Net-Net® 7000 Series
Hardware Installation Guide

Release Version 1.0

Contents

About This Guide

Overview

The Acme Packet Net-Net™ 7000 series is a family of rack-mountable hardware platforms designed for very high performance, high capacity SIP and Diameter core signaling applications. With its compact single unit 1 μ design the Net-Net 7100 and Net-Net 7150 platforms provide exceptional functionality in a tightly integrated system. This chapter provides an introduction and overview of the main components of this book.

The *Net-Net 7000 Series System Hardware Installation Guide* describes:

- Safety
- Component Overview
- System Installation
- Startup
- Maintenance
- Specifications
- Glossary
- SNMP Traps

Audience

This guide is written for network administrators, and telecommunications equipment installers and technicians. It provides information related to the hardware components, features, installation, start-up, operation, and maintenance of the Net-Net Series 7000 Platforms. Only experienced and authorized personnel should perform installation, configuration, and maintenance tasks.

Who is Acme Packet?

Acme Packet enables service providers to deliver trusted, first class interactive communications - voice, video and multimedia sessions - across IP network borders. Our Net-Net family of session border controllers satisfy critical security, service assurance and regulatory requirements in wireline, cable and wireless networks. Our deployments support multiple applications - from VoIP trunking to hosted enterprise and residential services; multiple protocols - SIP, H.323, MGCP/NCS and H.248; and multiple border points - interconnect, access network and data center.

Established in August 2000 by networking industry veterans, Acme Packet is a public company that is traded on NASDAQ, headquartered in Bedford, MA.

Technical Assistance

If the Net-Net Platform was purchased through a registered partner or direct with Acme Packet, log into the Acme Packet Customer Portal and open a ticket to have it serviced. If the Platform was purchased through a certified partner, contact their first level of support.

Customer Questions, Comments, or Suggestions

Acme Packet is committed to providing our customers with reliable documentation. If you have any questions, comments, or suggestions regarding our documentation, please contact your Acme Packet customer support representative directly or email support@acmepacket.com.

Contact Us

Acme Packet
100 Crosby Drive
Bedford, MA 01730
USA
t 781 328 4400
f 781 425 5077
http://www.acmepacket.com

Revision History

This section contains a revision history for this document.

Date	Revision Number	Description
October 31, 2012	Revision 1.01	• Initial release.
December 12, 2012	Revision 1.02	• Modified the introduction in this chapter (*About This Guide*).

1 Safety

Introduction

This chapter provides an overview of the recommended safety precautions for installing the Net-Net 7000 Platform.

Before you install your Net-Net 7000 Platform, we recommend that you review the contents of this chapter and "Platform Installation" on page 29. Both chapters provide information intended to protect you and your Net-Net 7000 Platform from experiencing any harm during the installation process. These chapters also provide information that helps to keep your Net-Net 7000 Platform functioning properly and keep it from damage.

General Safety Precautions

To ensure general safety, follow the safety precautions listed in this section.

Fan Module

To avoid overheating the system, do not block the air inlets or the fan module, or otherwise obstruct airflow to the system. Keep the area around the Net-Net 7000 Platform clean and clutter-free.

System Maintenance

Aside from the hard drives and power supplies, there are no user-serviceable parts inside the Net-Net 7000 Platform. Only professionals trained to maintain, adjust, or repair the Net-Net 7000 Platform may provide these services.

Environmental Specifications

Adhere to the environmental specifications provided in "Environmental Specifications" on page 81.

Using This Guide

Read and understand all notes of warning and caution included in the Net-Net 7000 Platform documentation. These warnings and cautions are designed to keep you safe and protect the Net-Net 7000 Platform from damage. A list of them are provided in "Symbols on Equipment" on page viii.

Electrical Safety Precautions

To protect yourself from harm and the Net-Net 7000 Platform from damage, follow these electrical safety precautions:

Precautions

• Note the locations of the power supply switches on the Net-Net 7000 Platform, and the location of the emergency power-off switch for the room where it is located.

• If an electrical accident occurs, remove power from the system immediately by unplugging the Platform.

• Always disconnect the power from the system when removing a Net-Net 7000 Platform from its rack.

- When disconnecting power:
    - Turn the power supply switches to the OFF position.
    - Disconnect the circuit breaker at the rack.
    - Unplug or unscrew the power cords from the power supplies.
- Use grounded AC power cords that are plugged into grounded electrical outlets.
- Never use extension cords to power a Net-Net 7000 Platform.
- Ensure that the installation facilities have proper grounding systems and include a grounded rack structure or local grounding bus bar.
- When installing the Net-Net 7000 Platform in an equipment rack, always make the ground connection first and disconnect it last upon removal.
- Use shielded Category 5e or 6, RJ-45 cables for all 10/100/1000 Ethernet connections to protect the Net-Net 7000 Platform from potential damage.
- To avoid making a complete circuit (which causes electrical shock), use only one hand when working with powered-on electrical equipment.
- Use caution when using electrically conductive tools around the Net-Net 7000 Platform.
- Remove jewelry before working on the Net-Net 7000 Platform.

Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

> **Warning:** To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

> **Warning:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.

This symbol on an RJ-45 receptacle indicates a network interface connection.

> **Warning:** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.
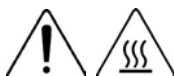
This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

> **Warning:** To reduce the risk of injury from a hot component, allow the surface to cool before touching.

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

> **Warning:** To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

SAFETY

> **Warning:** To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.

Server Warnings and Cautions

Before installing a server, be sure that you understand the following warnings and cautions.

> **Warning:** To reduce the risk of electric shock or damage to the equipment:
> • Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
> • Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
> • Unplug the power cord from the power supply to disconnect power to the equipment.
> • Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

> **Warning:** To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

> **Warning:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Cooling Precautions

> **Caution:** For proper cooling do not operate the Net-Net Platform without the access panel, baffles, expansion slot covers, or blanks installed. Minimize the amount of time it takes to replace hot-swap components to ensure that the Platform can properly cool all components.

Battery Warnings

> **Caution:** There is a risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

> **Caution:** Perchlorate Material — Special handling may apply. See www.dtsc.ca.gov/hazardous waste/perchlorate.

ESD Safety

To protect sensitive Net-Net 7000 Platform electronic components from damage from static electricity, always follow the appropriate ESD procedures and wear the proper protective devices (such as an ESD wrist strap) when handling any and all Net-Net 7000 Platform equipment and while performing any associated hardware procedures. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Precautions

To protect your equipment from ESD, follow these ESD safety precautions:

- Ensure that the Net-Net 7000 Platform is properly grounded.

- If you are grounding your Net-Net 7000 Platform to an electrically conductive, grounded rack, check to see whether or not the rack is painted. Paint can hinder proper grounding. If your equipment rack is painted, you should ground the system to some other reliable place or remove a small portion of paint for proper grounding.

- Use a grounded ESD wrist strap when working on the Net-Net 7000 Platform to prevent static discharge.

- To avoid damaging ESD-sensitive hardware, discharge all static electricity from your body before working directly with the Net-Net 7000 Platform by touching a grounded object.

- Avoid hand contact by transporting and storing products in static-safe containers.

- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.

- Place parts on a grounded surface before removing them from their containers.

- Avoid touching pins, leads, or circuitry.

- Always be properly grounded when touching a static-sensitive component or assembly.

Environmental, Safety, and Regulatory Certifications

For specific information regarding the environmental, safety, and regulatory certifications applicable to the Net-Net 7000 Platform, refer to "Environmental, Safety, and Regulatory Certifications" on page xii.

2   Component Overview

Platform

The Net-Net 7000 Series offers the following platforms:

* Net-Net Model 7100 Platform

* Net-Net Model 7150 Platform

* Net-Net Model 7250 Platform [1]

The Net-Net 7000 Platforms are each contained in a 1 μ rack-mounted Platform. The Platform can be front-mounted in a standard 19" wide rack (up to 28" deep).

The front panel of the Platform is pictured here.

The rear panel of the Platform is pictured here.

For technical specifications on each Platform model, please see "Specifications" on page 77.

Mounting Hardware

The Net-Net 7000 Platforms are supported by a pair of quick deploy rails that attach to the front and rear of an equipment rack. The rails are adjustable for equipment racks of various depths. The rails are telescopic, allowing the Platform to be pulled in and out of the rack along sliding rails that extend out from the front of the rack for quick installation, removal and service.

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1. Installation steps for the Model 7250 will be provided at a later date.

**Equipment Rack
Installation Hardware**

For equipment rack installations, the system Platform is outfitted with left and right quick deploy rails that secure directly to the inside of the equipment rack. This two-piece mounting system simplifies Platform installation and removal. Two views of the rails are pictured below.
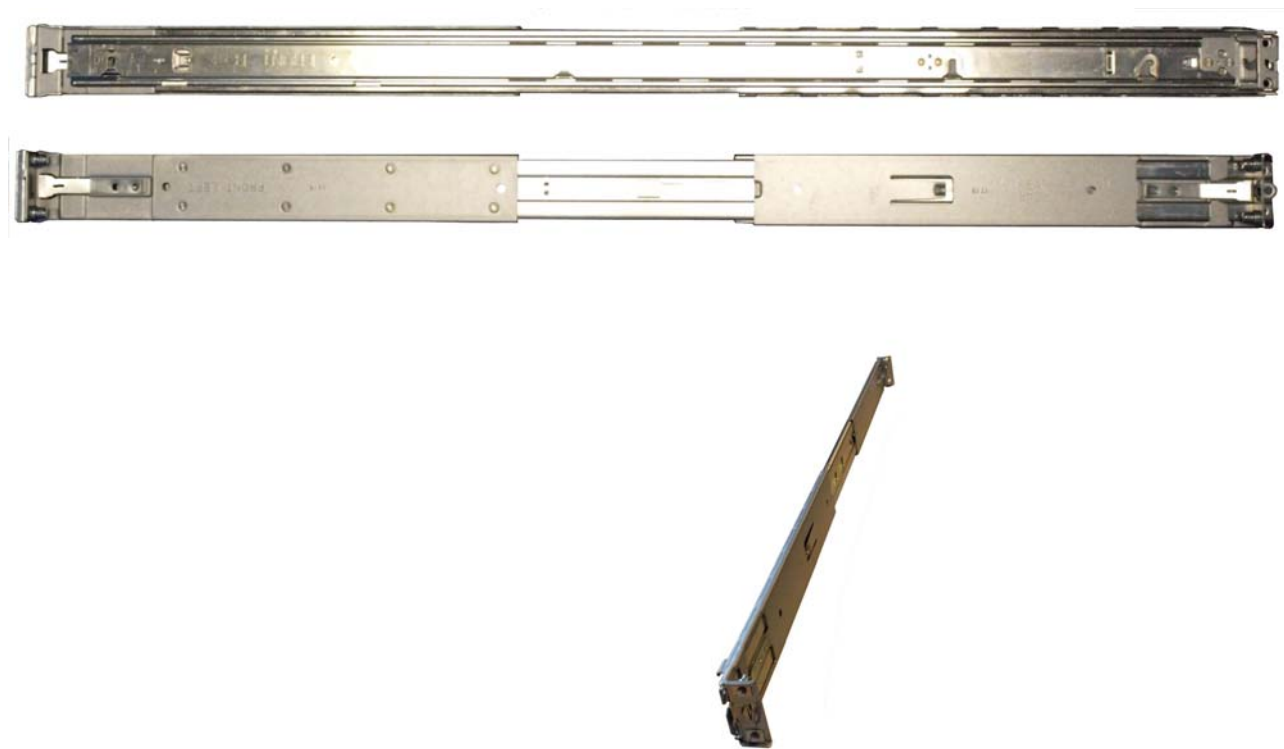
The quick deploy rails are clearly marked FRONT L and FRONT R (as shown below) to indicate their location within the rack. The rails are mounted in place on both sides of the rack interior. The front and back of each rail can either be snapped in place using guide pins provided on each rail, or the guide pins can be used to screw the rails directly into the rack.

Once inserted into the quick deploy rails, the Net-Net 7000 Platforms can be pushed into the rack and secured in place with two quick disconnect levers on the front corners of the Platform. Removal is just as easy; pressing the quick disconnect levers disconnects the

server from the rails and allows the server to be slid out from inside the rack along the telescopic quick deploy rails.
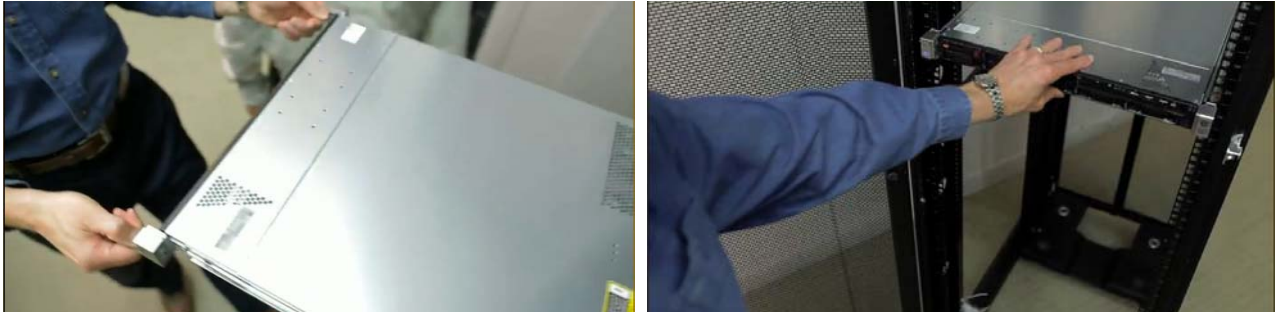
Platform Control Panels

This section describes the front and rear control panels of the Net-Net 7000 Platforms.

Front Panel Items   Each of the main front panel components of the Net-Net 7000 Platform are called out and numbered in the illustration below. The corresponding descriptions for each numbered component is listed in the table below.
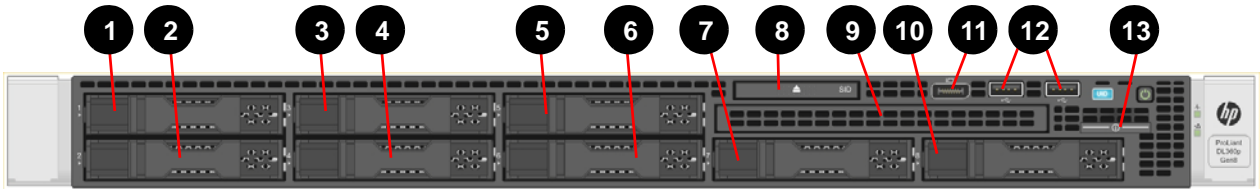
Item	Description
1	SAS/SATA/SSD drive bay 1[a]
2	SAS/SATA/SSD drive bay 2[b]
3	SAS/SATA/SSD drive bay 3
4	SAS/SATA/SSD drive bay 4
5	SAS/SATA/SSD drive bay 5
6	SAS/SATA/SSD drive bay 6
7	SAS/SATA/SSD drive bay 7
8	System Insight Display
9	Empty
10	SAS/SATA/SSD drive bay 8
11	Front video connector (front video port adapter required)

(continued)

Item	Description
12	USB connectors (2)
13	Serial number tab and iLO default information

a. Net-Net Model 7100/7150 use only two drive bays. Acme Packet recommends that the two drives on these models be installed in bay **1** and bay **2**.

System Insight Display

The System Insight Display on the Net-Net 7000 Platform front panel represents the system board layout. The display provides the status for internal LEDs and enables diagnosis with the access panel installed. LED meanings are provided in "System Insight Display LEDs" on page 14 and "System Insight Display/Health/Power LED Combinations" on page 16.
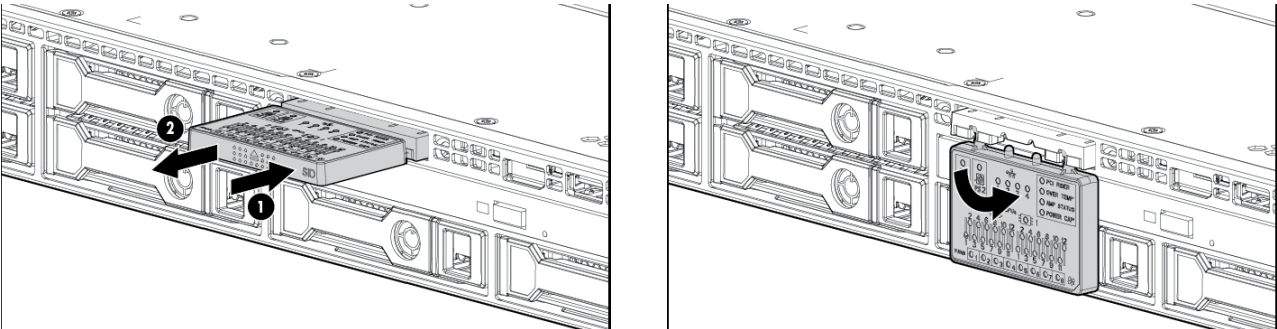
Note: The System Insight Display on the Net-Net 7000 is opened by first pushing it in and releasing to pop it out, extending the panel fully, and then flipping the display down (up to 90 degrees) to the desired angle.

System Insight Display LEDs

The meaning of each indicator on the System Insight Display is provided in the table below. For information on LED combinations, please see "System Insight Display/Health/Power LED Combinations" on page 16.

Description	State and Meaning
Processor LEDs	**Off** = Normal **Amber** = Failed processor.
DIMM LEDs	**Off** = Normal **Amber** = Failed DIMM or configuration issue.
Fan LEDs	**Off** = Normal **Amber** = Failed fan or missing fan.
NIC LEDs	**Off** = No link to network. **Solid green** = Network link. **Flashing green** = Network link with activity. If power is off, the front panel LED is not active. For status, see "Rear Panel LEDs and Buttons" on page 20.
Power supply LEDs	**Off** = Normal **Amber** = Failed power supply.

