3216: Introducing HP ProLiant Blade Servers and NetWare 6.5

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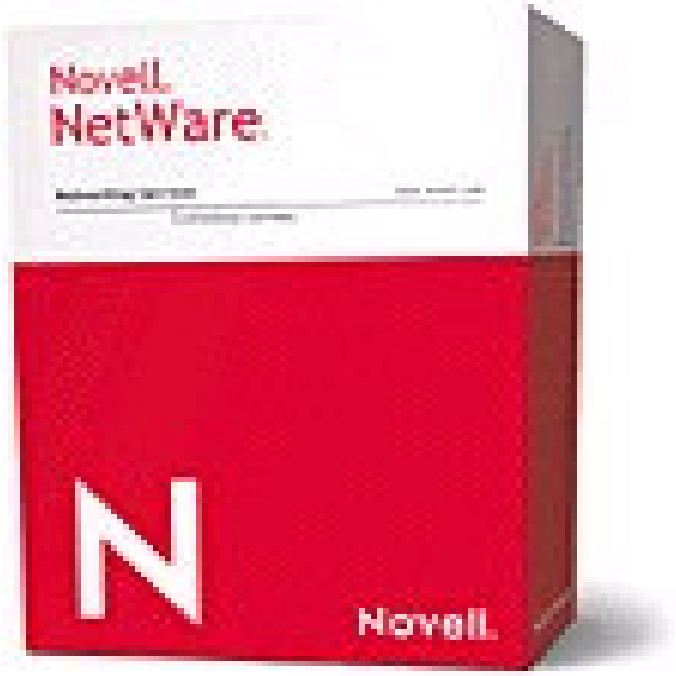
Agenda

- Blade Rack Configuration and Installation
- Operating System Installation
  - Virtual Media Installation
  - USB Media Installation
  - Known Installation Issues
  - Novell Deployment Options
- Supported Storage Configurations
- Documentation
- Questions

Blade Rack Configuration and Installation

HP ProLiant BL20P G2 and NetWare 6.5,



It's Not Just a Dream Anymore

p-Class Blade Infrastructure Overview

- Proper configuration requires 7 components:
  - Equipment rack
  - Blade Power Enclosure
  - Blade Power Supplies
  - Blade Power Distribution Device
  - Blade Enclosure
  - Blade Patch Panel
  - Blades

Rack Configuration Options

- Determine required rack size
  - Each p-Class blade enclosure requires 6u of rack space (maximum of 6 per rack) and can hold 8 BL20p blades
  - Each p-Class power enclosure requires 3u of rack space (maximum of 4 per rack) and can hold 6 power supplies
  - Add the total number of blade enclosures and power enclosures to determine rack size

Rack Configuration Options

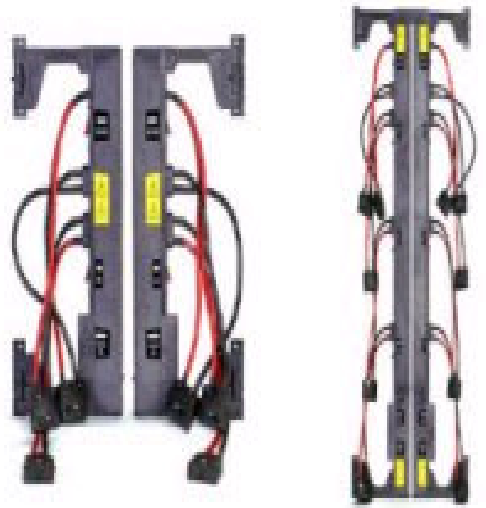
- 22u Rack can support:
  - 3 p-Class blade enclosures (3x6u) and 2 p-Class power enclosures (2x3u)
- 36u Rack can support:
  - 5 p-Class blade enclosures (5x6u) and 2 p-Class power enclosures (2x3u)
- 42u Rack can support:
  - 6 p-Class blade enclosures (6x6u) and 2 p-Class power enclosures (2x3u)
  - This is the maximum configuration for a single rack

Power Enclosure Configuration Options

- Determine desired input voltage
  - 208vac Single Phase
    - Max of 4 power supplies (2 per line cord)
  - 220vac Three Phase
    - Max of 6 power supplies (3 per line cord)
  - 48vdc (primarily for telco installations)
  - Note that all power enclosures provide dual line cords for redundant power entry
- Use the power calculator at
- http://h18004.www1.hp.com/products/servers/proliant-bl/p-class/20p/index.html to determine the required number of enclosures
  - Select "BL p-Class Sizing Utility" from the left navigation bar

