

# HP Route Analytics Management System

Software Version 8.10

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## Appliance Setup Guide

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# 1 Before You Install

This document describes how to install the hardware and software that makes up a RAMS appliance. A RAMS appliance is an HP ProLiant server that runs HP Route Analytics Management System software.

When you have finished the tasks described in this document, see the *HP Route Analytics Management System Administration Guide* for additional instructions on the detailed configuration and use of the HP Route Analytics Management System.

- ▶ For information about RAMS hardware configuration, see the RAMS support matrix available at the following address (HP Passport ID required):

**[http://support.openview.hp.com/sc/tech\\_docs/nnm/HP\\_Openview\\_NNM,\\_Dev\\_Agents,\\_NNM\\_SPI\\_and\\_RAMs.zip](http://support.openview.hp.com/sc/tech_docs/nnm/HP_Openview_NNM,_Dev_Agents,_NNM_SPI_and_RAMs.zip)**

In the HP\_Openview\_NNM,\_Dev\_Agents,\_NNM\_SPI\_and\_RAMs.zip file, look for **RAMS release.pdf** to find hardware requirements.

Make sure that you have all of the following items before proceeding:

- HP ProLiant server, purchased separately, including the following items that come with the server:
  - AC power cords
  - Rack-mount kit
  - Hardware installation and configuration poster
  - Documentation CD
- Serial console to attach to the server.

- ▶ You can use a PC as a terminal. If you choose this setup, run a program like Minicom for Linux or HyperTerminal for Windows.

- Null modem serial cable to connect the serial console to console port.
    - ▶ Alternatively, instead of using a serial console, you can attach a VGA monitor and keyboard to the server.
  - CAT 5 Ethernet cable for connecting the unit to the network.
  - The *Route Analytics Management System Software and Recovery CD*, which contains the RAMS software.
  - The *HP Route Analytics Management System User's Guide*.
- ▶ The HP ProLiant server additionally provides remote access management of RAMS from the RAMS console through the built-in Integrated Lights-Out (iLO) port on the server. For information about configuring the iLO port on an HP RAMS appliance, see [Appendix A, Setting Up RAMS for Remote Management](#).



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## 2 RAMS Hardware and Software Setup

Follow the instructions in this section carefully. Make sure that you have completed each step before proceeding to the next.

### Locate the RAMS Appliance

Decide where to locate the RAMS appliance, both physically and in the network.

#### Physical Requirements

The physical environment must accommodate the specifications for the HP ProLiant server with regard to space, airflow, power, and temperature.

For the physical specifications, see the HP ProLiant server documentation.

#### Network Requirements

The RAMS appliance should be located on the backbone of the network in the most redundant part of the network.

HP recommends that you connect the RAMS appliance to a core router. In that location, the RAMS appliance is more resilient to loss of edge connectivity, and it remains useful for recovery purposes during a widespread outage.

## Connect the RAMS Appliance to the Network

There are two 10BASE-T, 100BASE-TX, and 1000BASE-T Ethernet ports with RJ-45 connectors on the back of the HP ProLiant server. The default administration interface for RAMS is port 1. The RAMS appliance can connect to the network through either port for route analysis.

The RAMS appliance establishes communication with routers in the network by using the routing protocol over its physical connections. It can connect directly to a router or through a switch or hub.

- You can connect directly to a router with a CAT5 crossover Ethernet cable. Make sure that the router port is not in passive mode.
- You can connect directly to a switch with a standard CAT5 Ethernet cable. The switch must connect to a router port that is not in passive mode.

The RAMS appliance supports the following option cards to provide more Ethernet ports:

- 10/100 Base-T RJ-45 Quad Port Card
- 1000 Base-SX Short Haul Fiber Card (Dual port)

# Set Up the RAMS Appliance

This section explains how to install the HP ProLiant server hardware and the RAMS software. This combination of hardware and software is called the RAMS appliance.

If you need to install hardware options, for example, additional memory or expansion boards, do so before physically installing the HP ProLiant server. For information about hardware options, see the HP ProLiant server documentation.