(continued)

Description	State and Meaning
PCI riser LED	**Off** = Normal **Amber** = Incorrectly installed PCI riser board.
Over temp LED	**Off** = Normal **Amber** = High system temperature detected.
AMP status LED	**Off** = Disabled **Solid green** = Advanced Memory Protection active. **Solid amber** = Memory failure has occurred. **Flashing amber** = Invalid AMP memory configuration.
Power cap LED	**Off** = System is in standby, or no cap is set. **Solid green** = Power cap applied.

Front Panel LEDs and Buttons

There are two LEDs and two functional buttons with LEDs on the front panel of the Net-Net 7000 Platform that collectively provide indications of its various operational states. The LEDs indicate network activity/connections, server power status, system identification status, remote management status, and the overall system health of the Net-Net 7000 Platform. Each LED can be three different colors in a solid, flashing or off mode to indicate different states. Each of the front panel LEDs, located in the upper right corner of the System, are called out in the drawing below. The state of each LED and button LED and their possible meanings are presented in the table below. Additional information about some of these components are described in the following subsections.

Item	Description	Status
1	UID LED/button	**Solid blue** = (ON) Indicates Net-Net 7000 Platform identification is activated. **Off** = (OFF) Indicates the Net-Net 7000 Platform identification is deactivated. **Flashing blue** = (BLINK) Indicates that a critical condition is underway on the host, such as Remote Console access or a firmware update. When the UID LED stops blinking, the status reverts to the previous value (either ON or OFF). If a new state is selected while the UID LED is in BLINK state, that new state takes effect when the UID stops blinking.
2	Power On/Standby button/LED	**Solid green** = System is on. **Flashing green** = Waiting for server power sequence. **Solid amber** = System is in standby, but power is still applied. **Off** = Power cord is not attached, power supply failure has occurred, no power supplies are installed, facility power is not available, or the power button cable is disconnected.

(continued)

Item	Description	Status
3	System Health LED	**Solid green =** System health is normal. **Flashing amber =** System health is degraded. To identify the component in a degraded state, see "System Insight Display" on page 14. **Flashing red =** System health is critical. To identify the component in a critical state, see "System Insight Display" on page 14. Also check iLO/BIOS logs. **Fast flashing red =** Power fault (check system and devices).
4	NIC status LED	**Solid green =** Link to network. **Flashing green =** Network activity. **Off =** No network connection.

System Insight Display/Health/Power LED Combinations

When the System Insight Display, Health and Power LEDs are illuminated at the same time, they have the meanings described in the table below. For information on the meanings when the LEDs are not in combination with each other, please see "System Insight Display LEDs" on page 14 and "Front Panel LEDs and Buttons" on page 15.

System Insight Display LED and Color	Health LED	Power LED	Status
Processor (Amber)	Red	Amber	One or more of the following conditions may exist: • Processor in socket X has failed. • Processor X is not installed in the socket. • Processor X is unsupported. • ROM detects a failed processor during POST.
Processor (Amber)	Amber	Green	Processor in socket X is in a pre-failure condition.
DIMM (Amber)	Red	Green	One or more DIMMs have failed.
DIMM (Amber)	Amber	Green	DIMM in slot X is in a pre-failure condition.
Over Temp (Amber)	Amber	Green	The Health Driver has detected a cautionary temperature level.
Over Temp (Amber)	Red	Amber	The server has detected a hardware critical temperature level.
PCI Riser (Amber)	Red	Green	The PCI riser cage is not seated properly.
Fan (Amber)	Amber	Green	One fan has failed or has been removed.
Fan (Amber)	Red	Green	Two or more fans have failed or been removed.
Power Supply (Amber)	Red	Amber	One or more of the following conditions may exist: • Only one power supply is installed and that power supply is in standby. • Power supply fault. • System board fault.

(continued)

System Insight Display LED and Color	Health LED	Power LED	Status
Power Supply (Amber)	Amber	Green	One or more of the following conditions may exist: • Redundant power supply is installed and only one power supply is functional. • AC power cord is not plugged into redundant power supply. • Redundant power supply fault. • Power supply mismatch at POST or power supply mismatch through hot-plug addition.
Power Cap (Off)	-	Amber	Standby
Power Cap (Green)	-	Flashing Green	Waiting for power.
Power Cap (Green)	-	Green	Power is available.

Power On/Standby Button

A Power On/Standby button is located on the upper right corner of the front panel of the Net-Net 7000 Platform. There are no other power controls. This is the only way to power up the Platform or put it in standby mode. For additional information about the Power indicator states and their associated meanings, please see "Front Panel LEDs and Buttons" on page 15.

> **Note:** When the Platform is in standby mode, auxiliary power is still being provided to the system.

UID Button

A UID button and indicator is located on the upper right corner of the front panel of the Net-Net 7000 Platform as pictured below. Pressing the UID button allows the state of its LED to change. The state of the LED allows the user to identify and locate the physical platform in a high-density rack environment. The UID button can be physically pressed to change the state, or the user can control the UID using the iLO 4 Web interface. In critical conditions, the Net-Net 7000 Platform software automatically puts the UID LED into the BLINK state. For additional information about the UID indicator states and their associated meanings, please see "Front Panel LEDs and Buttons" on page 15.

Caution

Never remove power from a Net-Net 7000 platform when the UID LED is blinking.

USB Port   The USB ports are reserved for software-enabled applications.

Serial Number Tab   The two-sided bar coded serial number tab can be viewed by pulling on its outer pull-tab and removing it. The following case-sensitive iLO default network settings are preprinted on both sides of a label on this tab:

- DNS name — specifies the DNS name for use in accessing the iLO Web interface from a network client using a Web browser. To access the server, in the Web browser the user can either specify the iLO Web interface IP address or DNS name.

- User name — specifies the user name used to log in to iLO remotely from a network client using a Web browser.

- Password — specifies the eight character password used to log in to iLO remotely from a network client using a Web browser.

- iLO serial number

Note: The same information on the serial number tab is printed on a label affixed to the top left front side of the Net-Net 7000 Platform (below).

Intake Fans

Internal Net-Net 7000 Platform fans draw in cool air through the front of the server and expel warm exhaust air through the rear. For this reason it is important to ensure adequate airflow by not blocking the front and back ventilation openings and ensuring that there is adequate clearance around the Platform. For more information about space and airflow requirements, please see "Mounting Guidelines" on page 32.

Fan LEDs on the System Insight Display indicate normal fan operation, failed or missing fans, and high temperature events. For more information on fan LEDs, please see "System Insight Display" on page 14.

If the System Insight Display LEDs indicate abnormal fan operation, shut the Net-Net 7000 Platform down and contact support for technical assistance. For service information, please see "Technical Assistance" on page v.

Warm Air Exhaust

Cool Air Intake
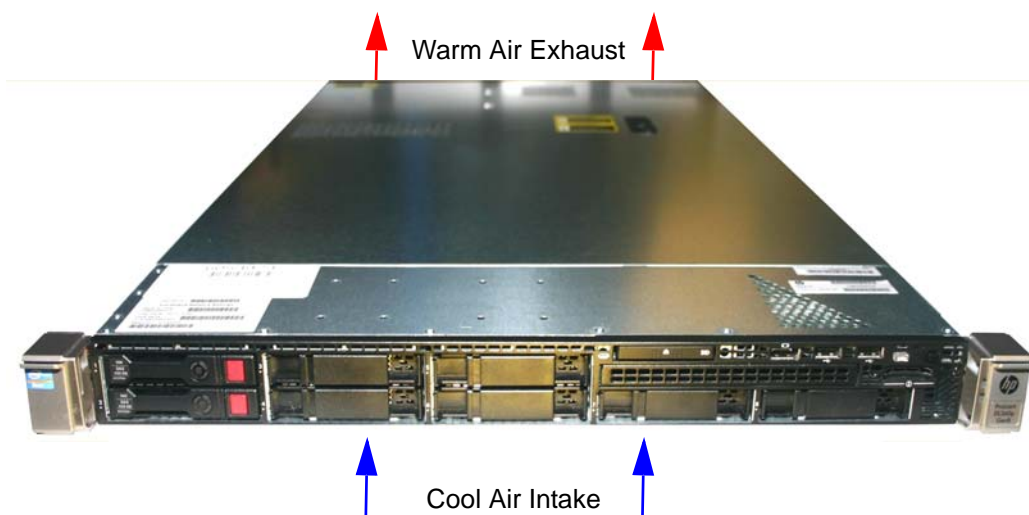
Rear Panel Items

Power supplies and network interfaces are located on the rear Platform panel as shown here.

Network Interfaces   Power Section
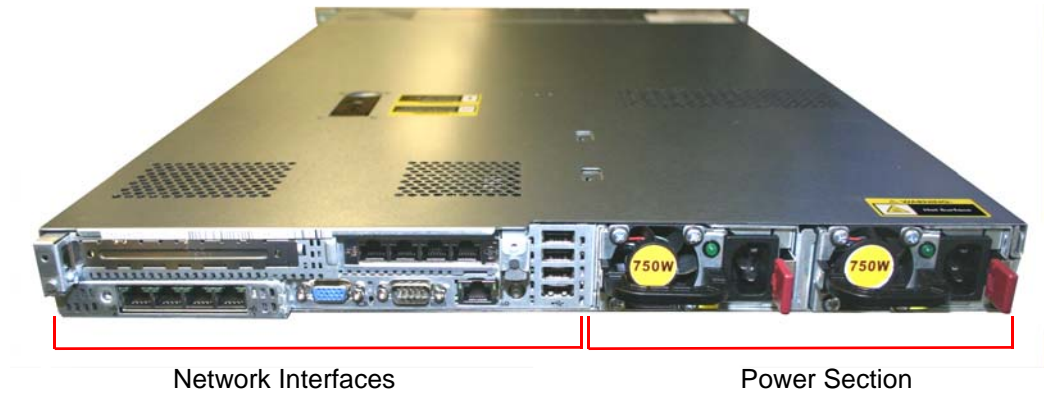
Each of these two main system components are described in subsequent sections of this chapter.

The rear panel of the Net-Net 7000 Platform is pictured below. Each of the numbered rear panel items called out are described in the table below.
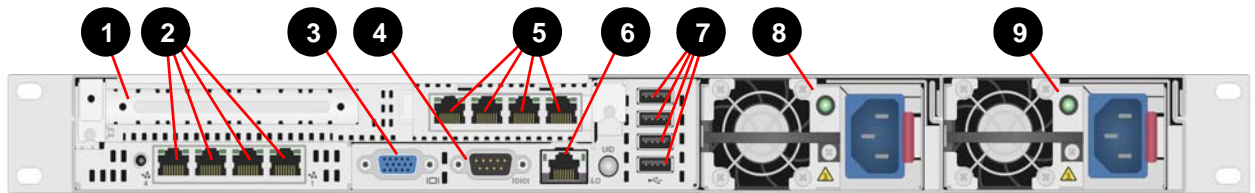
Item	Description
1	Empty/unused by default
2	Management Ethernet Interfaces
3	Video connector, female, 15 pins
4	Serial connector, male, nine-pins
5	Media/Signaling Ethernet Interfaces
6	iLO Management Port
7	USB connectors (4)
8	Power supply bay 2
9	Power supply bay 1

Rear Panel LEDs and Buttons

There are several rear panel LEDs and one functional button with LEDs on the rear panel that collectively provide indications of various operational states of the Net-Net 7000. The LEDs indicate iLO NIC activity, power supply operational status, remote management status, and unit identification status. Each LED is colored and most of the LEDs have meanings for solid, flashing and off states to indicate different states. Each of

the front panel LEDs, located in the upper right corner of the System, are called out in the drawing below. The state of each LED and button LED and their possible meanings are presented in the table below.
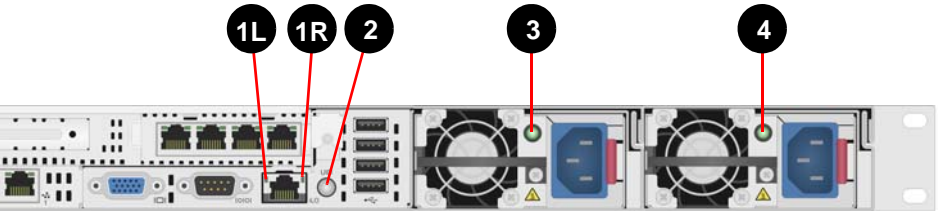
Item	Description	Status
1L	iLO/standard NIC activity LED	**Solid green** = Activity exists. **Flashing green** = Activity exists. **Off** = No activity exists.
1R	iLO/standard NIC link LED	**Solid green** = Link exists. **Off** = No link exists.
2	UID button/LED	**Solid blue** = Identification is activated. **Flashing blue** = System is being managed remotely. **Off** = Identification is deactivated.
3	Power supply 2 LED	**Solid green** = Normal **Off** = One or more of the following conditions exists: • AC power unavailable. • Power supply failed. • Power supply in standby mode. • Power supply exceeded current limit.
4	Power supply 1 LED	**Solid green** = Normal **Off** = One or more of the following conditions exists: • AC power unavailable. • Power supply failed. • Power supply in standby mode. • Power supply exceeded current limit.

Hard Drive Components and LEDs

The hard drives are located on the front of the Net-Net 7000 Platform. LED indicators are called out and numbered in the illustration below, and the meanings of each are referenced and explained in the table below.
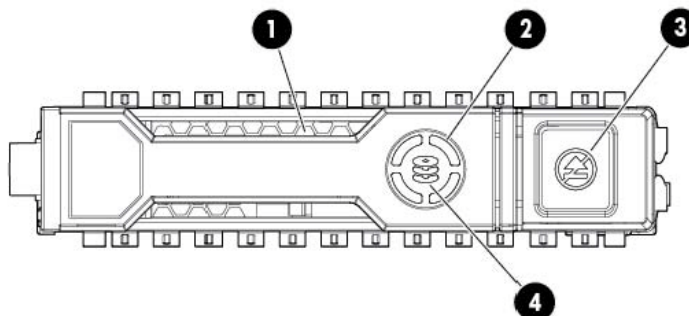
Item	LED	Status	Definition
1	Locate	Solid Blue	The drive is being identified by a host application.
		Flashing Blue	The drive carrier firmware is being updated or requires an update.
2	Activity Ring	Rotating Green	Drive activity.
		Off	No drive activity.
3	Do Not Remove	Solid White	Do not remove the drive. Removing the drive causes one or more of the logical drives to fail.
		Off	Removing the drive does not cause a logical drive to fail. It is safe to remove the drive.
4	Drive Status	Solid Green	The drive is a member of one or more logical drives.
		Flashing Green	The drive is rebuilding or performing a RAID migration, stripe size migration, capacity expansion, logical drive extension, or is erasing.
		Flashing Amber/Green	The drive is a member of one or more logical drives and predicts the drive will fail.
		Flashing Amber	The drive is not configured and predicts the drive will fail.
		Solid Amber	The drive has failed.
		Off	The drive is not configured by a RAID controller.

Network Interface Cards and iLO Port

The network interface cards (NICs) are located on the rear of the Net-Net 7000 Platform as pictured below. The NIC contains all media and signaling ports, network management ports, and the iLO port. Media interfaces are located on the upper right while management interfaces are located on the lower left of the Platform. The iLO port is located beneath the signaling and media ports.

Refer to the following photo to determine slot and port numbering.
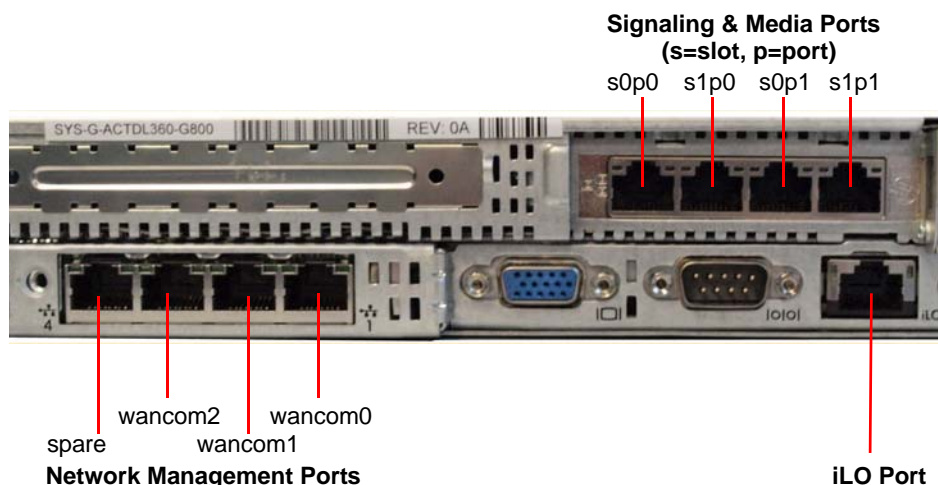
Ethernet LEDs

Each Ethernet port has two integrated LEDs: one to indicate Link, and one to indicate Activity. The LED pair is located directly above its associated port.
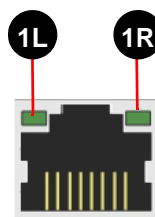
Link LED

The Link LED is located to the top left side of the Ethernet port. This LED illuminates orange when a link has been established between the link partner device and the Net-Net 7000 Platform.

Activity LED

The Activity LED is located to the top right side of the Ethernet port. It illuminates green when an Ethernet connection has either transmitted or received packet activity.

Upon initial boot up, these Ethernet ports are not configured. You must first connect to the Net-Net 7000 Platform over a console connection before you can configure the Ethernet ports for use. You set up the management interfaces using the physical and network interface configuration elements. For configuration details, please see "Startup" on page 55.

