

General ProLiant Questions and Answers



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Answers

1. What is NIC teaming and how can I use it?

NIC Teaming allows the user to configure two NICs such that they form one single virtual NIC. The teamed pair may then be configured for fault tolerance or load balancing.

This feature requires network driver support. HP offers NIC teaming support through the NIC drivers. For more information on NIC teaming visit: <http://h18004.www1.hp.com/products/servers/networking/teaming.html>.

2. What is Wake-on-LAN (WOL)?

Wake-on-LAN provides a method of remotely powering on a system based on the MAC address of the NIC. This feature requires hardware support by the NIC, NIC firmware, NIC driver and system ROM support. Servers with integrated NICs support WOL and have this feature enabled by default.

3. What is Preboot-eXecution Environment (PXE)?

A Preboot-eXecution Environment (PXE) allows a user to connect to a PXE server to remotely install an operating system. This feature requires NIC hardware and firmware support, as well as system ROM support. All integrated NICs support PXE and have this feature enabled by default. When this feature is enabled, there is an option at POST to press F12 to attempt to locate a PXE deployment server. Not all operating systems support a PXE deployment for a server operating system. For more information on PXE, go to ftp://ftp.compaq.com/pub/products/servers/management/pxe_wp.pdf.

4. What is PCI-X technology?

A compatible extension of the existing PCI Bus, the 64-bit PCI-X architecture runs at speeds up to 133 MHz, providing burst transfer rates above 1 GByte/s. This critical I/O bandwidth is needed for industry standard servers running enterprise applications such as Gigabit Ethernet, Fibre Channel, Ultra3 SCSI and Cluster Interconnects.

PCI-X ensures investment protection because it offers backward compatibility with existing PCI based systems and a stable and complementary technology roadmap for future I/O standard system architectures. For more information on PCI-X, go to <http://h18004.www1.hp.com/products/servers/technology/index.html>.

5. What is PCI Express?

PCI Express is a newer interface for add-in card applications that require bandwidths in excess of 1 GByte/s. PCI Express cards look very similar to conventional PCI and PCI-X cards and are installed in the server the same way. However, the PCI Express interface is different from the PCI and PCI-X interface, so slots must be designed for one or the other. As more and more applications require higher bandwidths, you should expect to see more and more PCI Express slots in servers.

New servers offer PCI Express slots either in addition to PCI-X slots, or instead of PCI-X slots depending on the server implementation. Refer to the server documentation or QuickSpecs for the specific layout of your ProLiant server.

6. What is the difference between the different RAID levels?

RAID stands for Redundant Array of Inexpensive Disks. A RAID0 logical drive uses all of the available drive capacity for storage. This requires at least one drive and is the least fault tolerant meaning if any one drive fails, the logical drive is no longer available. A RAID1 logical drive mirrors the contents of one drive to another. The logical drive is one-half of the total capacity of the two drives used. This requires a minimum of two drives and provides better fault tolerance because any one drive can fail without affecting data integrity. A RAID1+0 logical drive mirrors the contents of one set of drives to another set of drives. The logical drive is one-half the capacity of the total of the drives available. This requires an even number of drives and a minimum of 4. This is the most fault tolerant because up to two drives can fail as long as they are not in the same mirror set. A RAID5 logical drive uses the equivalent of one drive's capacity for parity but stripes the parity information on all drives. This implementation requires at least three drives and n-1 drive is used for parity. This provides better fault tolerance because any one drive can fail without affecting data integrity. A RAID ADG logical drive uses the equivalent of two drive's

capacities for parity but stripes the parity information on all drives. This requires at least four drives and n-2 drives are used for parity. This provides the best fault tolerance because any two drives can fail without affecting data integrity.

7. What is the difference between software RAID and hardware RAID?

Software RAID, normally enabled by the OS, allows a user to mirror data files across 2 logical drives, using the system's processor to perform the RAID functionality. It does not enable a boot drive to be mirrored and requires RAID 1. It normally causes a system's performance to decrease due to the system's processor being occupied by disk I/O.

