HP OpenView Inventory Manager Using Radia

for the UNIX operating system

Server Software Version: 4.0
Client Software Version: 4.1

Installation and Configuration Guide

Manufacturing Part Number: T3424-90097

September 2005

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PREBOOT EXECUTION ENVIRONMENT (PXE) SERVER
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Please visit the HP OpenView support web site at:

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This web site provides contact information and details about the products, services, and support that HP OpenView offers.

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http://www.hp.com/managementsoftware/access_level

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Revisions

The version number on the title page of this document indicates the software version. The print date on the title page changes each time this document is updated.

You will receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Chapter 1: Introduction

- Page 12, Overview, added the following note regarding the role of the new Messaging Server:

  "As of Radia 4.0, the Messaging Server handles the actual delivery of the inspection results to the Radia Integration Server, which frees up Configuration Server resources. See the Messaging Server Guide for more information."
- Page 13, About the Reporting Server, the Reporting Server offers a web-based interface for querying the combined data in existing Inventory Manager, Patch Manager, and Usage Manager databases, with the ability to filter the data against your LDAP directory levels.

Chapter 2: Installing the Inventory Manager Client

- Page 24, Inventory Manager Client System Requirements: Updated System Requirements to include SUSE Linux and RedHat Enterprise Linux requirements.

Chapter 3: Installing the Inventory Manager Server

- Page 62, Installing the Inventory Manager Server, all figures in the chapter were updated to reflect the new Radia 4.0 Client Installation dialog boxes. The installation requires you to read and accept the HP Software License Agreement.

Appendix A: Version 4.1 Alternative File and WBEM Auditing Methods

- Page 183, Added a new appendix Version 4.1 Alternative File and WBEM Auditing Methods that covers the new methods available for Unix inventory collection.

Contents

1 Introduction

At the end of this chapter, you will:

- Understand the components of the Inventory Manager.
- Understand the terminology associated with the Inventory Manager.
- Understand the Radia prerequisites for the Inventory Manager.
- Realize the skills needed to use the Inventory Manager.
- Be familiar with WBEM and the Radia client.
- Be familiar with related Radia Infrastructure components for processing Inventory client data, such as the Messaging Server, the Management Portal, and the Reporting Server.

About the Inventory Manager

The **Inventory Manager Client** discovers configuration information on remote computers. It enables centralized reporting and administration based upon the discovery results.

The Inventory Manager Client is used with the Inventory Manager Server. The Inventory Manager Server stores and maintains discovery information to be viewed within an ODBC-compliant (Open Database Connectivity) database. The preferred method for viewing the reported data from the Inventory Manager is to use the Reporting Server, discussed on page 13. The Radia Integration Server component of the Inventory Manager Server provides an alternate method of viewing the reports through a Web browser interface.

This manual explains how to install and use the Inventory Manager Client and server components. Choose the appropriate strategies suited for your enterprise needs.

Overview

Systems administrators use the System Explorer, which is available for 32-bit Windows platforms, or the Management Portal, available for UNIX and Win32 platforms, to manipulate the contents of the Radia Database. They specify what inventory management tasks to perform and on which client computers to perform them.

The collection of inventory information occurs on the Inventory Manager Client computer when a subscriber connects to the Configuration Server and installs the auditing software as follows:

- **Software Manager** installs the software when the user visits his Radia Web page.
- **Application Manager** installs the software in one of the following ways:
  - through a logon script.
  - when the user double-clicks a desktop Radia Connect icon.
  - according to a schedule.
  - using the Notify capabilities of the Configuration Server.

The results of the inspection are then sent back to the Configuration Server. Any unwanted files discovered on a user's computer can be captured or deleted. This enables administrators to remove unauthorized content, such as games, from end users' computers.

The Configuration Server can store these inspection results in the Radia Database PROFILE file or forward them to the Inventory Manager Server for insertion into an ODBC-compliant database.

As of Radia 4.0, the Messaging Server handles the actual delivery of the inspection results to the Radia Integration Server, allowing for more efficient use of the Configuration Server resources. Refer to the *Messaging Server Guide* for more information.

About the Reporting Server

As part of the Radia extended infrastructure for Radia 4.0 Windows, the web-based Reporting Server allows you to query the combined data in existing Inventory Manager, Patch Manager, and Usage Manager databases and create detailed reports. In addition, you have the option of mounting an existing LDAP directory, which allows you to filter your data using your LDAP directory levels. The Radia Reporting environment is illustrated in the figure below.

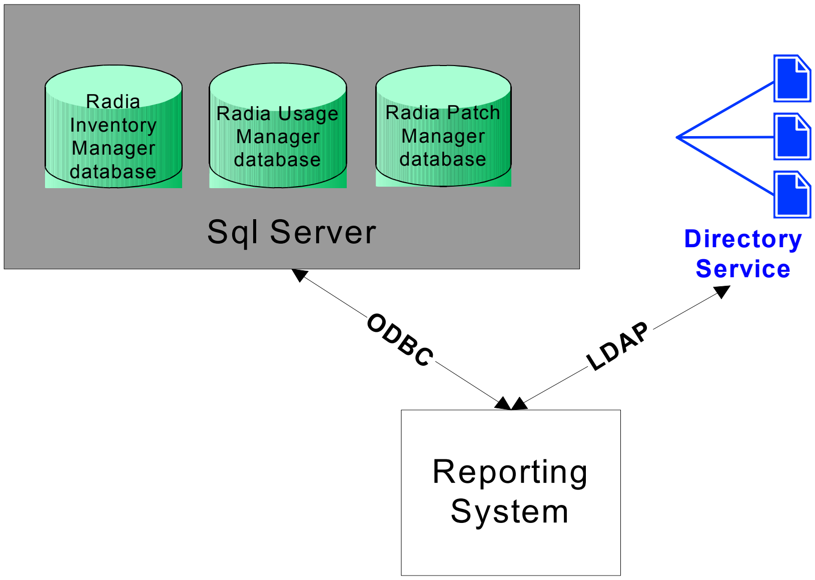
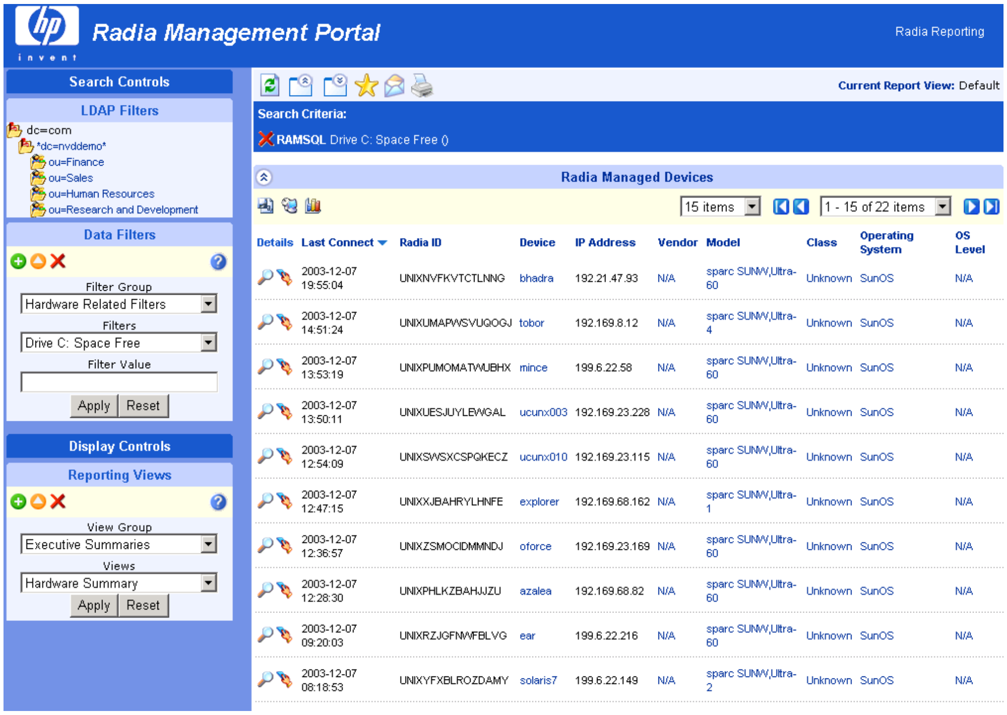

Radia Inventory Manager database
Radia Usage Manager database
Radia Patch Manager database
Sql Server
Directory Service
ODBC
LDAP
Reporting System

Figure 1: Radia Reporting Environment

The Reporting Server interface provides a dynamic and intuitive way to use Radia SQL data for reporting and overall environmental assessment.



Current Report View: Default

Search Criteria:

RAMSQL Drive C: Space Free ()

Filter Group: Hardware Related Filters

Filters: Drive C: Space Free

Filter Value:

View Group: Executive Summaries

Views: Hardware Summary

Details	Last Connect	Radia ID	Device	IP Address	Vendor	Model	Class	Operating System	OS Level
	2003-12-07 19:55:04	UNIXNVFKVTCTLNNG	bhadra	192.21.47.93	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 14:51:24	UNIXUMAPWSVUQOGJ	tobor	192.169.8.12	N/A	sparc SUNW,Ultra-4	Unknown	SunOS	N/A
	2003-12-07 13:53:19	UNIXPUMOMATWUBHX	mince	199.6.22.58	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 13:50:11	UNIXUESJUYLEWGAL	ucunx003	192.169.23.228	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 12:54:09	UNIXSWSXCSPQKECZ	ucunx010	192.169.23.115	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 12:47:15	UNIXXJBAHRYLHNFE	explorer	192.169.68.162	N/A	sparc SUNW,Ultra-1	Unknown	SunOS	N/A
	2003-12-07 12:36:57	UNIXZSMOCIDMMNDJ	oforce	192.169.23.169	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 12:28:30	UNIXPHLKZBAHJJZU	azalea	192.169.68.82	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 09:20:03	UNIXRZJGFNWFBLVG	ear	199.6.22.216	N/A	sparc SUNW,Ultra-60	Unknown	SunOS	N/A
	2003-12-07 08:18:53	UNIXYFXBLROZDAMY	solaris7	199.6.22.149	N/A	sparc SUNW,Ultra-2	Unknown	SunOS	N/A

Figure 2: Reporting Server Web interface.

See the *Reporting Server Guide* for more information on how to install the Reporting Server and create a Radia Reporting environment for your SQL databases for Radia, such as inventory, patch, and usage databases, as well as an optional LDAP directory.

Terminology

clean machine

A **clean machine** is a desktop computer on which the operating system has just been installed, and no further changes have been made.

client computer

A **client computer** is the computer on the end user's desktop that has the Radia client software installed on it.

Common Information Model (CIM)

The **Common Information Model** is a standardized framework for WBEM. It is an object oriented set of schemas for cross-platform network management. Some of these objects include computer systems, devices (like printers and batteries), controllers (for example, PCI and USB controllers), files, software, etc.

Management Portal

The Management Portal is a Web-based interface used to manage your Radia infrastructure. The core functionality of the Management Portal includes: Authentication, Entitlement, Scheduling, Querying, Auditing/Logging, Policy Administration, and instance-level Radia Database Administration. Refer to the *Management Portal Guide* for more information.

Messaging Server

The Messaging Server is the Radia Infrastructure component that provides a common routing and inter-server data delivery service, especially for report-bound data. When servicing a Configuration Server, the Messaging Server handles the delivery of Inventory, Operations, Patch, and Management Portal data collected from clients to the appropriate external location.

Radia Client

The **Radia client** is the Radia software component that is installed on the end user's desktop computer. There are Radia clients for the Application Manager, the Software Manager, the Inventory Manager, the Patch Manager, and the Radia OS Manager.

Radia Integration Server

The Inventory Manager Client is used with the **Radia Integration Server**. The Radia Integration Server stores and maintains the discovery information to be viewed in an ODBC (Open Database Connectivity) compliant database. The Radia Integration Server then provides the reports via a Web-browser interface.

Reporting Extensions for the Radia Integration Server

Any Open Database Connectivity (ODBC) compliant database used to view and manipulate the audited information obtained by the Inventory Manager Client.

Reporting Server

The Reporting Server is a Web-based interface to the reportable data captured by the Radia extended infrastructure product suite. It allows you to query the combined data in existing Inventory Manager, Patch Manager, and Usage Manager databases and create detailed reports. You have the option of mounting an existing LDAP directory, which allows you to filter your data using your LDAP directory levels.

subscriber

A **subscriber** is the person (end user) who uses Radia-managed applications on a remote desktop computer (client computer).

Web-Based Enterprise Management (WBEM)

WBEM enables information such as the amount of RAM in a computer, hard disk capacity, process type, and versions of operating systems to be extracted from computers, routers, switches, and other networked devices.

Radia Prerequisites

The Inventory Manager 4.1 requires the following Radia components:

- Configuration Server version 4.5.3 or higher
- Radia client at version 4.1 or higher
  - Application Manager

  and/or

  - Software Manager
- Messaging Server 2.0 is highly recommended. (Installed automatically on a Radia Configuration Sever with Radia 4.) Refer to the *Messaging Server Guide* for more information on installing or upgrading the Messaging Server.

Hardware/Software

Use the System Explorer to manipulate the Radia Database. The System Explorer is part of the Administrator Workstation and is available for 32-bit

Windows platforms. Install the Administrator Workstation onto a Windows computer that has access to your UNIX system.

Necessary Skills

With Radia Products

This document assumes that the reader is familiar with the Radia Database and with administering Radia using the System Explorer. Refer to the *System Explorer Guide* for additional information. The System Explorer is available for 32-bit Windows platforms.

With Web-Based Enterprise Management

This document assumes that the reader is familiar with Web-Based Enterprise Management (WBEM). To learn more about WBEM go to

`http://www.dmtf.org/spec/wbem.html`

Inventory Manager Technology

While an administrator with little Web-based knowledge can use the Inventory Manager with success, it is important to understand some of the technology behind the product. The information provided below gives you a preliminary understanding of the technology behind the Inventory Manager Client. As indicated in *Necessary Skills* above, we recommend that you become familiar with Web-based technology.

Common Information Model (CIM)

The Common Information Model (CIM) is an object-oriented model that represents and organizes information within a managed environment. This information includes:

- Defining **objects** such as computer systems, devices, controllers, software, files, people, etc.
- Allowing for the definition of **associations** such as describing relationships between object-dependencies, component relationships, and connections.

- Allowing for the definition of **methods** such as input/output parameters and return codes.