Once the management network interface is configured, it should be reserved for the following:

- Maintenance activities

- Application log retrieval

- Software upgrades

- System configuration

- Telnet, SSH, SNMP, and SFTP connections

- RADIUS CDR transmission

Acme Packet recommends that you use shielded CAT5e or CAT6 Ethernet cables with RJ-45 plugs for connecting to the rear-panel Net-Net 7000 Platform Ethernet interfaces. These Ethernet interfaces have a distance limitation of 328 feet (100 m), as defined by the 1000BASE-T Ethernet standard, IEEE 802.3ab.

Signaling and Media Interfaces

The signaling and media interfaces provide network connectivity for signaling and media traffic. Each interface can connect to a network at up to 1000BASE-T speeds. Network interface and hardware options differentiate the available NICs for order.

iLO Management Port NIC Connector

The iLO management port NIC connector provides a dedicated Web server connection for configuration and monitoring of the Net-Net 7000 Platform using the iLO subsystem by a remote computer.

The iLO port uses standard Ethernet cabling, including CAT5 UTP with RJ-45 connectors. Straight-through cabling is necessary for a hardware link to a standard Ethernet hub. A crossover cable is necessary for a direct PC connection.

For information about the iLO subsystem, please see "iLO Subsystem Management" on page 27.

Power Components

Acme Packet offers AC or DC redundant power options for the Net-Net 7000 Platform. The power supplies are user-replaceable, hot swappable components.

Power supplies are accessed from the rear panel of the Platform. The components are designated Power Supply 1 (at right) and Power Supply 2 (at left). Pictured are the installed AC (top) and DC (bottom) power supplies.

Power Supply 2   Power Supply 1
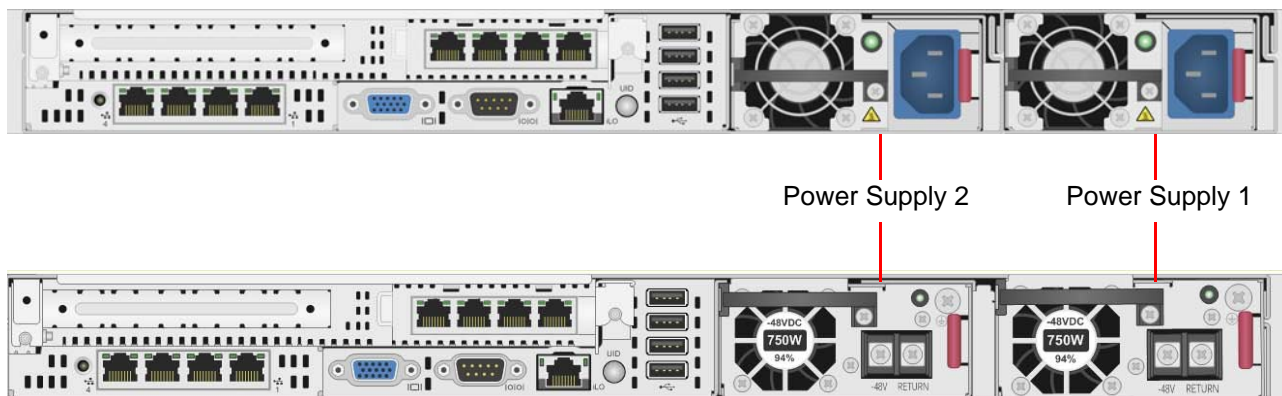
Power Supply Redundancy

During normal operation, the Net-Net 7000 Platform is load-balanced and draws power from both supplies. The two power supplies also provide hardware redundancy. If a power supply fails, the Platform can rely on only one functional power supply to sustain normal operation. To ensure power redundancy, a malfunctioning power supply must be removed and replaced as soon as possible. If the Net-Net 7000 Platform starts up with only one power supply, it will not generate an alarm because the Platform assumes this is the desired physical configuration. For service information, please see "Technical Assistance" on page v.

AC Power

The AC power supply is rated at 100-240 VAC, 50-60 Hz, and comes with an IEC connector. Each AC power supply provides redundant power to the Net-Net 7000 Platform. To ensure power redundancy, each AC power source should be on a separate circuit.

The hot-swappable AC power supply allows tool-less installation and removal. You can remove the AC power supply from the system Platform by pressing its quick release lever and pulling on its handle. Pushing the handle allows the component to be installed inside the Platform.

The AC power supply is pictured below with each of its major parts numbered. Each of those parts are called out and described in the table below.
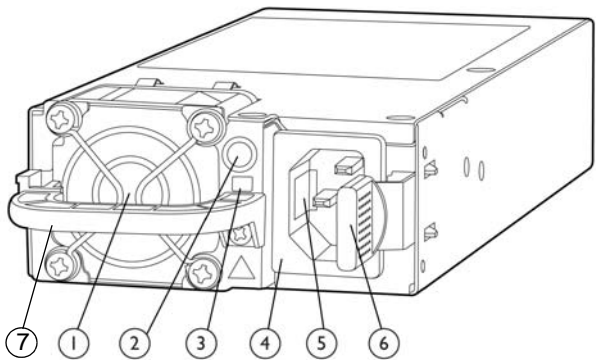
Parts	Description
1	Power Supply Identification Label
2	Power LED
3	Front-Side Revision Control Label
4	Blue C-13 Power Connector (indicates support for Power Discovery Services)
5	Power Line Communication Port (requires PLC power cable for use)
6	Quick-Release Lever
7	Installation/Removal Handle

AC Power Cords   The AC-powered Net-Net 7000 Platform ships with one 1.83 meter long, 10 Amp, IEC C13-UL US power cord for each power supply. The power cord connects to the IEC receptacle on the power supply.

DC Power   The Net-Net 7000 Platform can be powered by central office –48 VDC operations with a DC-DC supply. A terminal block on the DC power supply serves as the DC power interconnect.

The hot-swappable DC power supply allows tool-less installation and removal. You can remove the DC power supply from the Platform by pressing its quick release lever and pulling on its handle. Pushing the handle allows the component to be installed inside the Platform.

The DC power supply is pictured below with each of its major parts numbered. Each of those parts are called out and described in the table below.

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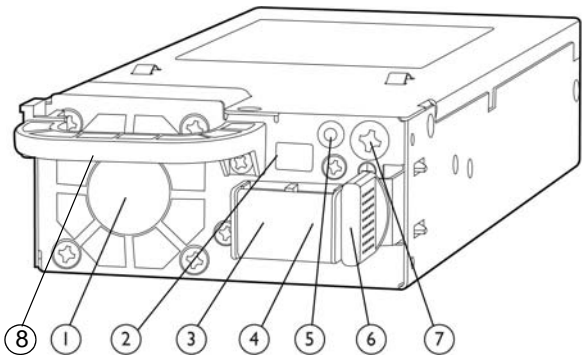
Item	Description
1	Power Supply Identification Label
2	Front-Side Revision Control Label
3	Power Input Connector
4	Power Return Connector
5	Power LED
6	Quick-Release Lever
7	Power Grounding Connector
8	Installation/Removal Handle

System Battery

The system battery provides power to the real time clock to display the correct date and time. Under normal use, the battery life is 5 to 10 years. The system battery is not a user-serviceable part. If the system clock malfunctions, contact support for technical assistance in replacing the battery. For service information, please see "Technical Assistance" on page v.

Software Components

iLO Subsystem Management

The iLO subsystem is a standard component of the Net-Net 7000 Platforms that simplifies initial server setup, server health monitoring, power and thermal optimization, and remote server administration. The iLO subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface. This design makes iLO independent of the host server and its operating system.

iLO enables and manages the Active Health System and also features Agentless Management. All key internal subsystems are monitored by iLO. SNMP alerts are sent directly by iLO regardless of the host operating system or even if no host operating system is installed.

Using iLO, you can do the following:

- Remotely configure SNMP.

- Remotely mount high-performance Virtual Media devices to the server.[1]

- Access the Integrated remote console.

- Use Virtual Power and Virtual Media from the GUI, the CLI, or the iLO scripting toolkit for many tasks, including the automation of deployment and provisioning.[1]

- Securely and remotely control the power state of the managed server.

- Use the shared iLO Remote Console to collaborate with up to six server administrators.[1]

- Have true Agentless Management with SNMP alerts from iLO regardless of the state of the host server.

- Access Active Health System troubleshooting features through the iLO Web interface. Access a high-performance and secure Integrated Remote Console to the server from anywhere in the world if you have a network connection to the server. There are two versions of the Integrated Remote Console:

  - .NET IRC

  - Java IRC

  General references to the Remote Console apply to both the .NET IRC and Java IRC, unless otherwise specified.

- Use the shared .NET IRC to collaborate with up to four server administrators.

- Monitor server health. iLO monitors temperatures in the server and sends corrective signals to the fans to maintain proper server cooling. iLO also monitors firmware versions and the status of fans, memory, the network, processors, power supplies, and internal storage.

Service Pack for Proliant (SPP)

SPP is a release set that contains a comprehensive collection of firmware and system software components, all tested together as a single solution stack for Net-Net 7000 Platforms, their options, and limited external storage.

SPP has several key features for updating the Net-Net 7000 Platforms. Using the update management software as the deployment tool, SPP can be used in an offline mode where the server is booted to the ISO so that the server can be updated automatically with no user interaction or updated in interactive mode.

1. Requires an HP Advanced iLO License

Note: Acme Packet pre-installs the SPP at the factory. Upgrading of the SPP without direction from Acme Packet is unsupported and can affect system operation.

3   Platform Installation

Introduction

This chapter provides installation instructions for the Net-Net 7000 Platform and its associated components, including racking and cabling information.

> **Note:** Please read this chapter prior to attempting to install the Net-Net 7000 and its associated components.

Shipped Parts

Each Net-Net 7000 Platform ships in one box. Inside this box is the Net-Net 7000 Platform and the accessory kit. The Platform arrives with all internal components already installed and tested.

The following table lists the contents of one Net-Net 7000 Platform order.

Location	Item
Main Shipping Box	Net-Net 7000 Platform
Accessory Kit	Net-Net 7000 Series Platform with redundant AC or DC power supply AC power cord, one per power supply *Acme Packet Net-Net 7000 Series Hardware Installation Guide* (this document) Quick Deploy Rail System Cable Management Straps Power Cord Strain Relief Clips

Installation Tools and Parts

The following tools and parts are required to install the Net-Net 7000 Platform into your equipment rack.

- Slotted screwdriver
- Any tools that are appropriate for user-supplied screws and cage nuts
- ESD wrist strap
- Four-post rack and associated mounting hardware
- Shielded Ethernet CAT5e or CAT6 RJ-45 cables

Recommended Tools and Parts

We recommend that you have the following parts on hand:

- Cable labels
- UPS for AC installations
- Operating system or application software

Pre-Installation

Caution	The Net-Net 7000 Platform should only be installed in a restricted access location.

The Net-Net 7000 Platform must have access to reliable power and cooling. When choosing a location for your platform, follow the guidelines listed in this section.

Environmental Guidelines

When preparing to install your Net-Net 7000 Platform:

- Ensure that the equipment rack location complies with the specifications detailed in the "Environmental Specifications" on page 81.

- Locate the Net-Net 7000 Platform in a clean and well-ventilated room. This location should also be far from areas where heat, electrical noise, and electromagnetic fields are present.

Power Requirements

When preparing to install your Net-Net 7000 Platform:

- Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

> **Warning:** To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

Caution	Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

- When installing more than one server, you might need to use additional power distribution devices to safely provide power to all devices. Observe the following guidelines:

  - Balance the server power load between available AC supply branch circuits.

- • Do not allow the overall system AC current load to exceed 80 percent of the branch circuit AC current rating.

  - • Do not use common power outlet strips for this equipment.

  - • Provide a separate electrical circuit for the server.

- • Ensure that the installation location has access to adequate power and grounding. Separate circuits should be available for each of the two Net-Net 7000 power supplies.

- • Net-Net 7000 Platforms may only be powered by AC or DC circuits at one time; mixed power configurations are unsupported.

- • Never use extension cords when powering a Net-Net 7000 Platform.

- • Use grounded, three-conductor circuits.

- • A local earth ground must be available.

- • The equipment rack into which the Net-Net 7000 is installed should be earth-grounded.

Caution

Connect each of the Net-Net 7000 Platform power supplies to a separate circuit. If both supplies are connected to outlets on the same circuit, the platform will lose power to both supplies if that circuit loses power. In that case, the whole platform would lose power.

Electrical Grounding Requirements

- • The server must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes. In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code. In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

- • Because of the high ground-leakage currents associated with multiple servers connected to the same power source, Acme Packet recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips for the server is not recommended.

Rack Warnings

Warning: To reduce the risk of personal injury or damage
to the equipment, be sure that:
• The leveling jacks are extended to the floor.
• The full weight of the rack rests on the leveling jacks.
• The stabilizing feet are attached to the rack if it is a
single-rack installation.
• The racks are coupled together in multiple-rack
installations.
• Only one component is extended at a time. A rack may
become unstable if more than one component is extended
for any reason.

Mounting Guidelines

When preparing to install your Net-Net 7000 Platform:

• Leave a minimum clearance of 25" (63.5 cm) in front of the rack.

• Leave a minimum of clearance of 30" (76.2 cm) behind the rack.

• Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

• Do not block the air inlets or the fan module, or obstruct airflow to the system in any way.

• Position equipment to allow for serviceability. This will aid in Platform removal, and prevent the need to remove or loosen other equipment in the rack.

• Remember that the Ethernet interfaces are limited to 328 feet/100 meters as defined by the FAST Ethernet standard, IEEE 802.3.

• The Net-Net 7000 draws in cool air through the front and expels warm air through the rear. Therefore, the front and rear rack doors must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

• When vertical space in the rack is not filled by a server or rack component, the gaps between the components cause changes in airflow through the rack and across the servers. Cover all gaps with blanking panels to maintain proper airflow.

Caution

To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

Caution

Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

Caution	To ensure adequate airflow and to prevent damage to the equipment, please ensure the clearance around the Platform conforms with these guidelines: • Front and rear doors — if the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). • Side — the clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in).

Other Safety Guidelines

When preparing to install your Net-Net 7000 Platform:

*   Review the precautions detailed in Chapter 1, "Safety" *before* beginning installation.

*   Ensure that the equipment rack is securely bolted to the floor, and that the equipment rack and components are properly grounded.

*   For AC power installations, use a regulating UPS to protect the Net-Net 7000 Platform from power surges, voltage spikes, and power failures.

*   For AC power installations, ensure that your UPS can supply power for enough time to save your system data and shut down the system gracefully.

> **Warning:** To reduce the risk of electric shock or damage to the equipment:
> • Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
> • Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
> • Unplug the power cord from the power supply to disconnect power to the equipment.
> • Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.

> **Warning:** To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

Caution	Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Mounting Installation

Overview

This section explains how to unpack and install your Net-Net 7000 Platform in a telecommunications or server equipment rack. The standard mounting hardware is used for installation in a 19" 4-post, cabinet-style equipment rack.

Mounting Options

The Net-Net 7000 Platform ships with hardware for mounting in a 4-post square-hole, round-hole or threaded hole equipment rack. This section explains the procedures for this mounting option.

Caution	Failure to follow the instructions outlined in this section might compromise the proper functioning of the Net-Net 7000 Platform. To prevent personal injury, Acme Packet recommends that two people lift and install the Platform into the equipment rack.

Unpacking the Net-Net 7000

To unpack the Net-Net 7000 Platform:

1. Inspect the external packing materials and note if they are damaged in any way.

2. Using a box cutter, slice the packing tape seams and open the exterior box.

3. Carefully unpack the contents of the Net-Net 7000 Platform shipment.

4. Locate the packing list that comes with the shipment, attached to the outside of the shipment box.

5. Confirm that all of the components listed in the packing list are present and in good condition.

   If you discover that any of the parts are missing or were damaged in shipment, send an E-mail to tac@acmepacket.com to request assistance.

Mounting Hardware

The following are images of hardware used for the Net-Net 7000 Platform mounting procedures.

Quick Deploy Rails, as shipped. (2 x shipped) (two views shown)

Cabinet-Style 4-Post Rack Installation

The following sections explain how to mount your Net-Net 7000 Platform in a cabinet-style, 4-post equipment rack.

Mounting System

Acme Packet provides flexible mounting options for your Net-Net 7000 Platform equipment rack installation.

The Net-Net 7000 quick deploy rails can be quickly and easily installed into the inside of an equipment rack. Once installed, the telescopic inner rails extend in front of the rack so that the Net-Net 7000 can be installed into the rail assembly and then slid back and locked into its operational position inside the rack. The Platform can also be quickly removed from the rail assembly for maintenance or service.

The Net-Net 7000 server can be installed in either a square-hole, round-hole or threaded-hole telecom or data rack.

Installing the Quick Deploy Rail System

The sides of the quick deploy rails are clearly marked FRONT L and FRONT R for easily identifying their location in the rack. On each rail there are four numbered slots (1-4) into which slide the spools mounted on each side of the Net-Net 7000. The four spools located on both sides of the Net-Net 7000 slide into and attach to these slots starting at the back

of the server and moving forward to the front, securing the server to the rails. A clip with a piece of attached velcro attaches to the back of each rail cable assembly for cable management.

There are two ways to install the quick deploy quick rails that are detailed in the following two subsections. The rails can be snapped into some racks using guide pins and clips on the rail. In other racks, the user can use the guide pins (or other screws/cage nuts) to screw-mount the rails.

Installing the Quick Deploy Rails Using Clip-On Connectors

To install the Net-Net 7000 Quick Deploy Rails (Clip-Mounted):

Prerequisites:

•   Determine into which U location in the rack the rails will be installed. Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first and continue to populate the rack from the bottom to the top.

Required Hardware:

•   Right and left Quick Deploy Rails (supplied in the server hardware kit)

•   Four-post round-hole, square-hole or threaded-hole rack

    Note: Please read these instructions prior to attempting to install the rails into the rack.

