

HP ProLiant Essentials Rapid Deployment Pack—Windows Edition User Guide



February 2005 (Fifth Edition)
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Product Version 2.00

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About This Guide

This guide describes:

- The Deployment Server Console, its basic functionality, and ProLiant-specific features
- How to use the Rapid Deployment Pack as a server deployment solution
- The files and directory structure comprising the Rapid Deployment Pack components
- Customizing the jobs and files provided by the Rapid Deployment Pack

Audience Assumptions

To install and configure the Rapid Deployment Pack, it is assumed that you have knowledge of:

- Installing Microsoft® Windows®, either from CD or the network, using the unattend.txt mechanism
- Basic Windows management and administration, such as manipulating files and folders in Windows Explorer, creating users and groups in Computer Management, and setting share permissions
- Network infrastructure
- (Linux deployments only) Installing Linux either from CD or a network
- (Linux deployments only) Basic Linux command line interface operations (for example, mounting and unmounting floppy and CD-ROM drives, creating directories, and copying files)
- (VMware only) Installing VMware either from a CD or a network
- (VMware only) Using the VMware Management Interface to setup ESX and create virtual machines.

To perform tasks after the installation is complete, it is assumed that you have knowledge of editing files within Windows and Linux.

Related Documents

HP recommends reviewing the following documentation before reading this guide:

- *HP ProLiant Essentials Rapid Deployment Pack Planning Guide*
- *HP ProLiant Essentials Rapid Deployment Pack—Windows Edition Support Matrix*
- *HP ProLiant Essentials Rapid Deployment Pack—Windows Edition Installation Guide*

All of the documents can be found in PDF format at <http://www.hp.com/servers/rdp>, from the Rapid Deployment Pack CD autorun utility, at \docs on the product CD, and at . \docs on the Deployment Server.

Where to Go for Additional Help

Refer to the following sources for additional information about the Rapid Deployment Pack.

Online Resources

- HP ProLiant Essentials Rapid Deployment Pack website at <http://www.hp.com/servers/rdp>
- HP ProLiant Essentials Rapid Deployment Pack Knowledge Base at <http://www.hp.com/servers/rdp/kb>
- HP ProLiant Essentials Rapid Deployment Pack What's New at <http://www.hp.com/servers/rdp>
- *ITRC User Forum "ProLiant Deployment & Provisioning"* at <http://forums.itrc.hp.com>
- Altiris website at <http://www.altiris.com>

Telephone Numbers

For the name of the nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For HP technical support:

- In North America:
 - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
 - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website <http://www.hp.com/>

- Outside North America, call the nearest HP Technical Support Phone Center. For telephone numbers for worldwide Technical Support Centers, refer to the HP website <http://www.hp.com/>

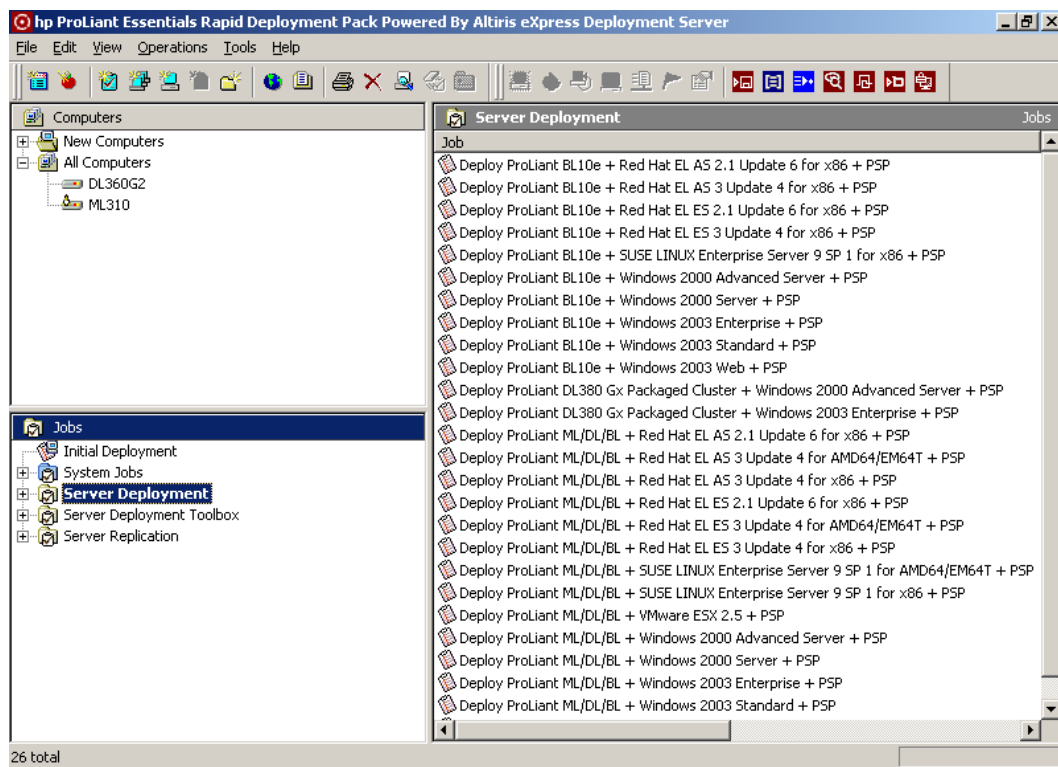
Introduction to the Rapid Deployment Pack

Deployment Server Console Overview

The Deployment Server Console provides the means to view and deploy servers within your network. The information in this section provides a brief description of the views and functions provided with the Deployment Server Console.

Deployment Server Console View

- **Computers pane**—On the upper-left side of the console, displays New Computers and All Computers default listings (new servers connected to the Deployment Server and ready for initial deployment appear in the New Computers list)
- **Jobs pane**—On the lower-left side of the console, lists jobs provided with the ProLiant Integration Module
- **Details pane**—On the right side of the console, displays details for selections highlighted within the Computers pane or Jobs pane
- **Console toolbar**—At the top of the console under the menu toolbar, provides icons to access various Altiris functions, such as (left to right): Boot Disk Creator, RapidInstall Editor, PC Transplant Editor, Image Explorer, Remote Agent Installer, PXE Configuration, and BIS Configuration



Deployment Server Console Interactions

- View new computers or server status changes when they automatically appear in the Deployment Server Console after initially booting to PXE, an image install or a scripted install.
- Start a job on a server by:
 - Dragging and dropping the server(s) from the Computers pane to the job in the Jobs pane
 - Dragging and dropping the job(s) from the Jobs pane to the server in the Computers pane
- In the Computers or Jobs pane, click the plus sign (+) icon before a selection name to expand the selections.
- In the Computers or Jobs pane, click on the server or job to have its detail information appear in the Details pane.
- Right-click a server or job to access menu options, such as properties, job scheduling, or power management.

ProLiant-Specific Features

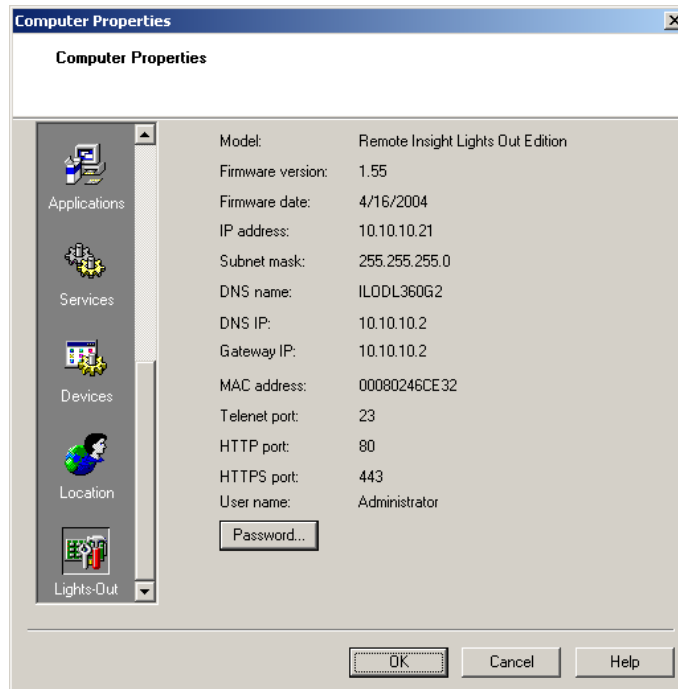
This section describes enhancements made to the Altiris Deployment Server Console specifically for ProLiant servers.

Lights-Out Management Integration

The Deployment Server Console provides secure access to the management features of the Integrated Lights-Out (iLO) and Remote Insight Lights-Out Edition (RILOE).

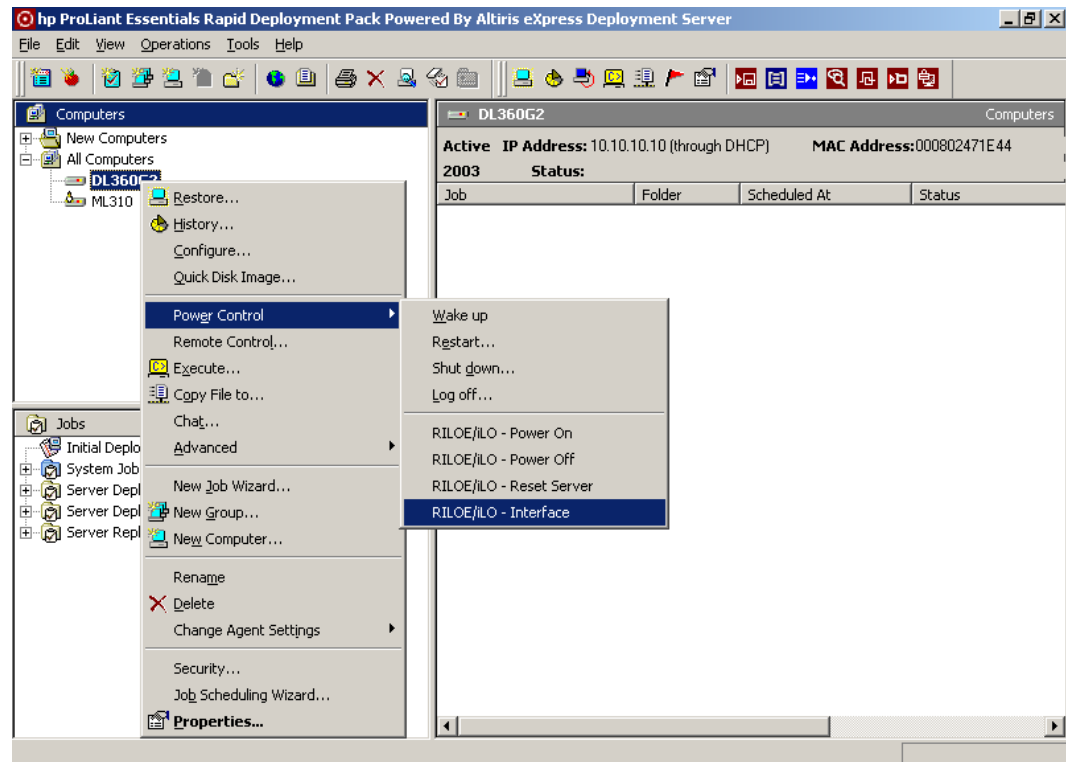
To display the stored Lights-Out information for each server:

1. Within the Computers pane, right-click the server.
2. Select **Properties**, and then scroll down and select the **Lights-Out** icon.