Hardware RAID, enabled by an independent processor and controller, allows the user to run any RAID setting. Because hardware RAID uses an independent processor to perform RAID activities, its performance is usually much better than software RAID. The system can continue to perform other activities while the RAID functions are happening. Additionally, hardware RAID allows the system to mirror boot drives so that even a drive failure will not prevent a system from booting properly.

8. What USB support is included in my ProLiant server?

HP provides both standard USB support and legacy USB support. Standard support is provided by the operating system (OS) through the appropriate USB device drivers. HP provides support for USB devices prior to the operating system loading through legacy USB support, which is enabled by default in the system ROM. Click here for more information on ProLiant USB support:

<http://h18004.www1.hp.com/products/servers/platforms/usb-support.html>.

9. HP offers ProLiant servers with internal USB ports and internal USB headers. What is the difference between these two features?

Internal USB ports have been designed into many new ProLiant servers to allow customers an option to use an USB drive key as a boot device. Designing space internal to the server allows the user to leave the key inside and not extend outside the server chassis. Internal USB headers have been designed into most of the ML ProLiant servers to allow connection of an USB tape device. Check server QuickSpecs for details.

10. What is the Integrated Lights-Out 2 (iLO 2) and where can I find information about iLO 2 licensing options?

Integrated Lights-Out 2 (iLO 2), the fourth generation of Lights-Out remote management, delivers industry-leading remote control for ProLiant servers. iLO 2 is an intelligent management processor and firmware integrated on most ProLiant 300 series, 500 series, and Blade servers.

For more information on the Integrated Lights-Out 2, and iLO 2 licensing options refer to <http://www.hp.com/servers/lights-out>.

11. What is Virtual Serial Port?

The Virtual Serial Port allows the iLO Management Controller to appear as a physical serial port in order to support BIOS Serial Console Redirection and Operating System serial console. To enable this feature, enter RBSU by pressing F9 at POST. This option will assign the logical COM port address and associated default resources to be used by the virtual serial port.

12. What is iLO Shared Network Port and how do I configure this option?

The shared network port allows combined usage of the network connection for one of the embedded NICs and iLO. This reduces the number of cables that need to be routed to the back of the server, and reduces the number of cable drops to the rack. This feature requires hardware, ROM and iLO firmware support.

To enable this feature, enter iLO configuration and enable the option for iLO shared network port. This feature currently supports text based console redirection only. This is specifically an iLO feature and is not supported with RILOE.

13. What operating systems are supported on my ProLiant server?

For a complete and up-to-date listing of supported OS's and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.

14. Where can I find information about the deployment alternatives for this server?

There are many HP-supported software deployment methods, as well as deployment methods using industry-standard technologies. For information on what software deployment alternatives are available, go to:

<http://h18013.www1.hp.com/products/servers/management/proliant-deployment.html>.

15. How can I use Virtual Install Disk to install my operating system?

Virtual Install Disk provides storage controller drivers in the system ROM. This allows a user to install the OS using the standard CD, even if it doesn't normally include the driver. After completing the OS installation, the user should insert the SmartStart CD to install the full ProLiant Support Paq (PSP). The Virtual Install Disk contains drivers for the standard storage controller included with the server; drivers for optional controllers must still be installed separately. Currently the only OS to support the Virtual Install Disk is Windows Server 2003.

16. How can I run Erase?

The Erase utility can be run from the SmartStart CD and is also now available as an enhanced ROM feature. Embedded Erase can be run by powering on the server and pressing F9 to run RBSU. There is a new option to Erase NVRAM and local hard drives. This can be run without booting the SmartStart CD.

17. How can I run Diagnostics?

User Diagnostics have been incorporated into the system ROM as one of the enhanced ROM features. User Diagnostics can be run by powering on the server and pressing F10 to enter the System Maintenance Menu. Within the menu, the user will have the option to run various diagnostic utilities for their ProLiant server. These utilities can be run without having to boot the SmartStart CD. Additional Enterprise Diagnostics (located on the SmartStart CD), is supported for more broad diagnostic capabilities).