By using object-oriented designs and constructs, one of the goals of the CIM model is to consolidate and extend management standards. Some of these management standards include Simple Network Management Protocol (SNMP) and Desktop Management Interface (DMI).

Web-Based Enterprise Management (WBEM)

Web-Based Enterprise Management (WBEM) is a set of management and Internet standard technologies developed to unify the management of enterprise computing environments. The Distributed Management Task Force (DMTF) has developed a core set of standards that make up WBEM. The core set includes a data model, the CIM standard, an encoding specification, xmlCIM encoding specification, and a transport mechanism, (CIM Operations over HTTP).

Radia and WBEM

The Inventory Manager Client queries the WBEM namespace (i.e., the WBEM database) and sends the results back to the Configuration Server. All information collected by WBEM is available to the Inventory Manager Client. The collected information is then stored in the Radia Integration Server.

For client computers with WBEM installed, the Inventory Manager Client executes an HP proprietary method to query the WBEM namespace.

For client computers that do not have WBEM installed, the Inventory Manager Client executes HP proprietary methods to *directly* inspect the hardware (built into the Radia client – ZCONFIG) and/or the file system.

The Radia Integration Server and ODBC Drivers

The **Radia Integration Server** is a Tool Command Language (Tcl) based Web server that can reside on a separate computer from the Configuration Server or on the same computer. It builds and updates a structured query language (SQL) inventory database of your choice via ODBC.

Prior to installing the Radia Integration Server, the ODBC driver for the database you choose *must* be installed (HP supports DataDirect ODBC drivers for UNIX). Depending upon which database you choose, you may have to perform administrative tasks for allocating space and establish a user ID and password for the Radia Integration Server's use. Specify a data source name (DSN) in the directory where you install the Radia Integration Server. See Installing the Inventory Manager Client starting on page 23 for more information.

The Radia Integration Server will automatically create the necessary tables in the database you choose.

For *demonstrative purposes only*, a sample database with predefined queries is provided on the Inventory Manager CD-ROM. Use this sample to display the query results in a Web browser. The sample database is only available if the Radia Integration Server is installed on a Windows NT platform.

About Radia Daemons in UNIX

The Radia client installation program installs the following daemon executables:

- **Radia Notify** (default port 3465)
  Use Radia Notify (**radexecd)** to push updates to subscribers or to remove applications. A Notify message is sent from the Configuration Server to this daemon. When the daemon receives the Notify message, the Application Manager connects to the Configuration Server and performs the action initiated by the Notify operation.

  If you want to send a Notify to subscribers of a particular application, that application *must* be installed on their computers in order for them to be eligible for notification.

- **Radia Scheduler**
  Use the Radia Scheduler service (**radsched**) to schedule timer-based deployments of applications.

The installation of **radexecd** and **radsched** as services on a UNIX workstation is not automated within the context of the installation. The starting of services on UNIX workstations is operating system dependent. For information about installing Radia daemons as system services at boot time, please see your local UNIX systems administrator or refer to your UNIX operating system's manual.

Sample Shell Scripts

The installation of the Radia client includes a subdirectory `/sample` that contains a sample shell script **daemons.sh** that may be used to start, stop, and restart the **radexecd** and **radsched** daemons.

Table 1: Using the sample shell scripts

To start the radexecd and radsched daemons, type:	**`daemons.sh start`**
To stop the radexecd and radsched daemons, type:	**`daemons.sh stop`**
To stop, then restart the radexec and radsched daemons, type:	**`daemons.sh restart`**

Summary

- The Inventory Manager Client is a utility used to discover configuration on remote computers.
- The Radia Integration Server stores and maintains discovered information in an ODBC-compliant database.
- HP supports DataDirect ODBC drivers for UNIX.
- The collection of inventory information occurs on the Inventory Manager Client when a subscriber connects to the Configuration Server.
- We suggest that the administrator be familiar with HP OpenView products as well as Web-Based Enterprise Management (WEBM), and Microsoft's implementations of WBEM.
- All information collected by WBEM is available to the Inventory Manager Client.
- The Inventory Manager Client queries the WBEM namespace (i.e., the WBEM database) and sends the results back to the Configuration Server.

2 Installing the Inventory Manager Client

At the end of this chapter, you will:

- Be able to install the Inventory Manager Client using the graphical or non-graphical installation mode.
- Understand how to use the Remote Installation Setup installation mode.

Inventory Manager Client System Requirements

- HP-UX Operating System Version 10.20 or above, PA Risc CPU.
- RedHat Enterprise Linux Version 2.1 and 3.0, Intel Pentium processor or compatible CPU.
- SUSE Linux versions 8 and 9, Intel Pentium processor or compatible CPU.
- Solaris Operating System Version 2.6 or above, SPARC CPU or Intel Pentium processor.
- AIX Operating System Version 4.3.1, 5L.
- TCP/IP connection to a computer running Configuration Server.
- Radia client requires 20 MB free disk space.

Inventory Manager Client Prerequisites

⚠ Install only those Radia clients for which you have licenses. If you do not have a license, the Radia client will not authenticate with the Configuration Server.

- We strongly recommend installing the Radia client as root.
- Install the Radia client on a local file system.
- The installation program must be run from within UNIX. Although you can continue to work within UNIX (performing other tasks and operations) while the installation program is being executed, we strongly recommend that you don't.
- If you intend to run any of the graphical components of the Radia client software, make sure the UNIX environment variable DISPLAY is set in your environment. If it is not, you will need to set this variable to indicate the hostname or IP address to which you would like to redirect the graphical display.

Table 2: Setting the DISPLAY Variable

In a.....	Type....
C shell	`setenv DISPLAY IP address or hostname:0.0`

Bourne, Bash, or Korn shell	`DISPLAY=IP address or hostname:0.0`
	`export DISPLAY`

⚠ If there is an existing installation in the current working directory, you are urged to relocate it before beginning installation. You will be prompted for this during the installation. If you choose to overwrite your existing client, all your customized data will be lost.

When installing the Radia clients, you must know the subscriber's operating systems. After setup and configuration, Radia executables and library files will not be changing with the same frequency as that of your site's user files.

To successfully run Radia applications, standard UNIX environment variables are required, as shown in Table 3 on page 26. Minimally, these environment variables should include the fully qualified path of the installed client executables, the path to the operating system-specific Motif libraries, and the standard UNIX operating system paths for operating system executables and shared libraries. We recommend these be included as part of the logon scripts of the UNIX user ID who installs, and will maintain the Radia clients.

In order for Radia to install correctly on HP-UX platforms, you must mount the Radia CD-ROM using pfs_mount.

The Radia CD-ROM is created using the Rock Ridge format. Since the HP-UX standard mount procedure is incompatible with the Rock Ridge file system type, HP has made available the PFS package (Portable File System) that allows its workstations to recognize this format. Specific instructions follow:

Insert the CD-ROM and mount by typing:

```
/usr/sbin/pfs_mount -v -x unix /cdrom/mnt
```

where `cdrom` is your physical CD-ROM device.

To un-mount, type:

```
/usr/sbin/pfs_umount /mnt
```

See your local UNIX systems administrator and UNIX man pages for more information.

Table 3: Environment Variables

Platforms	Examples

Solaris	`LD_LIBRARY_PATH=/lib:$IDMSYS:$MOTIF:$LD_LIBRARY_PATH`
	`PATH=/bin:/usr/bin:$IDMSYS:$MOTIF:$PATH`

HP-UX	`SHLIB_PATH=/lib:$IDMSYS:$MOTIF:$SHLIB_PATH`
	`PATH= /bin:/usr/bin:$IDMSYS:$MOTIF:$PATH`

AIX	`LIBPATH=/lib:$IDMSYS:$MOTIF:$LIBPATH`
	`PATH=/bin:/usr/bin:$IDMSYS:$MOTIF:$PATH`

Linux	`LD_LIBRARY_PATH=/lib:/usr/lib:$IDMSYS:$LD_LIBRARY_PATH`
	`PATH=/bin:/usr/bin:$IDMSYS:$PATH`

In Table 3 above, $IDMSYS represents the fully qualified path to the Radia client executables, often referred to as the IDMSYS location, and $MOTIF represents the fully qualified path to the Motif libraries installed with the operating system.

The inclusion of the MOTIF libraries is required only when running Radia client or Administrator Workstation graphical tools such as the Radia Publisher, the Client Explorer, and the presentation of the Radia client logon panel.

After the Radia client is installed, the file `.nvdrc` is placed in the HOME directory of the UNIX user ID who performed the installation. This file aids you in setting the required environment variables needed to use the Radia clients. We recommend adding a line to the appropriate logon scripts to invoke this shell script

```
. $HOME/.nvdrc
```

Installation Methods

The Radia clients are distributed on the Radia Management Applications CD-ROM. You can install the Radia clients by:

- Executing the installation procedure directly from the CD-ROM.
- Copying the files from the CD-ROM or the FTP site into a temporary directory and executing the installation procedure.

Several parameters can be used on the command line when installing the Radia clients. These parameters are used to install the Radia client using the graphical mode, non-graphical mode, plain mode, or silent mode.

The table below describes the installation parameters.

Table 4: Installation Command Line Parameters

Parameter	Example	Description
-mode plain	./install –mode plain	Installs the Radia client in plain mode. The installation graphics are displayed with no animations. This is useful for remote installations where network bandwidth may be an issue.
-mode text	./install –mode text	Installs the Radia client in text mode using the non-graphical installation. The installation takes place completely on the command line. The installation will default to text mode if the DISPLAY environment variable is not set.

Client Installation Recommendations

- We strongly recommend that you install and run the Radia clients as root.

  Root authority is required to apply owner and group designators to managed resources.

- After you perform an installation, make sure the Application Manager is successfully connected to the Configuration Server. This registers the subscriber in the Radia Database. Once registered, the subscriber appears in the PROFILE file. Make sure to verify that all ports are active and that you have full connectivity to the Configuration Server.

Before you install the Radia client, consider the following:

- You can perform a local installation of the Radia clients.
- Your Radia systems administrator can perform a Remote Installation Setup. This process stores the installation media in a selected directory path. Later client installations can be initiated from any number of intended client workstations providing they have access to the directory path selected during the Remote Installation Setup.
- Performing an installation from a customized configuration file provides a number of benefits.
  - Replication of precise installation details on multiple clients.
  - Ability to use a pre-installation method, which runs any script or executable before the Radia client installation.
  - Ability to use a post-installation method, which runs any script or executable after the Radia client is installed.
  - Ability to configure the installation to force a client connection to the Configuration Server immediately after the installation.
  - Ability to pre-configure the IP address and port number of the Configuration Server that the Radia client will be connecting to.

Ability to use an object update text file that can be used to update Radia objects after the installation.

Including Maintenance Files with the Client Installation

If additional maintenance files are available, for example, service packs or hot fixes, you can include these files with your client installation by creating a maintenance tar file.

Within your client installation media `/rim` directory, create a file called `maint41.tar` that includes all updated files.

The client installation will check for `maint41.tar` and if found, the client installation will extract all updated files into the `IDMSYS` directory.

Installing the Radia Clients

This section describes both the graphical (using a GUI) and non-graphical (using a command line) installations of the Radia clients for UNIX.

Graphical Installation

This section describes how to install the Radia clients both to a local and to a remote computer using a graphical user interface (GUI).

Local Installation

This section describes how to install the Radia clients to a local computer using a GUI.

To install the Radia client onto a local computer using a GUI

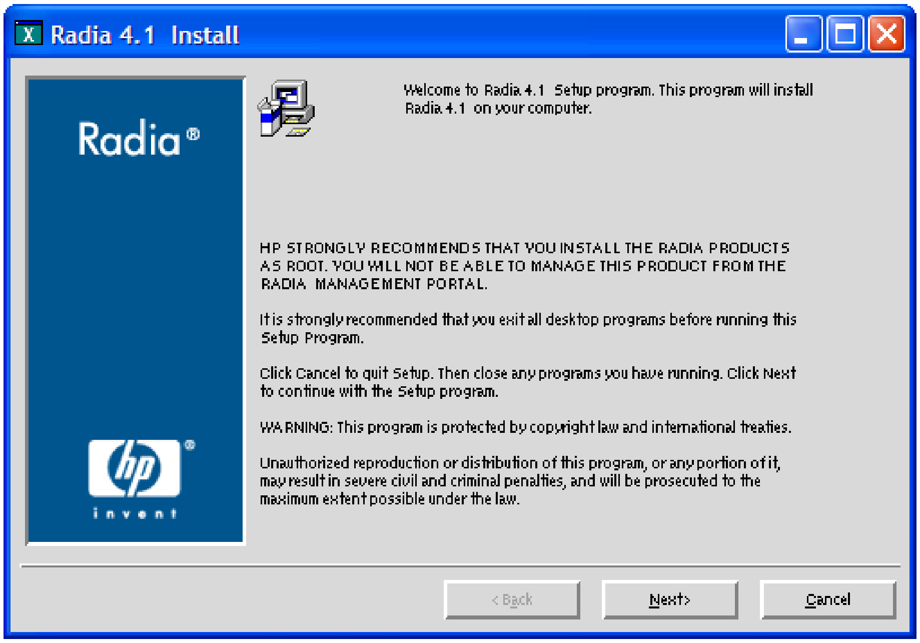
➤ These instructions will guide you through the local graphical installation of the Radia client. For the non-graphical installation instructions, see *Non-graphical Installation* on page 52.

1 Depending on your version of UNIX, change your current working directory to the correct /client subdirectory on the installation media.

Example: For Solaris, type: **`cd /cdrom/solaris`**

2 Type **`./install`**, and then press **Enter**.

The Welcome window opens.



Welcome to Radia 4.1 Setup program. This program will install Radia 4.1 on your computer.

HP STRONGLY RECOMMENDS THAT YOU INSTALL THE RADIA PRODUCTS AS ROOT. YOU WILL NOT BE ABLE TO MANAGE THIS PRODUCT FROM THE RADIA MANAGEMENT PORTAL.

It is strongly recommended that you exit all desktop programs before running this Setup Program.

Click Cancel to quit Setup. Then close any programs you have running. Click Next to continue with the Setup program.