1.   Locate where the server will be installed in the rack assembly.

2.   Locate the quick deploy rail marked FRONT L (left), and align it on the inside left of the rack.

3.   Align the two guide pins on the back of the rail with the inside rack holes in the desired U location. Then pull on the rail to insert the guide pins into the desired rack holes. When installed properly, the rail makes a snapping noise as it attaches to the rack.
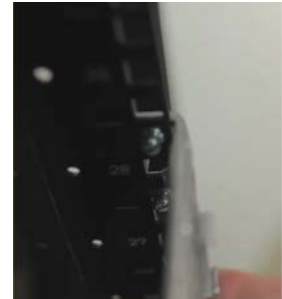
4.   Align the guide pins of the front of the rail in the corresponding holes in front of the rack, pushing on the end of the rail to snap it into place.
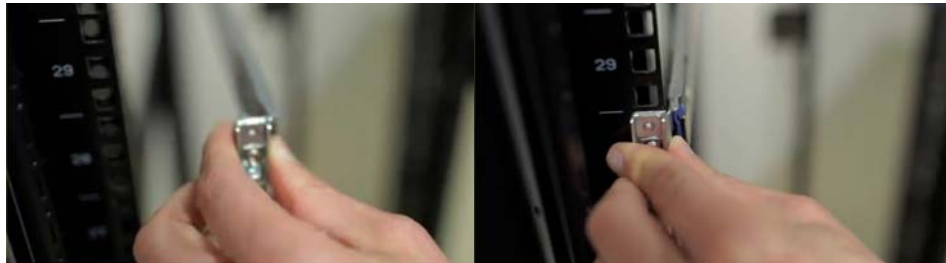
5. Pull on the rail to ensure that the rail is securely attached to the rack.

6. Repeat the above steps for the rail marked FRONT R (right), ensuring that the rail is attached in the same rack U location as the left rail.

7. Ensure that both rails are securely attached to the rack.

Installing the Quick Deploy Rails Using Screws

To install the Net-Net 7000 Quick Deploy Rails (Screw-Mounted):

Prerequisites:

• Two people are needed to install the rail assembly in the rack.

• Determine into which U location in the rack the rail will be installed. Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first and continue to populate the rack from the bottom to the top.

Required Hardware:

• Right and left Quick Deploy Rails (supplied in the server hardware kit)

• Screws (and cage nuts if necessary) to secure the slide mounting bracket assemblies in a threaded-hole rack (user supplied)

• Slotted screwdriver

• Tools that are appropriate for any user-supplied screws and cage nuts

• Four-post rack

1. Locate the U location for the server in the rack assembly.

2. Using a slotted screwdriver, remove the two screws and cage nuts from each end of the right and left rail assemblies by turning the screws counterclockwise. Keep the screws close by for installing the rail in the rack.

3. Locate any hardware that will be used in lieu of the screws provided with the rails.

4. Locate the quick deploy rail marked FRONT L (left), and align it on the inside left of the rack.

5. While supporting the front and back of the rail in the desired U location, align the two rail holes at either end with the rack holes.

6. Insert the screw in either hole and using a bladed screwdriver, turn clockwise to hand-tighten it and attach the rail to the rack. If using screws and other hardware not supplied with the quick deploy rails, then use the appropriate hardware and tools to attach the rail to the rack holes.
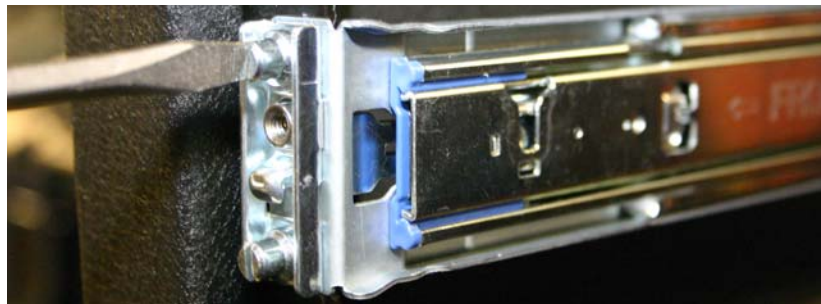
7. Repeat this procedure for the rail marked FRONT R (right), ensuring that the rail is attached in the same rack U location as the left rail.

8. Ensure that the rail is securely attached to the rack.

9. Repeat the above steps for the rail marked FRONT R, ensuring that the rail is attached in the same rack U location as the left rail.

10. Ensure that both rails are securely attached to the rack.

Installing the Net-Net 7000 in the Equipment Rack

To install the Net-Net 7000 in the equipment rack:

Prerequisites:

• Four-post rack.

• The quick deploy rails should already be installed in the rack assembly as described in "Installing the Quick Deploy Rail System" on page 35.

To prevent personal injury or damage to the Net-Net 7000 Platform, follow these guidelines:

• This installation requires two people and should not be attempted otherwise.

• Follow your organization's best practices for lifting and installing heavy components into an equipment rack.

• Follow local occupational health and safety requirements and guidelines for manual material handling.

• Ensure that the Net-Net 7000 Platform remains supported until you have completely installed it into the equipment rack.

• Use caution when installing the server into the rack; it is unstable when not fastened to the rails.

1. Using your fingertips on each hand, pull out and fully extend each inner telescopic rail until they make a snapping noise, locking into place.

2. Locate the spools attached to the either side of the Net-Net 7000. During installation of the server into the rails assembly, each of these spools will insert into consecutive into slot numbers located on the inner sides of each telescopic rail that extends from each rail, starting with Spool 1 and completing at Spool 4.

Spool 1   Spool 2   Spool 3   Spool 4
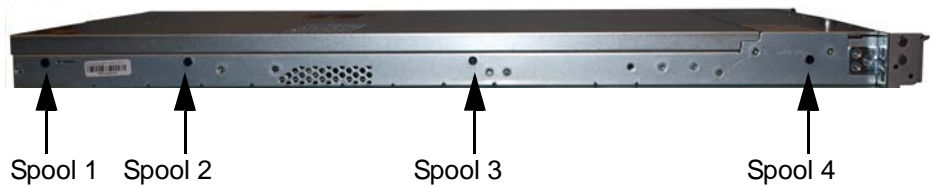
3. With two people holding the server, angle the rear of the server down and position the rear alignment spool on each side of the server entirely above rail slot number 1. It is helpful to support the base of the server with your hand and fingers and to use your thumb to hold the inside of the rail against the server as you guide the spool into the slot. As the spool reaches the bottom of the slot, the spool snaps into place.

4. Slowly lower the front of the server into position, ensuring that each successive spool slides into its respective slot and snaps into place, into rail slot 2, slot 3 and then slot 4. As with spool 1, it is helpful to support the base of the server with your hand and fingers and to use your thumb to hold the inside of the rail against the server as you guide each spool into its slot. As each spool reaches the bottom of its respective slot, the spool snaps into place.

5. On both sides of the server, press the blue rail release buttons (labeled PUSH) located between spools 1 and 2. This unlocks the inner and outer rails from each other and allows the server to be slid into the rack as shown in the following two images.

6. Push the server into the rack until the front release levers on either side of the front of the device make a snapping noise as they lock into place. To lock into place, the lever and the rail must meet squarely.

Fan Module Installation

The fan module is pre-installed in the Net-Net 7000 Platform when it ships. This is not a customer-serviceable part. For service, please see "Technical Assistance" on page v.

Ground and Power Cable Installation

The Net-Net 7000 Platform must be properly grounded to ensure efficient system performance. Grounding your Net-Net Platform is an extremely important part of the installation and maintenance procedures. Physical harm or problems with system functionality may occur on Net-Net 7000 Platforms that are not properly grounded. If your Net-Net 7000 Platform is not properly grounded, it can exhibit unpredictable problems such as:

• Garbled output on the console display

• Sudden crashes

• Physical damage to the Net-Net Platform and its hardware components

Caution	Failure to ground the Platform properly can result in permanent damage to the Net-Net 7000 Platform and its components. Bodily harm may also result under some circumstances.

Caution	The Net-Net 7000 Platform does not support mixing AC and DC power supplies in the same Platform. A mixed power configuration is prohibited.

Power Cabling Hardware

Strain Relief Connectors (2x)

Cable Management Straps (2x)

1.83m 10A C13-UL US AC Power Cords (2x)

AC Power Cord Installation

This section shows you how to install an AC power cord to each power supply.

To install AC power cords in the Net-Net 7000 Platform:

Prerequisites:

•   AC power cords (supplied in the server hardware kit)

•   Strain relief clips

•   Cable management straps

1. Install the Net-Net 7000 server and cable management system into the rack as described in "Installing the Net-Net 7000 in the Equipment Rack" on page 39.

2. Connect all back panel peripheral devices to the server as shown in the following illustration. Callouts in the illustration are described in the subsequent table.
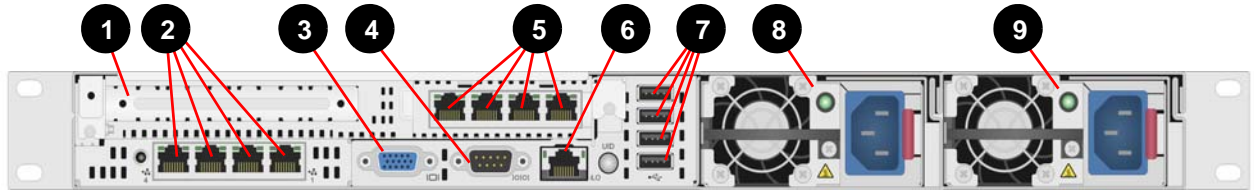

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1	Empty/unused by default
2	Management Ethernet Interfaces
3	Video connector, female, 15 pins
4	Serial connector, male, nine-pins
5	Media/Signaling Ethernet Interfaces
6	iLO Management Port
7	USB connectors (4)
8	Power supply bay 2
9	Power supply bay 1

3. Locate the two AC power cords shipped with your Net-Net 7000 Platform. Select one power supply bay to work on first.

4. Connect one AC power cord (supplied) into the three-pronged plug in the electrical socket located on the power supply.

5. As necessary, attach the strain relief clip (shown at left) to the power supply handle, and thread the power cord through the strain relief clip as shown at right.
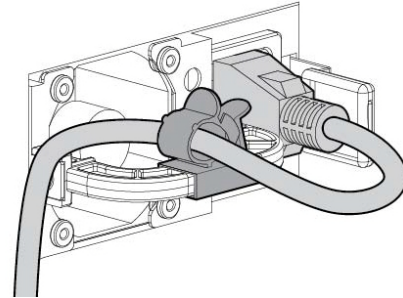
6. Route the AC power cords through your rack and cabling system to the power outlets.

7. Plug the supply end of each power cord into a grounded (earthed) AC electrical outlet that is easily accessible at all times.

   Note: To remove AC power cables from the Net-Net 7000 Platform, reverse the previous procedure.

DC Power Cord Installation

You can cable the DC power supply outside the Platform and then insert the power supply and cable assembly into the Net-Net 7000 Platform in one step. This method is easier than cabling the DC power supplies once they have been inserted into the Platform. Please refer to "AC or DC Power Supply Removal" on page 70 for more information.

**Note:** A Phillips screwdriver is required for this procedure.

Caution

Refer to the power supply's polarity label when connecting it to a power source. Failure to do so can result in equipment damage or serious injury.

The following shows the service panel of a DC power supply. Note that the power terminals are located on the right side of the terminal unit.

To install the DC power cable on a DC power supply:

1. Locate the two DC power cables shipped with your Net-Net 7000 Platform.
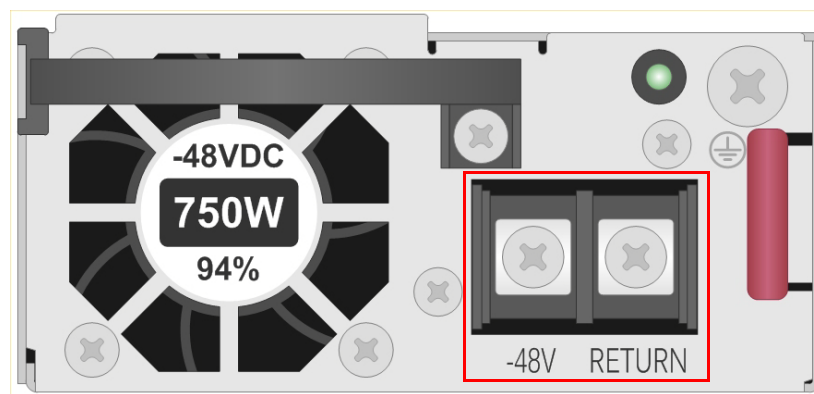
2. Using a Phillips screwdriver, loosen the two screw terminals (labeled -48V and RETURN) by turning the tool clockwise.

3. Securely attach the black wire to the -48V screw terminal.

4. Using a Phillips screwdriver, turn the screw counterclockwise to tighten the connection.

5. Securely attach the red wire to the RETURN screw terminal.

6. Using a Phillips screwdriver, turn the screw counterclockwise to tighten the connection.

7. Once the DC power supply is inserted into the Platform, route the DC power cord through your rack and cabling system to the -48 VDC power supply.

8. Connect the supply leads of the DC power cord to the DC power supply as described in "Connecting a DC Power Cable to a DC Power Source" on page 46.

Connecting a DC Power Cable to a DC Power Source

This section describes how to connect a DC power cable attached to the Net-Net 7000 server to a DC power source.

Warning: To reduce the risk of electric shock or energy hazards:
• This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1, Second Edition, the standard for Safety of Information Technology Equipment.
• Connect the equipment to a reliably grounded SELV source. An SELV source is a secondary circuit that is designed so normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
• The branch circuit overcurrent protection must be rated 20A.

Warning: Remove power from the power supply before performing any installation steps or maintenance on the power supply.

Caution

The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. The following conditions must be met:
• This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
• This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that

has a connection between the earthed conductor of the same
DC supply circuit and the earthing conductor, and also the
point of earthing of the DC system. The DC system should be
earthed elsewhere.
• The DC supply source is to be located within the same
premises as the equipment.
• Switching or disconnecting devices must not be in the
earthed circuit conductor between the DC source and the
point of connection of the earthing electrode conductor.

To connect a DC power cable to a DC power source:

1. Cut the DC power cord ends no shorter than 150 cm (59.06 in).

2. If the power source requires ring tongues, use a crimping tool to install the ring tongues on the power cord wires.

   Note: The ring tongues must be UL approved and accommodate 12 gauge wires.

   Note: The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in); the diameter of a screw type terminal must be 4.0 mm (0.157 in).

3. Stack each same-colored pair of wires and then attach them to the same power source.

Installing the Net-Net 7000 Cable Management Strap

To attach Net-Net 7000 cable management straps:

Prerequisites:

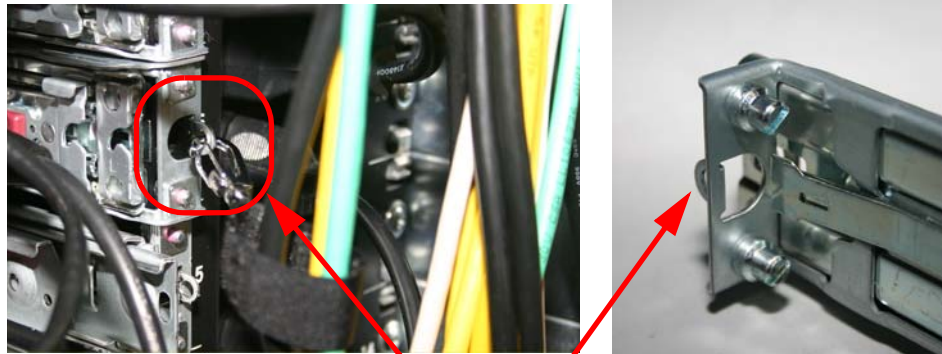• Install the power cords to the AC or DC power supplies.

Required Hardware:

• Cable management straps (2x) (supplied in the server hardware kit)

1. Locate the two cable management straps.

2. Attach the metal clip on the end of the strap to the attachment point on the end of the quick deploy rail on which the server is mounted.

Rail Attachment Points

3. Wrap and attach the velcro strap around the desired cables connected to the ports on the back of the Net-Net 7000.

Cabling the Net-Net 7000 Platform

After mounting the Net-Net 7000 Platform in an equipment rack and installing all components into it, connect all appropriate data cables to the ports before powering the system up and configuring it.

We recommend using fully shielded CAT5e or CAT6 Ethernet cables for NIC media and management Ethernet connections to protect the platform from potential damage.

You can install and remove Ethernet and 1000BASE-T cables while the Net-Net 7000 Platform is operational. Not every port needs to be utilized for proper operation. However, when a cable is disconnected and the link is lost, an alarm is generated.

Serial/Video Port Cabling Procedure

This section explains how to physically make a serial or video port console connection to the Net-Net 7000. Use the rear panel serial or video port for temporary connections to a terminal server or other serial device. When connected to the serial or video port, some text may be output to the non-active console port. This is normal. However, only input from the active console port can be recognized by the Net-Net 7000.

Refer to "Startup" on page 55 for information on how to configure your terminal application to connect to the console. For information about establishing communications with the Net-Net 7000, please see "Establishing Communications" on page 55.

To connect to the serial/video ports:

1. Depending on the manner in which you will be configuring the Net-Net 7000, locate the appropriate cable(s) to connect to the video and USB port or serial port on the Net-Net 7000 Platform. For more information, please see "Establishing Communications" on page 55.