Server Diagnostics cannot be run through RBSU, but can be run by inserting the supported SmartStart CD into the ProLiant server. The SmartStart CD will have the same functionality for server diagnostics as in previous releases.

18. What is Embedded Inspect?

Embedded Inspect is a ROM based tool found in many newer ProLiant 300,500, and 700 ROMs and is accessed through the system maintenance menu at POST. It reports SMBIOS, System options & settings, PCI Devices, IML entries, EV's, ISA CMOS, System and Boot Controller overviews.

19. What is the value-add software and how do I install it?

HP delivers value-add software via the SmartStart CD. These drivers have been tested and are supported for HP/ Compaq hardware, and they provide enhanced functionality for ProLiant servers. To install these drivers using the SmartStart CD, insert the CD after the operating system has been installed. These drivers and software deliverables are also available on the HP website under Support and Drivers.

20. How do I configure my ProLiant server hardware?

ProLiant server hardware can be configured through the ROM-Based Setup Utility (RBSU). RBSU is loaded by pressing F9 when prompted at POST. RBSU allows the user to set the date and time, boot controller order, hardware interrupts, and advanced system settings. For additional information on RBSU, review the RBSU User Guide at <http://h18013.www1.hp.com/products/servers/management/smartstart/documentation.html>.

21. What are Online ROM Flash components and how can I use them?

Online ROM Flash Smart Components provide a simple, cost effective way to remotely upgrade server and option firmware. These components allow customers to perform system and Option ROM updates from a remote system with no physical presence at the server that is being flashed. For more information on Online ROM Flash utility, go to <http://h18023.www1.hp.com/support/files/server/us/webdoc/rom/OnlineROMFlashUserGuide.pdf>.

To find Online ROM flash components for your ProLiant server model visit:

<http://h18023.www1.hp.com/support/files/server/us/romflash.html>

22. Does HP support mixing processor speeds or cache?

HP does not officially support mixing processor speeds on Intel platforms, although we do not prevent processor speed mixing from working. If possible, a faster processor will clock down to the lowest speed in an Intel processor-based system. Processor cache mixing is supported on Intel systems if the processor speed is the same.

HP does not support mixing processor speeds or cache on Opteron platforms. Processor steppings are supported only if the steppings are of the same versions of the same processor model (e.g., AMD Opteron 800 with Stepping C0 and AMD Opteron 800 with Steppings CG), and the lowest stepping processor is populated as the Bootstrap processor 1.

23. Can I disable a processor core within a dual core processor?

No, there is no mechanism to disable a processor core.

24. What is the default boot order for my ProLiant server?

The boot order for devices can be configured in RBSU, but the default setting is floppy, CD, USB, boot controller, and then PXE (network). When the system initializes, it will attempt to boot devices in this order. As soon as a device detects bootable media, it will boot to that media. The default boot controller is the embedded controller, but the boot order will search for bootable media on the controller configured to be the boot controller. If a drive with a boot partition is not detected, the server will attempt to PXE boot to the network.

25. How does Redundant ROM provide additional system availability?

The ROM is divided into two logical parts. When the system boots, the primary ROM side is executed and used in server operation. During a ROM flash, the backup image is flashed. Once the flash is fully completed, the backup image becomes the primary ROM image. If under rare conditions your flash does not complete safely, potentially due to interruption of power, the backup ROM image will be available to boot the system. In the situation where both images are valid, the user can select which image to use at boot time in RBSU.