To access the iLO or RILOE interface from the Deployment Server console:

1. Within the Computers pane, right-click the server.
2. Select **Power Control>RILOE/iLO – Interface**.



Physical Devices View







The Deployment Server Console provides an additional view in the Computers pane for HP BladeSystem servers. This view shows the server blades in a tree hierarchy based on their Rack\Enclosure\Bay (R\E\B) settings. A job can be deployed on a server listed in this view.

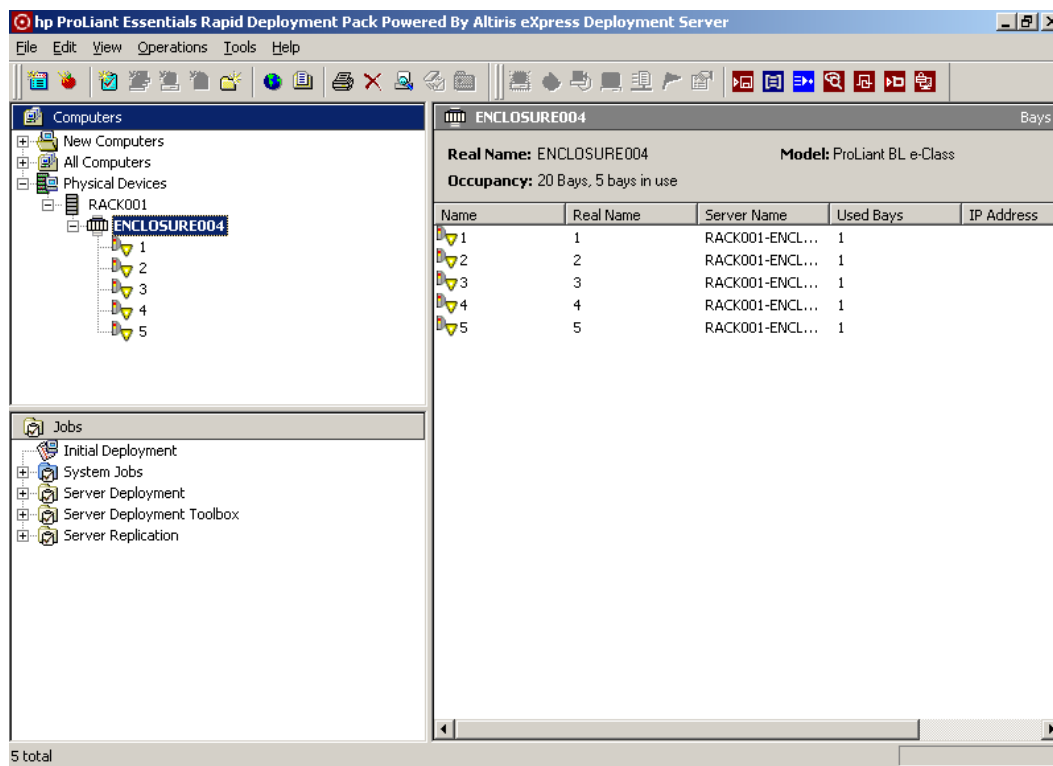
To enable the Physical Devices view:

1. Select **View>Show Physical Devices**.

Table 1-1 lists the server icons that are used in the Physical Devices View in the Deployment Server Console.

Table 1-1: Server Icons

Icon	Description
	Indicates a grouping of physical devices
	Indicates a rack
	Indicates an enclosure
	Indicates a single server blade in a bay
	Indicates an unconfigured server blade in a waiting state designated by the user
	Indicates a virtual bay

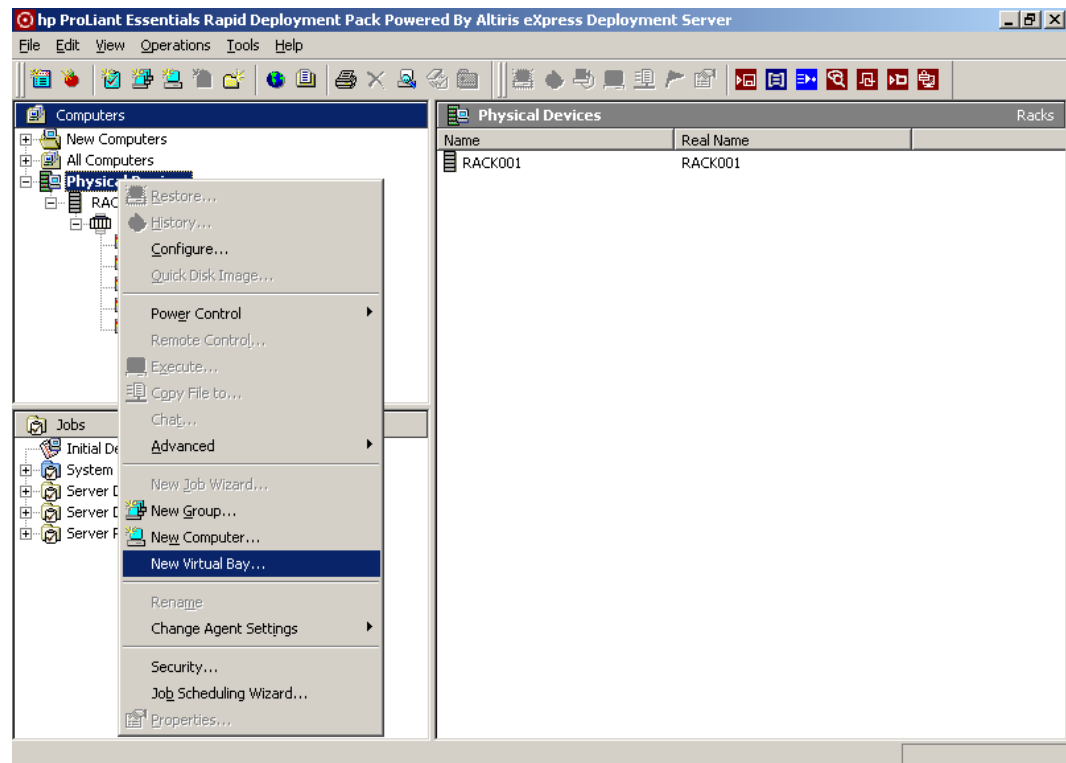


Virtual Rack/Enclosure/Bay

The Deployment Server Console provides the ability to create a virtual bay for server blades. This feature is equivalent to using the Virtual Computer feature. The virtual bays will appear in the Physical Devices View with virtual bay icons.

To create a virtual bay:

1. If the Physical Devices option is not already enabled, select **View>Show Physical Devices**.
2. In the Computers pane, right-click **Physical Devices**, and select **New Virtual Bay**.



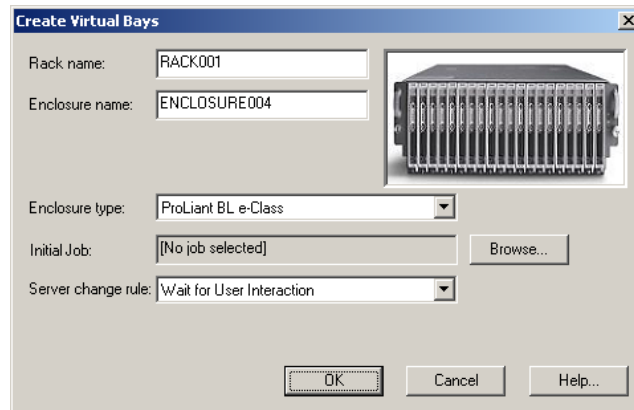
3. At the Create Virtual Bays screen:
 - a. Enter the rack name.
 - b. Enter the enclosure name.

IMPORTANT: The rack and enclosure name in the virtual bay must match the rack and enclosure name of the target enclosure as set through the iLO interface.

- c. Select the enclosure type.

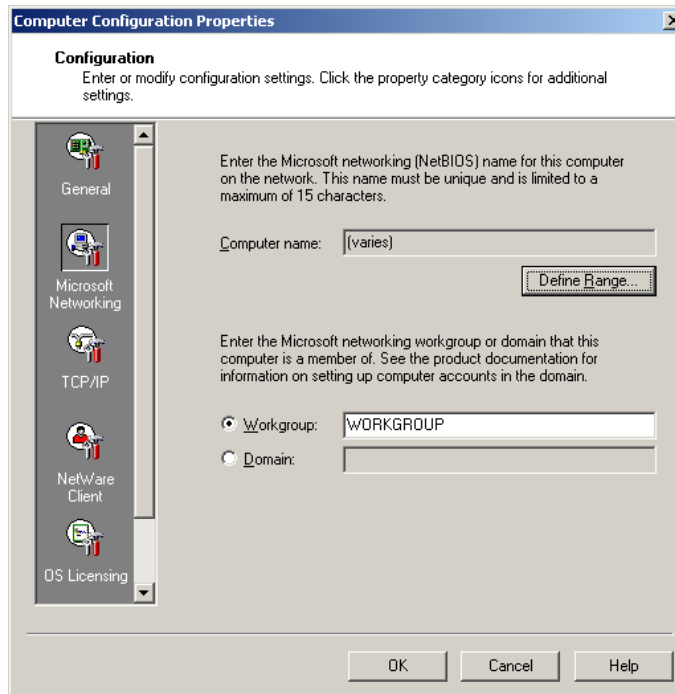
NOTE: The number of bays for an enclosure is based on the enclosure type selected. This information is derived from the initialization file, enclosures.ini, located in the .\Deployment Server directory.