## Serial Console Settings

Before powering up the HP ProLiant server for the first time, connect a serial console to the serial port on the back panel. From this console, watch the boot up information, and then configure the administration port with the serial port settings in [Table 1](#).



You can use a PC as a terminal. If you choose this setup, run a program like Minicom for Linux or HyperTerminal for Windows.

**Table 1** Serial Port Settings

Feature	Setting
Baud rate (bits per second)	9600
Bits	8
Parity	None
Stop bits	1
Hardware flow control	No
Emulation	ANSI

For more information, see the *HP BIOS Serial Console User Guide*, available on the documentation CD that accompanies the HP ProLiant server.

# Install the RAMS Hardware and Software

There are two ways to install the HP ProLiant server, its operating system, and the RAMS software: Quick Installation and General Installation. Both procedures are detailed in the following sections. Most users can use the Quick Installation approach.

## Configuring HP ProLiant Logical Drives for RAMS

**Single logical drive configuration:** The default drive configuration on an HP ProLiant server is a single logical drive, normally set with RAID 1+0, unless there is only a single hard disk drive (RAID 0). **This makes no sense there have to be two physical drives.** The RAMS software only recognizes one logical drive when an HP ProLiant server is licensed to function as a standard RAMS Appliance, Modeling Engine, Route Recorder, or a Traffic Flow Analyzer.

**Configuring a Traffic Flow Collector:** To configure a RAMS Flow Collector, first set up **two** logical drives. Then, perform the steps described in [Set up a RAMS Flow Collector](#) (next).

## Set up a RAMS Flow Collector

For an HP ProLiant server to operate as a Traffic Flow Collector (FC), set up the disk space on the server according to the guidelines in [Table 2](#).

**Table 2 HP ProLiant Server Disk Space Requirements**

Minimum requirement for a RAMS Flow Collector appliance	8 x 146GB 10K SAS 2.5 HP HDD (hard disk drive)
Minimum requirement for a RAMS Flow Collector appliance in a large traffic environment	16 x 146GB 10K SAS 2.5 HP HDD (hard disk drive)  (See <a href="#">Expand Disk Capacity for a Large Flow Collector Appliance</a> on page 13.)

**Table 3 RAID Configuration Requirements**

RAID array 1	RAID level 1 + 0 (mapped to logical drive 1)
RAID array 2	RAID level 0 (mapped to logical drive 2)

- ▶ The number of physical hard drives allocated for each logical drive for configuration must be as follows:
  - **Mandatory:** 6 hard drives in logical drive 1; 2 hard drives in logical drive 2
  - 12 hard drives in logical drive 1; 4 hard drives in logical drive 2

### Expand Disk Capacity for a Large Flow Collector Appliance

To expand disk capacity, connect the HP Smart Array P800 Controller on the HP ProLiant server to HP StorageWorks Modular Smart Array (MSA) Enclosure, as described in [step 1](#) and [step 2](#) below. You need a cable with a mini SAS 4x connector on one end and a SAS 4x connector on the other end.

- 1 Connect the mini SAS 4x connector to one of the two ports (for example, **1E**) on the P800 Controller. Connect the other end, the SAS 4x connector, to the **IN** port of the MSA enclosure.
- 2 When you configure the arrays, the HP SmartStart ACU software displays the external storage devices in the MSA enclosure with the connected port number in their label (for example, **1E**).

- ▶ For information about RAMS hardware configuration, see the RAMS support matrix available at the following address (HP Passport ID required):



**[http://support.openview.hp.com/sc/tech\\_docs/nnm/HP\\_Openview\\_NNM,\\_Dev\\_Agents,\\_NNM\\_SPI\\_and\\_RAMs.zip](http://support.openview.hp.com/sc/tech_docs/nnm/HP_Openview_NNM,_Dev_Agents,_NNM_SPI_and_RAMs.zip)**

In the HP\_Openview\_NNM,\_Dev\_Agents,\_NNM\_SPI\_and\_RAMs.zip file, look for **RAMS release.pdf** to find hardware requirements.

