HP StorageWorks MSA1000 and a ProLiant BL20p G2 or BL40p blade server-to-SAN Environment through RDP.

Delivery of the configuration and management tools necessary for supporting an MSA1000 attached to a ProLiant blade server(s) is facilitated by ProLiant Essentials RDP (Rapid Deployment Pack). For more information how to obtain RDP visit www.hp.com , and follow the link to ProLiant servers and then to the management link.

This document provides an overview of the software components required to create a server-to-SAN (Storage Area Network) configuration by implementing the ProLiant Essentials RDP (Rapid Deployment Pack). By providing automated server deployment and re-deployment scripts, RDP supports Automated System Provisioning, a key component of the Adaptive Infrastructure. Along with the version control features of HP Insight Manager 7, RDP provides a set of tools to automate repetitive labor-intensive tasks and more easily facilitate change management.

The MSA1000 Support CD contains software components, drivers, and utilities, which are copied to your RDP server and scripted for subsequent installation. Refer to the instructions that came with your RDP software for installation examples.

BACKGROUND

The ProLiant Essentials RDP combines the GUI-based remote console deployment capability of the Altiris express Deployment Solution with the power and flexibility of the SmartStart ™ Scripting Toolkit, which is integrated with the Altiris product through the ProLiant Integration Module.

The Altiris eXpress Deployment Solution is a GUI-based deployment and software distribution tool that provides remote console capabilities for imaging and scripting. Altiris has also developed enhancements within its base product for HP products, such as integration with Remote Insight Lights-Out Edition (RILOE) and Integrated Lights-Out (iLO), as well as the new ProLiant BL servers.

To facilitate deployment of ProLiant servers, the ProLiant Integration Module contains sample deployment events, batch files, support software, and the SmartStart Scripting Toolkit. Deployment using the Altiris eXpress Deployment Solution encapsulates all necessary steps for configuring and deploying ProLiant servers into easy-to-use deployment events that you can simply drag and drop to deploy one or many servers.

Together, HP and Altiris have delivered powerful imaging and scripting features to provide the greatest amount of flexibility in server deployment.

MSA1000 UTILITIES AND SMART COMPONENTS IN THIS CD

The MSA1000 Support Software CD includes the following software components for MSA1000 support:

In the \rdp\Windows directory:

- **CP003661.exe** - HP StorageWorks Fibre Channel Adapter driver kit for Windows 2000/2003 (KGPSA, FCA-Emulex)
- **CP003941.exe -** HP StorageWorks hp2300 FCA driver kit for Windows 2000/2003 for HP Proliant BL20p G2 servers.
- **CP003474.exe** - HP StorageWorks Array Configuration Utility for Windows (ACU)
- **CP003055.exe** - HP StorageWorks MSA1000 Notification Driver for Windows 2000/2003

In the \rdp\Linux directory:

- **DRV_2214_60400_Linux.rpm** - HP StorageWorks Fibre Channel Adapter Driver for Red Hat Advanced Server 2.1 Linux (BL20p and FCA2214)
- **CPQACUXE-6.40.11.i386.rpm** - HP StorageWorks Array Configuration Utility for Linux (ACUxe)

RESTRICTION AND CAUTIONS

The RDP installable components on the MSA1000 Support Software CD are used in place of the normal driver installation.

The RDP installable smart components, which are located in the RDP directory, are at the same revision level as the components that would be installed using the CD procedure.

Refer to the information in the *StorageWorks MSA1000 SAN Configuration Guide* for component version-compatibility information. Access this document on the MSA1000 technical documentation page at http://www.hp.com/go/msa1000.

SERVER DEPLOYMENT METHODS

RDP allows the use of scripting and imaging deployment methods, to deploy ProLiant servers. It is important to consider and understand the advantages and disadvantages of these methods. This section provides an overview of the deployment process and the capabilities of each deployment method.

NOTE: The SAN components in the MSA1000 Support Software CD in the RDP directory must be deployed using a scripted event process after the operating system software has been deployed on the server.

Scripting is the use of batch files, utilities, and configuration files to write or program a list of commands that can be executed without user interaction. Configuration scripts may include the hardware, the operating system, applications or other software settings.

The benefit of scripting is that it allows flexibility. You can use the same script on a number of different server platforms or models without making any changes. This ensures consistency and reduces the number of configuration scripts that need to be maintained.

