HP OpenView
Route Analytics Management System and Traffic Analysis

Appliance Setup Guide

Software Version: 4.50

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Legal Notices

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1 RAMS Hardware and Software Setup and Restoration

This document describes how to perform the installation of the hardware and software that makes up a RAMS appliance. A RAMS appliance is an HP Proliant DL360 server that runs HP OpenView Route Analytics Management System software.

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

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

Before You Install

Make sure you have all the following items before proceeding:

- HP Proliant DL360 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-ROM

- Serial console to attach to the server

NOTE   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 the serial console to console port
- CAT 5 Ethernet cable for connecting the unit to the network
- The *Route Analytics Management System Software and Recovery* CD-ROM, which contains the RAMS software
- The *Route Analytics Management System User's Guide*

Locate the RAMS Appliance

The next step is to 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 DL360 with regard to space, airflow, power, and temperature.

See the *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server for more information.

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 even 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 DL360. 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 with 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 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.

*   000 Base-SX Short Haul Fiber Card (Dual port).

Set Up the RAMS Appliance

This sections explains how to install the HP Proliant DL360 hardware and RAMS software. This combination of hardware and software is called the RAMS appliance.

If you need to install any hardware options, for example, additional memory or expansion boards, do this before physically installing the HP Proliant DL360 server. See the *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server, for more information.

Serial Console Settings

Before powering up the HP Proliant DL360 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 configure the administration port.

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

Use the default serial port settings shown in Table 1-1.

Table 1-1   **Serial Port Settings**

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

See the *HP BIOS Serial Console User Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server, for more information.

Install the RAMS Hardware and Software

There are two ways to install the HP Proliant DL360 server, its operating system, and the RAMS software: Quick Installation and General Installation. Both procedures are detailed in the following sections.

NOTE   Most users can use the Quick Installation approach.

Quick Installation

For this installation approach, you need the following:

- *HP Proliant DL360 hardware installation and configuration poster* that accompanies the HP Proliant DL360 server

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

NOTE   The RAMS appliance is a special application of the HP Proliant DL360 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 DL360 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-ROM.

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

   ```
   *** Bootstrap completed
   ```

3. After the initial install completes, remove the CD.

4. Hold the power button down until the unit turns off.

5. Proceed to "Basic Appliance Configuration" on page 15.

General Installation

For this installation approach, you will need the following:

• *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server

• *Route Analytics Management System Software and Recovery* CD-ROM.

NOTE   The RAMS appliance is a special application of the HP Proliant DL360 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 DL360 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-ROM in the drive of the HP Proliant DL360 server, and turn the server on.

   After hardware checks, the server will boot from the CD.

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

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

```
*** Bootstrap completed
```

4. After the initial install completes, remove the CD.

5. Hold the power button down until the unit turns off.

6. Proceed to "Basic Appliance Configuration" on page 15.

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 below:

Table 1-2   **RAMS Basic Configuration Menu**

```
RAMS

UnitID: 00E0186CA66F

Version: 2.0.39-B/0.1.21

Hostname: ramsunit.company.com

IP Address: 192.168.0.67

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

ramsunit.company.com>
```

The basic configuration menu gives you options. Type the number of your choice to see the default value or make changes. All choices are described in detail in the next sections.

Every menu choice displays the default 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*.

Show Configuration

Show Configuration displays the software version and network parameters for the administration port. Sample output from this menu selection is shown in Table 1-3.

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

After reconfiguring the interface, it may take a few seconds for this command to reflect the change.

The UnitID field is required to upgrade the license key.

Table 1-3   **Show Configuration**

Menu Selection	ramsunit.company.com> 1

Output	Version: 2.0.39-B/0.1.21
	
	UnitID: 00E0186CA66F
	
	Ethernet
	   Auto Negotiate : Yes
	   Speed : 100 Mbps
	   Duplex : full
	
	Network
	   DHCP : Enabled
	   IP Address : 192.168.0.67
	   Netmask : 255.255.255.0
	   Default Router : 192.168.0.254
	   Hostname : ramsunit.company.com
	
	DNS
	   Primary DNS : 192.168.0.248
	   Secondary DNS : 192.168.0.232
	
	Technical Support
	   Access : Enabled
	   Callback : Disabled
	
	--Hit <ENTER> to continue--

Configure Ethernet

This menu selection sets the Ethernet parameters for the administration port. You can turn auto negotiation on or set the speed and duplex parameters. Setup options are illustrated in Table 1-4:

Table 1-4   **Ethernet Setup**

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

Configure Network

This menu selection lets you either turn on DHCP for the administration port or set the IP Address, Netmask, Default Router, and Hostname parameters for it. Table 1-5 illustrates setting the network configuration parameters.

Table 1-5   **Network Configuration**

Menu Selection	ramsunit.company.com> 3
Output - **DHCP**	Network settings for Slot 0/Port 1: (press <ENTER> to accept current setting) Use DHCP (y) [y/n]? y Reset all other interfaces, aliases, and statically-configured routes [y/n]? n Are you sure you want to make this change [y/n]? y Please wait while changes are being applied...
Output - **No DHCP**	Network settings for Slot 0/Port 1: (press <ENTER> to accept current setting) Use DHCP (y) [y/n]? n IP Address (192.168.0.67) : 10.123.234.56 Netmask (255.255.255.0) : 255.255.252.0 Default router (192.168.0.254) : 10.123.232.1 Hostname(ramsunit.company.com) : rams.lab.example.net Reset all other interfaces, aliases, and statically-configured routes [y/n]? n Are you sure you want to make this change [y/n]? y Please wait while changes are being applied...