- d. Browse to locate the initial job.
 - e. Select the server change rule.

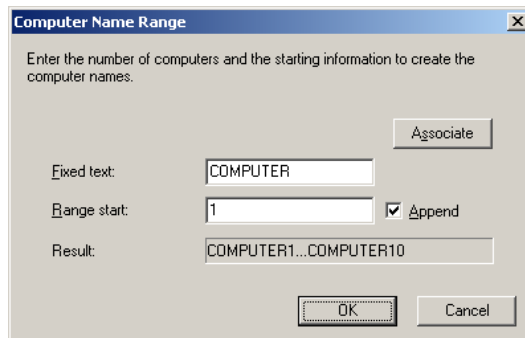


- f. Click **OK**.

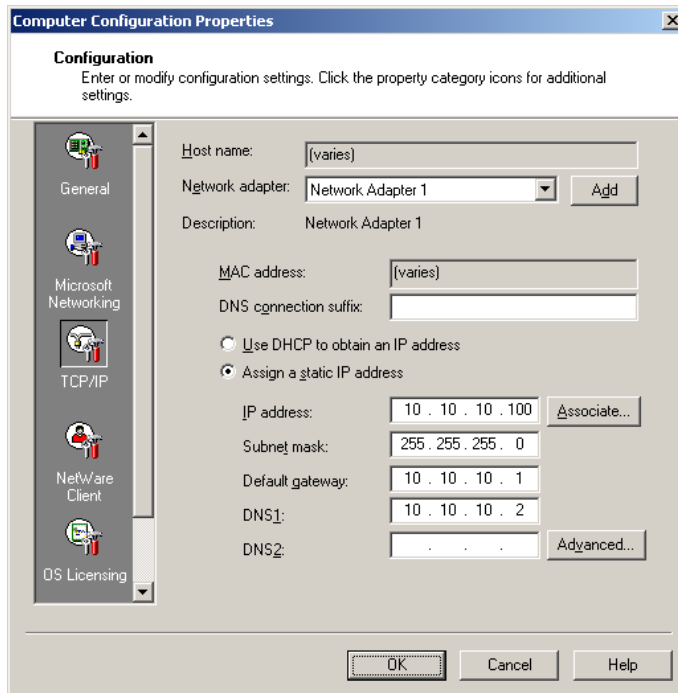
4. Select the **Microsoft Networking** icon, enter a workgroup/domain, if applicable, and then click **Define Range**.



5. Enter the fixed portion of the server names, and then click **OK**.



6. Select the **TCP/IP** icon, and enter the IP information for the first server blade. Click **OK**. Subsequent server blades are assigned the same information, except the IP address increases incrementally for each server blade.



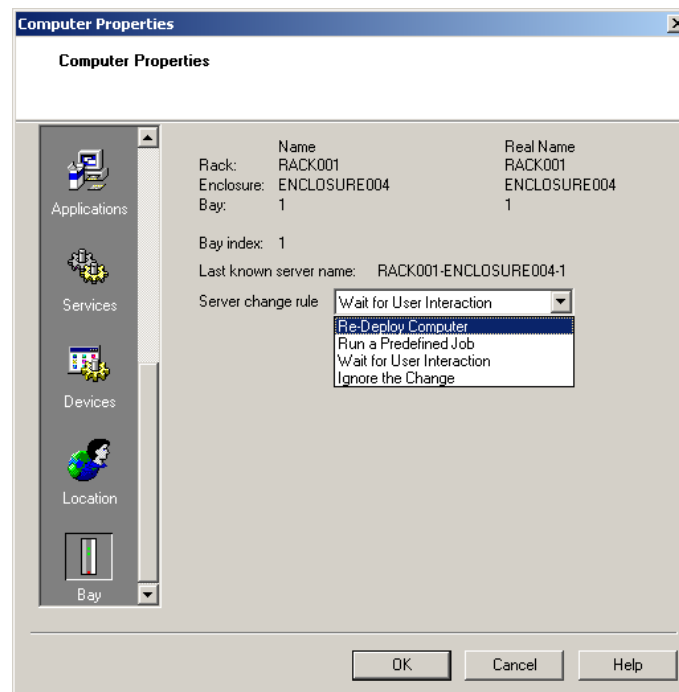
HP BladeSystem Server Rip-and-Replace

When a failed server blade is replaced, the Deployment Server Console provides the ability to automatically replay the job history of the failed server blade onto the new server blade.

IMPORTANT: The new server blade requires a new license. The license cannot be transferred to the new server blade.

To set a server blade server change rule:

1. In the Computers pane, right-click a single server.
2. Select **Properties**, and then scroll down and select the **Bay** icon.
3. Select **Re-Deploy Computer** as the server change rule.



Other server change rules options are available. Following is the list of all server change rules that can be configured from the Bay properties window:

- **Re-Deploy Computer**—Takes the previous server blade’s job history and replays it on the new server blade. The replay starts from the last “deployment” type job. This option is only available after the server blade is deployed or a virtual bay has been created.
- **Run Predefined Job**—Processes any job specified by the user, including the Initial Deployment job.
- **Wait for User Interaction**—Performs no job. The Deployment Agent on the server blade is instructed to wait, and the icon in the console is changed to reflect a waiting server.

- **Ignore the Change**—Ignores the new server blade, meaning that no jobs are initiated. If the new server blade existed in a previous bay, the history and parameters for the server are moved or associated with the new bay. If the server blade is not listed in the database, its properties are associated with the bay, and the normal process defined for new servers, if any, is followed.

Using the Rapid Deployment Pack

This chapter provides a walkthrough of:

- Deploying an operating system to an initial server blade
- Capturing an image of the initial server blade
- Deploying the captured image simultaneously to other similar server blades
- Reconfiguring the server blades
- Enabling rip-and-replace on the server blades

Although this walkthrough uses server blades, the process can be duplicated for other supported servers. When performing an image capture and deployment, the hardware configuration of the target servers must be identical to the hardware configuration of the reference server.

This walkthrough assumes that all necessary installation and pre-deployment steps provided in the *HP ProLiant Essentials Rapid Deployment Pack—Windows Edition Installation Guide* have been performed.

IMPORTANT: If you plan to change the default rack and enclosure names, set these names before powering up the first server in an enclosure that connects to the Deployment Server. If the names are changed after the server blades are powered on for the first time and the rack and enclosure names are recorded in Deployment Server database, the server blades must be rebooted for new rack and enclosure names to be discovered. For more information, refer to “Configuring HP BladeSystem Enclosures” in the *HP ProLiant Essentials Rapid Deployment Pack—Windows Edition Installation Guide*.

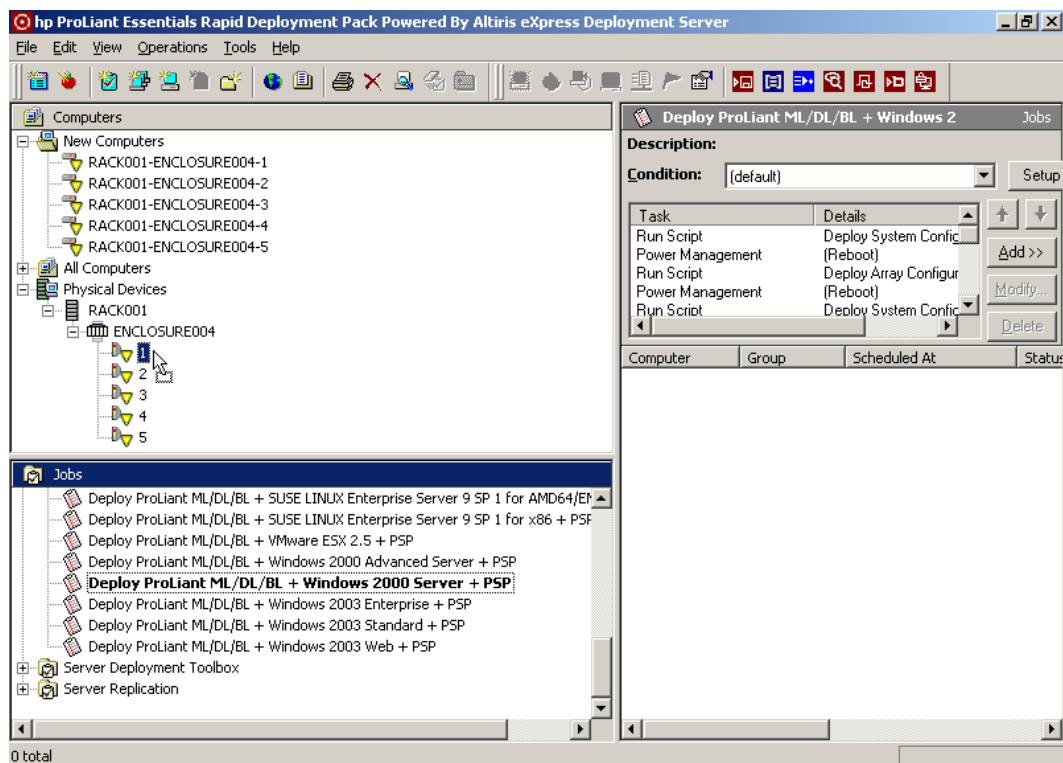
To begin, cable the enclosure to the network that contains your Deployment Server and power it on. Then, insert the server blades into the enclosure and power them on. After the server blades Preboot eXecution Environment (PXE) boot, they will appear in the Deployment Server Console under New computers and Physical Devices.

Deploying an Operating System to an Initial Server Blade

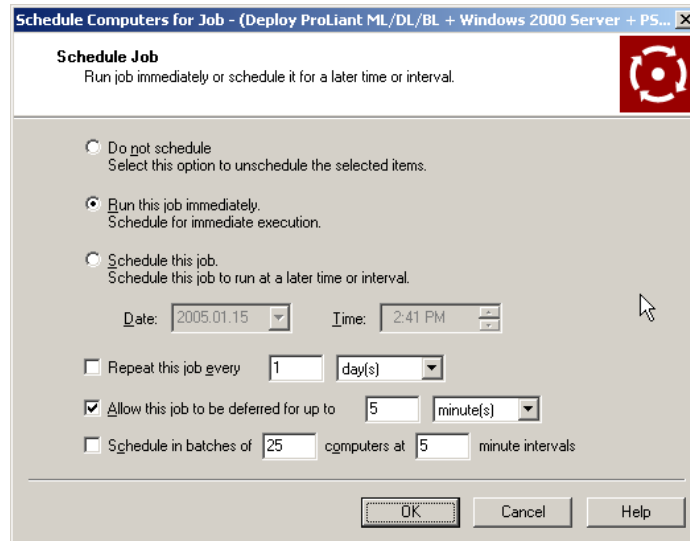
The initial server blade must be deployed using a scripted install job. Subsequent server blades will be deployed by capturing and deploying the image of the initial server blade.

