HP OpenView
Route Analytics Management System

Appliance Setup Guide

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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 consists of an HP Proliant DL360 server running 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, turn to 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 Installing

Make sure you have all the following items before proceeding:

- ❏ HP Proliant DL360 server, purchased separately, along with its AC power cords, and rack-mount kit
- ❏ A serial console to attach to the server (You can use a PC as a terminal, running a program like Minicom for Linux or HyperTerminal for MS Windows®.)
- ❏ A null-modem serial cable to the serial console to the console port
- ❏ CAT 5 Ethernet cable for connecting the unit to the network
- ❏ The *hardware installation and configuration poster* that accompanies the HP Proliant DL360
- ❏ The Documentation CD-ROM that accompanies the HP Proliant DL360
- ❏ The *Route Analytics Managment System Software and Recovery* CD-ROM, which contains the RAMS software
- ❏ The *Route Analytics Management System User's Guide,* included with the *Route Analytics Managment System Software and Recovery* CD-ROM.

Locating the RAMS Appliance

Before proceeding, you should decide where to locate RAMS appliance (HP Proliant DL360 running RAMS software), both physically and with regard to network connections.

Physical Requirements

The physical environment should accommodate the specifications for the HP Proliant DL360 with regard to space, airflow, power, and temperature. For details, see the *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server.

Network Requirements

You should plan to locate the RAMS appliance on the backbone of the network, in the most redundant part of the network.

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

Connecting the RAMS Appliance to Routers on the Network

(*** Please validate the facts in this section carefully! ***)

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 via the routing protocol over its physical connections. It can be connected directly, or through a switch or hub:

- 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.
- You can connect directly to a router with a CAT5 crossover Ethernet cable. Make sure the router port 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).

Setting Up the RAMS Appliance

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

If necessary, install any hardware options (additional memory or expansion boards) before physically installing the HP Proliant DL360 server. For details, see the *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server.

Serial Console Settings

You will use a serial console to do some initial work on the server.

Before powering on the HP Proliant DL360 for the first time, connect a serial console to the serial port on the back panel. This will let you watch the boot-up information and configure the administration port.

You can use a PC as a terminal, running a program like Minicom for Linux or HyperTerminal for MS 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* (on the HP Proliant DL360 Documentation CD-ROM) for details.

After installing the operating system and RAMS software, you will be instructed to continue the setup using instructions in the *Route Analytics Management System User's Guide*.

Installing the RAMS Hardware and Software

There are two equivalent ways to install the HP Proliant DL360 server, its operating system, and the RAMS software. Most users can use the Quick Installation approach, discussed first:

Quick Installation

Follow the simplified instructions in the *HP Proliant DL360 hardware installation and configuration poster* that accompanies the HP Proliant DL360 server.

In step 8, “Rebooting the Server”, use the “Manual installation” method, and insert the *Route Analytics Managment System Software and Recovery* CD-ROM.

The operating system and RAMS software are automatically installed without further input. The console displays the activity in progress. At the completion of this phase, the final line in the console display reads as follows:

```
*** Bootstrap completed
```

When the above message is displayed, remove the *Route Analytics Managment System Software and Recovery* CD-ROM. Hold the power button down until the unit turns off, and proceed to “Basic Appliance Configuration” on page 14.

General Installation

Follow the detailed instructions in the *HP Proliant DL360 Server Setup and Installation Guide*, available on the documentation CD-ROM that accompanies the HP Proliant DL360 server.

However, **stop when you reach “*Installation Sequence*” section**, which gives instructions related to the installation of an operating system.

Instead of the instructions in that document, proceed as follows:

1. Turn the HP Proliant DL360 server on, and immediately insert the *Route Analytics Managment System Software and Recovery* CD-ROM in the drive. After hardware checks, the

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

2. The operating system and RAMS software are automatically installed without further input. The console displays the activity in progress. This phase completes in about 10 minutes. The final message on the console reads as follows:

   ```
   *** Bootstrap completed
   ```

3. When the above message is displayed, remove the *Route Analytics Managment System Software and Recovery* CD-ROM. Hold the power button down until the unit turns off, and proceed to "Basic Appliance Configuration" on page 14.

For details about the HP Proliant DL360 server, see the documentation CD-ROM that accompanies the unit.

TIP

Note that the RAMS appliance is a special application of the HP Proliant DL360 server. The documents shipped with the server do not necessarily take this fact into account. Specifically, those documents 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.

Basic Appliance Configuration

After the RAMS appliance is installed and loaded with the RAMS software (see "Setting Up the RAMS Appliance" on page 11), make sure the *Route Analytics Managment System Software and Recovery* CD is not in the CD-ROM drive, and turn the machine on.