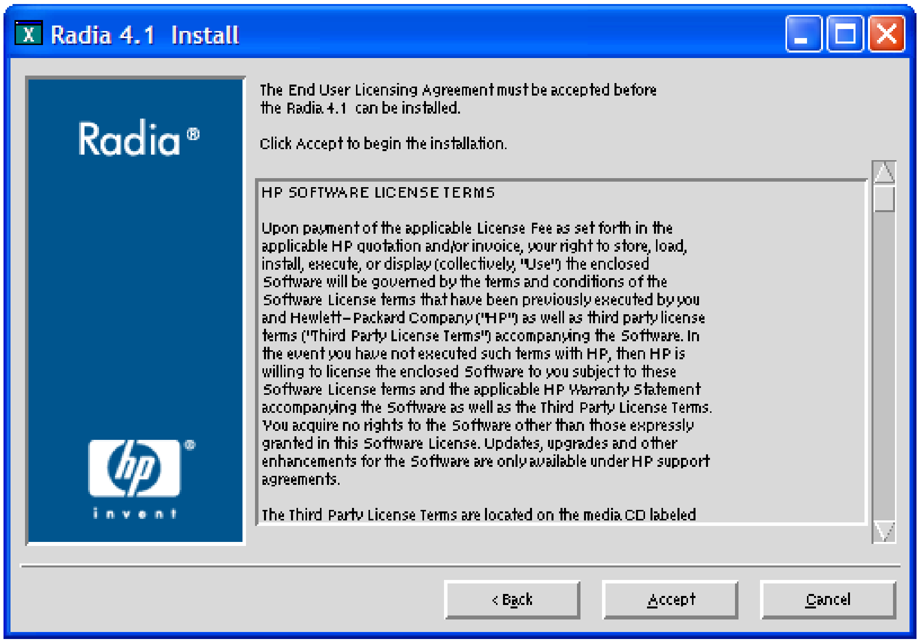
WARNING: This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

➤ At any point during the installation, you can return to a previous window by clicking **Back**. Also, if you would like to exit the installation at any time, click **Cancel**.

3 Click **Next**.

The End User Licensing Agreement window opens.



The End User Licensing Agreement must be accepted before
the Radia 4.1 can be installed.

Click Accept to begin the installation.

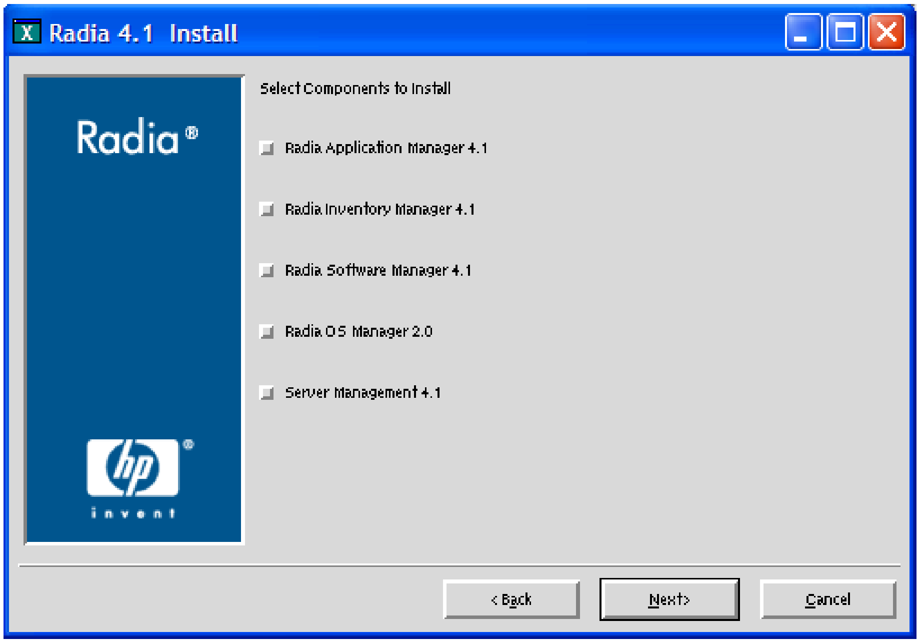
HP SOFTWARE LICENSE TERMS

Upon payment of the applicable License Fee as set forth in the applicable HP quotation and/or invoice, your right to store, load, install, execute, or display (collectively, "Use") the enclosed Software will be governed by the terms and conditions of the Software License terms that have been previously executed by you and Hewlett-Packard Company ("HP") as well as third party license terms ("Third Party License Terms") accompanying the Software. In the event you have not executed such terms with HP, then HP is willing to license the enclosed Software to you subject to these Software License terms and the applicable HP Warranty Statement accompanying the Software as well as the Third Party License Terms. You acquire no rights to the Software other than those expressly granted in this Software License. Updates, upgrades and other enhancements for the Software are only available under HP support agreements.

The Third Party License Terms are located on the media CD labeled

4 Read the HP Software License Terms and click **Accept**.

The Select Components to Install window opens.



Select Components to Install

□ Radia Application Manager 4.1

□ Radia Inventory Manager 4.1

□ Radia Software Manager 4.1

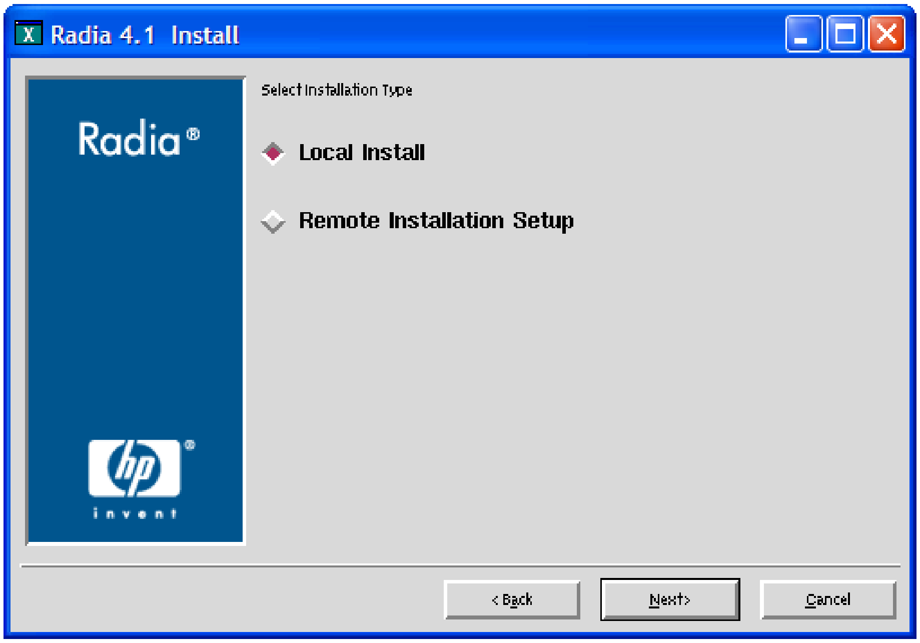
□ Radia OS Manager 2.0

□ Server Management 4.1

5 Select the **Inventory Manager** check box, and any other client components to be installed on the local computer.

6 Click **Next**.

The Select Installation Type window opens.



Radia 4.1 Install

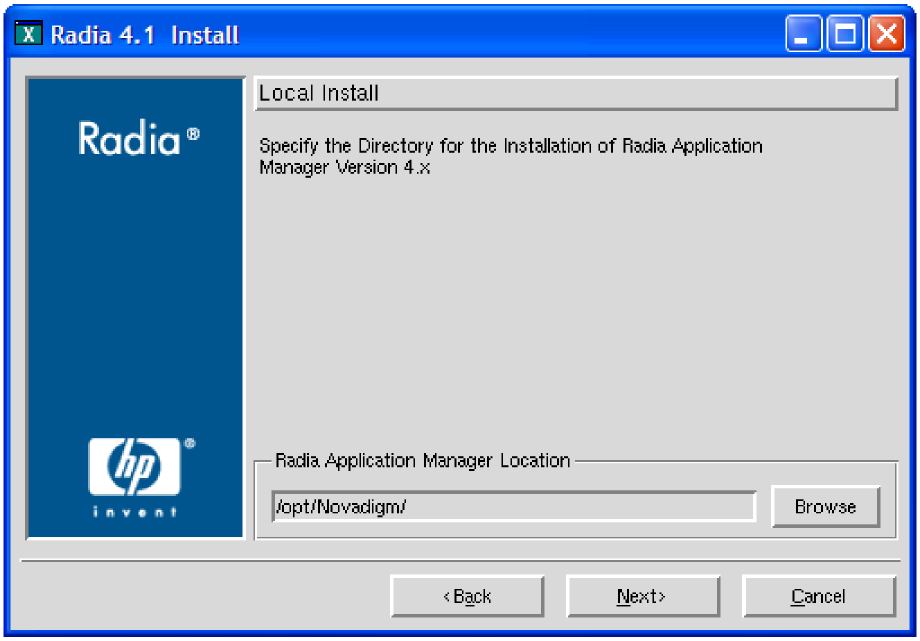
Select Installation Type

◆ Local Install

◇ Remote Installation Setup

7 Select **Local Install** to install the Radia client to a local computer, and then click **Next**.

The Radia Components Location window opens.



Specify the Directory for the Installation of Radia Application Manager Version 4.x

Radia Application Manager Location: /opt/Novadigm/

8 Type the name of the directory where you want to install the Radia client Components, or click **Browse** to navigate to it.

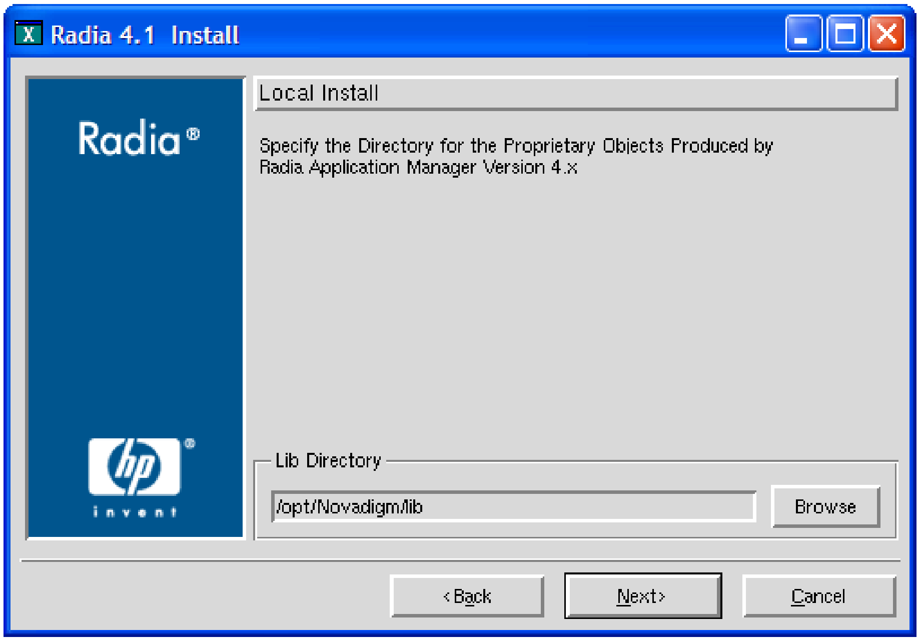
9 Click **Next**.

If the specified directory already exists, you will be prompted to verify this location.

— If you would like to update the existing directory, click **OK**.

— If you want to specify a different location, click **Cancel**.

The Lib Directory window opens.



Local Install

Specify the Directory for the Proprietary Objects Produced by Radia Application Manager Version 4.x

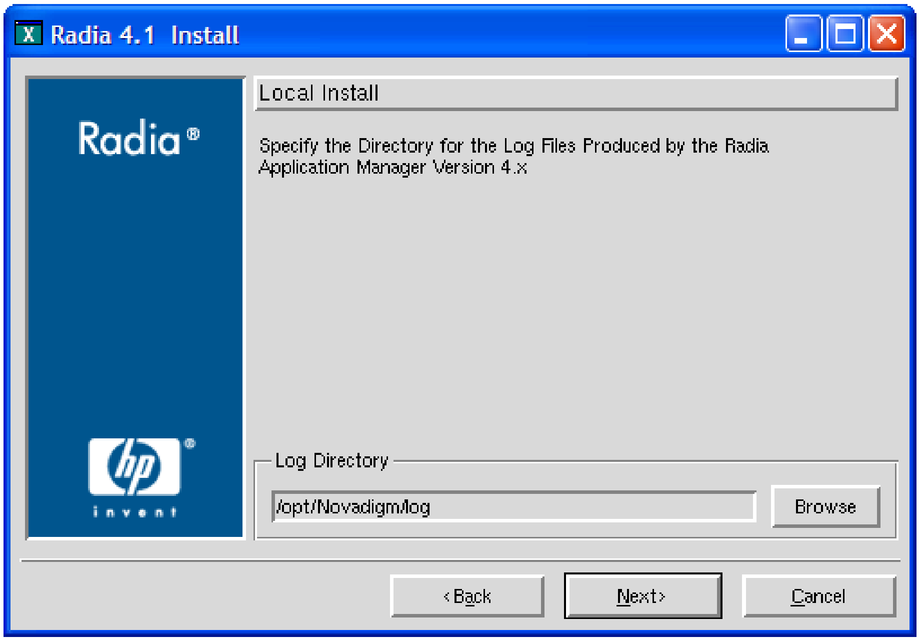
Lib Directory

/opt/Novadigm/lib

10 Type the name of the directory where you would like to store proprietary information created by Radia (the lib directory), or click **Browse** to navigate to it.

11 Click **Next**.

The Log Directory window opens.



Local Install

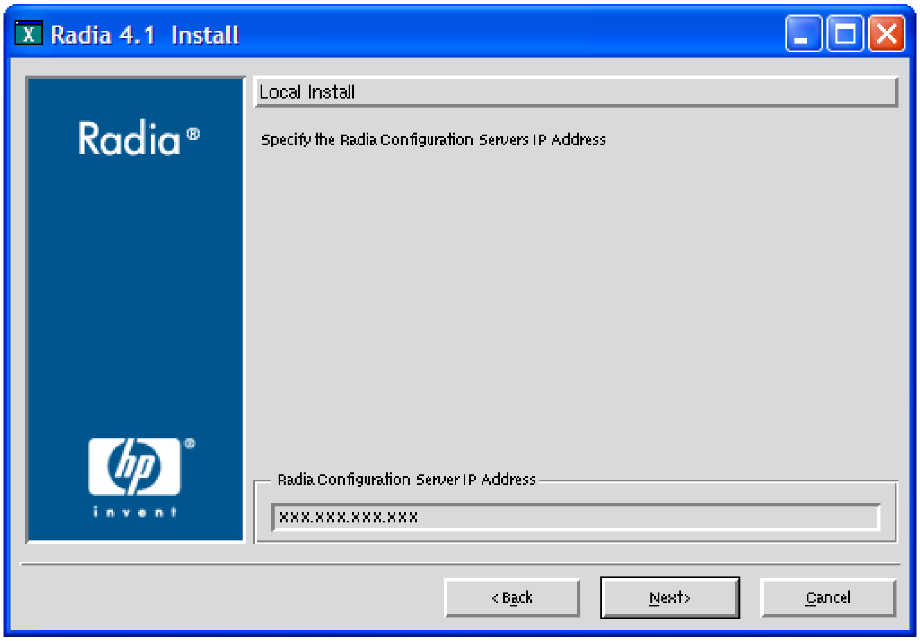
Specify the Directory for the Log Files Produced by the Radia Application Manager Version 4.x

Log Directory: /opt/Novadigm/log

12 Type the name of the directory where you would like to store the log files generated by Radia, or click **Browse** to navigate to it.