You can deploy all of the server blades by means of a scripted install, but the operating system installation will be slower compared to an image install.

1. In the Jobs pane, select a Windows scripted install job in the Server Deployment folder. Drag the job onto the first server blade in the Computers pane.



2. Select **Run this job immediately**, and then click **OK**.



The Details pane displays the job currently running. Double-clicking on that job in the Details pane shows the tasks and status.

When the server deployment is complete, the server icon changes.

NOTE: The Windows scripted installs perform a token-replace of the computer name from the Deployment Server console. This computer name will be truncated to the 15 right-most characters to abide by the NETBIOS limitation.

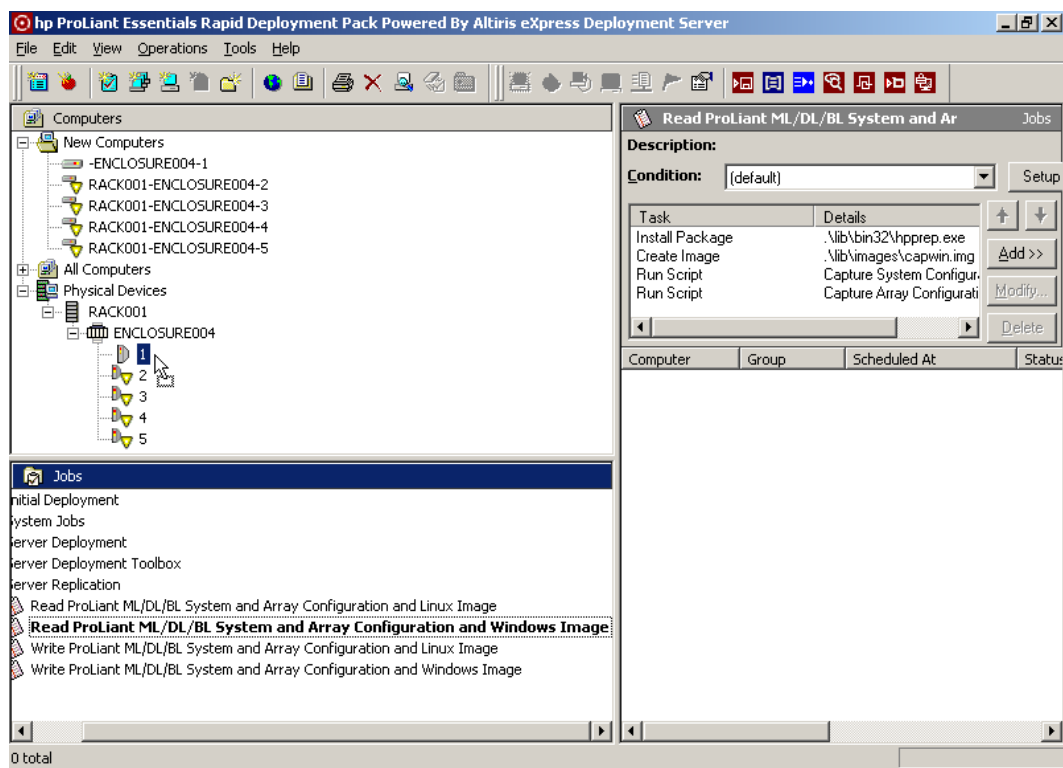
The Linux and VMware scripted installs will have the server name as the server host name.

Capturing an Image of the Initial Server Blade

After the initial server blade has been deployed and configured, it becomes the “reference” server for subsequent server blades by capturing an image of it.

1. In the Jobs pane, find the **Read ProLiant ML/DL/BL System and Array Configuration and Windows Image** job in the Server Replication folder. Drag the job onto the initial server blade in the Computers pane. Use the **Read ProLiant ML/DL/BL System and Array Configuration and Linux Image** job to capture a server with the Linux operating system.

IMPORTANT: The jobs provided with the Rapid Deployment Pack create and deploy images using a predefined image name. If you use the provided jobs without modification, each time you capture a new image it overwrites the previous image. To capture images for different server configurations, you must copy and rename the job, and then modify the file name variables within the job so that the images are saved with a unique name. For information about job setup and image file location on the Deployment Server, refer to Chapter 3 of this guide.



2. Select **Run this job immediately**, and then click **OK**.

The server reboots and performs the specified tasks.

When the image capture is complete, the server icon changes to indicate the server is connected to the Deployment Server.

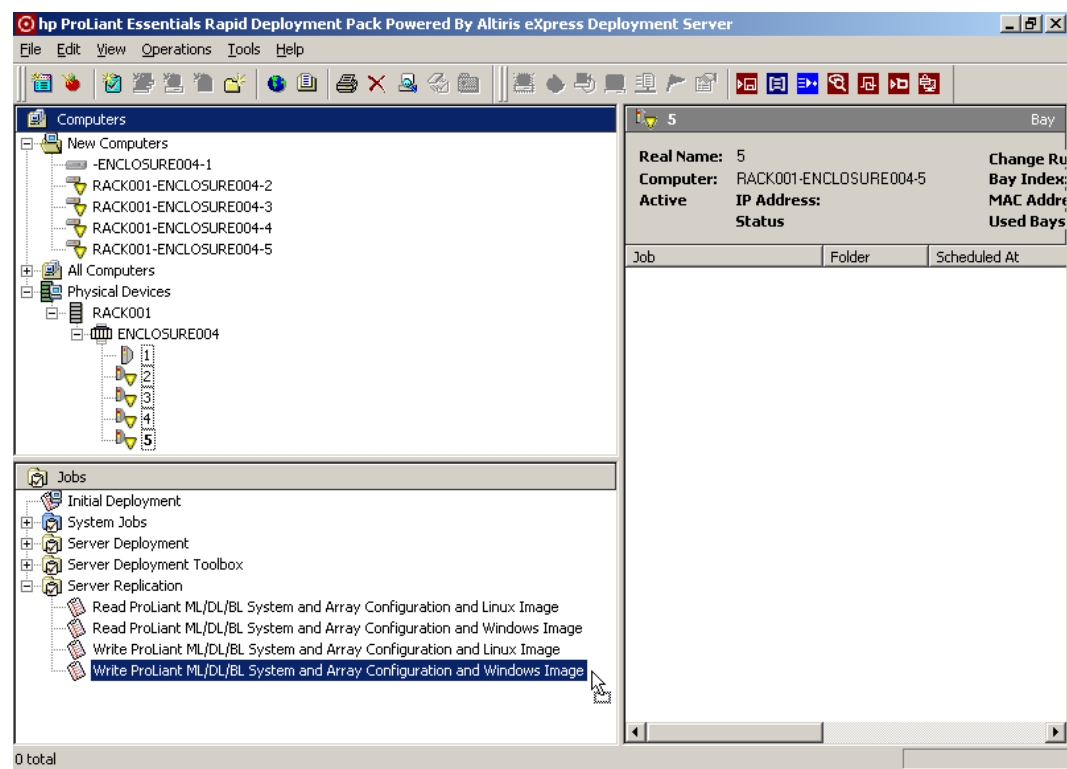
Deploying the Image to other Similar Server Blades

The “reference” server image can now be deployed to other similar server blades simultaneously.

1. In the Computers pane, select all the server blades. Drag them onto the **Write ProLiant ML/DL/BL System and Array Configuration and Windows Image** job in the Server Replication folder in the Jobs pane.

NOTE: If you are deploying the image to all the server blades in an enclosure, you can select the enclosure from the Physical Devices view.

NOTE: Redeploying the captured image to the same reference server enables you to take advantage of the speed of image installs if the reference server is ever replaced with rip-and-replace enabled.



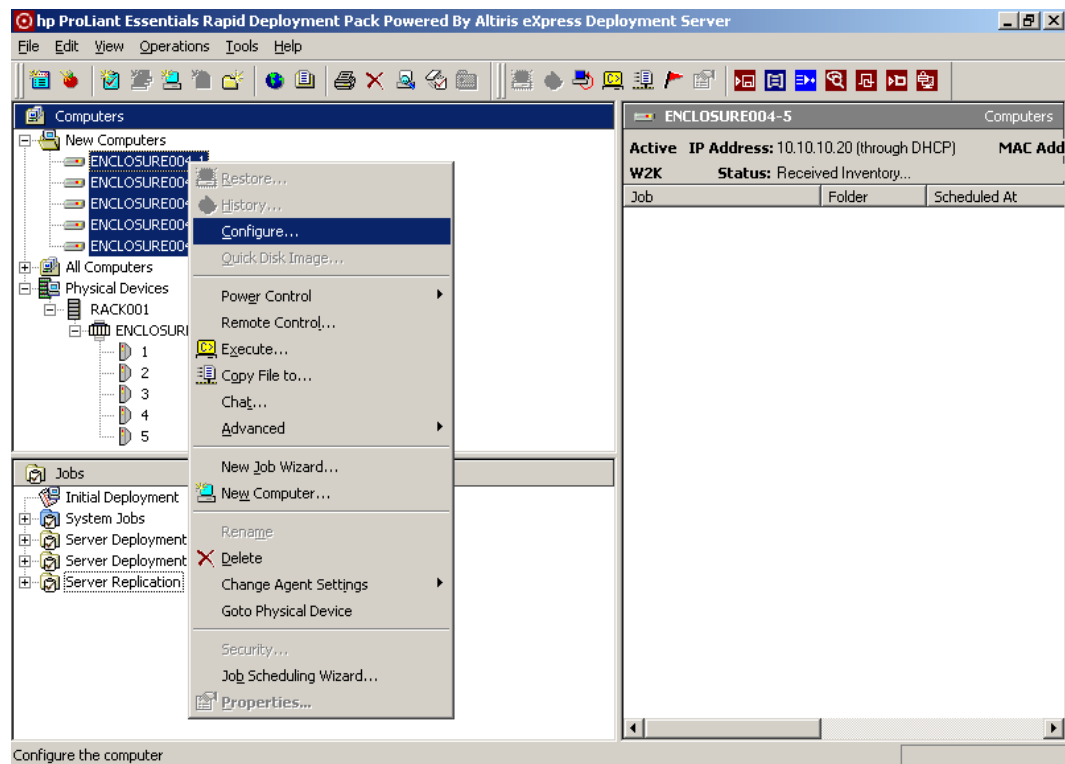
2. Select **Run this job immediately**, and then click **OK**.