26. What is BIOS Serial Console Redirection?

Serial Console Redirection allows console output to be redirected through the serial port for those users who operate in a 'headless' environment. BIOS Serial Console Redirection allows POST messages to be redirected as well as execution of RBSU and Option ROMs. Some operating systems offer similar functionality, such as EMS Support in Windows 2003. BIOS Serial Console Redirection and EMS Support are independent features in RBSU. For more information on these features, go to <ftp://ftp.compaq.com/pub/products/servers/management/smartstart/bios-serialconsole.pdf>

27. How can I configure my server to automatically power up after a power outage?

Automatic power-on is a ROM feature that allows the user to configure the system to automatically power up after a power outage. This feature is disabled by default as it could potentially cause a power surge in the datacenter if all servers power up at the same time. The Power-on Delay feature can be used to reduce the risk of a power surge by delaying servers from powering on for a specified amount of time up to 1 minute after power is re-established. Enter RBSU to enable either of these features.

28. What sleep states are supported on my ProLiant?

ProLiant servers support S0 (full on), S4 (hibernate) and S5 (full off). All other sleep states are not supported on ProLiant hardware.

29. What are the system health LEDs used for? What do the different colors mean (green, red, amber)?

The front panel and internal Field Replaceable Unit (FRU) LEDs are used to help diagnose a server failure. If the item is serviceable without removing the server hood, as in the case of a redundant power supply failure, the External Health LED will illuminate. If the item is serviceable by removing the hood, as in the case of a fan failure, the Internal Health LED will illuminate. On newer ProLiant server models additional information regarding failed components can also be seen on the System Insight Display located on the front of the server.

If no failures have occurred, the system health LEDs will be green. If a failure has occurred, but a redundant feature has enabled the system to continue running, the LED will be amber. If the failure is critical and is/has caused the system to shutdown, the LED will be red. These LEDs serve as local indicators for several failure conditions. Insight Manager will continue to report these, and many other failure conditions, as well.

30. What is the purpose of the UID?

The Unit Identification light (UID) is a feature of all DL and some ML servers that allows the user to distinguish which server they are working on in the rack. The UID can be lit from iLO, the System Insight Manager (SIM) console, as well as directly at the server by pressing either the front or rear UID button. Once lit, the LED will be blue to help the user identify the unit.

A flashing blue UID indicates that the server is being remotely managed via iLO.

31. What power savings options are available on ProLiant servers?

ProLiant servers support various power savings options, including Power Regulator for ProLiant and ACPI-based OS demand-based switching. Included in Power Regulator for ProLiant is the HP Dynamic Power Savings mode, a mode where the system performs real-time switching to select the lowest power state to meet the server's application load. In addition, the HP Static Low Power mode or Static High Power mode can be used to operate the server at a constant low power or high power state, respectively. Power regulator support requires processor, and ROM support. To determine which power regulator modes your server supports or for additional power regulator information visit: <http://h18004.www1.hp.com/products/servers/management/ilo/power-regulator.html>

In addition, recently released operating systems offer demand-based switching for power savings. This support is a feature of the operating system, and available on the following ProLiant servers:

BL Series	OS demand-based switching	Minimum ROM version
BL20p G3	Supported	I08_0414.05
BL20p G4	Supported	At release
BL25p	Supported	A02_0615.05
BL25p G2	Supported	At release
BL35p	Supported	A03_0603.05
BL45p	Supported	A02_0615.05
BL45p G2	Supported	At release
BL460c	Supported	At release
BL465c	Supported	At release
BL480c	Supported	At release
BL685c	Supported	At release
DL Series	OS demand-based switching	Minimum ROM version
DL320 G4	Supported	At release
DL320 G5	Supported	At release
DL360 G4	Supported	P52_0414.05
DL360 G4p	Supported	P54_0415.05
DL360 G5	Supported	At release
DL365	Supported	At release
DL380 G4	Supported	P51_0427.05
DL380 G5	Supported	At release
DL385	Supported	A05_0614.05
DL385 G2	Supported	At release
DL580 G3	Supported	P38_0529.05
DL580 G4	Supported	At release
DL585	Supported	A01_0614.05
DL585 G2	Supported	At launch
ML Series	OS demand-based switching	Minimum ROM version
ML310 G3	Supported	At release
ML310 G4	Supported	At release
ML350 G4	Supported	D17_0414.05
ML350 G4p	Supported	D19_0414.05
ML350 G5	Supported	At release
ML370 G4	Supported	P50_0415.05
ML370 G5	Supported	At release
ML570 G3	Supported	P37_0520.05
ML570 G4	Supported	At release