Configure DNS

This menu selection sets the DNS parameters for the administration port when the DHCP server is disabled, as shown in Table 1-6.

Table 1-6   **DNS Setup**

Menu Selection	`ramsunit.company.com> 4`
Output - DHCP Enabled	`WARNING: DNS manual settings not supported while using DHCP. You must disable DHCP before being able to change DNS.` The configuration utility returns you to the main menu.

Output - DHCP Disabled	`DNS: (press <ENTER> to accept current setting)`
	
	`Primary DNS (192.168.0.248) : 10.0.1.20`
	
	`Secondary DNS (192.168.0.232) : 10.128.1.20`
	
	`Are you sure you want to make this change [y/n]? y`
	
	`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 master will associate itself with client units through an HTTP POST. To authenticate the initial POST, use the Master Access password.

A default password is 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.

Table 1-7   **Master Password Configuration**

Menu Selection	ramsunit.company.com> 5
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]?

Technical Support

Enabling Technical Support Access permits technical support to login 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 1-8 shows the output when technical support is enabled and disabled.

Table 1-8   **Technical Support**

Menu Selection	`ramsunit.company.com> 6`

Output -
 	
Technical Support Enabled
	`Technical Support:`
	
	`(press <ENTER> to accept current setting)`
	
	`Enable Technical Support Access (e)`
	`[d:disable/e:enable]? e`
	
	`Enable Technical Support Callback (d)`
	`[d:disable/e:enable]? d`
	
	`Are you sure you want to make this change`
	`[y/n]? y`
	
	`Enabling technical support access...`
	
	`Reloading sshd:[  OK  ]`
	
	`Disabling technical support callback...`

Output -
 	
Technical Support Disabled
	`Technical Support:`
	
	`(press <ENTER> to accept current setting)`
	
	`Enable Technical Support Access (e)`
	`[d:disable/e:enable]? d`
	
	`Are you sure you want to make this change`
	`[y/n]? y`
	
	`Disabling technical support access...`
	
	`Reloading sshd:[  OK  ]`
	
	`Disabling technical support callback...`

Diagnostics Menu

This menu selection displays the diagnostics menu. Table 1-9 shows the output from this menu selection.

Table 1-9   **Diagnostics Menu**

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

Each diagnostic command is defined in Table 1-10:

Table 1-10   **Diagnostic Commands**

Command	User Input	Output
Perform ping	Hostname or IP Address	Results of ping to the specified device
Perform traceroute	Hostname or IP Address	Trace of route between the administrative port and the specified device
Perform telnet	Hostname or IP Address	Telnet connection attempt to the specified device To forcibly disconnect an established telnet sessions, enter: CTRL-] close then press Enter Note that RAMS does not accept incoming telnet requests.

Table 1-10   **Diagnostic Commands (Continued)**

Command	User Input	Output
Perform tcpdump	*Optional* - Filter expression and number of packets to capture	Dump of network traffic on administrative interface The system recognizes all filter expressions compatible with tcpdump 3.7.2.
Show Routing Table	None	Contents of RAMS kernel IP routing table
Show Interface Statistics	None	Displays ifconfig output
Show Process Statistics	None	Displays top output Several system processes are filtered out to make the list more manageable. The output can be run 1 time, N times , or until you type Ctrl-C.

Reboot

This menu selection reboots the RAMS appliance. Rebooting stops all internal tasks and restarts the operating system and the RAMS appliance. Table 1-11 shows the output from this menu selection.

The reboot command is also available on the Administration Interface.

Table 1-11   **Reboot Command**

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

Shutdown

This menu selection shuts down the RAMS appliance. Shutdown stops all internal tasks and powers down the appliance. Always use shutdown before turning off power. Table 1-12 shows the output from this menu selection.

The shutdown command is also available on the Administration Interface.

Table 1-12   **Shutdown Command**

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

System Restoration

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

To restore your RAMS appliance system, complete the following steps:

1. Turn on the RAMS appliance.

2. Insert the *Route Analytics Management System Software and Recovery* CD in the drive.

3. Turn the unit off and wait 30 seconds. Then turn it on again.

4. Observe the install activity on the console. The operating system and RAMS software are automatically reinstalled without further input. Watch for the following message, indicating that the reinstall has completed:

   ```
   *** Bootstrap completed
   ```

5. After the initial reinstall completes, remove the CD.

6. Hold the power button down until the unit turns off.

7. Proceed to "Basic Appliance Configuration" on page 15.

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*.

Next Steps

If you have completed all the instructions so far, 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 *RAMS User's Guide*, which contains all the information you need from this point forward.

NOTE You can disconnect the serial console if you wish. You will perform all further configuration of the RAMS appliance through web-based interfaces, not the serial console.

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