After the operating system is installed, you can install applications to complete the server configuration. Most applications can be installed via a scripting process, either through native scripted installation methods, or through the use of a third-party scripted installation mechanism.

In general, the procedures for SAN connectivity include the following steps:
- Obtaining the appropriate Fibre Channel Host Bus Adapter – (HBA) driver and associated Smart Components from the MSA1000 Support Software CD
- If needed, obtaining the appropriate version of HP StorageWorks Secure Path software
- Creating and executing an event to install and configure the components and reboot the server
- Using the Array Configuration Utility (ACU) to create and present logical units (LUNs) to the target server
- If needed, rescanning, partitioning and formatting the storage.

MSA1000 and RDP SAN Installation

The following procedures guide you through creating an event in the Altiris express Deployment Server Console. This event can connect a server with an HBA to your MSA1000.

As you follow the instruction in the RDP documentation for creating scripted events for SAN component installation on your server, substitute the numbers CP003661, CP003055. For "*xxxxxx*" in the examples.

IMPORTANT: ProLiant BL20p G2 must use the CP003941.exe driver kit.

Instructions for Windows
1. Copy the HBA drivers and other support software from the MSA1000 Support Software CD to a directory on the RDP server. The MSA1000 HBA drivers are located \rdp\Window on the Support CD.
   a. Create a directory on the RDP Server for the Smart Components. HP recommends naming the directory to represent the Storage device; For example, Program files\Altiris\…\…\Deploy\CDs\Compaq\SAN\MSA1000

   b. Insert the MSA1000 Support Software CD into the CD drive of your RDP server and navigate to the \rdp\Windows directory

    c. Copy the appropriate HBA, ACUxe and MSA1000 smart components in this directory

2. If you plan to use HP StorageWorks Secure Path for Windows version 4.00 or later, copy it to the Deployment Server and modify it to install silently.

    IMPORTANT: Review the Secure Path documentation to be sure that you have the correct Secure Path version for your MSA1000 and HBA.

    a. Create a directory on the Deployment Server for the Secure Path files; for example, .\Deploy\CDs\Compaq\SAN\SPxxx, were xxx represents the version of Secure Path.
    b. Copy the contents of the \Spinstall directory from the Secure Path CD to this directory.
    c. Modify Secure Path to run silently without a forced reboot. Change the last two lines of the setup.iss file in this directory as follows:

    From:
    Result=6
    BootOption=3

    To:
    Result=1
    BootOption=0

    IMPORTANT: There is no mechanism to script the configuration of the Password and Client List options. You must manually run the HP StorageWorks Secure Path Configuration Utility on the target server to set these options.

3. From the RDP Server Console, create a new event. HP recommends descriptively naming the event to reflect the components and version of what will be installed; for example, HBA and Secure Path x.xx.

    NOTE: Events names are limited to 64 characters.

4. Add tasks to the event to copy and install the appropriate HBA and associated files on the target server.

    a. **Add** a **Copy File** task to copy the Smart Components to the target server. Select the **Copy Directory** option and set the Source path to the appropriate directory. For example, .\Deploy\CDs\Compaq\MSA1000. Deselect the **Copy subdirectories** option and set the Destination path to a temporary directory on the target server. For example, c:\temp

b. **Add** a **Run Script** task to install the HBA driver Smart Component.
Select **Windows** at the **Execute the script in** option. In the **Run this
script box**, enter:

REM Install HBA Smart Components
C:\temp*cpXXXXXX.exe* /f /s
if errorlevel==3 set errorlevel=0
if errorlevel==2 set errorlevel=0
if errorlevel==1 set errorlevel=0
if errorlevel==0 set errorlevel=1

where ***cpXXXXXX.exe*** represents your specific Smart Component file
name.

c. **Add** a **Run Script** task to install the ACU Smart Component. Select
Windows at the **Execute the script in** option. In the **Run this script box**,
enter:

REM Install ACUxe Smart Components
C:\temp*cpXXXXXX.exe* /f /s
if errorlevel==3 set errorlevel=0
if errorlevel==2 set errorlevel=0
if errorlevel==1 set errorlevel=0
if errorlevel==0 set errorlevel=1

d. **Add** a **Run Script** task to install the MSA1000 Smart Component. Select
Windows at the **Execute the script in** option. In the **Run this script box**,
enter:

REM Install MSA1000 Smart Components
C:\temp*cpXXXXXX.exe* /f /s
if errorlevel==3 set errorlevel=0
if errorlevel==2 set errorlevel=0
if errorlevel==1 set errorlevel=0
if errorlevel==0 set errorlevel=1

5. If you plan to use HP StorageWorks Secure Path for Windows, add a task to the
event to copy and install Secure Path on the target server.