13 Click **Next**.

The Configuration Server IP Address window opens.



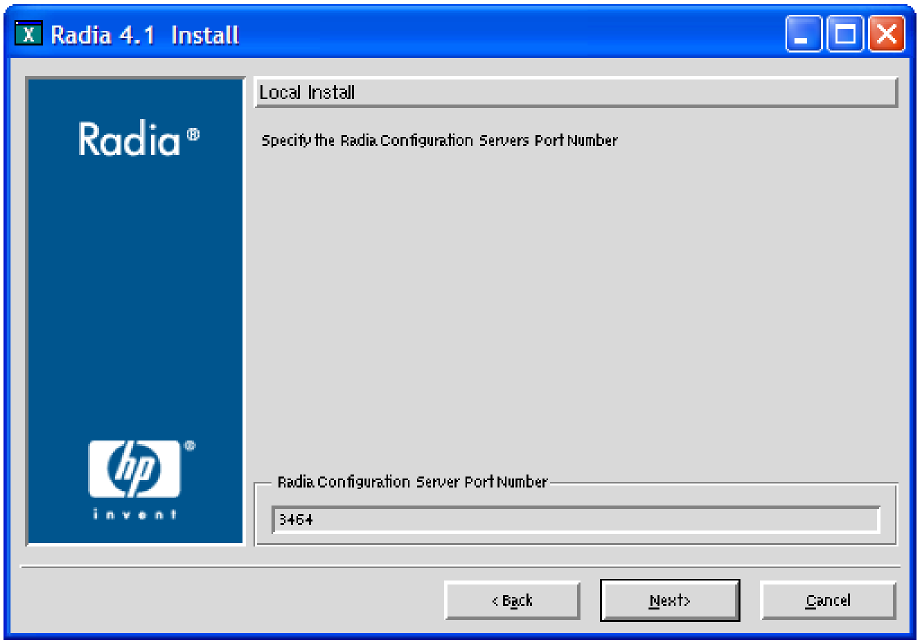
Specify the Radia Configuration Servers IP Address

Radia Configuration Server IP Address: xxx.xxx.xxx.xxx

14 Type the IP address (format: xxx.xxx.xxx.xxx) of the Configuration Server to which the Radia client will connect. Specify a valid IP address or hostname recognized by the client workstation.

15 Click **Next**.

The Configuration Server Port Number window opens.



Local Install

Specify the Radia Configuration Servers Port Number

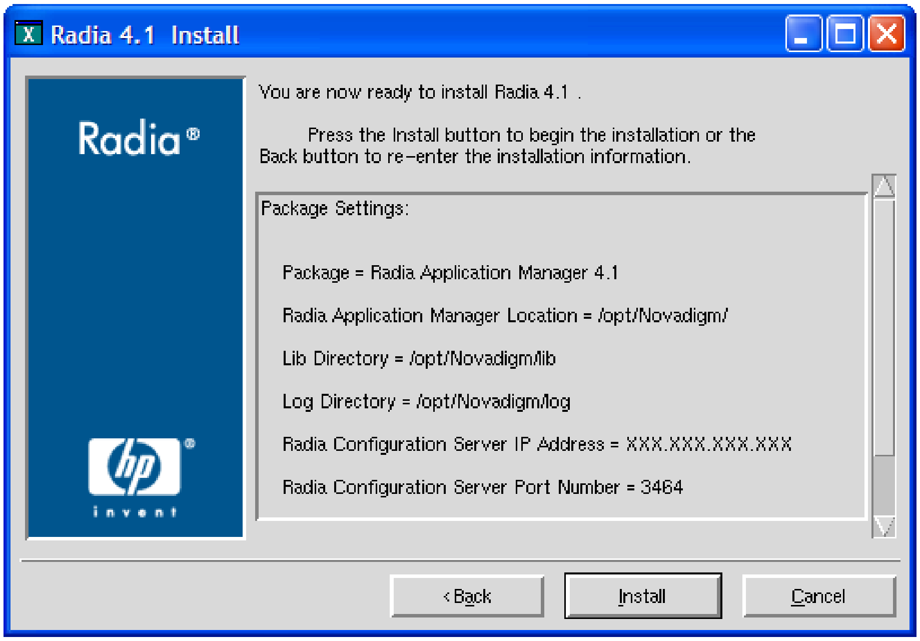
Radia Configuration Server Port Number

3464

16 Type the Configuration Server's port number (default is 3464).

17 Click **Next**.

The Package Settings window opens.



Radia 4.1 Install

You are now ready to install Radia 4.1 .

Press the Install button to begin the installation or the Back button to re-enter the installation information.

Package Settings:

Package = Radia Application Manager 4.1

Radia Application Manager Location = /opt/Novadigm/

Lib Directory = /opt/Novadigm/lib

Log Directory = /opt/Novadigm/log

Radia Configuration Server IP Address = XXX.XXX.XXX.XXX

Radia Configuration Server Port Number = 3464

18 Review the settings displayed in the Package Settings window. If you would like to change any of the settings, click **Back** until you get to the appropriate window.

19 When you're satisfied with the settings, click **Install** to install the Radia client with these settings.

20 Click **Finish** to exit the installation.

The Radia 4.1 Client has been successfully installed.

Remote Installation Setup

This section describes how to install the Radia client to a remote computer using a GUI.

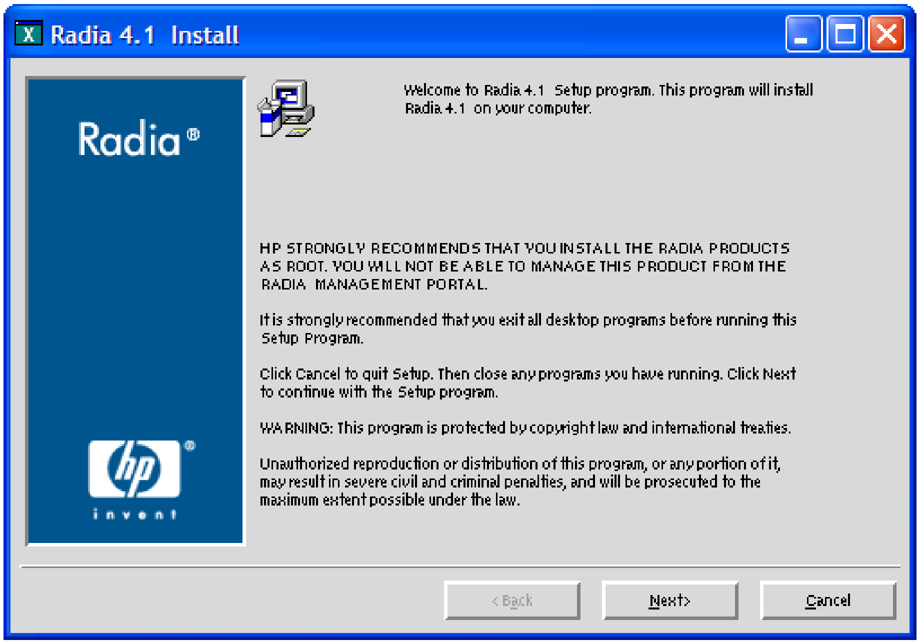
To install the Radia client onto a remote computer using a GUI

1 Depending on your version of UNIX, change your current working directory to the correct subdirectory on the installation media.

Example: For Solaris, type: **`cd /cdrom/solaris`**

2 Type **`./install`**, and then press **Enter**.

The Welcome window opens.



Welcome to Radia 4.1 Setup program. This program will install Radia 4.1 on your computer.

HP STRONGLY RECOMMENDS THAT YOU INSTALL THE RADIA PRODUCTS AS ROOT. YOU WILL NOT BE ABLE TO MANAGE THIS PRODUCT FROM THE RADIA MANAGEMENT PORTAL.

It is strongly recommended that you exit all desktop programs before running this Setup Program.

Click Cancel to quit Setup. Then close any programs you have running. Click Next to continue with the Setup program.

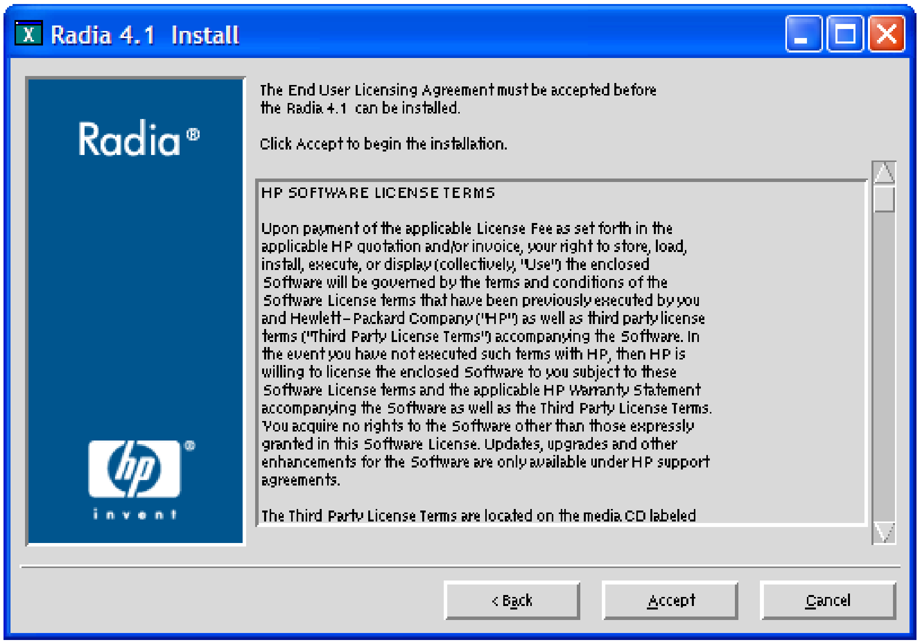
WARNING: This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

At any point during the installation, you can return to a previous section by clicking **Back**. Also, if you would like to exit the installation at any time, click **Cancel**.

3 Click **Next**.

The End User Licensing Agreement window opens.



The End User Licensing Agreement must be accepted before the Radia 4.1 can be installed.

Click Accept to begin the installation.

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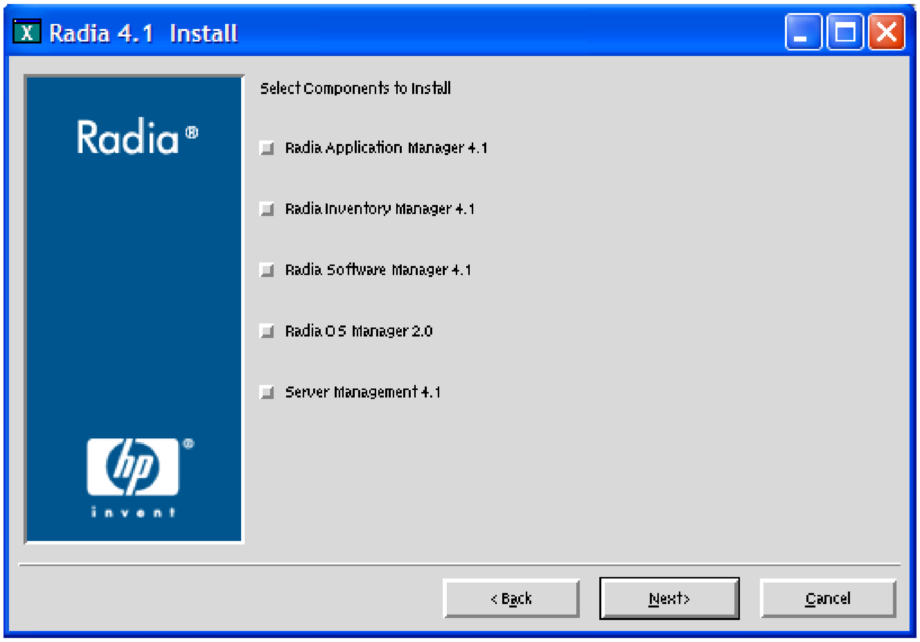
Upon payment of the applicable License Fee as set forth in the applicable HP quotation and/or invoice, your right to store, load, install, execute, or display (collectively, "Use") the enclosed Software will be governed by the terms and conditions of the Software License terms that have been previously executed by you and Hewlett-Packard Company ("HP") as well as third party license terms ("Third Party License Terms") accompanying the Software. In the event you have not executed such terms with HP, then HP is willing to license the enclosed Software to you subject to these Software License terms and the applicable HP Warranty Statement accompanying the Software as well as the Third Party License Terms. You acquire no rights to the Software other than those expressly granted in this Software License. Updates, upgrades and other enhancements for the Software are only available under HP support agreements.

The Third Party License Terms are located on the media CD labeled

4 Read the HP Software License Terms and click **Accept**.

The Select Components to Install window opens.