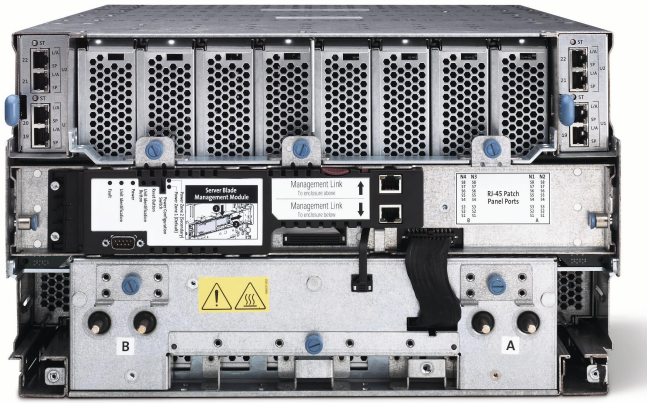
Power Distribution Configuration Options

- 3 Options
  - Scalable Bus Bar
    - Supports up to 5 blade enclosures and 1 or 2 power enclosures
  - Mini Bus Bar
    - Supports up to 3 blade enclosures and 1 or 2 power enclosures
  - Power Bus Box
    - Supports a single blade enclosure and a single power enclosure
  - The Scalable and Mini Bus Bars provide routing channels for the Ethernet cables from the blade enclosures



Blade Enclosure Options

- Each p-Class blade enclosure will support up to 8 BL20p G2 blades
- Has integrated management through iLO
- Provides four 1GB NIC connections (1 reserved for iLO) and two 2GB FC connections per blade
  - Requires FC-capable patch panel



HP ProLiant BL p-class Blade and Power Enclosure Firmware Upgrade Utility for Novell NetWare

- Found at the following link:

http://h18023.www1.hp.com/support/files/server/us/locate/89_4928.html

- This utility will flash the firmware on the blade and power enclosures from a NetWare server
- Download the component from the website onto the NetWare server.
- Download the appropriate Rack Enclosure Firmware onto the server.
- Run hpqnwru.nlm [-l] [-a] <rack enclosure FW> where option [l] will flash the FW on the local enclosure only and option [a] will flash all the enclosures.
- Run hpqnwru.nlm -help for other options that are available with the utility.
- For example, if cpqrmm203.bin is the name of the firmware file and assuming that the utility and the firmware are both located in the same directory (for example, the SYS:\public directory), enter the commands as follows:
- load SYS:\public\hpqnwru.nlm -l SYS:\public\cpqrmm203 (for flashing the local enclosure only).
- load SYS:\public\hpqnwru.nlm -a SYS:\public\cpqrmm203 (for flashing all the enclosures)

Patch Panel Interconnect Options

- Each blade enclosure requires a Patch Panel option kit
  - Each Patch Panel option kit contains 2 patch panels:
    - 1 for each side of the blade enclosure
- Each blade enclosure can have a different option kit, but each enclosure must have a matching pair of patch panels
  - All Ethernet connections are made from the rear of the blade enclosure
  - FC connections are made from either the front or rear of the blade enclosure, depending on the patch panel type

Patch Panel Interconnect Options

- Patch Panel 2
  - Standard Patch Panel 2
    - Provides 16 Ethernet connections per panel (32 total per enclosure)
    - Does not support external storage
  - Patch Panel 2 with FC pass through
    - Provides 16 Ethernet connections per panel (32 total per enclosure)
    - Provides 8 FC connections per patch panel
      - 16 total per enclosure
      - FC ports located on front of patch panel
    - Requires blade with FC Mezzanine card to access SAN

Patch Panel Interconnect Options

- Patch Panel with Gb Ethernet (GbE2)
  - Provides 4 consolidated Ethernet connections per panel (8 total per enclosure)
  - Can be either copper or fibre
  - Provides 8 FC connections per panel
    - 16 total per enclosure
    - FC ports located on rear of patch panel
  - Requires blade with FC Mezzanine card to access SAN