### Configure the RAID Array and Logical Drives

Before the RAMS operating system and software can be installed, you must configure the RAID array and logical drive. To perform this configuration, follow these steps:

- ▶ This procedure requires the HP Smart Start CD, which is delivered with the HP ProLiant server.
- 1 Insert the HP Smart Start CD into the CD-ROM drive of the HP ProLiant server.

- 2 Turn the server ON. The SmartStart Home page displays automatically.
- 3 Select **Maintain Server > Array Configuration Utility (ACU)**.
- 4 Click **Configure Array**.
- 5 Click **Configuration Wizard** (at the bottom right of the page).
- 6 If this server does not have a previously configured RAID array and logical drive, go to [step 7](#). If a RAID array and logical drive have been previously configured, delete the drive and the array:
  -  Delete the logical drive before you delete the array.
    - a Select **Delete Logical Drive**, and then click **Begin**.
    - b Select the logical drive to delete.
    - c Click **Next**, and then click **Delete** to confirm the deletion.
    - d Select **Delete Array**, and then click **Begin**.
    - e Select the array to delete.
    - f Click **Next**, and then click **Delete** to confirm the deletion.
- 7 Create the first RAID array:
  - a Select **Create Array**, and then click **Begin**.
  - b Select the drives to include in the RAID array and the logical drive, and then click **Next**. For drive requirements, see the following list.
    -  The number of physical hard drives allocated for each logical drive for configuration must be as follows:
      - **Mandatory:** 6 hard drives in logical drive 1; 2 hard drives in logical drive 2
      - 12 hard drives in logical drive 1; 4 hard drives in logical drive 2
  - c When prompted to add spare disks to the array, select **No**.
  - d Click **Next**, and then click **Finish**.
- 8 Create the second RAID array:
  - a Select **Create Array**, and then click **Begin**.

- b Select the remaining available drives to include in the RAID array and logical drive, and then click **Next**. (For drive requirements, see [Set up a RAMS Flow Collector](#) on page 12.)
  - c When prompted to add spare disks to the array, select **No**.
  - d Click **Next**, and then click **Finish**.
- 9 Create the first logical drive:
- a Select **Create Logical Drive**, and then click **Begin**.
  - b Select **array A**, and then click **Next**.
  - c Select **RAID 1 + 0**, and then click **Next**.
  - d Select **Stripe size**, and then click **Next**.
  - e Select **Disable MAX boot**.
  - f Input the size of the logical drive, using the max available displayed.
  - g Select **Enable array accelerator** (default).
  - h Click **Next**, and then click **Finish**.
- 10 Create the second logical drive:
- a Select **Create Logical Drive**, and then click **Begin**. (For configuration information, see [step 7](#) on page 14.)
  - b Select **array B**, and then click **Next**.
  - c Select **RAID 0**, and then click **Next**.
  - d Select **Stripe size**, and then click **Next**.
  - e Select **Disable MAX boot**.
  - f Input the size of the logical drive, using the max available displayed.
  - g Select **Enable array accelerator** (default).
  - h Click **Next**, and then click **Finish**.
- 11 Exit ACU.
- 12 Exit SmartStart, and then remove the HP SmartStart CD.



Upon completing this procedure, you can install RAMS by following the steps in [Quick Installation](#) on page 16 or [General Installation](#) on page 16. Most users can use the Quick Installation approach.

## Quick Installation

For this installation approach, you need the following:

- The *HP ProLiant hardware installation and configuration poster* that accompanies the server.
- The *Route Analytics Management System Software and Recovery CD*.



The RAMS appliance is a special application of the HP ProLiant server. The documents shipped with the server contain no information about the RAMS appliance operating system or software.

If you have questions about whether specific information applies in your case, contact your HP support representative.