Select Components to Install

□ Radia Application Manager 4.1

□ Radia Inventory Manager 4.1

□ Radia Software Manager 4.1

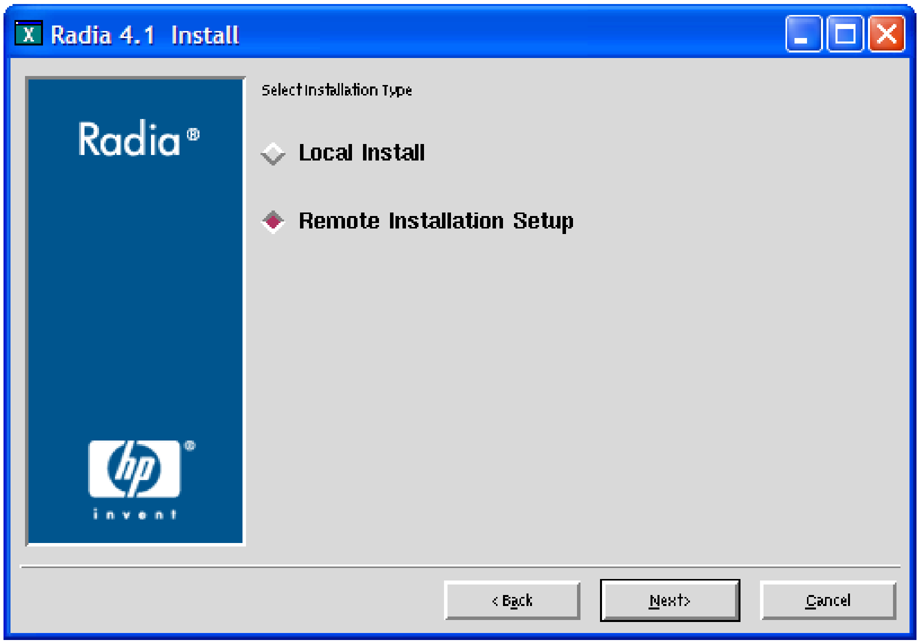
□ Radia OS Manager 2.0

□ Server Management 4.1

5 Select the appropriate check boxes for the Radia clients you would like to install.

6 Click **Next**.

The Select Installation Type window opens.



Select Installation Type

◇ Local Install

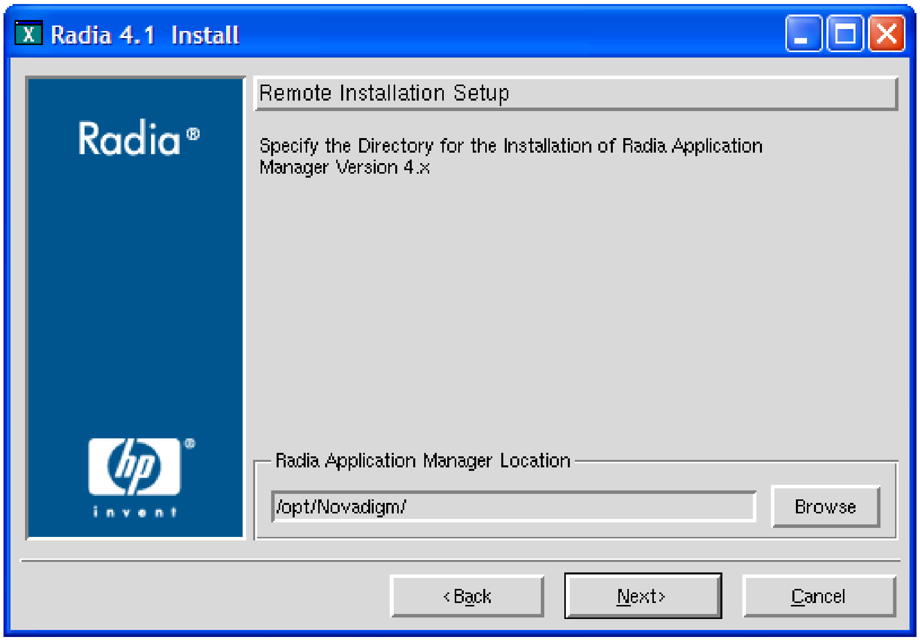
◆ Remote Installation Setup

7 Select **Remote Installation Setup**.

This will store the installation media to another location on disk to be used later as the source for subsequent client installations.

8 Then click **Next**.

The Radia Components Location window opens.



Remote Installation Setup

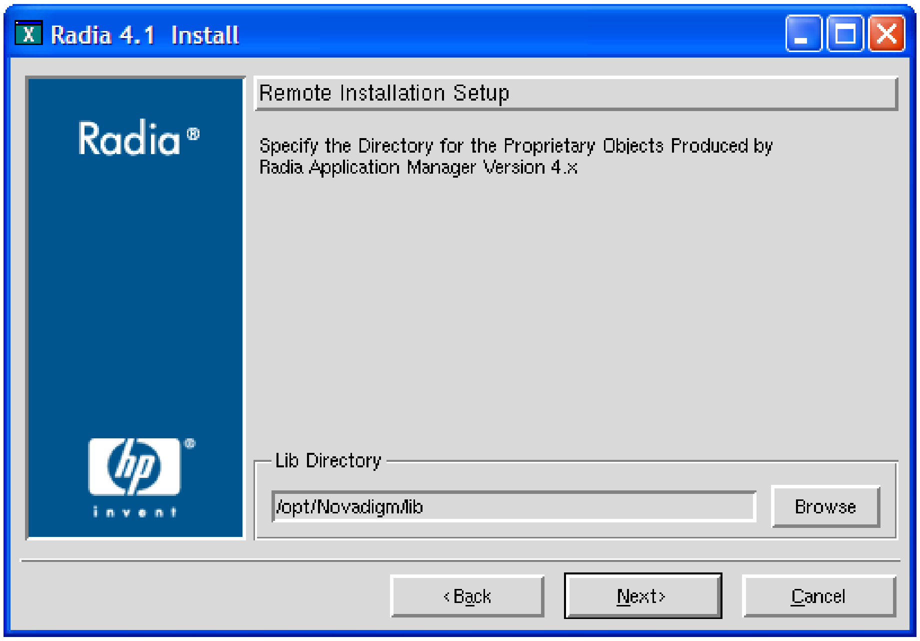
Specify the Directory for the Installation of Radia Application Manager Version 4.x

Radia Application Manager Location: /opt/Novadigm/

9 Type the name of the directory where you want to install the Radia client executables for a silent installation, or click **Browse** to navigate to it.

10 Click **Next**.

The Lib Directory window opens.



Remote Installation Setup

Specify the Directory for the Proprietary Objects Produced by
Radia Application Manager Version 4.x

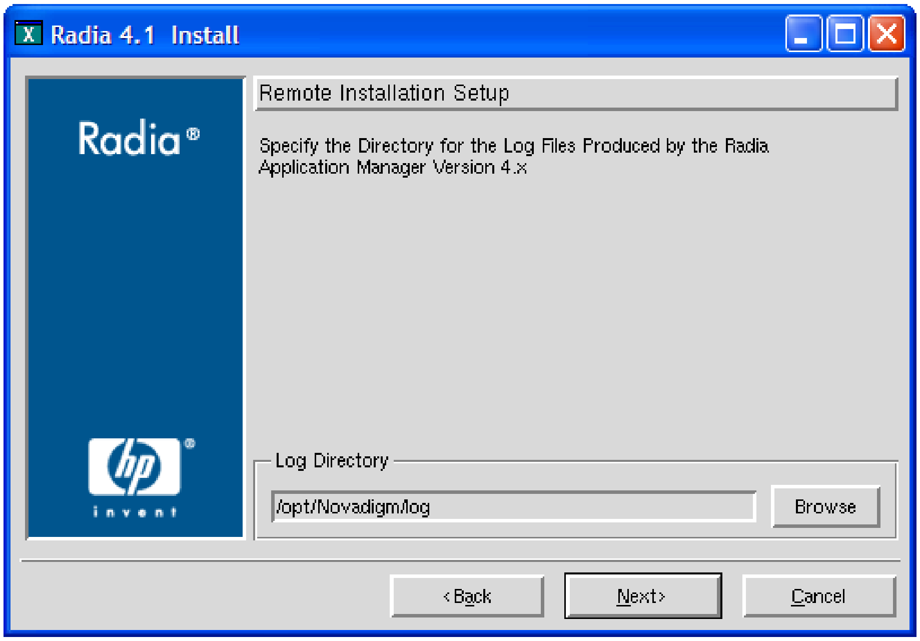
Lib Directory

/opt/Novadigm/lib

11 Type the name of the directory where you would like to store proprietary information created by Radia for a silent installation, or click **Browse** to navigate to it.

12 Click **Next**.

The Log Directory window opens.



Remote Installation Setup

Specify the Directory for the Log Files Produced by the Radia Application Manager Version 4.x

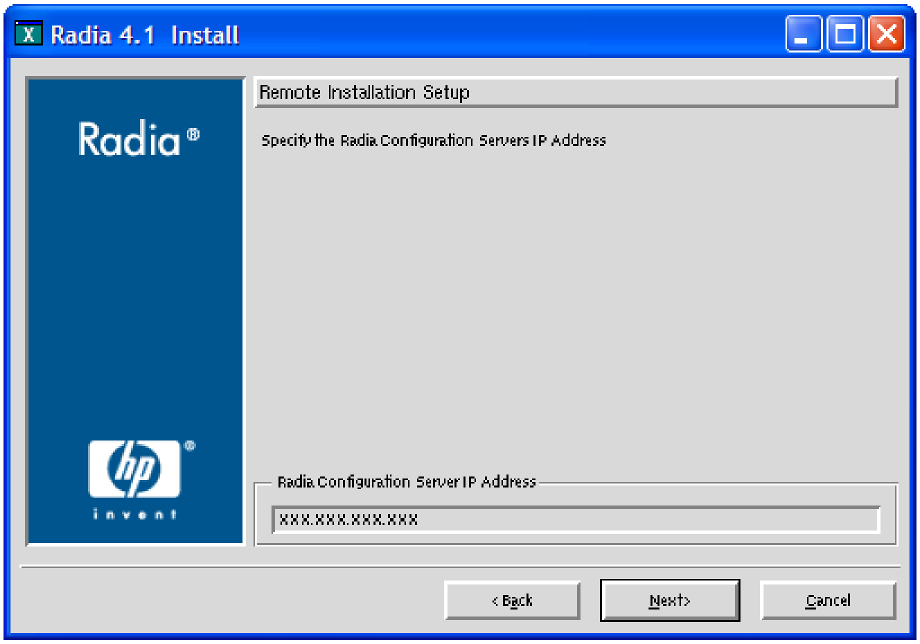
Log Directory

/opt/Novadigm/log

13 Type the name of the directory where you would like to store log files generated by Radia for a silent installation, or click **Browse** to navigate to it.

14 Click **Next**.

The Configuration Server IP Address window opens.



Remote Installation Setup

Specify the Radia Configuration Servers IP Address

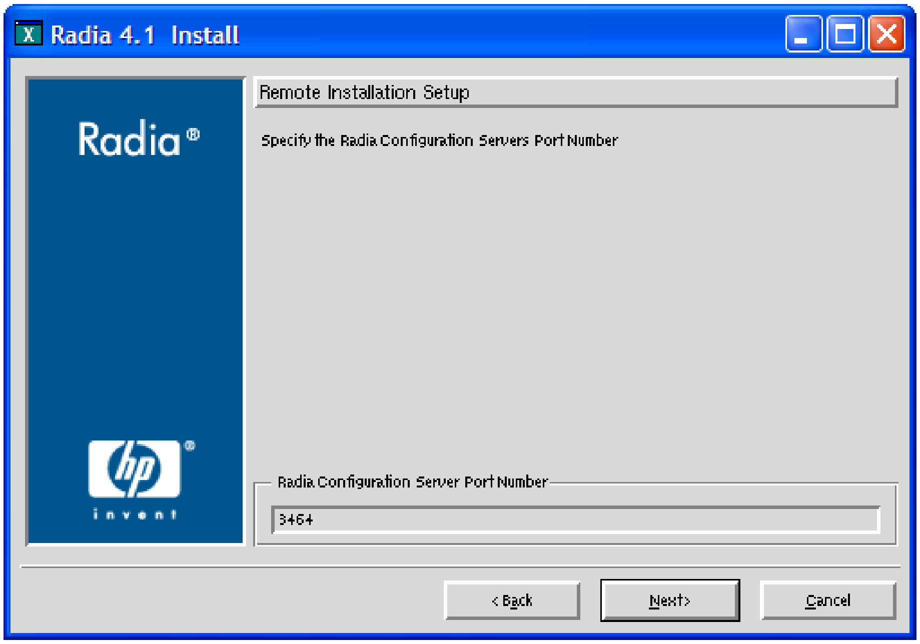
Radia Configuration Server IP Address

xxx.xxx.xxx.xxx

15 Type the IP address (format: xxx.xxx.xxx.xxx) of the Configuration Server that the Radia client will connect to. Specify a valid IP address or hostname recognized by the client workstation.

16 Click **Next**.

The Configuration Server Port Number window opens.



Remote Installation Setup

Specify the Radia Configuration Servers Port Number

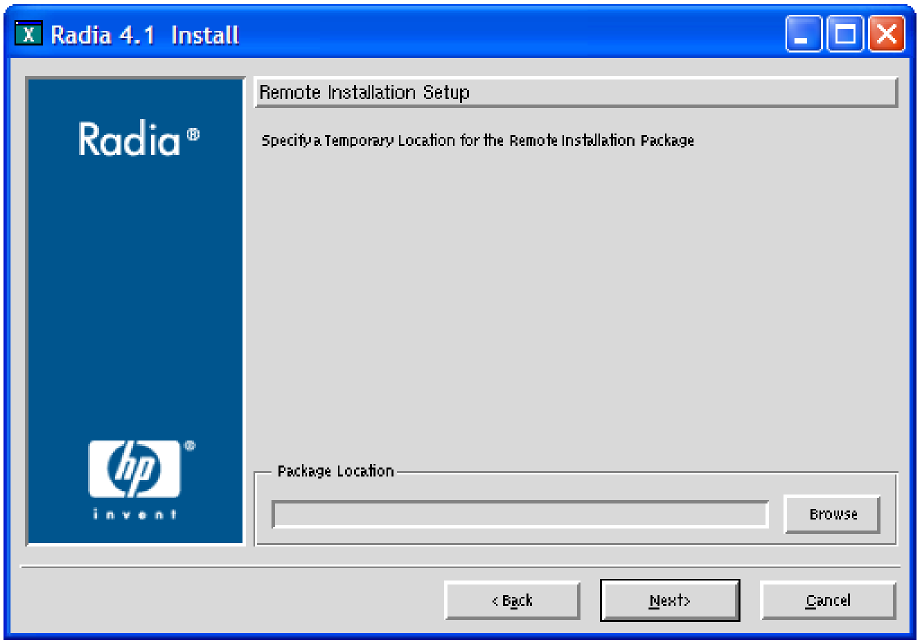
Radia Configuration Server Port Number

3464

17 Type the port number of the Configuration Server (default is 3464).

18 Click **Next**.

The Package Location window opens.