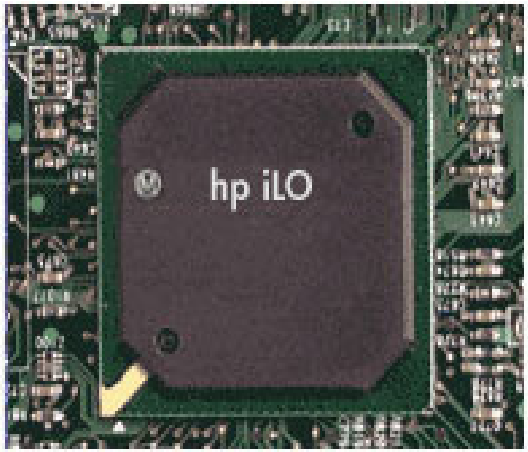
Installation

Installation Options

- Virtual Media Installation
  - Requires iLO
- USB Media Installation
  - Requires external USB Media
- SmartStart Assisted Path Installation
- Known Installation Issues
- Novell Deployment Options

Virtual Media Installation

Integrated Lights Out Technology and Blades



- iLO Advanced comes with every 2P blade
- Requires a web browser to access
- Default settings for Administrator sent with each blade
  - Password
  - DNS Name
  - Tag is shipped on the blade

Key Features of iLO Advanced

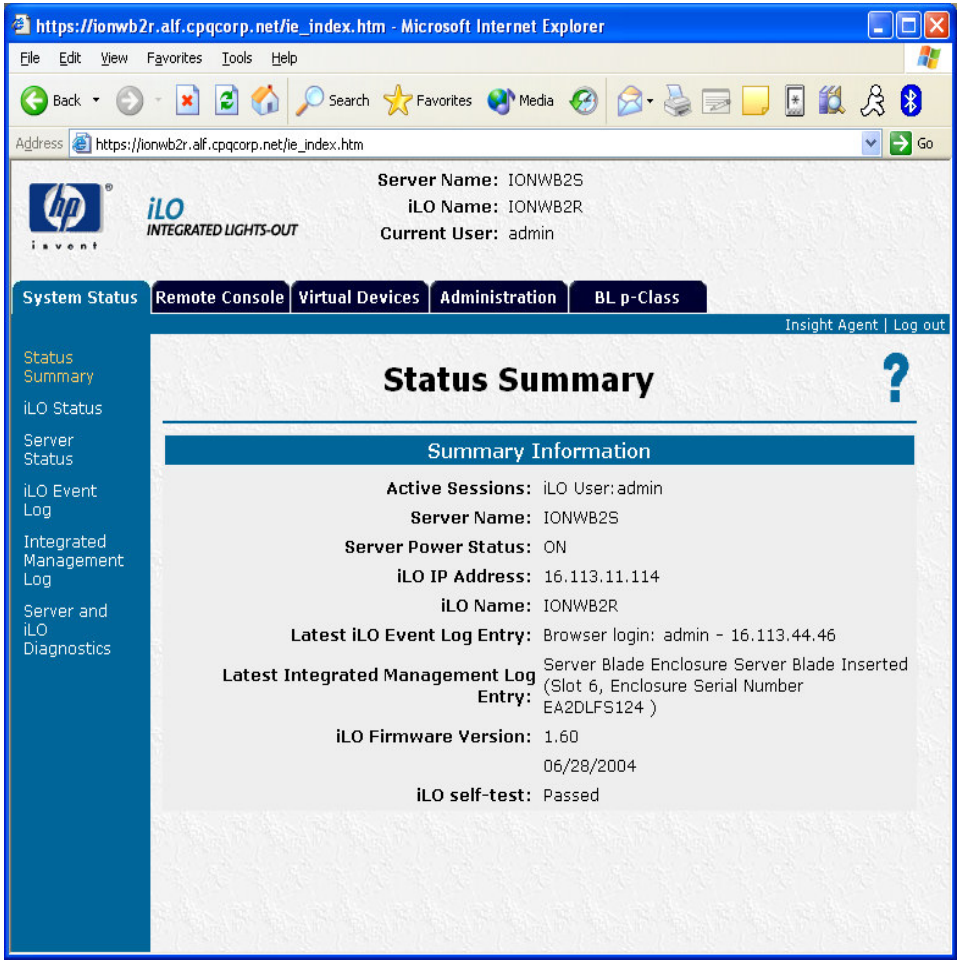
- USB Based Virtual Media
  - Virtual Floppy
  - Virtual CD-ROM
- Virtual Graphical Remote Console
  - Full control over display, keyboard and mouse of host server
- Directory Services Integration
  - eDirectory and Active Directory Support
  - Needed for the Directory Enabled Management
- Microsoft Terminal Services Integration
- iLO Documentation may be found at:
- http://h18004.www1.hp.com/products/servers/management/ilo/documentation.html