To use the Quick Installation approach, complete the following steps:

- 1 Follow steps 1 through 7 of the simplified instructions on the *HP ProLiant server hardware installation and configuration poster*.  
In step 8, Rebooting the Server, use the manual installation method, and insert the *Route Analytics Management System Software and Recovery CD*.
- 2 Observe the installation activity on the console. The operating system and RAMS software are automatically installed without further input. Watch for the following message, indicating that the installation has completed:  

```
*** Bootstrap completed
```
- 3 After the installation completes, remove the CD.
- 4 Hold the power button down until the unit turns off.
- 5 Proceed to [Basic Appliance Configuration](#) on page 18.

## General Installation

For this installation approach, you need the following:

- The HP ProLiant server documentation.



- The *Route Analytics Management System Software and Recovery CD*.



The RAMS appliance is a special application of the HP ProLiant server. The documents shipped with the server contain no information about the RAMS appliance operating system or software.

If you have any question about whether specific information applies in your case, contact your HP support representative.

To use the General Installation approach, complete the following steps:

- 1 Follow the detailed instructions in the *HP ProLiant Server Setup and Installation Guide* until you reach the Installation Sequence section.

When you reach the Installation Sequence section, proceed to step 2.

- 2 Insert the *Route Analytics Management System Software and Recovery CD* into the CD-ROM drive of the HP ProLiant server, and then turn the server ON.

After hardware checks, the server boots from the CD.

If the server does not boot from the CD, turn the server off, wait 30 seconds, and then turn the server on again.

- 3 Observe the installation activity on the console. The operating system and RAMS software are automatically installed without further input. Watch for the following message, indicating that the installation has completed:

```
*** Bootstrap completed
```

- 4 After the installation completes, remove the CD.
- 5 Hold the power button down until the unit turns off.
- 6 Proceed to [Basic Appliance Configuration](#) on page 18.

# Basic Appliance Configuration

After the RAMS appliance is installed and loaded with the RAMS software, turn the machine on.

The initial boot up and final installation phase takes about 10 minutes and requires no user input. When complete, the console displays the RAMS basic configuration menu and a command prompt as shown in [Table 4](#):

**Table 4 RAMS Basic Configuration Menu**

---

```
Hardware: HP ProLiant DL380 G5
UnitID: 003048724C52
Version: 5.5.17-R/2.5.13
Hostname: localhost
IP Address: 0.0.0.0
1) Show Configuration
2) Configure Ethernet
3) Configure Network
4) Configure DNS
5) Configure Master Access Password
6) Configure Technical Support
7) Diagnostics Menu
8) Reboot
9) Shutdown
localhost>
```

---

The basic configuration menu lists the available configuration options. To select a menu command, type the associated number.

Each menu command displays the current value and asks if that value is acceptable. Some menu items offer more options. You can confirm or cancel any change before it is committed.

Later, you will use a Web-based interface for detailed configuration tasks, as described in the *Route Analytics Management System User's Guide*.



After you make changes to any RAMS configuration option, the message “Please wait while changes are being applied” appears. After that, you might see the following non-critical error message, which can be safely ignored:

```
Err No = 5997,  
Err Source          = COvLicEnforcer::OvLicGetLicenseDetailSet  
Err Message        = No Passwords in License File  
- 03/24 15:26:04.810 license-manager.cc:926 Unconfigured box  
!!! 03/24 15:26:04.882 license-manager.cc:1437 Failed calling  
OvLicGetLicenseSet
```

The following sections describe the basic configuration options in detail.

## Show Configuration

The Show Configuration command displays the software version and network parameters for the administration port as shown in [Table 5](#).

The UnitID field is required for upgrading the license key.

The Ethernet Auto Negotiate, Speed, and Duplex fields indicate the current interface configuration.

After reconfiguring the interface, wait 300 seconds for the configuration to be updated before running the Show Configuration command.