Minimum operating system versions HP recommends for demand-based switching are:

	Windows 2003 SP1	Red Hat EL 4 (32-bit) (b)	Red Hat EL 4 (64-bit) (b)	SLES 9 (32-bit) (b)	SLES 9 (64-bit) (b)
Intel™ Xeon	Supported	Supported (base)	Supported (U1)	Supported (SP1, SP2)	Supported (SP1, SP2)
AMD™ Opteron	Supported (a)	Not supported (base, U1)	Not supported (base, U1)	Supported (SP1, SP2)	Supported (SP2)

(a) dual core processors require an updated driver from AMD's web site.

(b) For details on Linux installation parameters, please see the following URL.

<http://h18004.www1.hp.com/products/servers/linux/powernow-notes.html>

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i) SP1 is not supported under 64-bit and must be disabled. See Linux web URL above for additional details.

Operating systems that do not support offer demand-based switching for power savings include:

- Windows 2000, Windows 2003 (base media)
- Red Hat EL 3
- Novell NetWare
- UnixWare/OpenServer/Solaris

32. What ProLiant servers support the new embedded system health, high-speed shared network port and power consumption monitoring and reporting?

ProLiant server	Embedded System Health Support	Power Consumption monitoring and reporting	High-speed Shared Network Port
BL20p G4	✓		
BL25p G2	✓		
BL45p G2	✓		
BL460c	✓	✓	
BL465c	✓	✓	
BL480c	✓	✓	
BL685c	✓	✓	
DL320 G4			✓
DL360 G5	✓	✓	✓
DL365	✓	✓	✓
DL380 G5	✓	✓	✓
DL385 G2	✓	✓	✓
DL580 G4			✓
DL585 G2	✓	✓	✓
ML350 G5	✓	✓	✓
ML370 G5	✓	✓	✓
ML570 G4			✓

33. What manageability do I have on an embedded health system with and without the health driver installed?

Embedded health is a new system feature that offers more system management on ProLiant out of the box, without a system management driver installed. System management features available without a health driver installed include:

- Hardware protection with IML logging for thermal events fan failure/removal/insertion, power supply failure/removal/insertion, loss/gain of redundancy on fans and power supplies.
- Indicators or LED's (Internal Health and External Health) illuminated when there are events requiring attention.
- Initiation of a graceful shutdown for events requiring a shutdown for ACPI aware operating systems.

The health driver communicates with the iLO2 device and provides the following additional features when it is installed.

- OS-level logging of hardware failures/removals/insertions
- Support for server agents and System Management Homepage
- Notification of a memory or processor pre-failure warranty condition
- Graceful shutdowns in the case of a thermal event for ACPI aware and non ACPI operating systems.
- Support for the Automatic Server Recovery feature that allows a hung server to be reset.
- NMI Sourcing and logging in Integrated Management Log.

The iLO2 device embedded in the system supports the industry standard Intelligent Platform Management Interface (IPMI version 1.5). Operating Systems (like Windows Server 2003 R2 or Linux) that have built in Manageability Features will be able to collect hardware information from the iLO2 device using the standard KCS interface.

34. What is changing about Daylight Savings Time in 2007 and how does this effect ProLiant Servers?

Beginning March 11, 2007, Daylight Saving Time (DST) start and end dates for the United States will transition to comply with the Energy Policy Act of 2005. Under the new law, Daylight Saving Time will begin the second Sunday of March and end the first Sunday of

November, extending the timeframe by four weeks. Due to this DST change, operating system and application software updates may be required to ensure that the system clock on HP products is accurate. For additional information visit: <http://www.hp.com/go/dst>