Browser Requirements for iLO

- Microsoft:
  - Internet Explorer 6 with SP1
  - Java Virtual Machine (JVM) 1.4.x or later
  - Windows 2000 or Windows XP
- Linux:
  - Netscape 7.10
  - Mozilla 1.4
  - 1.4.2 JVM
  - Only the KDE Desktop is Supported

iLO Firmware

- iLO Firmware must be at 1.60 in order for the Virtual Media install of NetWare to be successful
- Whenever possible, use a slim line CD-ROM as the host CD-ROM



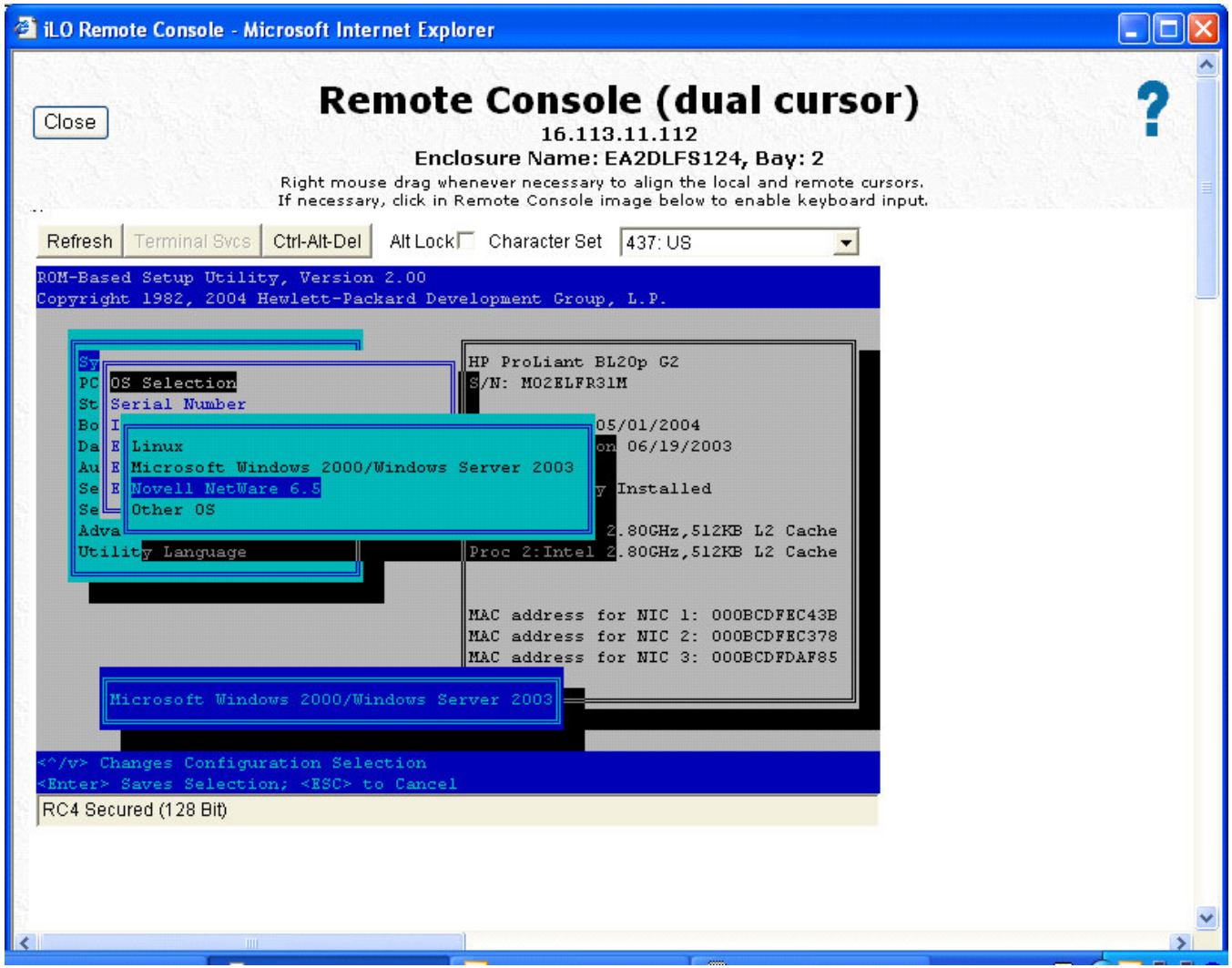
Updating iLO Firmware

- Log in to iLO
- Select Administration from the menu options
- Select Update iLO Firmware
- Browse to the Firmware BIN file and click Update Firmware
- iLO will reset after the Firmware update and you will have to log back in to iLO

