Install the Operating System

Rapid Deployment Pack

In ProLiant Essentials Rapid Deployment Pack (RDP), drag and drop the Boot to SAN event to install the operating system.

Note: Remember to install the appropriate Microsoft Service Packs.

Install MSA1000 Drivers and Utilities

There are two methods for installation of MSA1000 Drivers and Utilities.

Manual:

1. Browse to the iLO web interface.
2. Select the Virtual Devices tab.
3. Install the MSA1000 Support CD in the drive.
4. Connect the virtual CD drive.
5. In the server console window, browse the CD contents.
6. Select the Autorun program.
7. At the MSA1000 Support screen,
 - a. If needed: Install the Array Configuration Utility (ACU).
 - b. Update the HBA drivers.
8. Disconnect the Virtual CD from the Virtual Media page.
9. Power cycle the server to accept the driver changes.

RDP:

Follow the Windows instructions for creating an RDP event, located in the MSA1000 and Proliant Blade RDP installation guide. <http://www.hp.com/go/msa1000>