When the server deployment is complete, the server icons change to indicate the servers are connected to the Deployment Server.

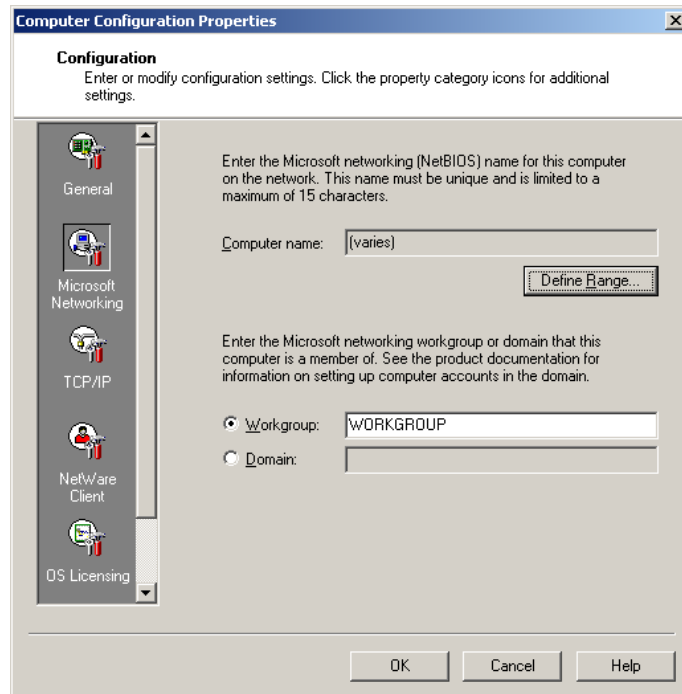
Reconfiguring the Server Blades

When deploying an image, the target servers are automatically reconfigured to use the computer name specified in the Deployment Server database and assigned DHCP addresses. For this walkthrough, we will reconfigure the server blades to have fixed IP addresses and change the computer names.

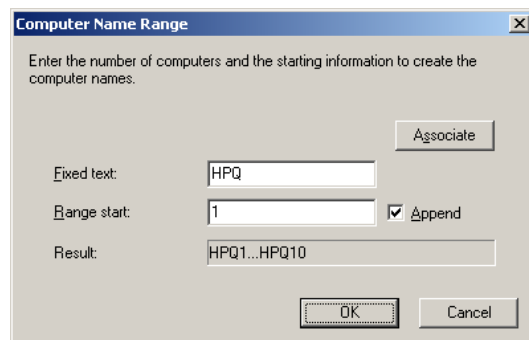
1. In the Computers pane, select all the blade servers, right-click on the selection, and then select **Configure**.



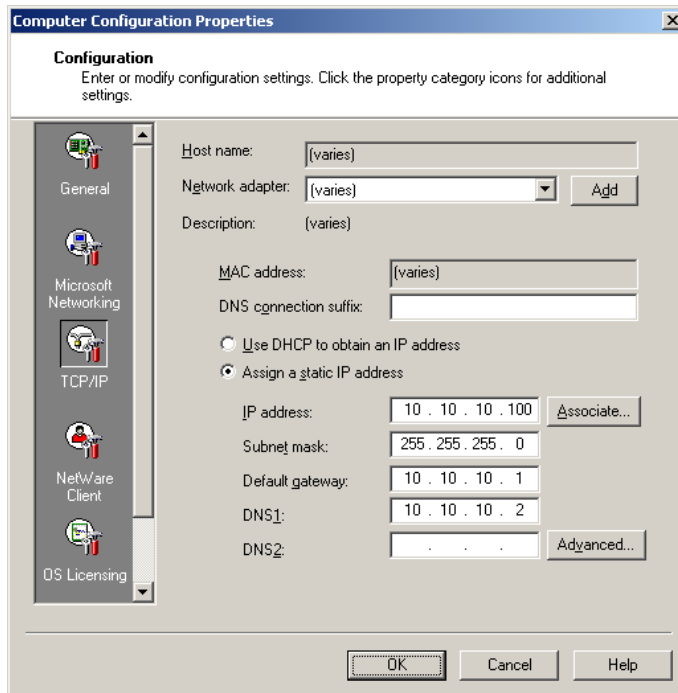
2. Select the **Microsoft Networking** icon, and enter a new workgroup/domain name if applicable, and click **Define Range**.



3. Enter the fixed portion of the new server names, and click **OK**.

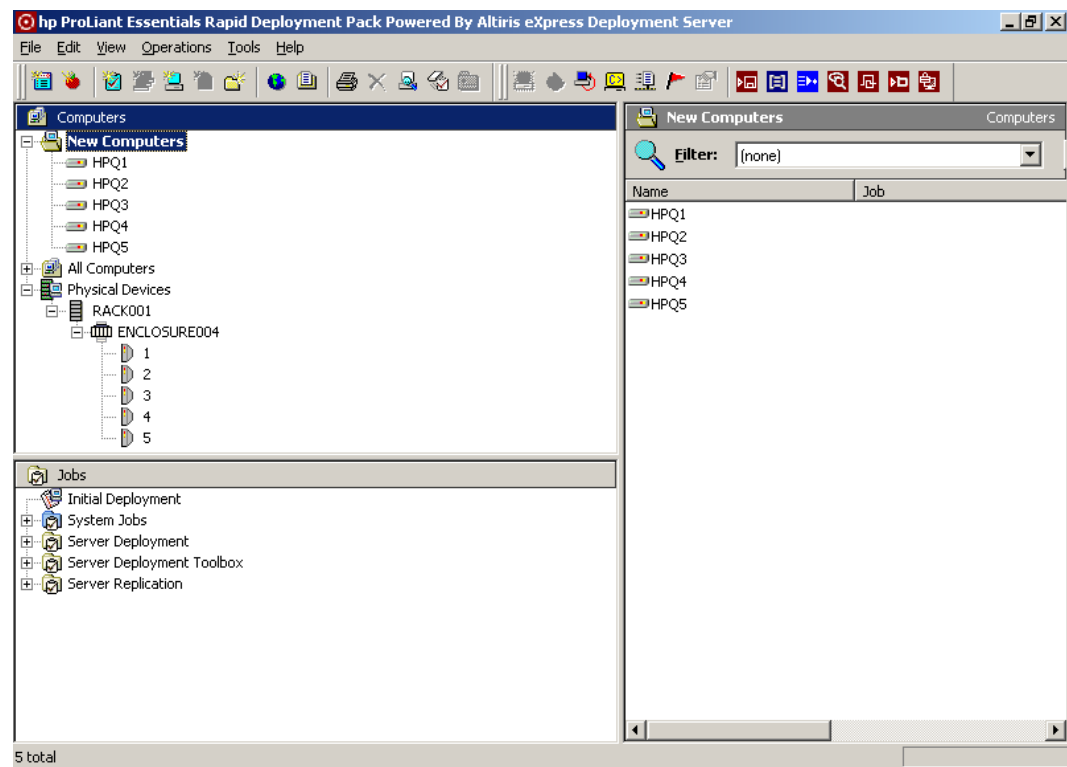


4. Select the **TCP/IP** icon, and enter the IP information for the first server blade. Click **OK**. Subsequent server blades are assigned the same information, except the IP address increases incrementally for each blade.



5. Select **Run this job immediately**, and then click **OK** to start the reconfiguration process.

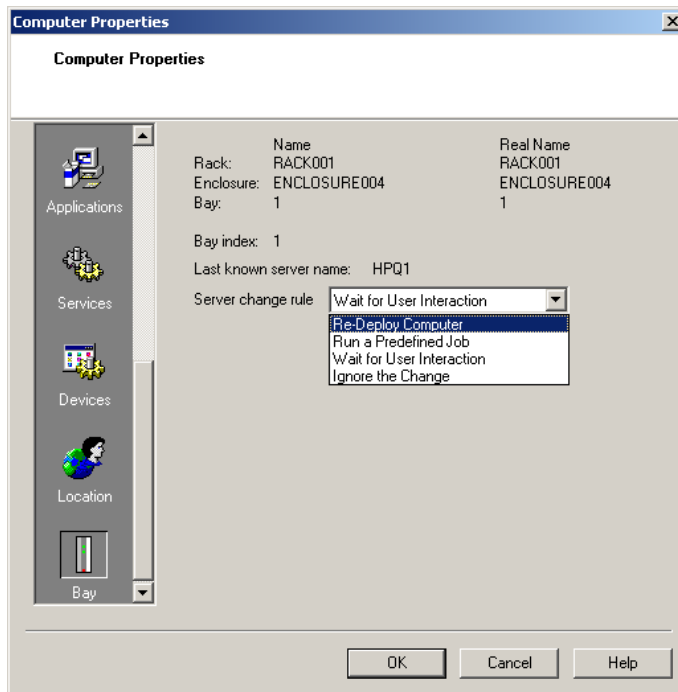
The computer names change in the Deployment Server Console.



Enabling Rip-and-Replace on the Server Blades

To enable Rip-and-Replace, perform the following steps for each server blade.

1. In the Computers pane, right-click a single server.
2. Select **Properties** and then scroll down and select the **Bay** icon.
3. Select **Re-Deploy Computer** from the server change rule list. For explanations of server change rules, refer to “HP BladeSystem Server Rip-and-Replace” in Chapter 1 of this guide.



4. Click **OK**.

Understanding the Deployment Server

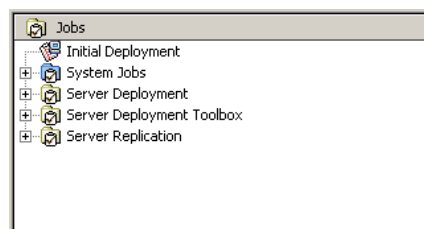
The Rapid Deployment Pack ProLiant Integration Module populates the Deployment Server Console with jobs, and the Deployment Server directory with tools, scripts, configuration files, software drivers, and documentation files. This chapter explains these provided jobs, files and the directory structure.