ROM Based Setup Utility (RBSU)

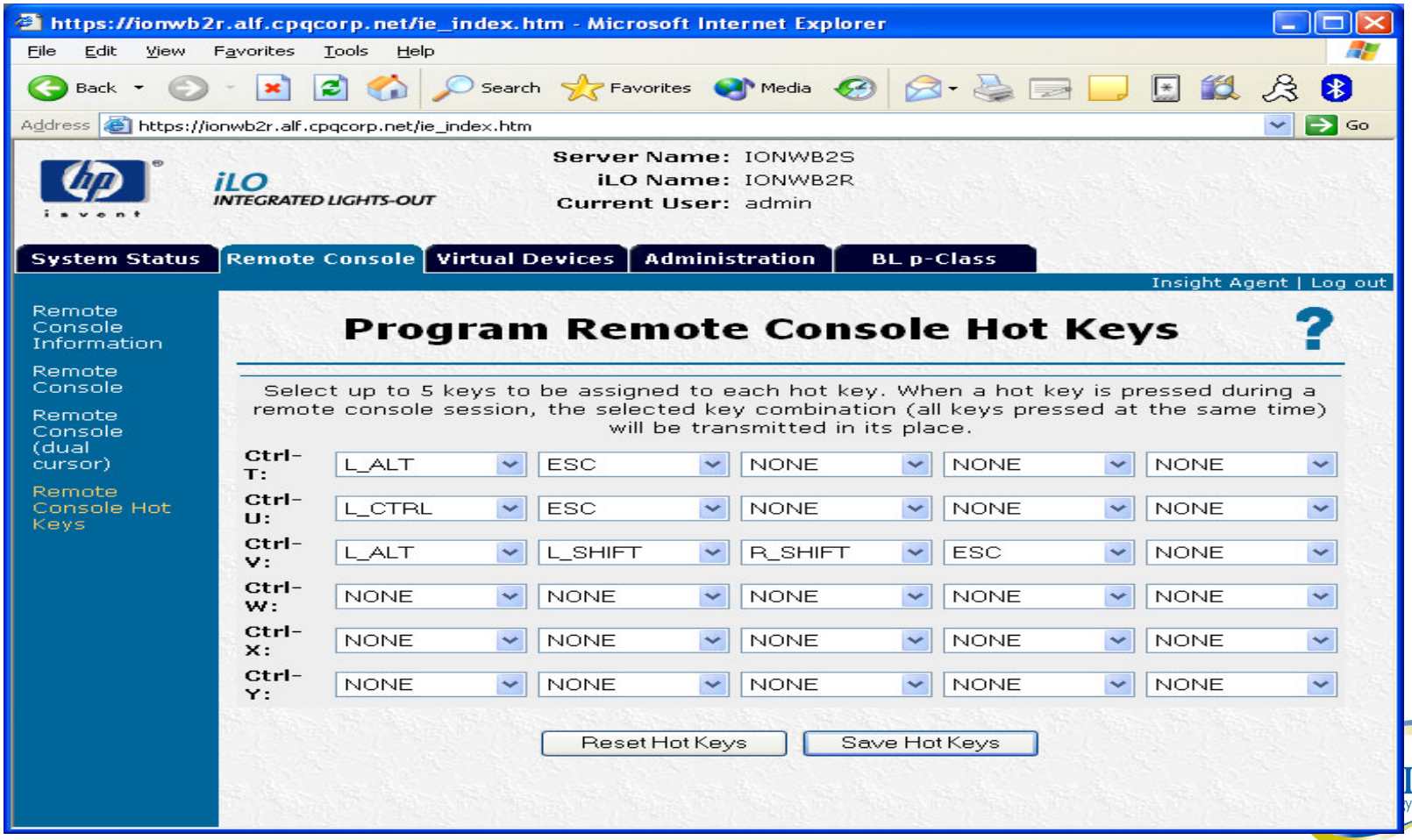
- Updated ROM to add NetWare 6.5 support
  - Only NetWare 6.5 is supported on the BL20P G2 Blades
  - I04 ROM Dated 5/1/2004, Version 4.07
- There is a new ROM required to support the blades it can be downloaded from:
- http://h18023.www1.hp.com/support/files/server/us/locate/69_4928.html
- Create a ROM Diskette and boot blade using iLO Virtual Floppy to land the updated ROM
- After ROM is flashed, upon cold boot of server, press F9 to enter RBSU and set the OS Selection to "NetWare 6.5" and check the date/time of the server