Radia 4.1 Install

Remote Installation Setup

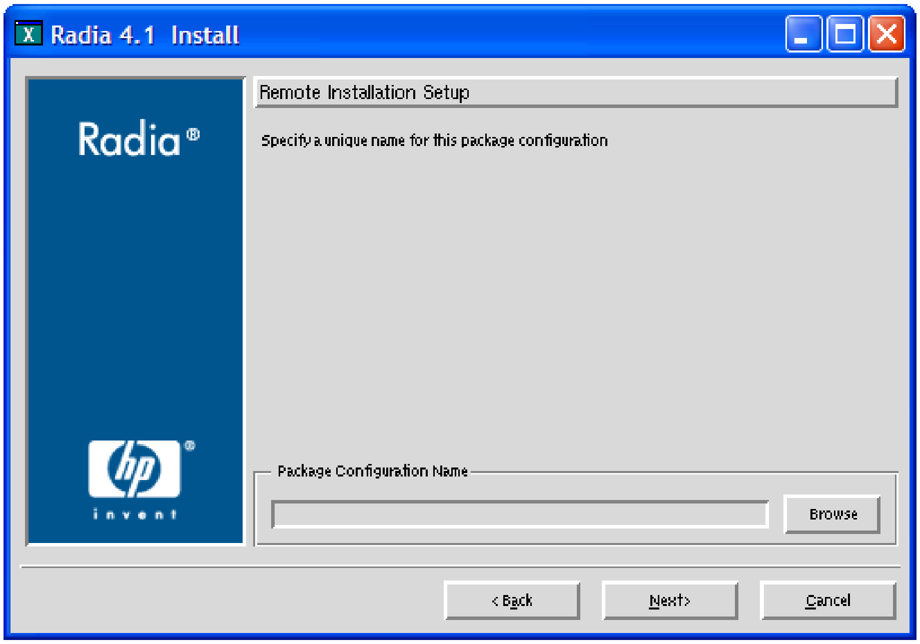
Specify a Temporary Location for the Remote Installation Package

Package Location

19 Type the fully qualified path to a directory where you would like to store the Radia client installation media for future client installations, or click **Browse** to navigate to it.

20 Click **Next**.

The Package Configuration Name window opens.



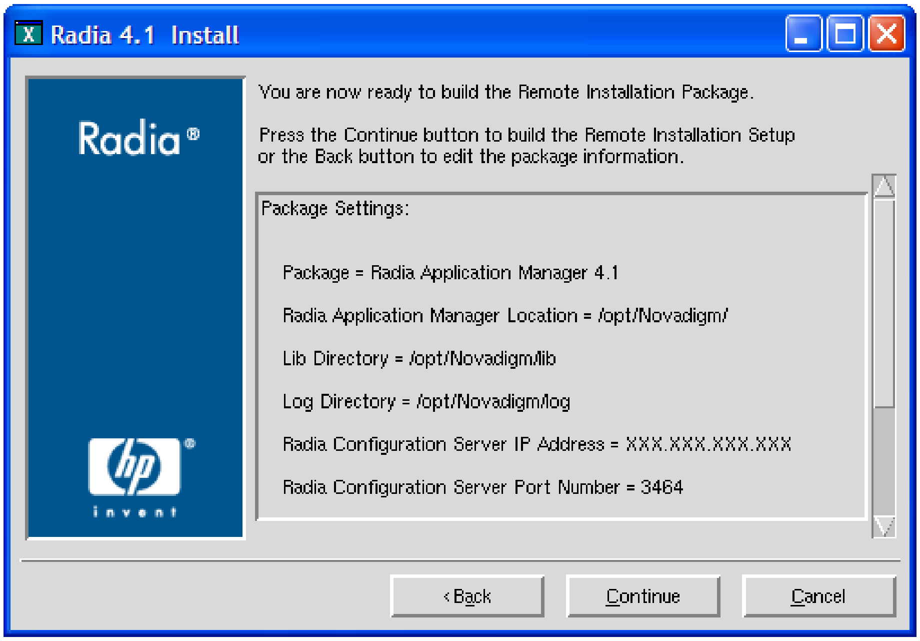
Specify a unique name for this package configuration

Package Configuration Name

21 Type the fully qualified path to a configuration file that you would like to use for silent installations, or click **Browse** to navigate to it. The configuration file you specify will contain the installation information you chose during the Remote Installation Setup.

22 Click **Next**.

The Package Settings window opens.



You are now ready to build the Remote Installation Package.

Press the Continue button to build the Remote Installation Setup or the Back button to edit the package information.

Package Settings:

Package = Radia Application Manager 4.1

Radia Application Manager Location = /opt/Novadigm/

Lib Directory = /opt/Novadigm/lib

Log Directory = /opt/Novadigm/log

Radia Configuration Server IP Address = XXX.XXX.XXX.XXX

Radia Configuration Server Port Number = 3464

23 Review the settings displayed in the Package Settings window.

24 Click **Continue** to build the Remote Installation Package.

25 When the installation is complete, click **Finish** to exit the installation.

The Radia 4.1 Client installation media has been successfully stored on disk for future installations.

Once the media has been stored for other computers to use for remote installations, you should become familiar with the variables in the configuration file.

Customizing the Installation Configuration File

A configuration file supplies the default responses for silent Radia client installations. These responses would normally be provided during an interactive Radia client installation. When performing silent installations, additional installation options are also available in the configuration file.

The variables available in the configuration file are described in the table below.

Table 5: Configuration File Variables

Variable	Example Value	Description
REMOTE	0	**0** designates a local installation. **1** designates a Remote Installation Setup.
INSTDIR	/opt/Novadigm	The default installation directory.
IDMLOG	/opt/Novadigm/log	This can be defined to designate a directory for IDMLOG other than the default INSTDIR/log.
IDMLIB	/opt/Novadigm/lib	This can be defined to designate a directory or IDMLIB other than the default INSTDIR/lib.
PREPROC		The fully qualified name of a script or executable to run pre-installation.
PREPARM		Any parameters that may be required by the pre-installation method specified in the variable PREPROC.
POSTPROC		The fully qualified name of a script or executable to be run post-installation.
POSTPARM		Any parameters required by the post-installation method specified in the variable POSTPROC.
MGRIP	1.1.1.98	The default IP address for connection to the Configuration Server.
MGRPORT	3464	The default port number for connection to the Configuration Server.
NTFYPORT	3465	The default Notify port used.
CONNECT	Y	Connects to the Configuration Server immediately after the installation. Default behavior is **N**. Set to **Y** if you want your Radia client to connect to the Configuration Server automatically after the installation.
OBJECTS	./object.txt	The file that is used to create or update Radia variables after the installation.
DUAL	1	**0** designates RAM only selected. **1** designates more than one component selected.

Using a Pre- or Post-Installation Script

You can create and run custom executables or shell scripts prior to or after the silent installation of a Radia client. For example, your post-installation script can initiate a connection to the Configuration Server in order to process mandatory applications. The sample of code below, is part of a shell script that initiates the connection to the Configuration Server and processes mandatory applications.

```
#!/bin/sh
#
cd /opt/Novadigm

# ZIPADDR is the IP address or hostname of the manager
ZIPADDR="xxx.xxx.xxx.xxx"
# ZDSTSOCK is the TCP port the manager is running on
ZDSTSOCK="3464"

# To manage the machine
# 1. .edmprof must exist in root's home directory
# 2. The connect must be run as root

/opt/Novadigm/radskman mname=NVDM,dname=SOFTWARE,ip=$ZIPADDR,port=$ZDSTSOCK,cat=promp
t,ind=y,uid=\$MACHINE,startdir=SYSTEM,ulogon=n
```

Customizing Installed Object Variable Content

The configuration file option OBJECTS allows you to specify the fully qualified path to a filename that contains data in the form:

```
OBJECT_NAME VARIABLE_NAME VARIABLE_VALUE
```

An example of a valid object file is:

```
ZMASTER ZTRACE N

ZMASTER ZTRACEL 000
```

When creating an object text file:

- A pound sign (#) at the beginning of a line indicates a comment.
- A pound sign (#) on any other part of a line will be considered data.
- The format is OBJECT_NAME followed by VARIABLE_NAME. Everything after the VARIABLE_NAME is considered VARIABLE_VALUE.
- The VARIABLE_VALUE text should not be enclosed by any special characters.

Performing a Silent Installation of a Radia client

We recommend installing the client as root.

Performing a silent installation of the Radia client using stored Radia client installation media requires that:

- Your Radia systems administrator has already run the Remote Installation Setup installation method.
- The workstation running the silent installation is able to access the directory path where the installation media was stored.

Several parameters can be used on the command line when performing a silent installation of the Radia client. The table below describes these.

Table 6: Silent Installation Command Line Parameters

Parameter	Example	Description
-cfg	./install –cfg Radia.cfg	The filename specified after `-cfg` is the name of the configuration file to be used during the installation. For information about configuration files, see *Customizing the Installation Configuration File* on page 49.
-mode silent	./install –mode silent –cfg /common/Radia.cfg	Installs the Radia client in silent mode based on the parameters set in the configuration file specified after the `-cfg` parameter. For information about configuration files, see *Customizing the Installation Configuration File* on page 49.

Non-graphical Installation

This section describes a non-graphical (using a command line) installation of the Radia client for UNIX.

To install the Radia client for UNIX using a command line

These instructions guide you through the local non-graphical installation of the Radia client for UNIX. For the graphical installation, see *Graphical Installation* on page 29.

1 Depending on your version of UNIX, change your current working directory to the correct subdirectory on the installation media.

Example: For Solaris, type: **`cd /cdrom/solaris`**

2 Type `./install -mode text`, and then press **Enter**.

The Radia client installation begins.

3 Type **`C`**, and press **Enter**.

4 Press **Enter** to accept the default component, the Application Manager, or type **`N`** to skip the installation of the Application Manager.

5 Press **Enter** to accept the default component, the Inventory Manager.

6 Press **Enter** to accept the default component, the Software Manager, or type `N` to skip the installation of the Software Manager.

7 Select the type of installation. The default is `1`, a local installation.

— Type **`1`**, and then press **Enter** to install the Radia client locally.

OR

— Type **`2`**, and then press **Enter** to set up remote installation media.

For this example, we accepted the default.

8 Specify the installation location for the Radia client, and then press **Enter**.

9 Specify the location for the Radia proprietary objects (IDMLIB), then press **Enter**.

10 Specify the location for the log files created by Radia (IDMLOG), then press **Enter**.

11 Specify the IP address of the Configuration Server, and then press **Enter**.

12 Specify the port number for the Configuration Server, and then press **Enter**.

13 Review the installation settings you've chosen.

14 If you want to install the Radia client with these parameters, press **Enter** to accept the default answer of `Y`.

If you want to change any setting, type **N** to re-enter the installation information.

15 When you're satisfied with the settings, press **Enter** to install the Radia client.

The Radia client is installed.

Troubleshooting

Should you encounter any problems while installing the Radia 4.1 UNIX Client, please perform the following steps before contacting technical support:

1 Enable diagnostic tracing by appending the text `-loglevel 9` to the installation command line and re-run the installation.

2 Have this log file (`tmp/setup/setup.log`) located in the home directory of the UNIX user ID who ran the install.

> The installation option `-loglevel 9` should only be used to diagnose installation problems.

Summary

- Install the Inventory Manager Client using the graphical or non-graphical installation.
- Install the Inventory Manager Client onto a local computer or use the Remote Installation Setup to install the Radia client to another computer later.

3 Installing the Inventory Manager Server

At the end of this chapter, you will:

- Be familiar with the installation media for the Inventory Manager Server.
- Have installed the server for the Inventory Manager.
- Have installed a sample reporting database.
- Know how to configure your Configuration Server for Inventory Manager support.

System Requirements

- Solaris Operating System Version 2.5.1 or above, SPARC CPU, Motif 1.2 libraries.

  ➤ Solaris Operating System Version 2.7 or above is required when using the embedded Connect ODBC drivers. For ODBC driver requirements, see Table 9 on page 67.

- HP-UX Operating System Version 10.20 or above, PA Risc CPU, Motif 1.2 libraries.
- TCP/IP connection to a computer running Configuration Server.
- Radia client requires 20 MB free disk space.

Inventory Manager Server Prerequisites

- We strongly recommend installing the Inventory Manager as root.
- The installation program must be run from within UNIX. Although you can continue to work within UNIX (performing other tasks and operations) while the installation program is being executed, we strongly recommend that you don't.
- If you *have not* already installed a Radia product with your current license to the selected directory, you *must* install the license file, license.nvd, during the Inventory Manager installation.
- If your current Radia license exists in the selected installation directory from a previous install, you will not need to install the license.nvd file.
- As of Inventory Manager v4.1, if you elect to use the embedded Connect ODBC drivers when installing the Inventory Manager Server, you no longer need to register the ODBC drivers to use them. If prompted for an ODBC registration key, enter: **`DW86NDCF4V.`**
- If you intend to run any of the graphical components of the Inventory Manager installation, make sure the UNIX environment variable DISPLAY is set in your environment. If it is not, you will need to set this variable to indicate the hostname or IP address to which you would like to redirect the graphical display.

Table 7: Setting the DISPLAY Variable

Shell type	Command
C shell	**`setenv DISPLAY IP address or hostname:0.0`**

Bourne, Bash, or Korn shell	**`DISPLAY=IP address or hostname:0.0`**
	`export DISPLAY`

If there is an existing installation in the current working directory, you are urged to relocate it before beginning installation. You will be prompted for this during the installation. If you choose to overwrite your existing client, all your customized data will be lost.

To successfully run Radia applications, standard UNIX environment variables are required, as shown in Table 8 below. Minimally, these environment variables should include the fully qualified path of the installed executables, the path to the operating system-specific Motif libraries, and the standard UNIX operating system paths for operating system executables and shared libraries. We recommend these be included as part of the logon scripts of the UNIX user ID who installs, and will maintain the Inventory Manager.

In order for Radia to install correctly on HP-UX platforms, you must mount the Radia CD-ROM using pfs_mount.

The Radia CD-ROM is created using the Rock Ridge format. Since the HP-UX standard mount procedure is incompatible with the Rock Ridge file system type, HP has made available the PFS package (Portable File System) that allows their workstations to recognize this format. Specific instructions follow:

Insert the CD-ROM and mount by typing:

```
/usr/sbin/pfs_mount -v -x unix /cdrom/mnt
```

where *cdrom* is your physical CD-ROM device.

To un-mount, type:

```
/usr/sbin/pfs_umount /mnt
```

See your local UNIX systems administrator and UNIX man pages for more information.