**Table 5 Show Configuration Command Sample Output**

Menu Selection	localhost> 1
Output	Version: 5.5.17-R/2.5.13 Hardware: HP ProLiant DL380 G5 UnitID: 003048724C52 Ethernet Settings for Slot 0/Port 1 Auto Negotiate : Yes Speed : unknown Mbps Duplex : half Network Settings for Slot 0/Port 1 DHCP : Enabled IP Address : 10.123.234.56 Netmask : 255.255.255.0 Default Router : 10.123.232.1 Hostname : localhost DNS Primary DNS : 10.0.1.20 Technical Support Access : Enabled Callback : Enabled --Hit <ENTER> to continue--

## Configure Ethernet

The `Configure Ethernet` command sets the Ethernet parameters for the administration interface. You can turn auto negotiation on or set the speed and duplex parameters. [Table 6](#) shows sample output for this command.

**Table 6 Configure Ethernet Command Sample Output**

Menu Selection	localhost> <b>2</b>
Output with Auto Negotiations	Ethernet settings for Slot 0/Port 1: (press <ENTER> to accept current setting) Auto Negotiate (y) [y/n]? <b>y</b> Are you sure you want to make this change [y/n]? <b>y</b> Please wait while changes are being applied...
Output with No Auto Negotiations	Ethernet settings for Slot 0/Port 1: (press <ENTER> to accept current setting) Auto Negotiate (y) [y/n]? <b>n</b> Speed (unknown) [10/100/1000]? <b>1000</b> Duplex (half) [h:half/f:full]? <b>f</b> Are you sure you want to make this change [y/n]? <b>y</b> Please wait while changes are being applied...

## Configure Network

The `Configure Network` command enables or disables DHCP and sets the IP Address, Netmask, Default Router, and Hostname. [Table 7](#) shows sample output for this command.

**Table 7 Configure Network Command Sample Output**

Menu Selection	localhost> <b>3</b>
Output	Network settings for Slot 0/Port 1: (press <ENTER> to accept current setting) Use DHCP (y) [y/n]? <b>n</b> IP Address (0.0.0.0) : <b>10.123.234.56</b> Netmask (255.255.255.0) : <b>255.255.252.0</b> Default router (0.0.0.0) : <b>10.123.232.1</b> Hostname (localhost) : <b>ramsunit.company.com</b> Reset all other interfaces, aliases, and statically-configured routes [y/n]? <b>n</b> Are you sure you want to make this change [y/n]? <b>y</b> Please wait while changes are being applied...

## Configure DNS

The `Configure DNS` command sets the DNS parameters when the DHCP server is disabled, as shown in [Table 8](#).

**Table 8 Configure DNS Command Sample Output**

Menu Selection	ramsunit.company.com> <b>4</b>
Output DHCP enabled	WARNING: DNS manual settings not supported while using DHCP. You must disable DHCP before changing to change DNS.  (The configuration utility returns you to the main menu.)
Output DHCP disabled	DNS: (press <ENTER> to accept current setting) Primary DNS (0.0.0.0) : <b>10.0.1.20</b> Secondary DNS (0.0.0.0) : <b>10.128.1.20</b> Are you sure you want to make this change [y/n]? <b>y</b> Please wait while changes are being applied...

## Configure Master Password

If this appliance is part of a multiple-unit, distributed configuration, the unit designated as the master associates itself with client units through an HTTP POST. To authenticate the initial POST, use the Master Access password.

A default password is already set. If you want to choose a different password, use the `Configure Master Password` command on the master unit and on each client unit to set the new password. The password may be up to 250 characters long. A Master Access password **must** be the same on all units.

**Table 9 Configure Master Password Command Sample Output**

Menu Selection	localhost> <b>5</b>
Output	Press <ENTER> to accept current setting or reset to default. Password: If no password is entered, the following line appears: Reset to default password [y/N]?

## Configure Technical Support

Enabling Technical Support access permits technical support to log in with `ssh` if the unit is on a publicly accessible IP address. If it is behind a firewall, Technical Support callback must also be enabled. [Table 10](#) shows sample output for the `Configure Technical Support` command.