Add a **Distribute Software** task to copy and install Secure Path. Set the
Filename to the appropriate Secure Path setup program. For example, Program
files\\…\Deploy\CDs\Compaq\SP.xxx\Setup.exe. Select the **Copy all directories**
files option. Deselect the Copy subdirectories option. In the Additional
command-line parameters box, enter

/s /f2c: \spinstalllog.txt

The console displays a message stating that the selected program is not a valid RapidInstall or PC Transplant package. Click Yes to continue.

IMPORTANT: There is no mechanism to script the configuration of the Password and Client List options. Manually run the HP StorageWorks Secure Path Configuration Utility on the target server to set these options.

6. **Add** a **Shutdown/Restart** task. For the **Select reboot method** option, select **Reboot**. This reboot is necessary to complete the installation of the software and also cause the HBA driver to log into the SAN, making its WWIDs visible to the storage arrays.
7. Drag and drop the new event onto the target server. Wait for the event to complete.
8. Use the ACU to configure the MSA1000 storage.
9. On the target server, use the Disk Administrator utility to rescan for the new disks, partition the disks, assign drive letters to the disks, and format the disks.

   It may be possible to automate this step with an event using the DiskPart utility from the Microsoft Windows Resource Kit. Be aware that, if an event is created to automate this step, in a Rip-n-Replace scenario, the event may re-executed, and repartition and reformat the disks, unless your script handles that situation.

Instructions for Linux
1. Copy the HBA driver and ACU RPMs to the NFS Server.

   a. The HP HBA drivers and ACU RPMs are located in the /rdp/Linux directory of the MSA1000 Support Software CD.
   b. Create a directory on the NFS Server for the RPMs. HP recommends naming the directory to represent the driver family and version; for example, */usr/cpqrdp/type.xxx*, where type represents the family name of the driver (FCA) , and xxx represents the version of the driver.
   c. Add an NFS export for the directory. Add the line directory +(ro) to */etc/exports*, where directory is the full path to the directory created above. Restart the NFS service using the following commands:

      # /etc/init.d/nfs stop
      #exportfs –r
      # /etc/init.d/nfs start

   d. Copy the HBA driver and ACU RPMs to this directory.

   e. Copy the install script install_fc.sh to this directory. Be sure that its execute bit is set

2. From the RDP Server Console, create a new event. Hp recommends descriptively naming the event to reflect the components and version of what will be installed. For example, FCAX.XX to MSA connectivity.

   NOTE: Event names are limited to 64 characters.

3. Add a task to the event to copy and install the HBA driver and ACU on the target server.

   Add a **Run Script** task to copy and install the RPMs to the target server. Select **Linux** at **Execute the script in** option. In the **Run this script** box, enter:
   ```
   #Install RPMs
   #!/bin/sh
   if [! –d /mnt/rdp ]; then
   mkdir –p /mnt/rdp
   fi
   mount –t nfs IPADDR:/DIRECTORY /mnt/rdp
   cd /tmp
   cp /mnt/rdp/*.rpm .
   cp /mnt/rdp/install_fc.sh .
   umount /mnt/rdp
   /tmp/install_fc.sh
   ```
   where *IPADDR* represents the IP address of your NFS server, and Directory represents the path of the directory created in the previous step.

   NOTE: Do not remove the first line "#Install RPMs" this line is used by Altiris and does not impact the execution of the script.

4. **Add** a **Shutdown/Restart** task. Select **Reboot** at the **Select reboot method option**. This reboot is necessary to complete the installation of the software, and also causes the HBA driver to log in to the SAN, making its Worldwide IDs (WWIDs) visible to the storage arrays.

5. Drag and drop the new event onto the target server. Wait for the event to complete. If errors are detected a log file was generated on the target server. /tmp/hp_rdp_fcinstall.log

6. Use the ACU to configure the MSA1000 storage.

   NOTE: ACU will require the latest Netscape browser. We have provided the latest version of Netscape in the /rdp/Linux directory.

7. On the target server, use the standard Linux commands to partition and format the new disks. It may be possible to automate this step with an event. Be aware that if, an event is created to automate this step, in a Rip-n-Replace scenario, the event

may re-executed, and will repartition and reformat the disks, unless your script handles that situation.