Table 8: Environment Variables

Platforms	Examples

Solaris	`LD_LIBRARY_PATH=/lib:IDMSYS:MOTIF:$LD_LIBRARY_PATH`
	`PATH=/bin:/usr/bin:IDMSYS:MOTIF:$PATH`

HP-UX	`SHLIB_PATH=/lib:IDMSYS:MOTIF:$SHLIB_PATH`
	`PATH= /bin:/usr/bin:IDMSYS:MOTIF:$PATH`

AIX	`LIBPATH=/lib:IDMSYS:MOTIF:$LIBPATH`
	`PATH=/bin:/usr/bin:IDMSYS:MOTIF:$PATH`

LINUX	`LD_LIBRARY_PATH=/lib:/usr/lib:IDMSYS:$LD_LIBRARY_PATH`
	`PATH=/bin:/usr/bin:IDMSYS$PATH`

In Table 8 above, `IDMSYS` represents the fully qualified path to the Radia client executables, often referred to as the IDMSYS location. MOTIF represents the fully qualified path to the Motif libraries installed with the operating system.

> The inclusion of the MOTIF libraries is required only when running Radia client or Administrator Workstation graphical tools such as the Radia Publisher, the Client Explorer, and the presentation of the Radia client logon panel.

After the Radia client is installed, the file `.nvdrc` is placed in the HOME directory of the UNIX user ID who performed the installation. This file helps you to set the required environment variables needed to use the Radia clients. We recommend adding a line to the appropriate logon scripts to invoke this shell script

```
. $HOME/.nvdrc
```

Troubleshooting

Should you encounter any problems while installing the Inventory Manager Server for UNIX, please perform the following steps before contacting technical support:

1. Enable diagnostic tracing by appending the text `-loglevel 9` to the installation command line and re-run the installation.
2. Have this log file (`tmp/setup/setup.log`) located in the home directory of the UNIX user ID who ran the install.

   > The install option `-loglevel 9` should only be used to diagnose installation problems.

Installing the Inventory Manager Server

The Radia Management Infrastructure CD-ROM contains an installation process that will install the Inventory Manager and the supporting Radia Integration Server.

- If you are currently running Radia as a service, you must stop the service prior to this installation.
- Close all other applications prior to beginning installation of the Inventory Manager.
- To manage Radia products using the Management Portal, you must install the product as root.

Tips

- Click **Cancel** in any of the windows to exit the installation. If you click **Cancel** accidentally, there are prompts that enable you to return to the installation program.
- Click **Back** at any time to return to previous windows. All the information that you have entered thus far will remain unchanged.
- Most windows have an error message associated with them. If your specifications are not acceptable, an error message will appear. Click **OK**, and enter the correct information.

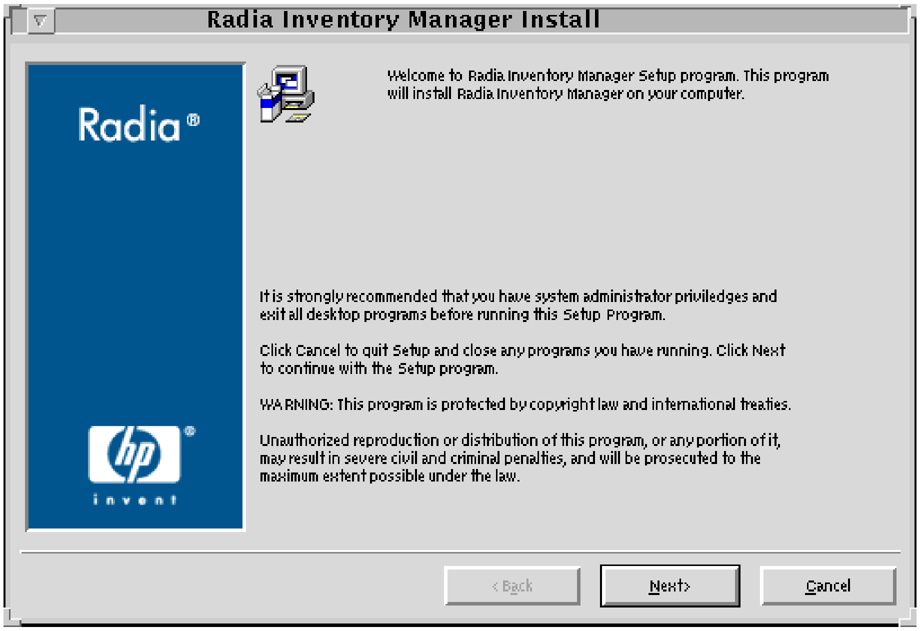
To install the Inventory Manager Server

1. On the Radia Management Infrastructure CD-ROM, navigate to the correct operating system platform subdirectory in the

   `/extended_infrastructure/inventory_manager_server`

   directory.
2. Type **`./install`**, and press **Enter**.

   The Welcome window opens.


Radia Inventory Manager Install

Welcome to Radia Inventory Manager Setup program. This program will install Radia Inventory Manager on your computer.

It is strongly recommended that you have system administrator priviledges and exit all desktop programs before running this Setup Program.

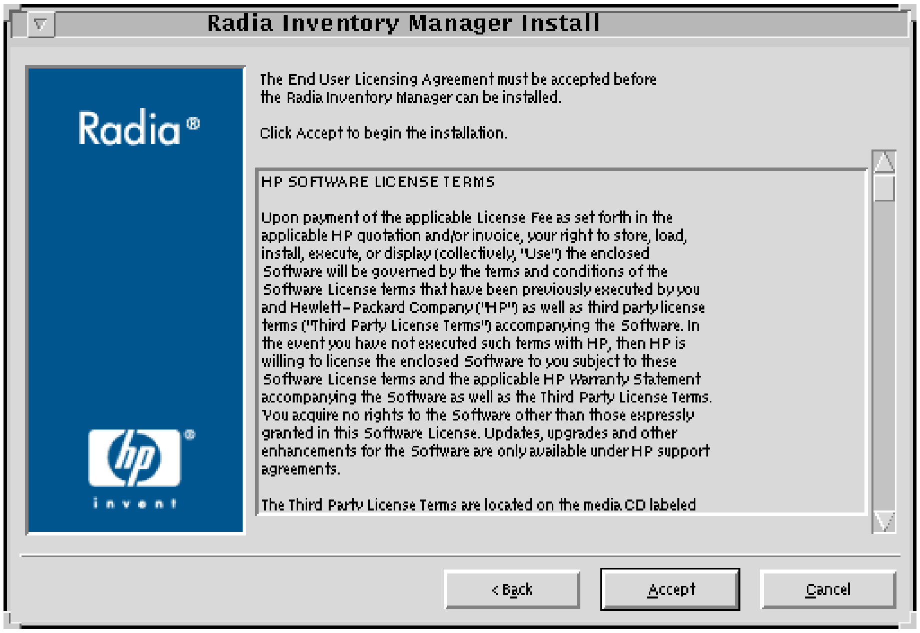
Click Cancel to quit Setup and close any programs you have running. Click Next to continue with the Setup program.

WARNING: This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.

3 Click **Next**.

The End-User License Agreement window opens for you to read the licensing terms for this product. You must accept the terms before the Radia Proxy Server can be installed.



The End User Licensing Agreement must be accepted before the Radia Inventory Manager can be installed.

Click Accept to begin the installation.

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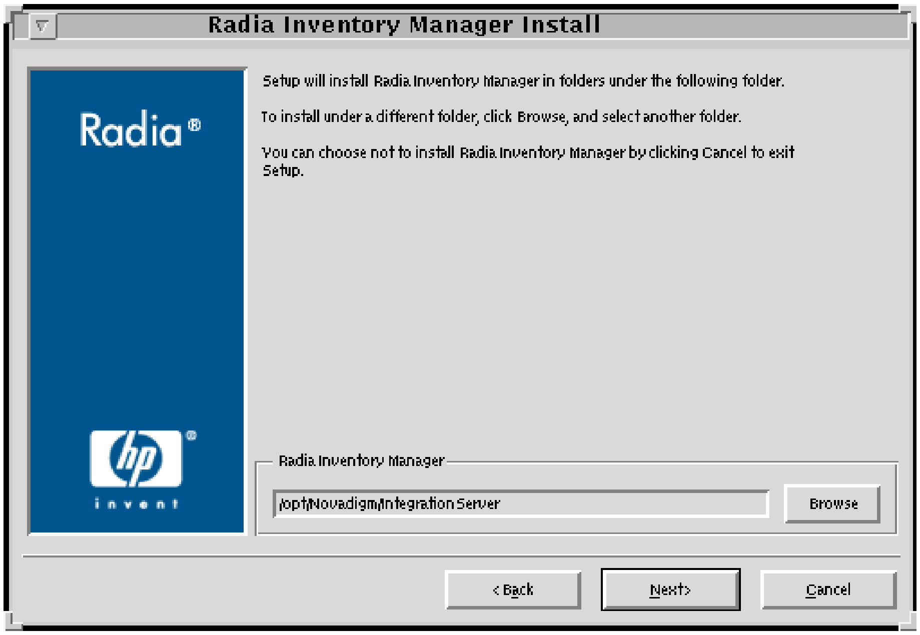
Upon payment of the applicable License Fee as set forth in the applicable HP quotation and/or invoice, your right to store, load, install, execute, or display (collectively, "Use") the enclosed Software will be governed by the terms and conditions of the Software License terms that have been previously executed by you and Hewlett-Packard Company ("HP") as well as third party license terms ("Third Party License Terms") accompanying the Software. In the event you have not executed such terms with HP, then HP is willing to license the enclosed Software to you subject to these Software License terms and the applicable HP Warranty Statement accompanying the Software as well as the Third Party License Terms. You acquire no rights to the Software other than those expressly granted in this Software License. Updates, upgrades and other enhancements for the Software are only available under HP support agreements.

The Third Party License Terms are located on the media CD labeled

4 Click **Accept** to agree to the terms of the software license and continue with the installation.

The Inventory Manager Location window opens.



Radia Inventory Manager Install

Setup will install Radia Inventory Manager in folders under the following folder.

To install under a different folder, click Browse, and select another folder.

You can choose not to install Radia Inventory Manager by clicking Cancel to exit Setup.

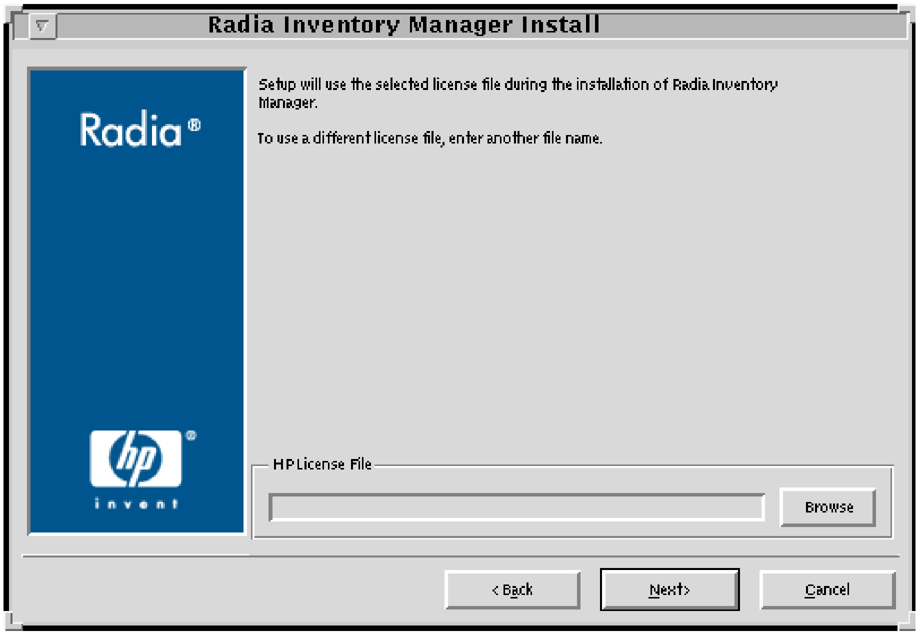
Radia Inventory Manager

/opt/Novadigm/Integration Server

5 Type the location where you would like to install the Inventory Manager, or click **Browse** to navigate to it.

6 Click **Next**.

The License File window opens.



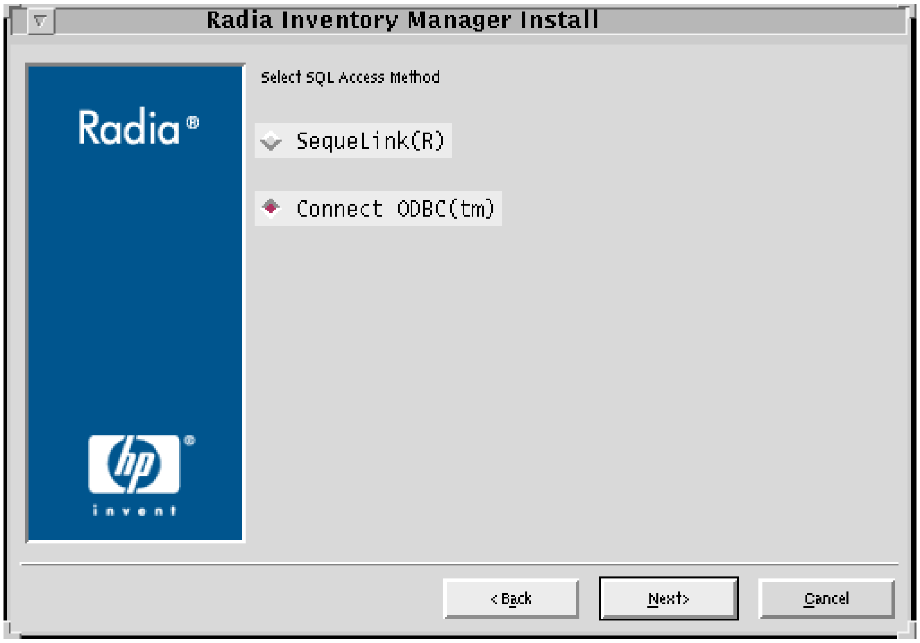
Setup will use the selected license file during the installation of Radia Inventory Manager.

To use a different license file, enter another file name.

7 Type the location of your license file, or click **Browse** to navigate to it. The license file must be called `license.nvd`.

8 Click **Next**.

The SQL Access Method window opens.



Select SQL Access Method

◇ SequeLink(R)

◆ Connect ODBC(tm)

9 Select the SQL access method you will use to connect to your ODBC compliant database. See Table 9 below for ODBC driver requirements.