Understanding the Jobs

The jobs provide the means to deploy a server by setting the hardware configuration, installing the operating system (either by a scripted install or image install), and installing HP value-add software.

Rapid Deployment Pack jobs are organized into the following groups:

- Server Deployment – contains jobs that perform a full server deployment using a scripted install.
- Server Deployment Toolbox – contains jobs that perform various steps to deploy a server, with the ability to do more custom deployments by choosing various jobs. These jobs are separated into subfolders under the Toolbox.
- Server Replication – contains jobs that perform a full server deployment using an image install.



Job Default Settings

Unless otherwise indicated in the following sections throughout this chapter, any job that configures hardware or installs an operating system will use the following default settings. Refer to Chapter 5, “Customizing the ProLiant Integration Module” on how to customize these default settings.

Hardware Configuration

Hardware configuration is accomplished through the automatic “smart default” methods provided by the SmartStart Scripting Toolkit utilities. The BIOS is configured to accept default parameters, and the array controller (if any) is configured according to one of the following methods:

- If the system contains one hard drive, the system is configured for RAID 0.
- If the system contains two hard drives, the system is configured for RAID 1.
- If the system contains three hard drives, the system is configured for RAID 5.
- If the system contains four or more hard drives, the system is configured for RAID ADG, if supported. Otherwise, the system is configured for RAID 5.

Windows Installation Settings

The provided Windows scripted install jobs use the default configuration parameters listed in Table 3-1.

Table 3-1: Windows Default Settings

Component	Default Settings
Windows administrator password	The administrator password is <code>password</code> . This password is stored as clear text in the unattend answer file. HP recommends changing the default administrator password within the unattend answer file located in the <code>.lib\osconfig\yyyy</code> directory in the Deployment Server default installation directory where <code>yyyy</code> is the operating system shortcut name.
Drive configuration	A single partition is created automatically that expands to the full drive size.
Computer name	The Windows computer name will use the 15 right-most characters of the display name shown in the Deployment console.
Deployment Agent for Windows	The Deployment Agent for Windows (AClient) is installed after the first server reboot, using the RunOnce registry key.

Red Hat Installation Settings

The provided Red Hat scripted install jobs use the default configuration parameters listed in Table 3-2.

Table 3-2: Red Hat Default Settings

Component	Default Settings
Linux root password	The root password is <code>password</code> . This password is stored as clear text in the kickstart file. HP recommends that you change the root password to your own password and in encrypted form within the kickstart file. For instructions, refer to the <i>Red Hat Linux Customization Guide</i> located at http://www.redhat.com/docs/manuals/linux .
Drive configuration	The partitions are automatically partitioned according to the Red Hat Linux default specifications. Red Hat Enterprise Linux 2.1 is different in that a 75-MB boot partition is created and the remainder of the disk space is partitioned according to Linux default specifications.
Packages	Basic Linux server packages are installed. The GNOME and KDE packages are not installed.
Firewall	Firewall settings are disabled.
Deployment Agent for Linux	The Deployment Agent for Linux (adlagent) is installed during the post section of the kickstart file; therefore, after the first server reboot, it will be available to complete the tasks of copying and installing the ProLiant Support Pack.

SUSE Installation Settings

The provided SUSE scripted install jobs use the default configuration parameters listed in Table 3-3.

Table 3-3: SUSE Default Settings

Component	Default Settings
Linux root password	The root password is <code>password</code> . This password is stored in encrypted form in the control file. It is recommended that you change the root password in the control file. For instructions, refer to the <i>Automatic Linux Installation and Configuration with YAST2</i> guide for “SUSE LINUX Enterprise Server 9” located at http://www.suse.de/~nashif/autoinstall/ref.html .
Drive configuration	The disk space is partitioned according to SUSE LINUX default specifications.
Packages	Basic Linux server packages are installed with the addition of GCC compiler and kernel source packages. The GNOME and KDE packages are not installed.
Firewall	Firewall settings are disabled.
Deployment Agent for Linux	The Deployment Agent for Linux (adlagent) is installed during the post section of the control file; therefore, after the first server reboot, it will be available to complete the job tasks of copying and installing the ProLiant Support Pack.

VMware Installation Settings

The provided VMware scripted install jobs use the default configuration parameters listed in Table 3-4.

Table 3-4: VMware Default Settings

Component	Default Settings
VMware root password	The root password is <code>password</code> . This password is stored as clear text in the kickstart file. HP recommends that you change the root password to your own password and in encrypted form within the kickstart file.
Drive configuration	When configuring the disk partition for a scripted operating system installation, various VMware ESX Server specific partitions are created. These are the default settings and must not be changed.
Packages	ESX specific packages are installed. This setting must be not changed.
Firewall	Firewall settings are disabled.
Deployment Agent for Linux	During the post section of the kickstart file, a script is generated to install the Deployment Agent for Linux (adlagent). After the first server reboot, it will be available to complete the tasks of copying and installing the HP support files.

Server Deployment Jobs

The jobs in this folder deploy a default hardware configuration, install the specified operating system, and install the appropriate ProLiant Support Pack.

Table 3-5 provides a textual representation of one of the Windows deployment jobs. All of the deployment jobs follow the same structure. The following is a legend to help you read the textual representation tables.

A bold line represents the task in the job

A non-bold line under each Run Script task is a condensed listing of the script and its functionality description.

Table 3-5: Contents of the Microsoft Windows 2000 Server Deploy Job

Hardware Configuration	Run Script	Deploy System Configuration
		<code>set inputfile=pl.ini</code>
		<code>call f:\lib\bin16\conrep.bat /l %inputfile%</code>
		Power Management (Reboot)
	Run Script	Deploy Array Configuration
		<code>set inputfile=pl-rd.ini</code>
		<code>call f:\lib\bin16\acr.bat /a /i %inputfile% /o</code>
		Power Management (Reboot)

Operating System Installation	Run Script	Deploy System Configuration
		set inputfile=pl-win.ini
		call f:\lib\bin16\conrep.bat /l %inputfile%
	Deploy Image	.\lib\images\FAT32.IMG
		Power Management (Reboot)
	Run Script	Make Bootable Partition
		f:\bootwiz\dos\sys.com f:\bootwiz\dos c:
		copy f:\bootwiz\dos\himem.sys c:\
		copy f:\bootwiz\dos\smartdrv.exe c:\
		echo device=c:\himem.sys>>c:\config.sys
	echo @echo on>>c:\autoexec.bat	
	Power Management (Reboot)	
Run Script	Copy ProLiant Files	
	set oem=proliant.zzz\w50s	
	call f:\lib\bin16\osoem1.bat	
Run Script	Copy Altiris Files	
	rem replacetokens	
	.\lib\osoem\altiris\aclient.txt .\lib\osoem\altiris\%ID%.inp	
	set configfile=%ID%.inp	
	call f:\lib\bin16\osoem2.bat	
Run Script	Copy Distribution Files	
	set dist=w50s	
	call f:\lib\bin16\osdist1.bat	
Run Script	Create Boot Environment	
	rem replacetokens	
	.\lib\osconfig\w50s\default.txt .\lib\osconfig\w50s\%ID%.txt	
	set unattendfile=w50s\%ID%.txt	
	call f:\lib\bin16\win.bat	
Value-add software installation	Install Package	.\lib\software\ProLiant Support Pack Z.ZZ for Windows 2000\setupc.exe
		Power Management (Reboot)

The differences with the VMware and Linux scripted install jobs are:

- SUSE LINUX deploys the GRUB.IMG image versus the FAT32.IMG to use the Linux GRUB bootloader to initiate the operating system installation.
- VMware has default kernel command line files (.par) that reference specific device names for the operating system installation via FTP. The .par files are not generated at run time compared with Linux. The cciss.par file is the default setting in the provided jobs.
- Red Hat Linux and SUSE LINUX use variables such as NFS IP address and ethernet port to assist with the operating system installation via NFS.
- The VMware and Linux ProLiant Support Pack files are copied and installed in two tasks.

Server Replication Jobs

The jobs in this folder capture and deploy the hardware configuration and operating system image. The jobs exist as **Read/Write** pairs. The **Read** job must be completed in order to perform the **Write** job. The pairs use predefined file names. If you perform the **Read** job twice, it will overwrite the previous capture.

IMPORTANT: Server images can only be replicated when the reference server and the target server are the same ProLiant server model with the same hardware configuration.

Table 3-6: Server Replication Jobs Predefined File Names

Read/Write Jobs	Tasks within the job	File names
Windows Image	Capture System Configuration	.lib\hwconfig\system\capwin.ini
	Capture Array Configuration	.lib\hwconfig\array\capwin.ini
	Create Image	.lib\images\capwin.img
Linux Image	Capture System Configuration	.lib\hwconfig\system\caplinux.ini
	Capture Array Configuration	.lib\hwconfig\array\caplinux.ini
	Create Image	.lib\images\caplinux.img

Table 3-7: Read ProLiant ML/DL/BL System and Array Configuration and Windows Image

Install Package	.lib\bin32\hpprep.exe
Create Image	.lib\images\capwin.img
Run Script	Capture System Configuration
	set outputfile=capwin.ini
	call f:\lib\bin16\conrep.bat /sh %outputfile%
Run Script	Capture Array Configuration
	set outputfile=capwin.ini
	call f:\lib\bin16\acr.bat /a /c %outputfile%

Table 3-8: Write ProLiant ML/DL/BL System and Array Configuration and Windows Image

Run Script	Deploy System Configuration
	set inputfile=capwin.ini
	call f:\lib\bin16\conrep.bat /l %inputfile%
Power Management (Reboot)	
Run Script	Deploy Array Configuration
	set intputfile=capwin.ini
	call f:\lib\bin16\acr.bat /a /i %inputfile% /o
Power Management (Reboot)	
Deploy Image	.lib\images\capwin.img

The differences with the Linux image install jobs:

- In the **Read** job, the **Install Package** task is not required
- The default file names are caplinux.ini and caplinux.img

Server Deployment Toolbox Jobs

The jobs in the Server Deployment Toolbox subfolders provide you with a more granular control over the server deployment process. By providing jobs that perform only hardware configuration, operating system installation, and value-add software installation, you can easily stitch together a combination of jobs that best suit your needs.

As an example, performing the following Toolbox jobs in order on a target server will result in the same procedure as running the **Deploy ProLiant ML/DL/BL + Red Hat EL AS 3 Update 4 for x86 + PSP** scripted install job from the Server Deployment folder.