**Table 10 Configure Technical Support Command Sample Output**

Menu Selection	ramsunit.company.com> <b>6</b>
Output with Technical Support enabled	Technical Support: (press <ENTER> to accept current setting) Enable Technical Support Access (e) [d:disable/e:enable]? <b>e</b> Enable Technical Support Callback (d) [d:disable/e:enable]? <b>e</b> Are you sure you want to make this change [y/n]? <b>y</b> Enabling technical support access... Reloading sshd:[ OK ] Enabling technical support callback...
Output with No Technical Support	Technical Support: (press <ENTER> to accept current setting) Enable Technical Support Access (e) [d:disable/e:enable]? <b>d</b> Are you sure you want to make this change [y/n]? <b>y</b> Disabling technical support access... Reloading sshd:[ OK ] Disabling technical support callback...



## Diagnostics Menu

The `Diagnostics Menu` command displays the diagnostics menu, as shown in [Table 11](#). [Table 12](#) describes the available diagnostic commands.

**Table 11 Diagnostics Menu Command Output**

Menu Selection	ramsunit.company.com> <b>7</b>
Output	1) Perform ping 2) Perform traceroute 3) Perform telnet 4) Perform tcpdump (on administrative interface) 5) Show Routing Table 6) Show Interface Statistics 7) Show Process Statistics 9) Return to main menu ramsunit.company.com>

**Table 12 Diagnostic Commands**

Command	User Input	Output
1) Perform ping	Hostname or IP Address	Results of ping to the specified appliance. Also lists the available interfaces and takes a source interface selection.
2) Perform traceroute	Hostname or IP Address	Trace of route between the administrative interface port and the specified appliance.
3) Perform telnet	Hostname or IP Address	Telnet connection attempt to the specified device. To forcibly disconnect an established telnet sessions, enter: <b>CTRL-] close</b> then press <b>Enter</b> . Note that RAMS does not accept incoming telnet requests.

**Table 12 Diagnostic Commands**

<b>Command</b>	<b>User Input</b>	<b>Output</b>
4) Perform tcpdump	<i>(Optional)</i> Filter expression and number of packets to capture	<p>Lists the available interfaces (physical and tunnels) with their system names, user-assigned names, and addresses. You can choose which system interface snoop, other than the administrative interface.</p> <p>Lists the network traffic on the administrative interface.</p> <p>The system recognizes all filter expressions compatible with tcpdump 3.7.2. Does not allow command line options (such as -w) in the filter expression.</p> <p>Accepts an optional filename parameter and writes to that filename in the /var/ftp directory. When output is to a file, the number of packets captured is limited to 1,000,000 to prevent filling the disk.</p>
5) Show Routing Table	None	Contents of RAMS kernel IP routing table.
6) Show Interface Statistics	None	Displays ifconfig output.
7) Show Process Statistics	None	Displays the output of top. Several of the system processes (including kjournald) are filtered out to make the list more manageable. The output can be run once, <i>N</i> times, or until you type <b>Ctrl-C</b> .

## Reboot

The `Reboot` command reboots the RAMS appliance, which stops all internal tasks and restarts the operating system and the RAMS appliance. [Table 13](#) shows sample output for this command.

The reboot command is also available on the Web-based Administration page.

**Table 13 Reboot Command Sample Output**

Menu Selection	ramsunit.company.com> <b>8</b>
Output	Are you sure you want to reboot [y/n]? <b>y</b> Rebooting ...

## Shutdown

The `Shutdown` command shuts down the RAMS appliance, which stops all internal tasks and powers down the appliance. Always use the `Shutdown` command before turning off power to the RAMS appliance. [Table 14](#) shows sample output for this command.

The shutdown command is also available on the Web-based Administration page.

**Table 14 Shutdown Command Sample Output**

Menu Selection	ramsunit.company.com> <b>9</b>
Output	Are you sure you want to shutdown [y/n]? <b>y</b> Shutting down ...