2. Insert the 15-pin connector on the end of the console cable into the video console port (at left) or connect a nine-pin connector to the serial connector (at right).
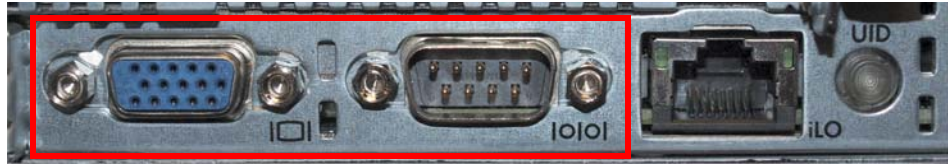
3. Lead the console cable neatly away from the rear panel toward a terminal server or other component where the serial or video connection terminates at the console. The following figure shows a console cable properly connected and inserted in the serial port.
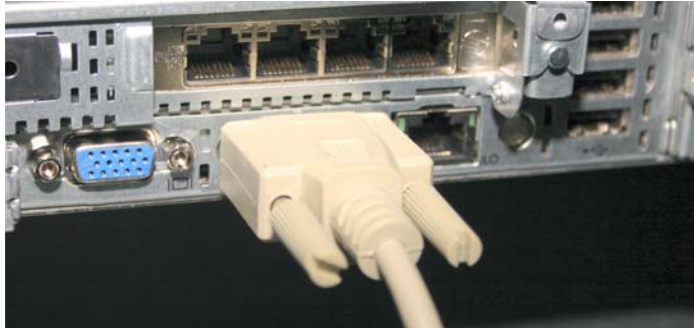
iLO Cabling Procedure

This section explains how to make a connection to the Net-Net 7000 iLO port. Use the rear panel iLO port for more permanent connections to a remote computer. Refer to "Startup" on page 55 for information on how to configure your terminal application to connect to the iLO port.

To connect to the iLO port:

1. Locate a shielded CAT5e or CAT6 console cable to connect to the Net-Net 7000 Platform.

2. Insert the male end of the RJ-45 connector on the end of the cable into the female RJ-45 receptacle highlighted in the photo below. The release tab on the RJ-45 jack clicks into place when you insert it properly.

3. Lead the cable neatly away from the rear panel and connect the other end to the LAN.

Network Management Ports Cabling Procedure

Standard shielded CAT5e or CAT6 (or higher) Ethernet cables with RJ-45 jacks are used for connecting the Net-Net 7000 Platform Ethernet network management ports to your network. These ports support 10/100/1000 Mbps speeds.

> **Note:** Keep Ethernet cables separated from power cables by at least 60mm where possible and never run them in the same channel of the rack without segregation.

To connect to the network management ports:

1. Locate the Ethernet cables you plan to connect to the Net-Net 7000 Platform.

2. Insert the RJ-45 connector on the end of the Ethernet cable into one of the NIC Ethernet management ports (i.e., *wancom0*, *wancom1*, and *wancom2*). The release tab on the RJ-45 jack will click into place when you insert it properly.

Spare   wancom2   wancom1   wancom0
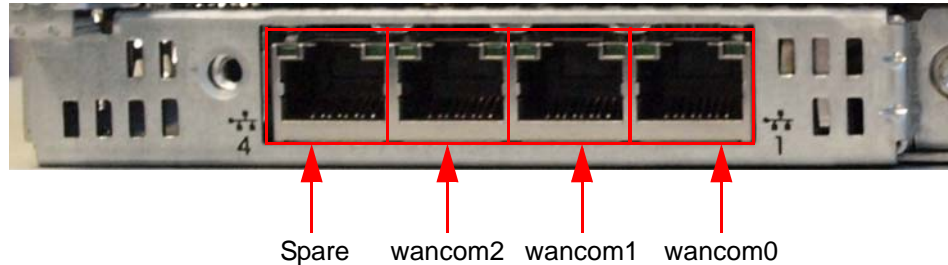
3. Route the cable away from the Net-Net 7000 Platform, ensuring that the Ethernet cables are not stretched tightly or subjected to extreme stress. The following figure shows a Net-Net 7000 Platform with a network management cable properly connected and inserted in *wancom0*.
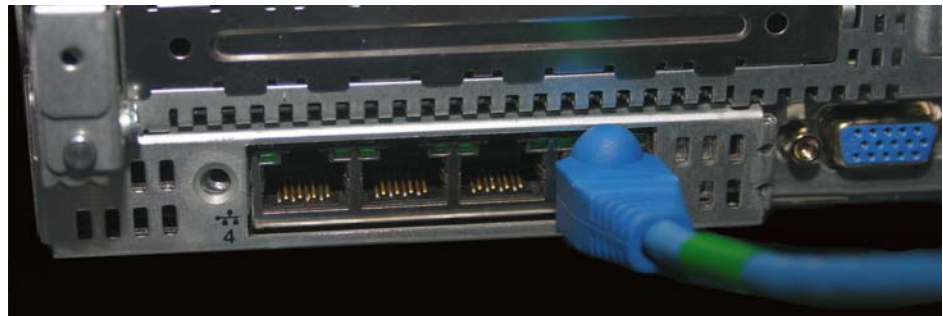
4. Repeat Steps 1 through 2 for each additional management Ethernet cable you will connect to your Net-Net 7000 Platform.

Media and Signaling Network Interfaces

This section explains how to cable to the media and signaling ports. These ports accept copper Gigabit Ethernet connectors.

> **Note:** Perform all cabling procedures according to the established standards for your organization.

Shielded CAT5e or CAT6 (or higher) Ethernet cables with RJ-45 jacks are used for connecting to the Net-Net 7000 Platform media and signaling ports to your production network.

To connect to the media and signaling ports:

1. Locate the Ethernet cables you plan to connect to the media and signaling ports of the Net-Net 7000 Platform.

---

2. Insert the RJ-45 connector on the end of the Ethernet cable into one of the 1000BASE-T copper media and signaling ports. These media and signaling ports are pictured from left to right: *s0p0, s1p0, s0p1* and *s1p1*. The release tab on the RJ-45 jack will click into place when you insert it properly.
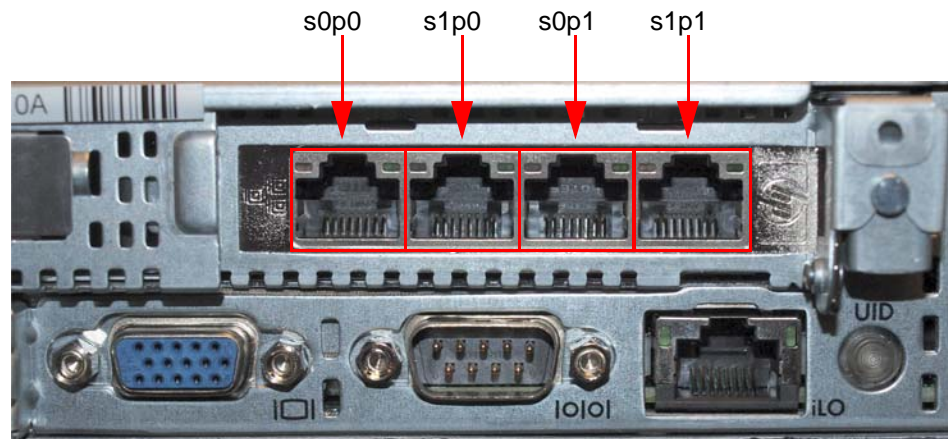
3. Route the cable away from the Net-Net 7000 Platform. Make sure that the Ethernet cables are not stretched tightly or subjected to extreme stress. The following figure shows a Net-Net 7000 Platform with a media network cable properly connected and inserted in *s1p1*.
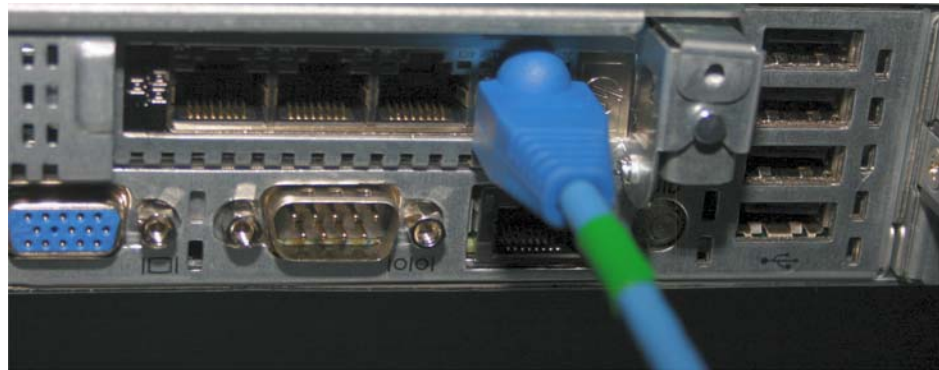
4. Repeat Steps 1 through 2 for each additional Ethernet cable you connect to your Net-Net 7000 Platform.

Cabling for HA Deployments

The information and instructions in this section explain how to cable a high availability (HA) node.

HA Cabling

Category 5 (or higher) shielded Ethernet cables are required for cabling two HA nodes together.

Rear Panel Cabling

You can use one or two connections for HA redundancy support between the two members of an HA node. Using two rear interfaces for sharing redundancy information provides a high level of reliability. As a rule, *wancom0* should be reserved as the boot/maintenance interface. This leaves *wancom1* and *wancom2* available for sharing HA information.

spare   wancom2   wancom1   wancom0
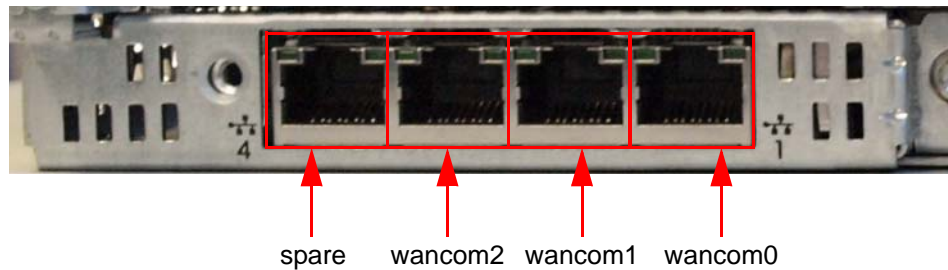
Management network ports feature automatic crossover negotiation so that a crossover cable is not necessary for HA cabling.

To cable Net-Net 7000 Platforms in an HA configuration using single rear interface support:

1. Insert one end of an Ethernet cable into either *wancom*1 or *wancom*2 on the rear panel of the Net-Net 7000 Platform #1. The release tab on the RJ-45 jack clicks into place when you insert it properly.

2. Insert the other end of the Ethernet cable into the corresponding management interface on the rear panel of the Net-Net 7000 Platform #2. The release tab on the RJ-45 jack clicks into place when you insert it properly. If you use *wancom1* on Net-Net 7000 Platform #1, then you will connect it to *wancom1* on Net-Net 7000 Platform #2.

Net-Net 7000 Platform #1

wancom1

Net-Net 7000 Platform #2
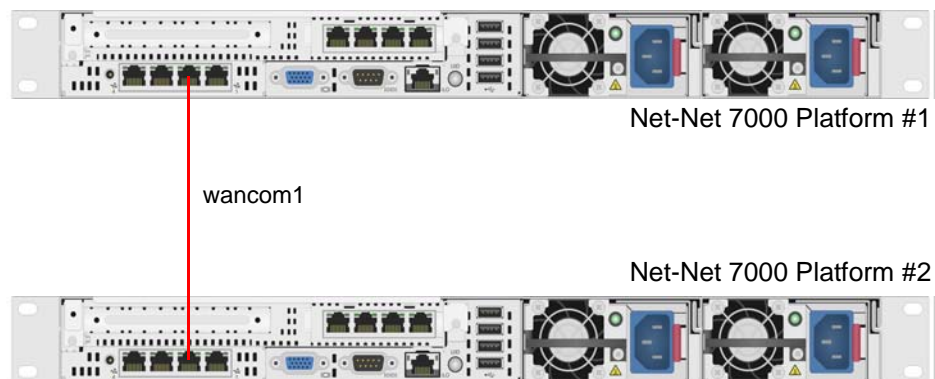
3. Refer to the configuration procedures located in the *HA Nodes* chapter of the *Net-Net Configuration Guide*.

To cable Net-Net 7000 Platforms in an HA configuration using dual rear interface support:

1. Insert one end of an Ethernet cable into *wancom1* on the rear panel of Net-Net 7000 Platform #1. The release tab on the RJ-45 jack clicks into place when you insert it properly.

2. Insert the other end of the cable into the *wancom1* port on the rear panel of Net-Net 7000 Platform #2.

3.   Insert one end of a second Ethernet cable into *wancom2* on the rear panel of Net-Net 7000 Platform #1.

4.   Insert the other end of the cable into *wancom2* on the rear panel of Net-Net 7000 Platform #2.

Net-Net 7000 Platform #1

wancom2   wancom1

Net-Net 7000 Platform #2

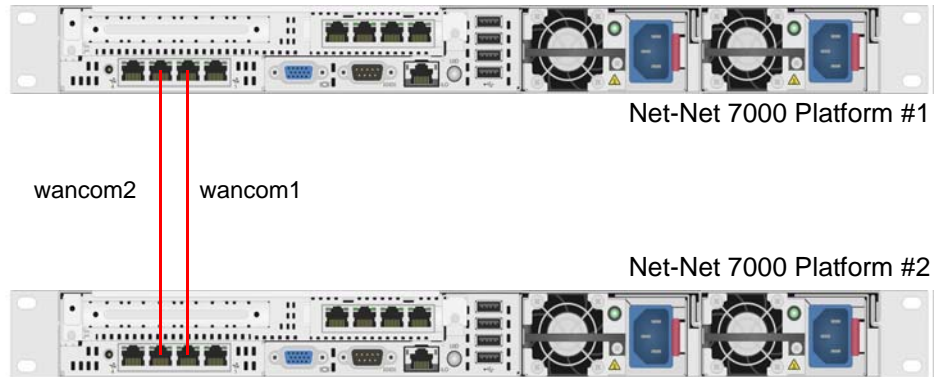5.   Refer to the configuration procedures located in the *HA Nodes* chapter of the *Net-Net Configuration Guide*.

Media Cabling for HA Nodes

NIC media port cabling in an HA node depends on network topology. After a switchover between the two Net-Net 7000 Platforms in an HA node, the standby system sends out an ARP message using a configured virtual MAC address, establishing that MAC on another physical port on the same Ethernet switch.

4 Startup

Introduction

This chapter describes Net-Net 7000 Platform startup involving the following tasks:

- Powering on the Net-Net 7000 Platform
- Establishing communications with the Net-Net 7000 Platform
- Creating a console connection to the Net-Net 7000 Platform over serial/video ports
- Assigning an IP address to the iLO Web interface
- Establishing connection to the iLO 4 Web interface
- Configuring SNMP management for the Net-Net 7000 Platform

Powering On the Net-Net 7000 Platform

To power on the Net-Net 7000 Platform, press the Power On/Standby button located on the upper right corner of the front panel. There are no other power controls.
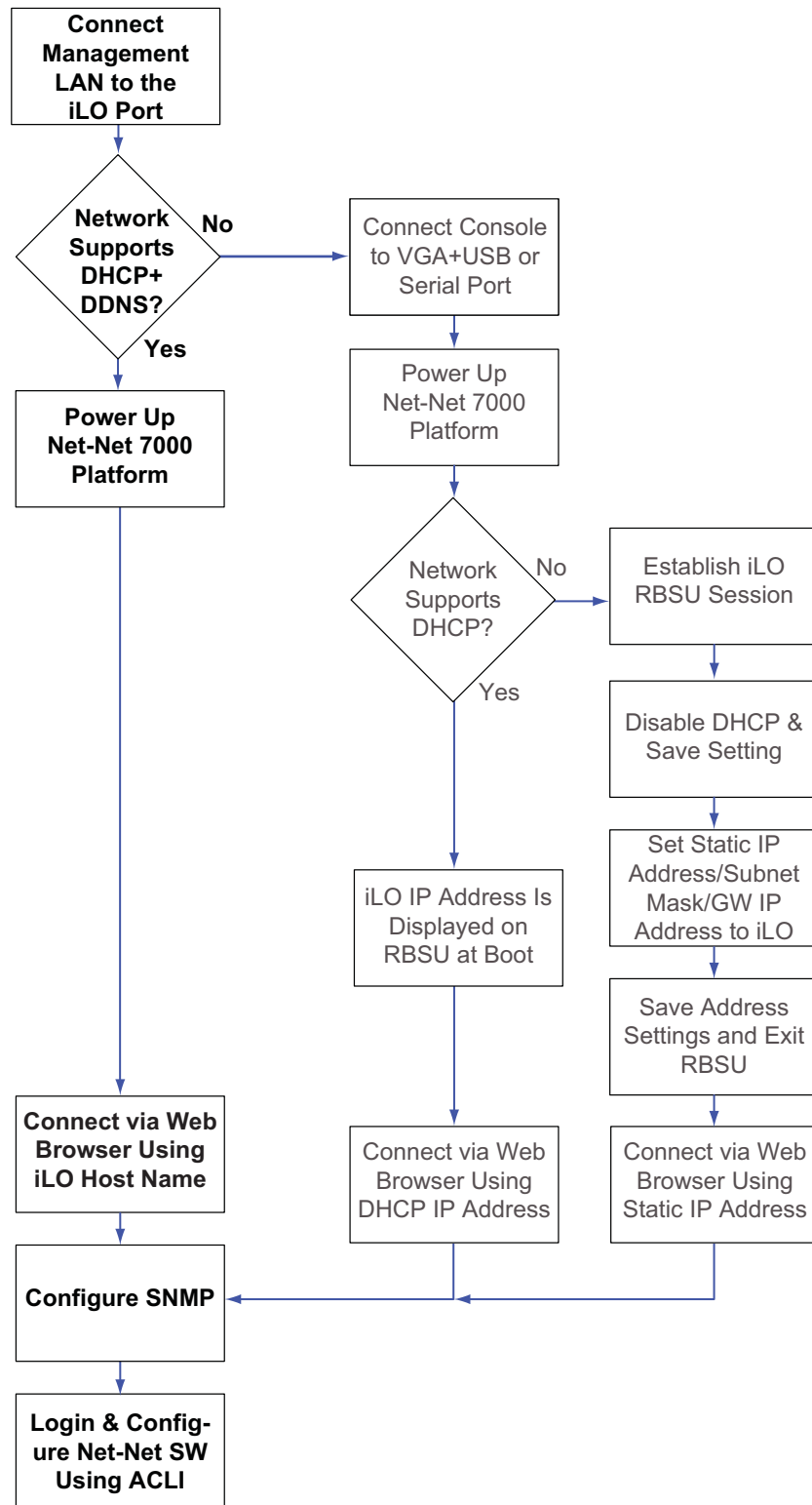
Do not power on the Net-Net 7000 Platform until you have read the following sections and have connected the appropriate cables to the communications port(s).