RBSU


iLO Remote Console - Microsoft Internet Explorer
Close
Remote Console (dual cursor)
16.113.11.112
Enclosure Name: EA2DLFS124, Bay: 2
Right mouse drag whenever necessary to align the local and remote cursors.
If necessary, click in Remote Console image below to enable keyboard input.
Refresh
Terminal Svcs
Ctrl-Alt-Del
Alt Lock
Character Set
437: US
ROM-Based Setup Utility, Version 2.00
Copyright 1982, 2004 Hewlett-Packard Development Group, L.P.
OS Selection
Serial Number
Linux
Microsoft Windows 2000/Windows Server 2003
Novell NetWare 6.5
Other OS
Language
HP ProLiant BL20p G2
S/N: MO2ELFR31M
05/01/2004
06/19/2003
Installed
2.80GHz,512KB L2 Cache
Proc 2:Intel 2.80GHz,512KB L2 Cache
MAC address for NIC 1: 000BCDFEC43B
MAC address for NIC 2: 000BCDFEC378
MAC address for NIC 3: 000BCDFDAF85
Microsoft Windows 2000/Windows Server 2003
<^/v> Changes Configuration Selection
<Enter> Saves Selection; <ESC> to Cancel
RC4 Secured (128 Bit)

Remote Console Hot Keys

- Important to set up hot keys before installing NetWare 6.5 on the blade server



Virtual Media Installation Checklist

- Browser Supported
- JVM updated
  - 1.4.x
- iLO Firmware updated
  - 1.60 is required for NetWare 6.5 Virtual Media Installs
- ROM Updated
  - I04 ROM, version 4.07 dated 5/1/04
- NetWare 6.5 Original Media with the USB Boot CD or NetWare 6.5 SP1.1 or later
- Hot Keys Defined
- F9 – RBSU – change the OS Selection to NetWare 6.5
- F8 – ORCA – set up Array on hard drives

Supported Media for Blade Installations

- USB Boot CD-ROM from Novell with original NetWare 6.5 media (Red Box)
  - Con of this method is that an updated PS2.NLM is needed for the GUI portion of the install. If you select this method, you will go in to mouseless mode in the GUI and must use Tab to switch screens
- NetWare 6.5 Support Pack 1.1 or later Overlay CD-ROMs
- Special Overlay CD: At one time, HP determined that Novell needed to release an updated Overlay CD to support Virtual Media installs. That requirement is no longer needed. The user may use the Overlay CD-ROMs provided as a part of the Consolidated Support Pack from Novell.

Installation Step by Step

- Log in to iLO via a web browser (either on a server or desktop)
- Insert the OS Overlay CD or the USB Boot CD-ROM in the local CD-ROM drive
- Activate the Virtual CD-ROM from the Virtual Devices Menu in iLO
- Use the Virtual Power Button to Reset the Blade
- Blade will boot to the Virtual CD-ROM and begin the NetWare install
- Follow the on screen instructions. Refer to Novell's NetWare 6.5 documentation at:

www.novell.com/documentation/nw65

USB Boot CD-ROM vs. Overlay CD-ROM

USB Boot CD-ROM

- Will inform you that it is going to erase the drive
- Lays down an image that does the first FAT file copy in NetWare
- It will prompt to remove the USB boot CD-ROM
- It will prompt for the NetWare 6.5 CD-ROM upon reboot
- Does not have the updated PS2.NLM required for the GUI portion of the install. You must use keyboard commands instead of the mouse during the GUI setup if this install method is used.

Overlay CD-ROM

- Will not erase the drive
- Begins the Install as a typical NetWare 6.5 Installation
- Has the updated PS2.NLM
- Latest Support Pack for NetWare 6.5 (SP1) is integrated so you need not re-apply

Virtual CD-ROM and Floppy

- You may switch between the Virtual CD-ROM and Floppy during the installation in order to install the License Disk
  - Deactivate the Virtual CD-ROM
  - Activate the Virtual Floppy
  - Install the License
  - Deactivate the Virtual Floppy
  - Activate the Virtual CD-ROM
  - Continue the Installation

ProLiant Support Pack

- After any installation, HP recommends that you apply the latest ProLiant Support Pack for your Operating System to ensure the latest drivers and fixes have been applied to your system
- The ProLiant Support Pack should also be re-applied after a Novell Support Pack is applied to the system to make sure the latest drivers are landed

USB Media Installation

Supported USB Devices for Install

- USB CD-ROM
- USB Floppy
- USB Keyboard
- USB Mouse
- USB Hub

- NOTE: This option is used only with the newer BL20P G2a blades that have the bigger I/O Port on the front. Original G2 blades will only support a Virtual Media Installation

How do I Know Which Blade I Have?