---

## 3 System Restoration

In the unlikely event that you need to rebuild your RAMS appliance, for example, after replacing the hard drive, follow this procedure:

- 1 Turn on the HP ProLiant server.
- 2 Insert the *Route Analytics Management System Software and Recovery* CD into the CD-ROM drive.
- 3 Turn the server off, wait 30 seconds, and then turn the server on again.
- 4 Observe the installation activity on the console. The operating system and RAMS software are automatically installed without further input. Watch for the following message, indicating that the installation has completed:  

```
*** Bootstrap completed
```
- 5 After the installation completes, remove the CD from the CD-ROM drive.
- 6 Hold the power button down until the unit turns off.
- 7 Proceed to [Basic Appliance Configuration](#) on page 18.
- 8 If you have a current backup of the RAMS database files, follow the instructions to restore the backup in the *Route Analytics Management System User's Guide*.



---

## 4 Next Steps

If you have completed all of the instructions in this guide, your RAMS appliance is physically installed and networked. However, it is not yet monitoring your routing fabric or performing any other useful functions.

To finish configuration of your RAMS appliance, follow the instructions in the *HP Route Analytics Management System Administration Guide*.

- ▶ You can disconnect the serial console. All further configuration of the RAMS appliance occurs through Web-based interfaces, not the serial console.





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# A Setting Up RAMS for Remote Management


To set up RAMS for remote management from any supported Web browser, configure the Integrated Lights-Out (iLO) port on the HP ProLiant server that houses the RAMS appliance as described in this appendix.

## Before You Begin

Before you power on the RAMS appliance, complete the following steps:

- 1 To make sure iLO is enabled on the HP ProLiant server:
  - a Find the iLO security override switch on the HP ProLiant sever. This is a DIP switch, marked **S1**.

Looking at the server from the front, this switch is located on the right, set halfway back inside the case. By default, this switch is set to the OFF position.
  - b To enable iLO configuration capability, move the DIP switch to the ON position.

 Instructions for finding and changing the iLO security override switch can be found on the bottom of the HP ProLiant server top cover.
- 2 If you want to use DHCP, connect the iLO port on the server to a DHCP-enabled network. If you want to use a static IP address, connect the port to the appropriate subnet.
- 3 Configure the Web browser to allow pop-ups. HP has tested the following browsers:
  - Microsoft Internet Explorer Version 7.0 or higher
  - Mozilla Firefox Version 2.0 or higher

# Configure iLO

During the RAMS bootstrap sequence, press **F8** when prompted for iLO configuration (just before the **SmartStart** configuration prompt). Then configure network information, user information, and global iLO settings, as shown in the sections below.

## Set Up Network Information

Determine the IP address for the iLO port. Do one of the following:

### Configure a static IP address

- 1 On the **Network** tab, select the **DNS/DHCP** drop-down menu item:
  - a Turn DHCP OFF.
  - b Click **F10** to save your settings.
- 2 On the **Network** tab, select the **NIC and TCP/IP** drop-down menu item:
  - a Enter an IP address, subnet mask, and default gateway.
  - b Click **F10** to save your settings.
- 3 Note the static IP address. You will use this address to connect to the iLO home page from any supported web browser.

### Access DHCP information

- 1 On the **Network** tab, select the **NIC and TCP/IP** drop-down menu item.
- 2 Note the assigned DHCP IP address. You will use this address to connect to the iLO home page from any supported web browser.

## Set Up User Information

To set up user information:

- 1 On the **User** tab, click **Add**.
- 2 Enter administrator user information, including an administrator password.
- 3 Add other users if necessary.

- 4 Click **F10** to save your settings.

## Set Up Global iLO Settings

To set up global iLO settings:

- 1 On the **Settings** tab, change the Lights-Out Functionality setting to **Enabled**.
- 2 Change the iLO ROM-Based Setup Utility setting to **Enabled**.
- 3 Click **F10** to save your settings.

On the **File** tab, click **Exit** to exit iLO configuration. Allow the bootstrap process to finish.

## Access RAMS Remote Console

- 1 In a supported Web browser, enter the following address:  
**http://<iLO IP address>**  
Where <iLO IP address> is the IP address from [Set Up Network Information](#) on page 34.
- 2 On the login page, enter the Administrator account information configured in [Set Up User Information](#) on page 34.  
The iLO home page opens.
- 3 On the **Remote Console** tab, select **Remote Console**.  
The RAMS remote console opens in a new pop-up window.



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