Establishing Communications

This section provides terminal settings and explains how to establish communications with the Net-Net 7000 Platform. The first step is to determine the preferred method of communication with the Platform. Minimally, you will establish communication with the iLO 4 management port as the long-term communication channel. Based on the preferred method of communication, you may also assign a static IP address to the iLO Web interface over a video or serial port, obtain a dynamically-assigned IP address for the Platform iLO, and configure SNMP using a Web interface over the iLO 4 management port.

The flow chart below shows the alternate methods for configuring SNMP and the Net-Net software.

```
                    ┌─────────────────┐
                    │    Connect      │
                    │  Management     │
                    │  LAN to the     │
                    │    iLO Port     │
                    └─────────────────┘
                            │
                            ▼
                         ╱──────╲         No      ┌─────────────────┐
                       ╱  Network ╲──────────────▶│ Connect Console │
                      ╱  Supports   ╲             │ to VGA+USB or   │
                      ╲   DHCP+     ╱             │   Serial Port   │
                       ╲  DDNS?   ╱               └─────────────────┘
                         ╲──────╱                         │
                          Yes                             ▼
                            │                    ┌─────────────────┐
                            ▼                    │    Power Up     │
                    ┌─────────────────┐          │  Net-Net 7000   │
                    │    Power Up     │          │    Platform     │
                    │  Net-Net 7000   │          └─────────────────┘
                    │    Platform     │                  │
                    └─────────────────┘                  ▼
                            │                          ╱──────╲   No   ┌─────────────────┐
                            │                        ╱ Network ╲──────▶│  Establish iLO  │
                            │                       ╱ Supports  ╲      │  RBSU Session   │
                            │                       ╲  DHCP?    ╱      └─────────────────┘
                            │                        ╲─────────╱               │
                            │                            Yes                   ▼
                            │                             │           ┌─────────────────┐
                            │                             │           │  Disable DHCP & │
                            │                             │           │  Save Setting   │
                            │                             │           └─────────────────┘
                            │                             │                    │
                            │                             │                    ▼
                            │                             ▼           ┌─────────────────┐
                            │                    ┌─────────────────┐  │  Set Static IP  │
                            │                    │iLO IP Address Is│  │ Address/Subnet  │
                            │                    │  Displayed on   │  │   Mask/GW IP    │
                            │                    │  RBSU at Boot   │  │ Address to iLO  │
                            │                    └─────────────────┘  └─────────────────┘
                            │                             │                    │
                            │                             │                    ▼
                            │                             │           ┌─────────────────┐
                            │                             │           │  Save Address   │
                            │                             │           │ Settings and Exit│
                            │                             │           │      RBSU       │
                            ▼                             ▼           └─────────────────┘
                    ┌─────────────────┐          ┌─────────────────┐          │
                    │ Connect via Web │          │ Connect via Web │          ▼
                    │  Browser Using  │          │  Browser Using  │  ┌─────────────────┐
                    │  iLO Host Name  │          │ DHCP IP Address │  │ Connect via Web │
                    └─────────────────┘          └─────────────────┘  │  Browser Using  │
                            │                             │           │Static IP Address│
                            ▼                             │           └─────────────────┘
                    ┌─────────────────┐                   │                    │
                    │ Configure SNMP  │◀──────────────────┴────────────────────┘
                    └─────────────────┘
                            │
                            ▼
                    ┌─────────────────┐
                    │ Login & Config- │
                    │  ure Net-Net SW │
                    │   Using ACLI    │
                    └─────────────────┘
```

Console operations can be performed using either of the following methods:

- VGA console using a keyboard and display — To use VGA console, connect a USB keyboard and VGA monitor to the USB + VGA ports at the rear of the Platform.

- Serial console using a terminal server or emulator — To use Serial console, connect a terminal server or similar to the Serial port at the rear of the Platform.

- Virtual KVM of the iLO web interface — To use iLO KVM, ensure an iLO Advanced license is installed, and click "Remote console" button from the iLO Web Interface. The user may purchase this license, or may obtain a free 60-day trial copy of the license at this link: http://h18013.www1.hp.com/products/servers/management/iloadvanced/index.html

Operations using any of these console methods is identical, except when the RBSU is accessed; due to limitations of the serial console, function keys are not available and alternative Escape key sequences are required as noted in the appropriate text below.

Terminal Settings

In order to create a console connection to the Net-Net 7000 Platform, you need to appropriately configure the terminal hardware/software. The following table lists your terminal application's serial configurations.

Serial Connection Parameter	Setting
Baud Rate	115,200 bps
Data Bits	8
Parity	No
Stop Bit	1
Flow Control	None

Assigning an IP Address to the iLO 4 Interface

There are several ways of assigning an IP address to the iLO 4 interface, including the following methods:

- Networks using a DHCP server can dynamically assign an IP address to the iLO 4 interface. For detailed information, see "Obtaining the DHCP-Assigned Platform IP Address" on page 57.

- A static IP address can be assigned by the user to the iLO 4 interface over either a serial or video port connection. For detailed information, see "Assigning a Static IP Address Using the RBSU Over a Serial Port" on page 58 and "Assigning a Static IP Address Using the RBSU Over a Video Port" on page 60.

Obtaining the DHCP-Assigned Platform IP Address

The iLO 4 interface is preconfigured to obtain an IP address dynamically when a DHCP server is in use on the network. When the iLO port is connected to a management LAN, iLO sends a DHCP discover message when the Platform is powered up. If a DHCP server responds with an IP address offer, iLO does a DHCP request for the offered address, using the DNS name (assigned at the factory and preprinted on the serial number tab) as the Platform host name. If a DHCP server does not respond, then the user must assign a static IP address to iLO.

The following procedure describes how to obtain a DNS server-generated IP address for the Platform iLO port.

To obtain a DHCP-assigned Platform IP address:

1. Attach an Ethernet cable between the iLO port and the management LAN.

2. Power up the Net-Net 7000 Platform. The iLO manager communicates with the DHCP server to obtain the IP address to access the Platform iLO.

    You can now use the host name in a Web browser to access the iLO Web interface. If the host name does not work in the browser, obtain the DHCP-configured IP address by plugging a terminal into either the serial or video port on the rear panel of the Platform and power cycle or reboot the Platform, If you have a video monitor or terminal emulator connected, then on power up you will be able to see the DHCP-assigned address displayed on the lower left side of the screen.

**Assigning a Static IP Address Using the RBSU Over a Serial Port**

Sometimes it is desirable or necessary to assign a static IP address to iLO interface. Such is the case if DHCP is unavailable. The following procedure describes how to establish a console connection with the ROM-Based Setup Utility (RBSU) over the serial port and assign a static IP address to the iLO Web interface.

To assign a static IP address to iLO using the iLO RBSU over the serial port:

1. Set your terminal emulator data communication parameters to the default parameters listed in "Terminal Settings" on page 57.

2. Connect a serial cable between the nine-pin serial connector on the rear panel of the Net-Net 7000 Platform and the terminal emulator.
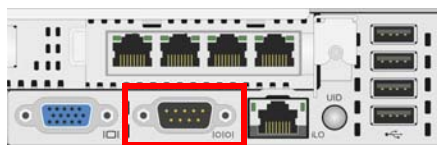
3. Power on the Net-Net 7000 Platform (as described in "Powering On the Net-Net 7000 Platform" on page 55). As the Platform boots, text is displayed in the terminal emulator window.

4. Press **[Esc] [8]** to enter the RBSU. The menu appears.

```
File  Network  User  Settings
+------------+
|Set Defaults|
|Exit        |
+------------+
```

5. Using the keyboard cursor keys, Navigate to **Network > DNS/DHCP**.

```
File  Network  User  Settings
      +--------------+
      |NIC and TCP/IP|
      |DNS/DHCP      |
      +--------------+
```

6. In the **DHCP Enable** field, select **OFF**.

```
File  Network  User  Settings
            |                        |
            |Network Autoconfiguation |
            |DHCP Enable    OFF       |
            |DNS Name                 |
            +------------------------+
```

7. Select **[Esc] [0]** to save the DHCP settings.

8. Navigate to **Network > NIC and TCP/IP** and hit **[Enter]**.

```
File   Network  User  Settings
        +--------------+
        |NIC and TCP/IP|
        |DNS/DHCP      |
        +--------------+
```

9. The Network Configuration page appears.

```
File   Network  User  Settings

    +--Network Configuration------------------------------------------
    |
    | MAC Address                      44-1e-a1-d3-26-1b
    | Network Interface Adapter        Shared Network Port - LOM
    | Virtual LAN                      Disabled
    | ----------------------------------------------------------------
    | IP Address                       172.44.2.46
    | Subnet Mask                      255.255.0.0
    | Gateway IP Address               172.44.0.1
    |
    |                      [F10]=Save   [ESC]=Cancel
    +-----------------------------------------------------------------
```

10. Enter the value for each of the following fields:

    *   **IP Address** — enter the static address of the iLO Web interface.

    *   **Subnet Mask** — enter the subnet mask of iLO.

    *   **Gateway IP Address** — enter the gateway IP address of iLO.

11. Select **[Esc] [0]** to save the address settings.

12. Navigate to **File > Exit** and hit **[Enter]** to close the connection to the terminal emulator connection.

```
File   Network  User  Settings
+------------+
|Set Defaults|
|Exit        |
+------------+



Exit this utility.
```

13. When the Platform finishes rebooting, the assigned iLO IP address appears at the lower left side of the page as shown here.

Assigning a Static IP Address Using the RBSU Over a Video Port

Sometimes it is desirable or necessary to assign a static IP address to iLO. Such is the case if DHCP is unavailable. The following procedure describes how to establish a console connection with the RBSU over the video port and assign a static IP address to the iLO Web interface.

To assign a static IP address to iLO using the iLO ROM Setup over the video port:

1. Connect a VGA cable between the fifteen-pin port video connector on the rear panel of the Net-Net 7000 Platform and the video monitor.
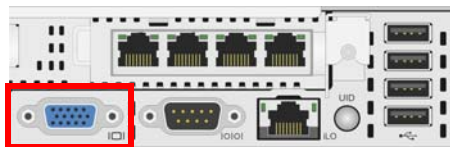
2. Connect a keyboard to a USB port on the rear panel (or front panel) of the Net-Net 7000 Platform.
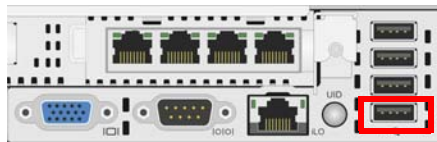
3. If the Net-Net 7000 Platform is already powered on, press the Enter key a few times to activate the console connection. When command line interface text is displayed on the screen, the console connection has been successfully created.

4. If you have created the console connection before powering up the Net-Net 7000 Platform, then power on the server (as described in "Powering On the Net-Net 7000

Platform" on page 55). As the Platform boots, text is displayed in the terminal emulator window.

5. Press **[F8]** to enter the RBSU. The main menu appears.
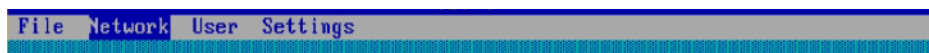
6. Using the keyboard cursor keys, Navigate to **Network > DNS/DHCP**. The Network Autoconfiguration page appears.
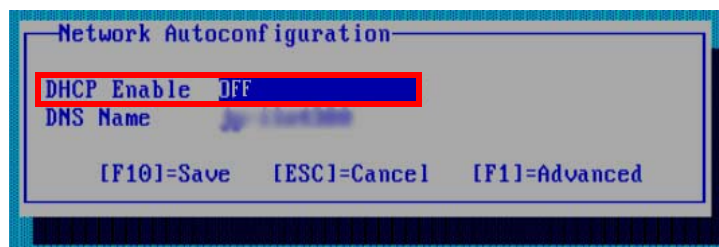
7. In the **DHCP Enable** field, select **OFF**.

8. Select **[F10]** to save the DHCP settings.

9. Navigate to **Network > NIC and TCP/IP** and hit **[Enter]**.

10. The Network Configuration page appears.
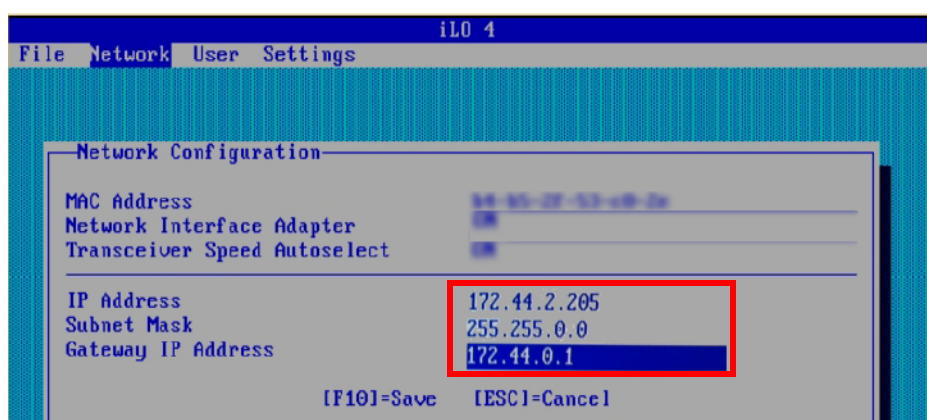
11. Enter the value for each of the following fields:

    • **IP Address** — enter the static address of the iLO Web interface.

    • **Subnet Mask** — enter the subnet mask of the iLO.

    • **Gateway IP Address** — enter the gateway IP address of the iLO Web interface.

12. Select **[F10]** to save the address settings.

13. Navigate to **File > Exit** and hit **[Enter]** to close the connection to the terminal emulator connection.

14. When the Platform finishes rebooting, the assigned iLO IP address appears at the lower left side of the page as shown here.
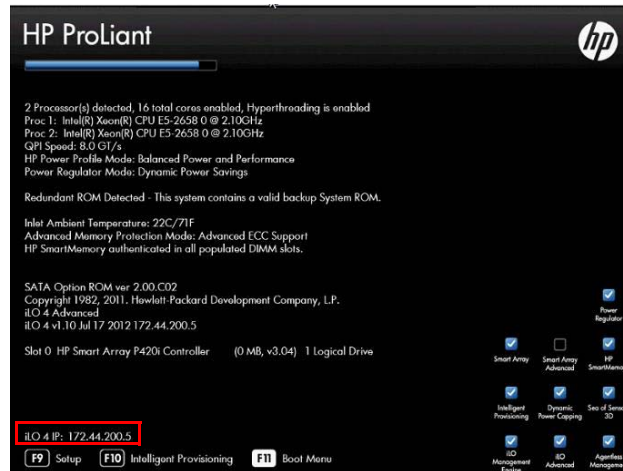
Establishing an iLO Web Interface Session

The iLO Web interface allows the user to access the iLO subsystem. Once the Net-Net 7000 Platform iLO has been assigned an IP address, the user can access the iLO 4 Web interface.

For more information on the iLO subsystem, please see "iLO Subsystem Management" on page 27.

The following procedure describes how to access the iLO 4 Web interface.

Prerequisite:

• The Net-Net 7000 Platform has finished booting and the iLO Web interface has been assigned an IP address.

• Obtain the user name and password for the Net-Net 7000 Platform. For information, please see "Serial Number Tab" on page 18.

To establish a session with the iLO 4 Web interface:

1. Attach an Ethernet cable between the iLO port and the management LAN.

2. Determine the IP address of the Net-Net 7000 Platform iLO.

3. In a Web browser, enter the following:
   https://n.n.n.n

   where:
   n.n.n.n is the IP address of the iLO Web interface.

   Alternately, you may enter the host name shown on the serial number tab if the dynamic DNS server has been updated by the DHCP request from your server.

4. At the login prompt, enter the case sensitive user name and password in the appropriate fields; this information is printed on the serial number tab located on the

front panel. The iLO 4 management software opens.
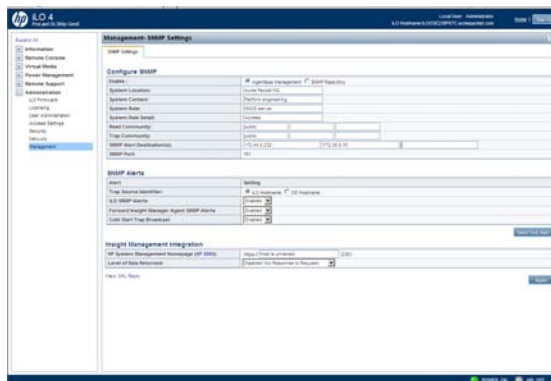
Configuring SNMP Management Over the iLO Port

The iLO 4 management software provides Agentless Management that allows iLO 4 to monitor all key internal subsystems and send SNMP alerts directly regardless of the host operating system, even if no host operating system is installed.

> **Note:** To manage Agentless Management, the network management server must be on the same network as iLO 4.