- When you purchase your blade, if you have a newer model (G2a), The New I/O Module will be included in the box. If you did not receive an I/O Module with your blade, you have an original G2.

I/O Module

- The I/O module allows direct access to the blade
- Two versions of the I/O module for the 20P blades
  - Original G2 blade has a small I/O Port, no USB connector, No Monitor Connector
  - 12/03 an updated G2 was released with a larger I/O Port and includes a USB connector and Monitor Connector

I/O Module Access

- The I/O Module has a tag that contains an IP address (192.168.1.1). When using the I/O Module for Installation, you must use this IP Address to access the blade, even if you have set up a different IP through iLO.
- Why? The iLO on the Enclosure Backplane is disabled when the I/O Module is used

USB Direct-Attached Installation Checklist

- I/O Port connected to front and all USB devices are attached
- If iLO is used for some devices, browser meets requirements and hot keys defined
- iLO Firmware updated
  - 1.60 is required for NetWare 6.5 Virtual Media Installs
- ROM Updated
  - I04 ROM, version 4.07 dated 5/1/04
- NetWare 6.5 Original Media with the USB Boot CD or NetWare 6.5 SP1.1 or later
- F9 – RBSU – change the OS Selection to NetWare 6.5
- F8 – ORCA – set up Array on hard drives

USB Media Installation

- Connect I/O Module to the I/O Port on the front of the blade
- Attach any USB Device to the I/O Module you require during installation
- Place NetWare 6.5 CD-ROM in USB CD-ROM Drive
- Boot the blade server
- Begin Installation of NetWare 6.5

What If I Don't Have All the USB Devices?

Missing USB Component	**iLO Solution**
USB Mouse	Remote Console
Monitor	Remote Console
USB CD-ROM Drive	Virtual CD-ROM
USB Diskette Drive	Virtual Floppy
USB Hub	I/O Cable for two USB devices, use ILO for remainder
When using the I/O cable for the installation in conjunction with iLO, use the IP address found on the I/O cable (192.168.1.1) to access iLO. Do not use a defined IP address.	

SmartStart USB Assisted Path Installation

SmartStart Assisted Path Blade Install Checklist

- Either use Virtual Media or USB Direct Connect Install Methods
- Browser Supported (Only if using Virtual Media)
- JVM updated
  - 1.4.x
- iLO Firmware updated
  - 1.60 is required for NetWare 6.5 Virtual Media Installs
- ROM Updated
  - I04 ROM, version 4.07 dated 5/1/04
- NetWare 6.5 Original Media with the USB Boot CD or NetWare 6.5 SP1.1 or later
- Hot Keys Defined (Only if using Virtual Media)
- F9 – RBSU – change the OS Selection to NetWare 6.5
- F8 – ORCA – set up Array on hard drives

USB Assisted Path Installation via SmartStart

1. Insert the SmartStart 7.10 CD into the host workstation or server CD-ROM drive.
2. If using iLO for Remote Access, open the Internet browser, enter the IP address of the iLO management port, and them log in to iLO.
3. If using iLO for Remote Access, activate the virtual CD-ROM and then select Remote Console from the Remote Console tab.
4. Power on the server blade using either the Virtual Power option in iLO or the Power button on the front of the server blade.
5. Select the appropriate language from the Language screen, and then click Continue.
6. Select Agree at the license agreement screen.
7. Click Launch Setup.