- From 1 – Hardware Configuration > System subfolder, run **Deploy ProLiant ML/DL/BL System Configuration (default)**
- From 1 – Hardware Configuration > Array subfolder, run **Deploy ProLiant ML/DL/BL System Configuration (default)**
- From 2B – OS Installation (Scripted) subfolder, run **Deploy Red Hat EL AS 3 Update 4 for x86 (ProLiant ML/DL/BL)**
- From 3 – Post-OS Configuration subfolder, run **Install Red Hat EL 3 ProLiant Support Pack (latest)**

The subfolder names under the Toolbox start with a number that indicate a numerical sequence if a job within that subfolder is deployed in order with other Toolbox jobs. As the above example shows, it might be necessary to run more than one job out of a specific Toolbox subfolder. If an image install is desired instead of a scripted install, a job from the 2A – OS Installation (Imaged) would be chosen instead of using a job from the 2B – OS Installation (Scripted) subfolder.

Server Deployment Toolbox 1 – Hardware Configuration Subfolder

The jobs in this folder capture and deploy hardware configurations. The jobs are further divided into subfolders based on hardware type.

The **Deploy** jobs use pre-supplied configuration files. For example, the **Deploy ProLiant BL10e System Configuration (default)** job uses the file `.lib\hwconfig\system\pl-bl10e.ini`, which configures the BL10e.

The **Read/Write** jobs capture and deploy a hardware configuration. The **Read** job must be completed in order to perform the **Write** job. The pairs use predefined file names. If you perform the **Read** job twice, it will overwrite the previous capture.

Table 3-9: Server Deployment Toolbox 1 – Hardware Configuration Subfolder Predefined File Names

Read/Write Configuration jobs	Write ProLiant ML/DL/BL System Configuration jobs	<code>.lib\hwconfig\system\capture.ini</code>
Read/Write Configuration jobs	ProLiant ML/DL/BL Array Configuration jobs	<code>.lib\hwconfig\array\capture.ini</code>
Read/Write HBA Configuration jobs	Write ProLiant ML/DL/BLQLogic [server specific] jobs	<code>.lib\hwconfig\hba\ID.ini</code> where <i>ID</i> is the Altiris computer id for the target server



CAUTION: Using the System Erase utility erases all data on the system. Be sure that all appropriate backups have been made before using the System Erase utility to prevent any data loss.

IMPORTANT: Hardware configuration jobs must not be run on virtual machines.

Server Deployment Toolbox 2A – OS Installation (Imaged) Subfolder

The jobs in this folder capture and deploy an operating system image. The jobs exist as **Read/Write** pairs. The **Read** job must be completed in order to perform the **Write** job. The pairs use predefined file names. If you perform the **Read** job twice, it will overwrite the previous capture.

Table 3-10: Server Deployment Toolbox 2A – OS Installation (Imaged) Subfolder Predefined File Names

Read/Write Windows Image jobs	.lib\images\capture-windows.img
Read/Write Linux Image jobs	.lib\images\capture-linux.img

Server Deployment Toolbox 2B – OS Installation (Scripted) Subfolder

The jobs in this folder deploy the specified operating system to the specified server model or virtual machine. For example, **Deploy Windows Server 2000 (VM)**, will perform a scripted install of Windows Server 2000 to a virtual machine. These jobs perform a subset of the functionality of the jobs in the **Server Deployment** folder.

Server Deployment Toolbox 3 – Post-OS Configuration Subfolder

The jobs in this folder install optional value-add software. For example, the **Install Red Hat EL 3 ProLiant Support Pack (latest)** job, will install the latest version of the Red Hat Enterprise Linux 3 ProLiant Support Pack on the target server.

IMPORTANT: The **Install *osname* ProLiant Support Pack (latest)** jobs must not be run on virtual machines where *osname* is the operating system name.

Understanding the Deployment Server Directory Structure

When you install the ProLiant Integration Module, the Deployment Server directory is populated with the tools, scripts, configuration files, software drivers, and documentation files.

Table 3-11: provides an overview of the Deployment Server directory structure.

Table 3-11: Deployment Server Directory structure

Directory Path	Reference Name	Directory Description
.docs	Documentation	Rapid Deployment Pack—Windows Edition and SmartStart Scripting Toolkit documentation in Portable Document Format (.pdf).
.jobs	Jobs	The .bin files for the provided jobs.
.lib\bin16	Tools and Scripts	Various DOS applications, operating system-specific batch files, and SmartStart Scripting Toolkit.
.lib\bin32	Windows-based and Linux based Tools	Various Windows-based and Linux-based tools.
.lib\clconfig	Cluster Configurations	Clustering configuration files.
.lib\hwconfig	Hardware Configurations	Presupplied and captured configuration files.
.lib\images	Images	Presupplied and captured image files.
.lib\osconfig	Installation Files	The Windows and VMware operating system installation answer files.
.lib\osdist	Operating System Files	The Windows and VMware operating system files, and Linux installation kernels and initial RAM disk images.
.lib\osoeem	Operating System Scripted Install Support Files	Software drivers and files needed during the operating system installation.
.lib\software	Additional Software	HP Value-add software files such as HP ProLiant Support Pack files.

Tools and Scripts

The .Lib\bin16 directory contains tools and scripts including the SmartStart Scripting Toolkit used during server deployment and hardware configuration **Read** and **Write** jobs.

The scripts contained in this directory are used for the following:

- Wrapping utilities in the SmartStart Scripting Toolkit to detect and report errors back to the operating system
- Setting up the target server to begin an operating system installation

Table 3-12: Script Files

Script Files	Used for
acr.bat	Calls ACR.EXE
conrep.bat	Calls CONREP.EXE
cpqlodos.bat	Calls CPQLODOS.EXE
hpqlarep.bat	Calls HPQLAREP.EXE
erase.bat	Calls ERASE.EXE
osoem*.bat	Copies software files from Deployment Server to target server to prepare for installation. The file used depends on the operating system.
osdist*.bat	Copies install files from Deployment Server to target server. The file used depends on the operating system.
yyyy.bat where yyyy is the operating system shortcut name	Prepares temporary DOS partition for start of the operating system installation.

Hardware Configurations

The .Lib\hwconfig subdirectories contain presupplied hardware configuration files (*.ini) based on hardware type. These subdirectories are also the location where hardware configurations are captured to and deployed from in the **Read** and **Write** jobs.

Table 3-13: System Configuration files

Hardware Configuration Type	Filename	Description
System Configuration	pl.ini	Default system configuration for most ProLiant ML/DL/BL servers
	pl-bl10e.ini	Default system configuration for ProLiant BL10e
	pl-bfs.ini	Boot-From-SAN support: disables embedded storage controllers and enables HBA controller.
	pl-win.ini	Sets the OS EV to Windows
	pl-linux.ini	Sets the OS EV to Linux
Array Configuration	pl-rd.ini	Default array configuration for most ProLiant ML/DL/BL servers
	pl-rd1.ini	Default array configuration but only for the first array controller
	pl-r0.ini	Creates a RAID 0 array using all drives.
	pl-r1.ini	Creates a RAID 1 array using all drives. If there is not enough drives, the default rules will apply. If there is an odd number of drives, one drive will be not used.
	pl-r5.ini	Creates a RAID 5 array using all drives. If there is not enough drives, the default rules will apply.
	pl-r1r5.ini	Creates a RAID 1 array with the first two drives and a RAID 5 array with the last four drives. If there is not enough drives, the default rules will apply.

Images

The .Lib\images directory is the location where images are captured to and deployed from in the **Read** and **Write** jobs. It also contains the image files, FAT32.IMG and GRUB.IMG, used by the scripted install jobs.

Installation Files

A subdirectory is created within the `.lib\osconfig` for each Windows and VMware operating system to store the operating system installation files, which are the unattend text files for Windows and Kickstart files for VMware. These files are used by the Windows and VMware scripted install jobs. The directory names are derived from the operating system version to distinguish each operating system. For example, `.lib\osconfig\w50as` is the directory name for the Windows 2000 Advanced Server operating system installation files.

Different VMware kickstart and kernel command line files are provided based on server device labels because of differences in installation requirements.

If a Rapid Deployment Pack upgrade or re-install from a 2.xx version is done, then a backup of the installation files is created with the `.pimbak` extension.

Operating System Files

A subdirectory is created within the `.lib\osdist` for each Windows, Linux, and VMware operating system to store the Windows or VMware operating system files or Linux boot files. The directory names are derived from the Windows or VMware operating system version, or Linux distribution name and update version. For example, `.lib\osdist\w50as` is the directory name for the Windows 2000 Advanced Server operating system, and `.lib\osdist\rhas3u4` is the directory name for Red Hat Enterprise Linux AS 3 Update 4. The Linux AMD64 and Intel EM64T distributions include the `.64` extension to the operating system directory name.

The Windows subdirectories include the `i386` subdirectory contents, from the Windows CD-ROM.

The VMware subdirectories contain the entire contents of the VMware CD-ROM. The `initrd.img`, `vmlinuz`, and `loadlin.exe` boot files are used from their respective subdirectories to start the installation.

The Red Hat Linux subdirectories contain the following files used to start the scripted install:

- `initrd.img`—The initial Linux ram disk image
- `vmlinuz`—Linux boot kernel
- `loadlin.exe`—Executable to load the Linux image and run the kernel

The SUSE LINUX subdirectories contain the following files used to start the scripted install:

- `initrd`—The initial Linux ram disk image
- `kernel`—Linux boot kernel

Operating System Scripted Install Support Files

The `.lib\osoem` directory contains drivers and files that are integrated into the operating system scripted install to support additional hardware and functionality.

The `proliant.xxx` subdirectory contains HP drivers. These drivers are necessary to support mass storage controllers and network controllers that are not supported in the base OS distribution. The `xxx` is either a specific version number, such as 720 that corresponds to a ProLiant Support Pack release, or `zzz`, which is a copy of the latest version subdirectory. The `zzz` subfolder is used by the provided scripted installation jobs. You can use a specific version of the ProLiant drivers by editing your job to point to that specific subfolder.

The Altiris subdirectory contains a customized `aclient` configuration file that is used by the provided Windows scripted install, and the `adlagent.bin` file that is used by the provided VMware scripted install.

Additional Software

The `.lib\software` directory contains various software packages that can be installed after the operating system has been installed.