The following procedure describes how to use iLO 4 to configure SNMP for the Net-Net 7000 Platform, including how to enable the Agentless Management option.

Prerequisite:

• Establish an iLO 4 Web interface session. "Establishing an iLO Web Interface Session" on page 62.

To configure SNMP management using iLO 4:

1. Log in to the iLO 4 Web interface. The iLO 4 management software opens.

2. Navigate to **Administration > Management**.
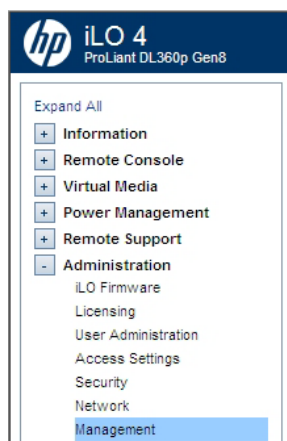
3. The recommended optional and required fields to configure are highlighted in the following screenshot and explained in the following steps.

4. Select the **Agentless Management** radio button.

5. Enter a common **Read Community** string for the Platform and your Acme Packet Net-Net Central management system or other NMS.

6. Optionally, enter a common **Trap Community** string for the Platform and your management system.

7. Enter the IP address or DNS name for the management system IP address in the **SNMP Alert Destinations** field.

8. Enable all of the SNMP Alerts: iLO SNMP Alerts, Forward Insight manager SNMP Alerts (if the SNMP agent is installed in the OS), and Cold Start Trap Broadcast.

9. Click **[Apply]** to save the information.

10. Click **[Sign Out]** to sign out and close the iLO 4 software.

11. After SNMP configuration has been completed, return to the system console (iLO KVM remote console, VGA console or Serial console) and press **Enter**.

12. Verify that a **Password:** prompt is displayed on the console.

13. The hardware installation and setup is complete and the Net-Net software is ready to be configured. Refer to the *Net-Net Administration and Configuration Guide* for the Acme Packet software product being used to configure the wancom0 management network interface and other boot parameters.

5   Maintenance

Introduction

This chapter explains Net-Net 7000 Platform maintenance procedures. This chapter also provides hardware alarm information.

Powering Off the Platform

Although several user-replaceable components of the Net-Net 7000 Platform are hot-swappable, some Net-Net 7000 Platform maintenance procedures may require that you power off the system.

Before you shut off or restart the Net-Net 7000 Platform, ensure that there are no active calls in progress and that you back up any critical information. Procedures to backup information or to reroute call and network traffic around the Net-Net 7000 Platform are outside the scope of this guide.

After all call processing has stopped, you can power off your Net-Net 7000 Platform.

Powering Off the Net-Net 7000 Platform

Use the Acme Packet command line interface to power down the Net-Net 7000 Platform. The following procedure should be used to power down the Platform if it is not possible to use the CLI to do so.

To power off the Net-Net 7000 Platform:

1. Perform a backup of critical server data and programs.
2. Close your console or network connection.
3. Use the Acme Packet CLI **halt** command to power down the Net-Net 7000 Platform.
4. If the CLI fails to shut down the Platform, press the Power On/Standby button.
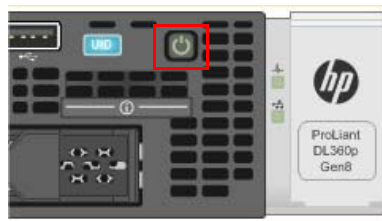
5. Confirm that the System Insight Display is dark and all fans are off.
6. Unplug the Net-Net 7000 Platform from its power supply and continue with maintenance procedures.

   Note: When the Platform is in standby mode, auxiliary power is still being provided to the system.

Power Cycling

Power Cycling the Net-Net 7000 Platform is the process of powering off the Platform and then powering it back on.

Removing the Net-Net 7000 From the Equipment Rack

This section explains how to remove the Net-Net 7000 Platform from an equipment rack. To prevent injury, we recommend that any time a Net-Net 7000 Platform is installed or removed from an equipment rack, two people complete the procedure.

Caution

Always disconnect the Net-Net 7000 Platform power supplies from the power source when removing a Platform from an equipment rack.

To remove the Net-Net 7000 from the equipment rack:

To prevent personal injury or damage to the Net-Net 7000 Platform, follow these guidelines:

•   Review the precautions detailed in "Safety" on page vii before proceeding.

•   Follow your organization's best practices for lifting and installing heavy components into an equipment rack.

•   Follow local occupational health and safety requirements and guidelines for manual material handling.

•   Ensure that the Net-Net 7000 Platform remains supported until you have completely removed it from the equipment rack and placed it onto a sturdy surface.

•   To prevent injury, Acme Packet recommends that two people complete the removal of the equipment and should not be attempted otherwise.

•   Use caution when removing the server from the rack; it is unstable when not fastened to the rails.

1.   Power off the Net-Net 7000 Platform as described in "Powering Off the Net-Net 7000 Platform" on page 67.

2.   Remove all power cables and network cables from the Platform.

3.   Remove and label all attached network and console cables from their respective ports on the Platform.

4.   Press down the quick disconnect front release levers on the front corners of the Net-Net 7000 server.

5.   Pull the server forward, fully extending the Platform until the inner telescopic rails make a snapping noise as they lock into place.

6. Adjacent to slot 4 on each side of the Net-Net 7000, press the blue server release latches (labeled PUSH).

Warning: To reduce the risk of personal injury, be careful when pressing the server rail-release latches and sliding the server into the rack. The sliding rails could pinch your fingers.

Warning: To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before extending a component from the rack.

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7. Two people should lift the server, remove it from the rail system and out of the equipment rack.

8. Set the Platform on a level, sturdy and stable surface.

Power Supply Removal and Replacement

This section explains how to remove and replace the power supplies in the Net-Net 7000 Platform.

Caution

Both power supplies must be the same type (AC or DC). Both power supply bays must be populated with two identical power supplies. The two power supplies should be made by the same vendor. The vendor is identified by the label on top of the power supply.

The power supply is a user-replaceable component. If a Net-Net 7000 Platform power supply malfunctions, you should remove the malfunctioning power supply and replace it. The Platform allows warm swapping of the power supply, enabling one power supply to be removed from the Platform while the second power supply is providing system power.

Note: See "Power Components" on page 24 for an explanation about power supply numbering.

For information regarding how to obtain a replacement power supply, contact your authorized service representative.For more service information, please see "Technical Assistance" on page v.

AC or DC Power Supply Removal

You can remove AC and DC power supplies with the same procedure once they are disconnected from their power source. The images used in the procedure below use an AC power supply.

Prerequisite:

*   The Net-Net 7000 Platform can be powered and running during this procedure.

    Note: When removing and replacing a power supply, remember to first ground yourself using appropriate ESD grounding equipment such as a wrist or heel strap.

1. Locate the power supply to remove and replace.

2. Remove the AC or DC power cable and associated strain relief connector (see: "Ground and Power Cable Installation" on page 42) from the power supply.

3. Hold the removal handle, depress the quick release lever and carefully pull the power supply out of the Platform power bay as shown below.
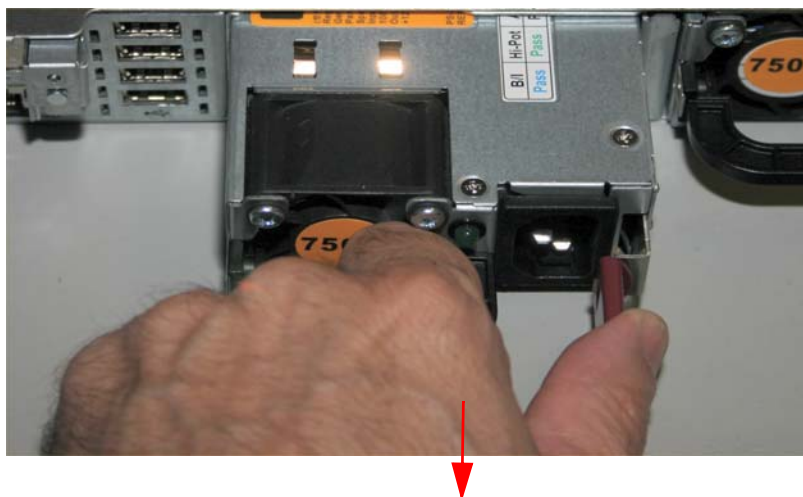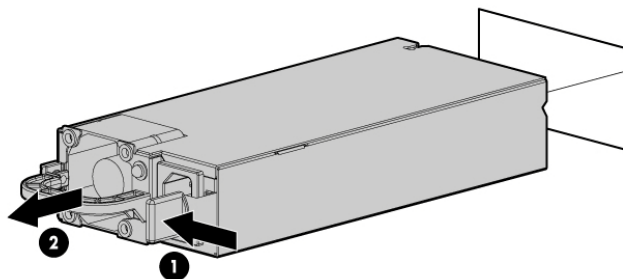
Warning: To reduce the risk of personal injury from hot surfaces, allow the power supply or power supply blank to cool before touching it.

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4. Replace the removed power supply as soon as possible to allow proper cooling of the device and to prevent overheating of the Platform.

AC or DC Power Supply Replacement

You can replace an AC or DC power supply in the Net-Net 7000 Platform by reversing the removal procedure (see "AC or DC Power Supply Removal" on page 70). You can also install a power supply in the Net-Net 7000 Platform before or after the Platform is mounted in an equipment rack. The images used in this section use an AC power supply for demonstration purposes.

Caution

NEVER power up a power supply before it is installed in the Net-Net 7000 Platform.

Prerequisite:

• The Net-Net 7000 Platform can be powered and running during this procedure.

Required Hardware:

• Power supply type (AC or DC) that matches the one already running in the Platform.

  Note: When removing and replacing a power supply, remember to first ground yourself using appropriate ESD grounding equipment such as a wrist or heel strap.

To install a power supply in the Net-Net 7000 Platform:

1. Locate the replacement power supply.

2. Locate the empty power supply bay on the rear panel of the Net-Net 7000 Platform.

3. Grasping the installation handle located on the face of the power supply, slide the replacement component fully into the appropriate power supply bay located in the orientation shown below. When fully inserted, the face of the power supply will be flush with the real panel. The labels on the power supply face upward when it is fully inserted.

4. Connect the power cord to the inserted power supply as described in "Ground and Power Cable Installation" on page 42.

Maintaining the Cooling Components

Cooling maintenance encompasses cleaning the air inlets on the front of the Net-Net 7000 Platform. To prevent system malfunction and prolong the life of the system cooling components, clean the air inlets once a week.

To clean the perforated air inlets:

1. Use one of the following two cleaning methods to clean the perforated air inlets on the front of the Net-Net 7000 Series Platforms:

   • Gently wipe the perforated air inlets with a clean, dry cloth.

   • Use compressed air to clean out the perforated air inlets.

Caution

To prevent damage to the painted finish, do not use any solvents or liquids to clean the perforated air inlets on the front of the Platform.

Removing/Installing Hard Drives and HD Blanks

The hard drives located on the front of the Net-Net 7000 Platform can be installed, removed or replaced by the user. In the event that there is no hard drive available for a hard drive bay, the user should install a hard drive blank to maintain proper air flow. The following subsection describes how to install and remove hard drives and hard drive blanks.

Guidelines on Installing Hard Drives

Please follow these guidelines when installing hard drives into the Net-Net 7000 Platform:

- The system automatically sets all device numbers.

- If only one hard drive is used, install it in the bay with the lowest device number (drive bay numbers are described in "Front Panel Items" on page 13).

- Net-Net operating system software only supports one hard drive, or multiple hard drives configured as one RAID volume. Do not install additional hard drives.

- Drives should be the same capacity to provide the greatest storage space efficiency when drives are grouped together into the same drive array.

- When removing and replacing a power supply, remember to first ground yourself using appropriate ESD grounding equipment such as a wrist or heel strap.

Removing or Installing a Hard Drive Blank

A hard drive blank is a spacer that installs in a hard drive bay in the Net-Net 7000 Platform that is used when a hard drive is not available. To ensure proper cooling, there must be a hard drive or a hard drive blank in each hard drive bay during operation of the Platform. The following procedure describes how to remove and install a hard drive blank.

Before you attempt to remove the hard drive blank, please ensure you do the following:

- Ground yourself using appropriate ESD grounding equipment such as a wrist or heel strap.

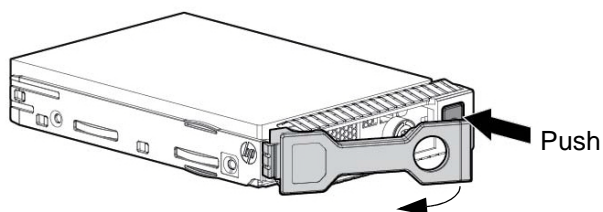- Locate the hard drive bay from which the component must be removed.

Caution

To prevent improper cooling and thermal damage, do not operate the server unless all hard drive bays are populated with either a component or a blank.

To remove and install a hard drive blank:

1. Pinch either side of the center of the hard drive blank as indicated in the #1 callout in this illustration.
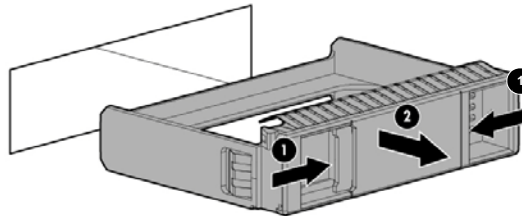
2. Pull the blank straight out and remove it from the Platform.

3. To install the blank, push it carefully into the hard drive location in the Platform until it is seated full into the bay.

Removing a Failed Hard Drive

The following procedure describes how to remove a hard drive from the Net-Net 7000 Platform. To remove the hard drive, the Net-Net 7000 must be powered off.

Before you attempt to remove the hard drive, please ensure you do the following:

*   Ground yourself using appropriate ESD grounding equipment such as a wrist or heel strap.

*   Locate the hard drive bay from which the component must be removed.

Caution

> To prevent improper cooling and thermal damage, do not operate the server unless all hard drive bays are populated with either a component or a blank.

To remove a hard drive:

1. Shut down the system as described in "Powering Off the Net-Net 7000 Platform" on page 67.

2. Locate the hard drive to remove.

3. Press the red pushbutton on the right side of the hard drive. A door disengages from a round black spool on the face of the hard drive, swinging away from the face of the drive.

Push

4. Carefully pull on the hard drive door and remove the hard drive.

Installing a Hard Drive

The following procedure describes how to install a hard drive into the Net-Net 7000 Platform.

Prerequisites:

• Ground yourself using appropriate ESD grounding device such as a wrist or heel strap.

• Power off the Net-Net 7000 Platform.

• Ensure that the bay into which the hard drive is to be installed is empty.

Prerequisites:

• Hard drive

Caution

To prevent improper cooling and thermal damage, do not operate the server unless all hard drive bays are populated with either a component or a blank.

To install a hard drive:

1. Locate the drive bay into which the hard drive is to be installed.

2. Carefully insert the hard drive fully into the desired bay in the manner shown here.
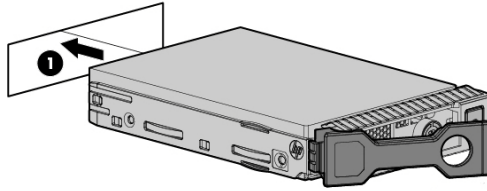
3. Push on the black spool until the drive is fully inserted. Once the hard drive is fully inserted into the bay, the drive is flush with the Platform.

4. Swing the hard drive door over the black spool, engaging the door with the face of the drive until it clicks into place.
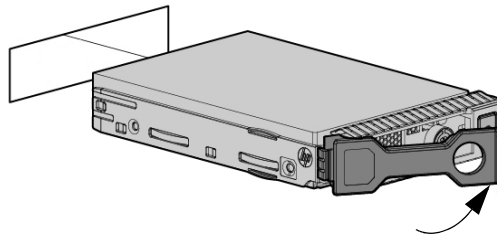
6 Specifications

Introduction

This chapter provides information regarding the technical specifications of the Net-Net 7000 Platform. It also lists regulatory specifications, compliance and certifications.

Physical Specifications

Net-Net 7000 Platform Server Specifications

This table lists the physical dimensions and weight of the Net-Net 7000.

Specification	Description
Height	1.70 in (4.32 cm) (1U)
Depth	27.50 in (69.85 cm)
Width	17.11 in (43.47 cm)
Weight	42.33 lbs (19.2 kg), (two processors, two power supplies, eight hard drives)

Fan Module Specifications

This table lists the fan module specifications for the Net-Net 7000 Platform.

Specification	Description
Number of Fans	8

Processor Specifications

The following table describes the processors in each Net-Net 7000 Platform.

Platform	Specification
Net-Net 7100	Dual 8-Core Intel E5-2670 2.6 GHz processors
Net-Net 7150	Dual 8-Core Intel E5-2690 2.9 GHz processors

Memory and Storage Specifications

The following table describes the memory and storage in the Net-Net 7100 Platform and Net-Net 7150 Platform.

Model	Specification
Memory	16 GB of RAM
Storage	Dual redundant 450 GB disk drives

Electrical Specifications

Refer to the following tables for information regarding the electrical specifications of the Net-Net 7000 Platform.

> **Note:** Two AC power supplies or two DC power supplies are shipped with the Net-Net 7000 Platform.

AC Power Supply Specifications

This table lists the Net-Net 7000 Platform AC power supply specifications.

Specification	Value
Input requirements	—
Rated input voltage range	100 V AC - 240 V AC
Rated input frequency range	50 Hz - 60 Hz
Rated Input current	4.5A (at 120VAC) to 2.2 A (at 240VAC)
Rated input power	857 W at 100 V AC input 824 W at 200 V AC input
Btus per hour	2925 at 100 V AC input 2812 at 200 V AC input
Power supply output	—
Rated steady-state power	750 W at 100 V to 120 V AC input 750 W at 200 V to 240 V AC input
Maximum peak power	750 W at 100 V to 120 V AC input 750 W at 200 V to 240 V AC input
AC Power Cords (2x)	1.83m 10A C13-UL US

DC Power Supply Specifications

This table lists the Net-Net 7000 Platform DC power supply specifications.