SmartStart Assisted Path Install - Continued

8. If the operating system selection has not been configured in RBSU (ROM-Based Setup Utility) or the drives in ORCA (Option ROM Configuration for Arrays), set up the OS selection in SmartStart. Optionally, the installation can restart the server blade to set up the OS selection and the RAID configuration for the drives. If you have already performed this step prior to launching SmartStart, click Next to proceed with the installation.
9. Select the NetWare 6.5 Overlay CD operating system.
    1. NOTE: NetWare 6.5 Small Business Server is not supported on the blades.
10. Select one of the following boot partition sizes, and then click Next:
    1. Minimum: 300 MB
    2. Maximum: 2000 MB
    3. Recommended: 500 MB
    4. Custom

SmartStart Assisted Path Install - Continued

11. If using shared storage, select either of the following options on the OS Configuration Information screen, and then click Next.
    1. Erase all drives, including non-bootable shared storage.
    2. Erase all drives, except non-bootable shared storage (default).
12. Insert the NetWare 6.5 SP1.1 operating system CD into the CD-ROM drive and then click Continue.
13. Follow the on-screen instructions for the remainder of the NetWare installation.
14. Upon completion of the installation, HP recommends applying the latest Novell Support Pack.

Known Issues

Known Issues

- **Description:** If the user tries to toggle to the server console during initial launch of the installation by means of the remote console hot keys, it will cause the "Exit Installation" dialog box to appear when trying to accept the License Agreement.
- **Workaround:** Select No to not exit the installation. Use the same remote console hot key pressed during installation to toggle through all the screens. Upon returning to the installation screen, select **F10**. This action allows the installation to proceed.
- **Description:** The server abends when trying to switch between the virtual CD-ROM and virtual floppy drive for license installation.
- **Workaround:** There is a known issue in NetWare 6.5 SP1.1 that causes the virtual media abend, which has been fixed in NetWare 6.5 Support Pack 2. If you do not have the NetWare 6.5 Support Pack 2 Overlay Media, use the demo license found on the Products CD with NetWare 6.5 SP1.1 to install a license and use iManager to install additional licenses upon completion of the install. For information on licensing, refer to the Novell Licensing Services Administration Guide at: www.novell.com/documentation/nw65/pdfdoc/nlsadmin/nlsadmin.pdf
- **Solution:** This issue has been fixed in NetWare 6.5 Support Pack 2. Use the NetWare 6.5 Support Pack 2 Overlay Media.

Known Issues Continued

- **Description:** The server hangs or abends when trying to load the HP ProLiant Support Pack using Virtual CD-ROM media.
- **Workaround:** When installing the HP ProLiant Support Pack using virtual media, make sure to activate the virtual CD-ROM before opening a Remote Console session. The abend happens only if Remote Console is opened and then the user tries to mount the virtual CD-ROM.
- **Description:** Install hangs during the file copy
- **Workaround:** This happens only when a customer is using a full height CD-ROM, like those found in the old Deskpro Series and the ML server line. This issue is sporadic in nature. The install will be successful one time, but fail the next using the same deployment server/workstation. Novell is currently looking in to the issue, but until a resolution is determined, HP recommends using a slim-line CD-ROM like those found in laptops or in the DL server line. These CD-ROM drives do not have the issue.

Novell Deployment Options

Novell Deployment Tools

- PXE Deployment and USB Deployment
  - Portlock
  - PowerQuest
- Reference the Novell NetWare 6.5 Blade Server Installation Guide found at:

http://www.novell.com/documentation/nw65/pdfdoc/blade_install/blade_install.pdf

NOTE: HP does not officially support Novell's Deployment Solution. Customers who choose this install method must contact Novell for support. HP support will not be able to assist with this type of install.

Supported Storage Configurations

SAN Support & Configuration

- HP Supports the following Mass Storage Devices in conjunction with the BL20P G2 blade:
  - Modular Storage Array 1000 (MSA1000)
  - Enterprise Virtual Array 3000 (EVA 3000)
  - Enterprise Virtual Array 5000 (EVA 5000)
- Virtual Media from a blade may be used to configure the External Storage using Array Configuration Utility (ACU)
- Support to CPQONLIN.NLM will be added for the QL2300.HAM controller in version 2.75. The updated utility can be found at:

http://h18023.www1.hp.com/support/files/server/us/locate/89_4928.html

- Novell Cluster Services is a supported solution with these products.

Product Availability

NetWare 6.5 Support for Blades

- NetWare 6.5 was added to the OS Support Matrix in May, 2004

www.hp.com/go/supportos

- Approval to add NetWare support to the BL20P G3 product has been obtained and should be available in 3CQ04
- Whitepaper Available on Installation Guidelines for NetWare on the BL20P G2 found at:

http://h200001.www2.hp.com/bc/docs/support/SupportManual/c00211502/c00211502.pdf

Blade Demo

- Please visit the Novell booth in the Expo Hall (booth number 121)
- BL20P G2 blade cluster demo (8-node)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Questions


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