The ProLiant Support Pack `x.xx` subdirectories contain the ProLiant Support Pack files for the selected operating systems. The `x.xx` is either a specific version number, such as 7.20, or `Z.ZZ`, which is a copy of the latest version subfolder. The `Z.ZZ` subfolder is used by the provided scripted install jobs. You can use a specific version of the ProLiant Support Pack by editing your job to point to that specific subdirectory.

Understanding the NFS Server

Installing the ProLiant Integration Module on the NFS server populates the `/usr/rdp` directory with the Linux distribution files, installation answer files, and additional software files according to selections made during the Rapid Deployment Pack installation. These files are required to deploy Red Hat Linux or SUSE LINUX operating systems. Table 4-1 provides an overview of the directory structure within `/usr/rdp`.

Table 4-1: NFS Directory Structure

Directory Path	Reference Name	Directory Description
<code>/usr/rdp/osdist</code>	Distribution files	The Linux distribution source files.
<code>/usr/rdp/osconfig</code>	Installation files	The Linux installation answer files.
<code>/usr/rdp/osoem</code>	Operating System Scripted Install Support Files	Software drivers and files needed during the operating system installation

Distribution Files

Within the `/usr/rdp/osdist` directory, one subdirectory is created per operating system for storing the distribution source files. The directory names are derived from the distribution name to distinguish each Linux distribution version and if applicable, update version. For example, `/usr/rdp/rhas3u4` is the directory name for the Red Hat Enterprise Linux AS 3 Update 4 files.

NOTE: Red Hat distribution CD-ROM .iso images can be used in place of the source files at this location. For more information, refer to the “Rapid Deployment Pack Knowledge Base” at <http://www.hp.com/servers/rdp/kb> (Article 96).

Installation Files

Within the `/usr/rdp/osconfig` directory, one subdirectory is created per operating system for storing the Linux installation answer files.

Red Hat

For each Red Hat Linux distribution, the kickstart installation files are stored in the `/usr/rdp/osconfig/rhyyyy` directory, where `rhyyyy` represents the Red Hat distribution shortcut name. For example, Red Hat Enterprise Linux AS 3 Update 4 installation answer files are saved in the `/usr/rdp/osconfig/rhas3u4` directory. Different kickstart files are provided based on server model or virtual machine because of differences in technology and/or installation requirements.

NOTE: The ProLiant Support Pack files associated with Red Hat are located on the Deployment Server. Refer to Chapter 3, “Understanding the Deployment Server”.

SUSE

For each SUSE LINUX distribution, the control installation files are stored in the `/usr/rdp/osconfig/slesy` directory, where `slesy` represents the SUSE distribution shortcut name. For example, SUSE LINUX Enterprise Server 9 installation files are saved in the `/usr/rdp/osconfig/sles9` directory. Different control files are provided based on server model because of differences in technology and/or installation requirements.

NOTE: The ProLiant Support Pack files associated with SUSE are located on the Deployment Server. Refer to Chapter 3, “Understanding the Deployment Server”.

Operating System Scripted Install Support Files

Within the `/usr/rdp/osoem` directory, additional software files are stored under their respective software names. These files are required for the scripted installs and are called during the kickstart or control file installation. For example, Altiris Deployment Agent for Linux, `adlagent`, is located under `/usr/rdp/osoem/altiris` and is called from the kickstart or control file.

Customizing the ProLiant Integration Module

Preparing the ProLiant Integration Module for Customization

Before modifying the provided jobs, folders, and files, make a copy of the job and/or files and use this copy for your custom work. Keeping the original job and files will ensure that a working version exists. This is in case you encounter a problem or if you choose to overwrite the jobs or files during an upgrade or reinstall of Rapid Deployment Pack, your customized job or file will not be overwritten.

Jobs

This section explains how to copy, paste, rename, and edit a job in the Deployment Server Console Jobs pane. For additional information about the customization features of the console, refer to the *Altiris Deployment Solution 6.1 Product Guide* at <http://www.hp.com/servers/rdp>.

To copy, paste, rename, and edit a job:

1. Right-click the job and select **Copy**.
2. Right-click another location in the Jobs pane, and select **Paste**.

IMPORTANT: The jobs in the Rapid Deployment Pack use long names to be descriptive. When attempting to copy these jobs, the name may be truncated by Altiris since it places **Copy of** in front of the job name causing it to exceed the 128-character limit of the Deployment Server Console.

3. Right-click the new job and select **Rename**, or select the new job and press the **F2** key.
4. Enter a descriptive name for the job.
5. Press the **Enter** key.
6. Select the new job.
7. In the Details pane, double-click a task to edit its contents.

Export a job to or import a job from a file as a means to back up a job or a job folder.

To export a job or folder:

1. Right-click the job or folder.
2. Select **Export**.

3. In the Export Select Job(s)/Folder(s) dialog box, click **Browse** to designate a directory and job file, or enter the path and file name in the Export to File name field. Select Export subfolders if you want to export the subfolders of a folder.

NOTE: Job files are usually denoted with the .bin extension.

4. Click **OK**.

To import a job or folder:

1. Right-click within the Jobs pane.
2. Select **Import**.
3. In the Import Job dialog box, click **Browse** to locate the directory and job file, or enter the path and file name in the Job file to import field. Job files are usually denoted with the .bin extension.
4. Select the appropriate checkboxes, and then click **OK**.

Files

Either on the Deployment Server or NFS server, copy, paste, rename, and edit the file using the appropriate operating system commands. After the new file is created, modify the job as described above to use the new file name.

Reasons to Customize the ProLiant Integration Module

The following sections provide information about why you might want to customize the ProLiant Integration Module. For additional, topics on how to customize your installs, refer to the Rapid Deployment Pack Knowledge Base at <http://www.hp.com/servers/rdp/kb>.

All Operating Systems

- Change the array configuration
- Use a specific version of ProLiant Support Pack
- Modify the Altiris Deployment Agent settings (aclient or adlagent)

Windows unattend text File

You might want to customize the provided unattend text files to:

- Specify the SNMP community string and trap destinations
- Change the administrator password
- Specify a domain

For more information about editing a Windows scripted install unattend text file, refer to the *Windows 2000 Online Resource Kit* at <http://www.microsoft.com/windows2000/techinfo/reskit/en-us/default.asp>.

Red Hat Linux Kickstart File

You might want to customize the provided kickstart files to:

- Change the default root password
- Add a grub bootloader password
- Change the partitions, types, and sizes
- Change the Linux packages that are installed
- Change the firewall settings
- Add additional post install commands

For information about editing the kickstart files, refer to the *Red Hat Linux Customization Guide* located at <http://www.redhat.com>.

SUSE LINUX Control File

You might want to customize the provided control files to:

- Change the default root password
- Add a grub bootloader password
- Change the partitions, types, and sizes
- Change the Linux packages that are installed
- Change the firewall settings
- Add additional post install commands

For information about editing the control files, refer to the *Automatic Linux Installation and Configuration with YAST2* guide located at <http://www.suse.de/~nashif/autoinstall/ref.html>.

VMware ESX Server Kickstart File

You might want to customize the provided kickstart files to:

- Change the default root password

It is not suggested to modify the VMware ESX Server kickstart file with other modifications. Refer to <http://www.vmware.com> for supported VMware kickstart options.

Customization Examples

This section provides specific examples of modifying a few of the ProLiant Integration Module components. To make copies of the jobs and files, refer to instructions in the “Jobs” section previously mentioned in this chapter. Refer to Chapters 3 and 4 for information on job structure and file locations.

Example 1 – Using a specific ProLiant Support Pack version

For a specific operating system, you may want to use a newer ProLiant Support Pack version that was downloaded from the web and is supported by the current operating system versions, or even, use an older version that was previously installed before a Rapid Deployment Pack upgrade.

To change the ProLiant Integration Module for a specific ProLiant Support Pack version:

1. On the Deployment Server, if downloading a new ProLiant Support Pack version:
 - a. Create the appropriate `.lib\software\ProLiant Support Pack yyyy` directory where `yyyy` is the operating system name and support pack version. Copy support pack files to this location.
 - b. For Linux or VMware versions, copy the Rapid Deployment Pack ProLiant Support Pack install files, `rdpinstall.sh` and `rdpinstall.dat`, from a similar operating system version to this directory.

2. After creating a copy of the job,
 - For Windows, edit the **Install Package** task to install the files from the chosen directory.
 - For VMware or Linux, edit the **Copy File** task to copy the files from the chosen directory.

Example 2 – Modifying the Windows unattend text file

The Windows unattend text files have many components that can be customized for a Windows scripted install.

To change a Windows unattend text file:

1. On the Deployment Server, modify the copy of the unattend text file for your operating system version.
2. After creating a copy of the job, edit the **Run Script - Create Boot Environment** task in this job and the *rem replacetokens* line to use this new unattend text file.

Example 3 – Modifying the Red Hat Linux kickstart file

The Red Hat Linux kickstart files have several components that can be customized for a Linux scripted install.

To change a Red Hat Kickstart file:

1. On the NFS server, modify the copy of the kickstart file for your distribution version.
2. On the Deployment Server, after creating a copy of the job, edit the **Run Script - Create Boot Environment** task in this job and the *set unattendfile=* line to use this new kickstart file.

Example 4 – Modifying the Altiris Deployment Agent for Linux

The Altiris Deployment Agent for Linux, adlagent, uses an adlagent configuration file adlagent.conf, to read its settings. This file can be modified and then deployed during the Linux installation for adlagent to read at startup. All Linux deployments will use this custom adlagent configuration file.

To change the adlagent settings:

1. Using an adlagent.conf file from a working target, modify the file for your specific settings.
2. Name this file adlagent.conf.custom and place this file on the NFS server under /usr/rdp/osoem/altiris directory.

Example 5 – Modifying the VMware ESX Server Job to Deploy a Non-SCSI Array or ATA Server

The provided VMware ESX Server job is configured to deploy a SCSI array server that requires the cciss device label. The job can be modified to deploy a non-array SCSI or ATA server that is supported by VMware. The alternate VMware kickstart files and associated kernel command line files are available on the Deployment Server.

To change the VMware ESX Server job:

On the Deployment Server, after creating a copy of the job, edit the **Run Script - Create Boot Environment** task in this job and the *set unattendfile=* and *set parfile=* lines to use:

- For a non-array SCSI server *set unattendfile=sda.cfg* and *set parfile=sda.par*
- For an ATA server *set unattendfile=hda.cfg* and *set parfile=hda.par*

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