Initial boot-up and the final installation phase takes about 10 minutes, and requires no intervention. When complete, the console displays the RAMS basic configuration menu, and a command prompt as shown below:

```
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)  Ethernet

3)  Network

4)  DNS

5)  Technical Support

6)  Diagnostics

7) Reboot

8)  Shutdown


ramsunit.company.com>
```

Type the number of your choice to see the default value or make changes. All choices are described in detail in the next sections.

In short, the `Show Configuration` option displays the software version and current configuration of the administration port. The `Ethernet` and `Network` menu items configure DHCP, DNS, and Ethernet for the administration port. The remaining choices facilitate support, or physically control the appliance.

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

Every menu choice displays the default value, and asks if that value is acceptable. Some menu items offer more options depending on the choice made at the first question. You can confirm or cancel any change before it is committed.

Show Configuration

This menu selection displays the software version and network parameters for the administration port. Sample output from this menu selection is shown in Table 1-2.

`Auto Negotiate`, `Speed`, and `Duplex` 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 1-2 Show Configuration

Menu selection	`ramsunit.company.com> 1`

Table 1-2 Show Configuration (Continued)

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--`

Ethernet

This menu selection sets the Ethernet parameters for the administration port. From this menu selection, you can turn auto-negotiation on, or set the speed and duplex parameters. Setup options are illustrated in Table 1-3

Table 1-3 Ethernet Setup

Menu selection	`ramsunit.company.com> 2`

Output Auto-negotiation	`Ethernet: (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: (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 ...`
	`...`

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 1-4 illustrates setting the network configuration parameters.

Table 1-4 Network Configuration

Menu selection	`ramsunit.company.com> 3`

Output – DHCP	`Network: (press <ENTER> to accept current setting)`
	`  Use DHCP (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 DHCP	`Network: (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`
	`  Are you sure you want to make this change [y/N]? y`
	`  Please wait while changes are being applied ...`
	`  ...`

DNS

This menu selection sets the DNS parameters for the administration port when the DHCP server is disabled, as shown in Table 1-5.

Table 1-5 DNS Setup

Menu selection	`ramsunit.company.com> 4`

Output - DHCP enabled.	`WARNING: DNS manual settings not supported while using DHCP.`
	`You have to disable DHCP before being able to change DNS.`
	
	[You are returned 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 ...`
	
	`...`

Technical Support

Enabling Technical Support Access permits technical support to login via `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 1-6 shows the output when technical support is enabled and disabled.

Table 1-6 Technical Support

Menu selection	`ramsunit.company.com> 5`

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...`

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...`

Diagnostics

This menu selection displays the diagnostics menu. Table 1-7 shows the output from this menu selection.

Table 1-7 Diagnostics Menu

Menu Selection	`ramsunit.company.com> 6`
Output	1) Perform ping 2) Perform traceroute 3) Perform telnet 4) Perform tcpdump (on administrative interface) 5) Show routing table 9) Return to main menu

Table 1-8 describes the diagnostic commands.

Table 1-8 Diagnostic Commands

Menu Selection	User Input	Output
1	Hostname or IP address	Results of ping to the specified device.
2	Hostname or IP address	Trace of the route between the administrative interface port and the specified device.
3	Hostname or IP address	Telnet connection attempt to the specified device. To forcibly disconnect an established telnet sessions, enter: **`CTRL-] close`**, and then press **`Enter`**. Note that RAMS does not accept incoming telnet requests.

Table 1-8 Diagnostic Commands (Continued)

Menu Selection	User Input	Output
4	(Optional) Filter expression Number of packets to capture	Dump of network traffic on administrative interface. The system recognizes all filter expressions compatible with tcpdump 3.7.2.
5	None	Contents of RAMS's kernel IP routing table.

Reboot

This menu selection reboots the RAMS appliance. Rebooting stops all internal tasks and restarts the operating system and the RAMS appliance. Table 1-9 shows the output from this menu selection.

The reboot command is also available on the Administration Interface.

Table 1-9 Reboot Command

Menu selection	`ramsunit.company.com> 7`
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 1-10 shows the output from this menu selection.

The shutdown command is also available on the Administration Interface.

Table 1-10 Shutdown Command

Menu selection	`ramsunit.company.com> 8`
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:

1. Turn on the RAMS appliance.
2. Insert the *Route Analytics Managment System Software and Recovery* CD-ROM in the drive.
3. Turn the unit off and wait 30 seconds. Then turn it on again.
4. The operating system and RAMS software are automatically reinstalled without further input. The console displays the activity in progress. At the completion of this phase, the final message on the console reads as follows:

   ```
   *** Bootstrap completed
   ```

5. When the above message is displayed, remove the *Route Analytics Managment System Software and Recovery* CD-ROM from the drive. Turn the unit off and proceed to “Basic Appliance Configuration” on page 14.
6. If you have a current backup of the RAMS database files, follow the instructions to restore a backup in the *Route Analytics Management System User’s Guide*.

Next Steps

If you have completed all the instructions so far, your work with this document is finished.

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 At this point, 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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