Specification	Value
Input requirements	—
Rated input voltage	-36 V DC to -72 V DC -48 V DC nominal input
Rated input current	23 A at -36 V DC input 17 A at -48 V DC input, nominal input 11 A at -72 V DC input
Rated input power (W)	815 W at -36 V DC input 805 W at -48 V DC input, nominal input 795 W at -72 V DC input
Rated input power (Btus per hour)	2780 at -36 V DC input 2740 at -48 V DC input, nominal input 2720 at -72 V DC input
Power supply output	—

(continued)

Specification	Value
Rated steady-state power (W)	750 W
Maximum peak power (W)	750 W

Net-Net 7100 Platform Power Usage Specifications

Input Voltage	100 VAC	115 VAC	208 VAC	220 VAC	240 VAC	Negative 48 VDC
Total System VA Rating	300.85	300.17	302.48	301.98	306.23	190.88
Total System BTU/hr	1009.95	1004.54	989.9	989.1	987.71	959.46
Total Input System Current	3.01	2.61	1.45	1.37	1.28	3.98
Total Wattage	296.17	294.59	290.29	290.06	289.65	281.37

Net-Net 7150 Platform Power Usage Specifications

Input Voltage	100 VAC	115 VAC	208 VAC	220 VAC	240 VAC	Negative 48 VDC
Total System VA Rating	474.75	471.98	470.29	469.52	472.76	220.28
Total System BTU/hr	1599.56	1587.78	1559.29	1557.38	1555.05	1521.93
Total Input System Current	4.75	4.1	2.26	2.13	1.97	4.59
Total Wattage	469.08	465.62	457.27	456.71	456.03	446.31

Caution: The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. The following conditions must be met:
• **This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.**
• **This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.**
• **The DC supply source is to be located within the same premises as the equipment.**
• **Switching or disconnecting devices must not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.**

Caution

The server equipment connects the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. The following conditions must be met:
• This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
• This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system should be earthed elsewhere.
• The DC supply source is to be located within the same premises as the equipment.
• Switching or disconnecting devices must not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

Caution:

Caution: To reduce the risk of electric shock or energy hazards:
 • This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1, Second Edition, the standard for Safety of Information Technology Equipment.
 • Connect the equipment to a reliably grounded SELV source. An SELV source is a secondary circuit that is designed so normal and single fault conditions do not cause the voltages to exceed a safe level (60 V DC).
 • The branch circuit overcurrent protection must be rated 24 A.

Environmental Specifications

For the Net-Net 7000 Platform to function properly, we recommend that you follow the environmental guidelines in the following table.

Specification	Description
Temperature[a]	The Net-Net 7000 Platform is required to operate within the temperature range of: +10° C to +35° C, 50° F to 95° F (operating) -30° C to +60° C, -22° F to 140° F (non-operating) -20° C to +65° C, -4° F to 149° F (storage)
Relative Humidity	10% to 90%, 28°C (82.4°F), maximum wet bulb temperature (operating). 5% to 95%, 38.7°C (101.7°F), maximum wet bulb temperature (non-operating).
Maximum Altitude	The Net-Net 7000 Platform is required to operate below the maximum altitude of 10,000 feet.

a. All temperature ratings shown are for sea level. An altitude derating of 1° C per 3,048 m (1.8° F per 1,000 ft) to 3,048 m (10,000 ft) is applicable. No direct sunlight allowed.

Connector Specifications

Refer to the following table for information about the connector specifications for the Net-Net 7000 Platform.

Specification	Description
Ethernet	Rear 10/100/1000 Gigabit Ethernet FlexibleLOM port (4) Rear 10/100/1000 Gigabit Ethernet PCIe port (4)
Video	Front video connector (1) Rear video connector (1)
USB Ports	Front USB port (2) Rear USB port (4)
Serial	Rear serial connector (1)
iLO	Rear iLO management engine NIC connector (1)
AC Connector Port	AC 3-lead connector port (on each power supply) (2)
Terminal Block Connections	Terminal block connections (accommodates bare (tinned) wire for DC power installations) on each DC power supply

Regulatory Compliance Notices

NEBS Compliance

The E5-2670 Intel Xeon processor (contained in the Net-Net 7100 Platform) is NEBS certified. A certificate is available upon request.

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

FCC Rating Label

The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

FCC Notice, Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

FCC Notice, Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the

user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit that is different from that to which the receiver is connected.

- Consult the dealer or an experienced radio or television technician for help.

Declaration of Conformity for Products Marked with the FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding this product, contact your authorized service representative. For more service information, please see "Technical Assistance" on page v.

For questions regarding this FCC declaration, contact your authorized service representative. For more service information, please see "Technical Assistance" on page v.

To identify this product, refer to the part, series, or model number found on the product.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian Notice (Avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Regulatory Notice

Products bearing the CE marking comply with the following EU Directives:

• Low Voltage Directive 2006/95/EC

• EMC Directive 2004/108/EC

• Ecodesign Directive 2009/125/EC, where applicable

CE compliance of this product is valid if powered with the supplied correct CE-marked AC adapter.

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) that are listed in the EU Declaration of Conformity issued for this product or product family and available (in English only) either within the product documentation.

The compliance is indicated by one of the following conformity markings placed on the product:

For non-telecommunications products and for EU harmonized telecommunications products, such as Bluetooth® within power class below 10mW.

ϵ

For EU non-harmonized telecommunications products (If applicable, a 4-digit notified body number is inserted between CE and !).

ϵ (!)

Please refer to the regulatory label provided on the product.

For regulatory matters, contact your authorized service representative. For more service information, please see "Technical Assistance" on page v.

Disposal of Waste Equipment by Users in Private Households in the European Union

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Acoustics Statement for Germany (Geräuschemission)

Schalldruckpegel $L_{pA} < 70$ dB(A)

Zuschauerpositionen (bystander positions), Normaler Betrieb (normal operation)

Nach ISO 7779:1999 (Typprüfung)

Battery Replacement Notice

Warning: The computer contains an internal lithium manganese dioxide, a vanadium pentoxide, or an alkaline battery pack. A risk of fire and burns exists if the battery pack is not properly handled. To reduce the risk of personal injury:
• Do not attempt to recharge the battery.
• Do not expose the battery to temperatures higher than 60°C (140°F).
• Do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water.

Batteries, battery packs, and accumulators should not be disposed of together with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to an authorized Partner, or their agents.

For more information about battery replacement or proper disposal, contact your authorized service representative. For more service information, please see "Technical Assistance" on page v.

SPECIFICATIONS

Appendix A - SNMP Traps

Appendix A lists the MIBs and describes the SNMP traps that are generated by iLO4 and the Net-Net 7000 Platforms.

The MIB names describing the SNMP traps are listed below. To obtain the MIBs, contact your authorized service representative. For more service information, please see "Technical Assistance" on page v.

* *cpqida.mib*
* *cpqhost.mib*
* *cpqhlth.mib*
* *cpqsm2.mib*
* *cpqide.mib*
* *cpqscsi.mib*
* *cpqnic.mib*

The table below describes the SNMP traps that are generated by iLO and the Net-Net 7000 server.

SNMP Trap Name	Description
Cold Start Trap 0	SNMP has been initialized, the system has completed POST, or AMS has started.
Authentication Failure Trap 4	SNMP has detected an authentication failure.
cpqDa6CntlrStatusChange 3033	A change has been detected in the status of the Smart Array controller.
cpqDa6LogDrvStatusChange 3034	A change has been detected in the status of a Smart Array logical drive.
cpqDa6AccelStatusChange 3038	A change has been detected in the status of a Smart Array cache module.
cpqDa6AccelBadDataTrap 3039	The Smart Array cache module has lost backup power.
cpqDa6AccelBatteryFailed 3040	The Smart Array cache module backup power has failed.
cpqDa7PhyDrvStatusChange 3046	A change has been detected in the status of a Smart Array physical drive.
cpqDa7SpareStatusChange 3047	A change has been detected in the status of a Smart Array spare drive.
cpqDaPhyDrvSSDWearStatusChange 3049	A change has been detected in the SSD wear status of a Smart Array physical drive.

(continued)

SNMP Trap Name	Description
cpqHe3ThermalConfirmation 6026	The server was shut down for a thermal anomaly and is now operational.
cpqHe3PostError 6027	One or more POST errors have occurred.
cpqHe3FltTolPowerRedundancyLost 6032	The fault-tolerant power supplies have lost redundancy for the specified Platform.
cpqHe3FltTolPowerSupplyInserted 6033	A fault-tolerant power supply has been inserted.
cpqHe3FltTolPowerSupplyRemoved 6034	A fault-tolerant power supply has been removed.
cpqHe3FltTolFanDegraded 6035	The fault-tolerant fan condition has been set to Degraded.
cpqHe3FltTolFanFailed 6036	The fault-tolerant fan condition has been set to Failed.
cpqHe3FltTolFanRedundancyLost 6037	The fault-tolerant fans have lost redundancy.
cpqHe3FltTolFanInserted 6038	A fault-tolerant fan has been inserted.
cpqHe3FltTolFanRemoved 6039	A fault-tolerant fan has been removed.
cpqHe3TemperatureDegraded 6041	The temperature status has been set to Degraded, and the temperature is outside the normal operating range. Depending on the system configuration, this system might be shut down.
cpqHe3TemperatureOk 6042	The temperature status has been set to OK.
cpqHe4FltTolPowerSupplyOk 6048	The fault-tolerant power supply condition has been set back to OK.
cpqHe4FltTolPowerSupplyDegraded 6049	The fault-tolerant power supply condition has been set to Degraded.
cpqHe4FltTolPowerSupplyFailed 6050	The fault-tolerant power supply condition has been set to Failed.
cpqHeResilientMemMirroredMemoryEngaged 6051	The Advanced Memory Protection subsystem has detected a memory fault. Mirrored Memory has been activated.
cpqHe3FltTolPowerRedundancyRestore 6054	The fault-tolerant power supplies have returned to a redundant state.
cpqHe3FltTolFanRedundancyRestored 6055	The fault-tolerant fans have returned to a redundant state.

(continued)

SNMP Trap Name	Description
cpqHe5CorrMemReplaceMemModule 6064	Memory errors have been corrected, but the memory module should be replaced.
cpqHe4FltTolPowerSupplyACpowerloss 6069	The fault-tolerant power supply in the specified Platform and bay reported AC power loss.
cpqSm2ServerReset 9001	The server power has been reset.
cpqSm2SelfTestError 9005	iLO 4 has detected a Self Test Error.
cpqSm2SecurityOverrideEngaged 9012	iLO 4 has detected that the security override jumper has been toggled to the engaged position.
cpqSm2SecurityOverrideDisengaged 9013	iLO 4 has detected that the security override jumper has been toggled to the disengaged position.
cpqSm2ServerPowerOn 9017	The server has been powered on.
cpqSm2ServerPowerOff 9018	The server has been powered off.
cpqSm2ServerPowerOnFailure 9019	A request was made to power on the server, but the server could not be powered on because of a failure condition.
cpqHo2GenericTrap 11003	Generic trap. Verifies that the SNMP configuration, client SNMP console, and network are operating correctly. You can use the iLO web interface to generate this alert to verify receipt of the alert on the SNMP console.
cpqHo2PowerThresholdTrap 11018	A power threshold has been exceeded.
MibHealthStatusArrayChangeTrap 11020	A change in the health status of the server has occurred.
cpqSasPhyDrvStatusChange 5022	AMS detected a change in the status of an SAS or SATA physical drive.
cpqIdeAtaDiskStatusChange 14004	AMS detected a change in the status of an ATA disk drive.
cpqNic3ConnectivityRestored 18011	AMS detected that connectivity was restored to a logical network adapter.
cpqNic3ConnectivityLost 18012	AMS detected that the status of a logical network adapter changed to failed.

Glossary

Acronyms, Definitions, and Terms

ABEND — abnormal end

AC — Alternating Current refers to the 120-volt electricity delivered by power utilities to three-pin power outlets. This type of power is called "alternating current" because the polarity of the current alternates between plus and minus, 60 times per second.

ACLI — Acme Command Line Interface is the command line interface used by Acme Packet to configure, maintain, and monitor Net-Net SBCs and other Acme Packet products.

ACU — Array Configuration Utility

AMP — Advanced Memory Protection

ASR — Automatic Server Recovery

AWG — American Wire Gauge is a United States standard set of non-ferrous wire conductor sizes. The gauge means the diameter.

BTU — British Thermal Unit

CE — European Compliance

CSA — Canadian Standards Association is a non-profit, independent organization that operates a listing service for electrical and electronic materials and equipment.

CSR — Customer Self Repair

DC — Direct Current refers to the flow of electrons in one direction within an electrical conductor, such as a wire.

EMC — Electromagnetic Compatibility is the ability of equipment or systems to be used in their intended environment within designed efficiency levels without causing or receiving degradation due to unintentional electromagnetic interference.

EN — European Norm

ESD — Electrostatic Discharge is the rapid discharge of static electricity from one conductor with an electrical charge to another of a different electrical charge.

FBWC — flash-backed write cache

FCC — Federal Communications Commission

FG — Frame ground

Flash memory — Flash memory is a solid-state, non-volatile, re writable memory that functions like a combination of RAM and a hard disk drive.

FQME — Flow Quality Measurement Engine is responsible for monitoring, measuring, and maintaining statistics (e.g., latency, jitter, flow stoppage, flow creation, etc.) on a flow-by-flow basis.

GigE — Gigabit Ethernet is an Ethernet type that supports data transfer rates of 1 gigabit per second.

HDIMM — HyperCloud DIMM

SIM — Systems Insight Manager

SUM — Smart Update Manager

ICES — Interference-causing Equipment Standard

IEC — International Electrotechnical Commission

IEEE — Institute of Electrical and Electronics Engineers is an organization composed of engineers, scientists, and students. The IEEE is best known for developing standards for the computer and electronics industry.

IETF — Internet Engineering Task Force is the main standards organization for the Internet.

iLO — the Integrated Lights-Out subsystem is a standard component of HP ProLiant servers that simplifies initial server setup, server health monitoring, power and thermal optimization, and remote server administration. The iLO subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface.

iLO Port — a Web server port on the rear panel of the Net-Net 7000 used to gain access to iLO.

IML — Integrated Management Log

IP — Internet Protocol is the method by which data is sent from one computer to another on the Internet.

LAN — Local Area Network is a group of computers and associated devices that share a common communications line within a small geographic area.

LED — Light Emitting Diode is an electronic device that lights up when electricity is passed through it.

LFF — large form factor

LOS — Loss of Signal occurs when the signal level falls below an acceptable level. LOS is a physical layer error and typically results in an alarm.

NEBS — Network Equipment Building Standards defines a rigid and extensive set of performance, quality, environmental, and safety requirements developed by Bellcore.

NIC — The Network Interface Card is an expansion board that provides network connectivity for management, signaling, and media traffic to and from the Net-Net 7000 Platform.

PCIe — peripheral component interconnect express

PDU — power distribution unit

Physical Interface Card — The physical interface card is synonymous with the network interface cards on the Net-Net 7000 Platform.

POST — Power-On Self Test

PROM — Programmable Read-only Memory is a memory chip on which data can only be written once. A PROM is non-volatile; it is a memory chip on which data can be written only once.

QoS — Quality of Service is a networking term that refers to the capability of a network to provide better service to selected network traffic over various technologies.

RAM — Random Access Memory is a type of computer memory that can be accessed randomly. RAM is the same as main memory.

RBSU — ROM-Based Setup Utility

RDP — Rapid Deployment Pack

RJ-45 — Registered Jack 45 is an eight-wire connector commonly used to connect computers onto a LAN.

RS-232 — Recommended Standard 232 is a standard interface approved by the Electronic Industries Association for connecting serial devices.

SAS — serial attached SCSI

SATA — serial ATA

SD — Secure Digital

SDRAM — Synchronous Dynamic Random Access Memory is a type of DRAM that can run at much higher clock speeds than conventional memory.

SELV — separated extra low voltage

SFF — small form factor

SNMP — Simple Network Management Protocol is a set of protocols used for managing complex networks and network devices.

TCP — Transmission Control Protocol provides a reliable stream delivery and virtual connection service to applications through the use of sequenced acknowledgment with the retransmission of packets when necessary.

Telnet — Telnet is a standard terminal emulation program that allows remote login and connection to systems/servers on a network. Telnet uses a single TCP/IP network connection to provide this remote login, control, and communication functionality.

TMRA — recommended ambient operating temperature

TPM — Trusted Platform Module

UDIMM — unregistered dual in-line memory module

UDP — User Datagram Protocol provides a simple, but unreliable message service for transaction-oriented services. Each UDP header carries both a source port identifier and a destination port identifier, allowing high-level protocols to target specific applications and services among hosts.

UID — unit identification

UPS — Un interruptible Power Supply is a power supply that can run off a backup battery when primary power is lost.

VAC — Volts Alternating Current

VCA — Version Control Agent

VCCI — Voluntary Control Council for Information Technology Equipment (Japan)

VCRM — Version Control Repository Manager

VDC — Volts Direct Current

VFD — Vacuum Fluorescent Display is used on the graphic display window of the Net-Net 7000 Platform front control panel.

VLAN — Virtual Local Area Network refers to a network of computers are connected to a single physical segment of a wire but behave as if they are connected to the physically diverse LANs.

WAN — Wide Area Network is a computer network that spans a relatively large geographical area. Typically, a WAN consists of two or more LANs.

Index