- Select **SequeLink** if you are using third-party SequeLink drivers.
- Select **ConnectODBC** if you would like to use the embedded ODBC drivers. These drivers are installed with the Inventory Manager.

ODBC Driver Requirements

Depending on the operating system and ODBC-compliant database you are using, specific ODBC drivers are required.

Table 9: ODBC Driver Compatibility

Operating System	ODBC-Compliant Database	Compatible Drivers
HP-UX 11.00 or 11.11	Oracle 8.16, 8.17, 9i, or MS SQL	Embedded Connect ODBC 4.0 Wire Protocol drivers
HP-UX 11.00 or 11.11	Oracle 7.3 or 8.05+, 8i	Embedded Connect ODBC 4.0 drivers

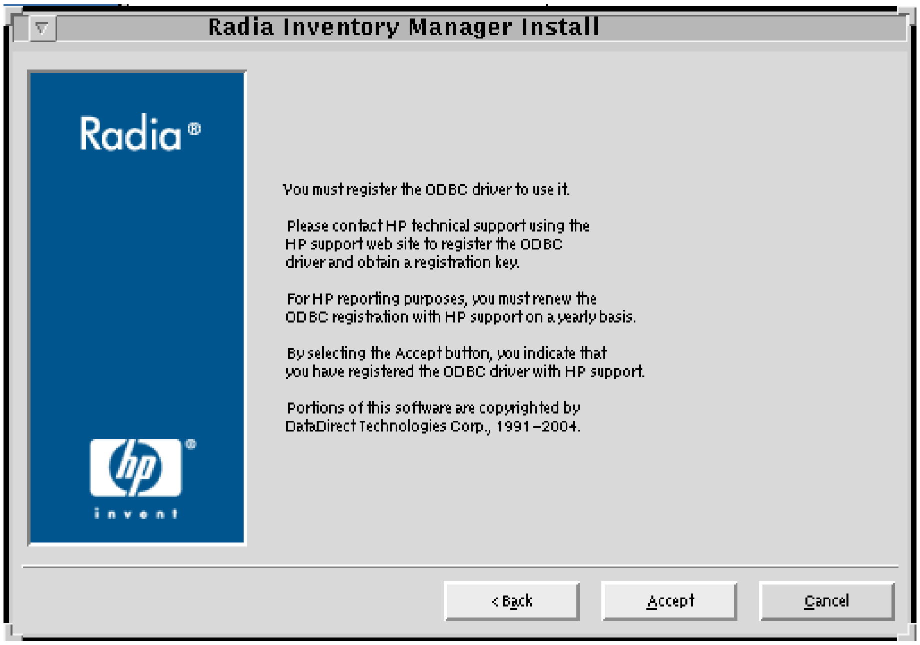
Operating System	ODBC-Compliant Database	Compatible Drivers
HP-UX 10.20	Oracle 7.3, 8i, 8.0.5+, 8.1.6, 8.1.7, or MS SQL	Embedded Connect ODBC 3.7 drivers or SequeLink 4.51 ODBC drivers
Solaris 7 or 8	Oracle 8.1.6, 8.1.7, 9i, or MS SQL	Embedded Connect ODBC 4.0 Wire Protocol drivers
Solaris 7 or 8	Oracle 7.3, 8i, 8.0.5+	Embedded Connect ODBC 4.0 drivers
Solaris 2.5 or 2.6	Oracle 7.3, 8i, 8.0.5+, 8.1.6, 8.1.7, 9i or MS SQL	SequeLink 4.51 ODBC drivers

After the Inventory Manager has been installed, configure your ODBC drivers based on the SQL access method you selected in Step 9, above. See *Configuring ODBC Drivers for use with Radia* on page 75, for more information.

10 Click **Next**.

If you selected to use the SequeLink drivers, skip to step 13. If you used ConnectODBC drivers continue with the following step.

The Pre-Registration window opens.


Radia Inventory Manager Install

You must register the ODBC driver to use it.

Please contact HP technical support using the HP support web site to register the ODBC driver and obtain a registration key.

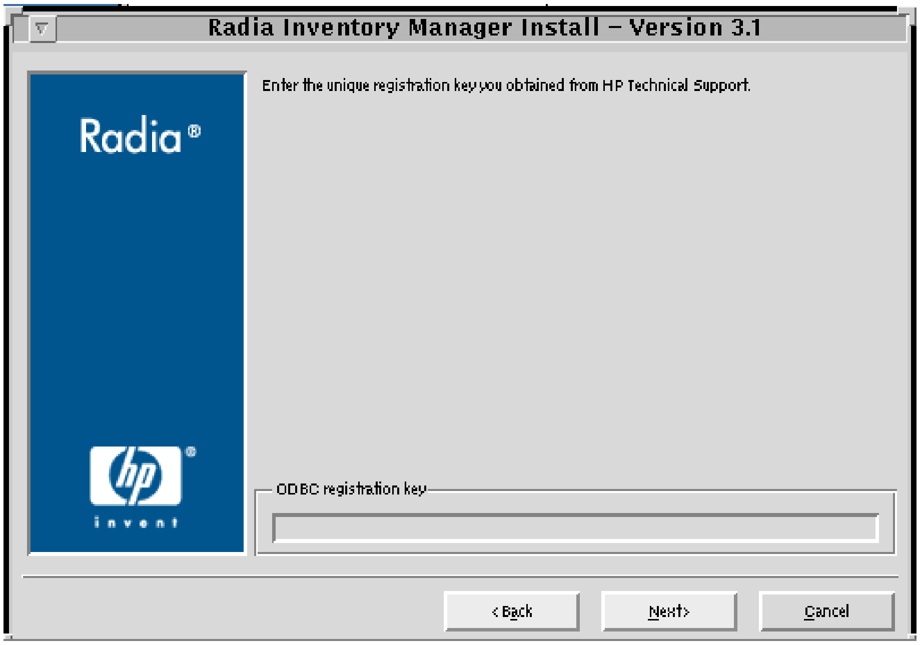
For HP reporting purposes, you must renew the ODBC registration with HP support on a yearly basis.

By selecting the Accept button, you indicate that you have registered the ODBC driver with HP support.

Portions of this software are copyrighted by DataDirect Technologies Corp., 1991-2004.

11 Click **Accept**.

The Post-Registration window opens.


Radia Inventory Manager Install - Version 3.1

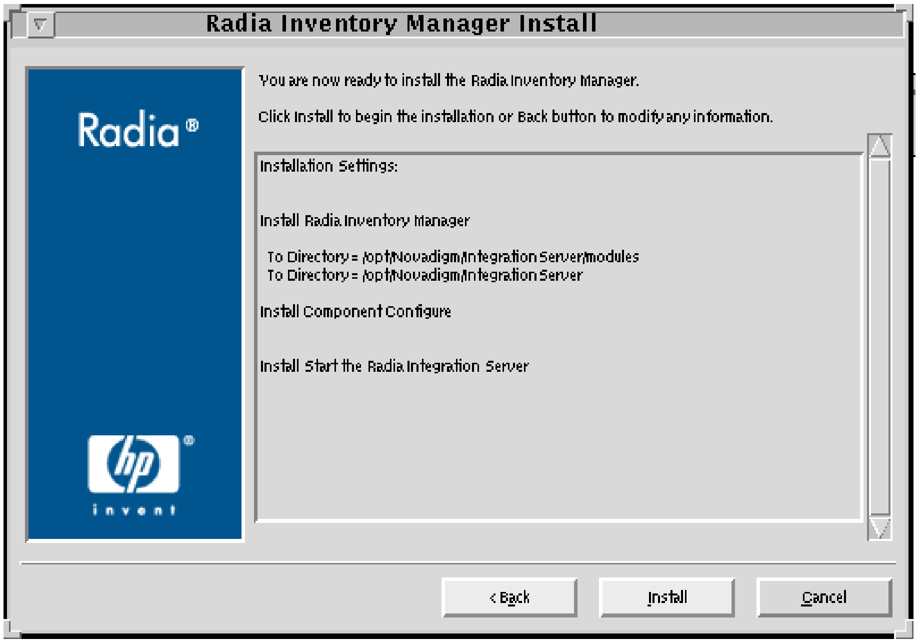
Enter the unique registration key you obtained from HP Technical Support.

ODBC registration key

As of Inventory Manager v4.1, you no longer need to register the ODBC drivers. When prompted for an ODBC registration key, enter: **DW86NDCF4V**

12 Enter your registration key in the space provided and click **Next**.

The Installation Settings window opens.



Radia Inventory Manager Install

You are now ready to install the Radia Inventory Manager.

Click Install to begin the installation or Back button to modify any information.

Installation Settings:

Install Radia Inventory Manager

To Directory = /opt/Novadigm/IntegrationServer/modules
To Directory = /opt/Novadigm/IntegrationServer

Install Component Configure

Install Start the Radia Integration Server

13 Review the Installation Settings window. Click **Back** if you are not satisfied with the installation settings.

14 Click **Install**.

15 When the installation is complete, click **Finish**.

The Inventory Manager has been installed on your computer.

Configuring the Configuration Server for Inventory Manager Support

Once the Inventory Manager components have been installed, it is necessary to configure two additional Configuration Server options.

Configuring the EDMPROF File

The [MGR_RIM] section of the EDMPROF file specifies the HTTP_HOST and PORT number for the Radia Integration Server. As shipped from HP, the assumption is that the Radia Integration Server and the Configuration Server will be running on the same computer.

> We recommend running the Configuration Server and Radia Integration Server on separate computers.

If the Radia Integration Server is running on a computer other than the computer running the Configuration Server, you must edit the [MGR_RIM] section of the `edmprof` file to direct the HOST to the proper URL.

The format for this addition is:

```
HTTP_HOST= localhost
HTTP_PORT= 3466
```

OR

```
HTTP_HOST= IPADDRESS
HTTP_PORT= 3466
```

The default settings are:

```
HTTP_HOST= localhost
HTTP_PORT= 3466
```

To change the [MGR_RIM] section of the `edmprof` file, use the procedures outlined below.

To edit the EDMPROF file

1 Navigate to the home directory of the user who installed the Configuration Server.

2 Use a text editor to open the `edmprof` file.

3 Locate the [MGR_RIM] section.

```
[MGR_RIM]

HTTP_HOST= localhost
HTTP_PORT= 3466
```

4 Enter the location and port number of the HTTP_HOST. HTTP_HOST can be either `localhost` or the IP address of the host machine.

```
[MGR_RIM]

HTTP_HOST= 111.111.111.111
HTTP_PORT= 3466
```

5 Save your changes.

Radia Integration Server Configuration File: rim.cfg

The Radia Integration Server configuration file, `rim.cfg`, contains parameters you can use to adjust specific Radia Integration Manager settings. The configuration file is created after the Radia Integration Server is initially started and is located in the Radia Integration Server's `/etc` directory. For specific instructions on starting the Radia Integration Server, see *Starting the Radia Integration Server* on page 76. Here's a sample `rim.cfg` fie.

```
# $Header: /cvs/nvd/rim/default.rc,v 1.10 2002/03/26 18:15:27 lfu Exp $
# Copyright (c) 1997-2000 HP. All Rights Reserved.
#
# RIM Module (Inventory Manager)
#
# This section provides the core configuration for the
# RIM Sub-system. Please take care when hand-editing this.
#
rim::init {
    DSN                 RIMDEMO
    DSN_USER            ""
    DSN_PASSWD          ""

    WBEM_AUTOLOAD       0
    DB_AUTOCREATE       0

    N_WORKERS           4
    WORKER_TIMEOUT      180
    WORKER_RETRY        3

    STATUS_INTERVAL     600
    STATUS_RESET        {12:00 am}

    COMMIT_INTERVAL     5000
    DL_DATEFMT          {%m/%d/%Y %I:%M:%S %p}
    ROWS_PER_PAGE       10
}
#
# END OF CONFIG
#
```

Table 10: rim.cfg Parameters

Parameter	Default Value	Description
DSN	RIMDEMO	Data Source Name.
DSN_USER	N/A	User name used to connect to the DSN.
DSN_PASSWD	N/A	Required DSN password (if any).
WBEM_AUTOLOAD	0	Controls WBEM Autoload. **1** – Load WBEM audit objects on demand. **0** – Load WBEM audit objects at startup.
DB_AUTOCREATE	0	Windows Only
DL_DATEFMT	(%m/%d/%Y %I:%M:%S %p)	Date format displayed on Radia Integration Server Web pages.
ROWS_PER_PAGE	10	Number of rows displayed on each Radia Integration Server query result page.
N_WORKERS	4	Number of open ODBC connections.
STATUS_RESET	{12:00 am}	Time status is rolled over.
STATUS_INTERVAL	600	Time interval (in seconds) used to display the status message.
WORKER_TIMEOUT	180	Wait time (in seconds) before an ODBC connection is dropped.

Parameter	Default Value	Description
WORKER_RETRY	3	Number of times to retry before a message is discarded.
COMMIT_INTERVAL	5000	Number of transactions successfully processed to the backend database between each commit of the temporary queue used to hold all incoming data (odbc_queue.mk). Not usually modified.

The default values for each `rim.cfg` parameter are set for optimal performance. Changing any of these settings will alter the performance of your Inventory Manager.

Changing the DSN

If you would like to change the Data Source Name (DSN) to a different database at any time, change the correct parameters in the `rim.cfg`. Edit this text file using any text editor and update the following parameters:

- **DSN** with the appropriate Data Source Name.
- **DSN_USER** with the user name you will be using to connect to the DSN.
- **DSN_PASSWD** with the required password.

Inventory Manager Enhancements

Previous versions of the Inventory Manager supported only one ODBC connection to the Radia Integration Server. With only one open connection, the inventory collection process could, in some cases, be slow. Running multiple sessions of the Radia Integration Server was one way to increase production and remedy this problem. As of Radia version 3.0, the Inventory Manager for UNIX now supports multiple concurrent ODBC connections, which optimizes throughput, and eliminates any need to run multiple sessions of the Radia Integration Server. These connections are represented in the `rim.cfg` by the parameter `N_WORKERS`. The default number of connections is four. Along with this parameter, other parameters are available in `rim.cfg` to maximize performance.

Configuring ODBC Drivers for use with Radia

During the installation of the Inventory Manager, you selected which drivers to use to connect to an ODBC-compliant database. If you are using DataDirect ODBC drivers, refer to technical document *Configuring DataDirect SequeLink ODBC Drivers for Use with Radia,* on the HP OpenView web site for configuration information. If you decided to use the Connect ODBC drivers that are included with the Inventory Manager, refer to the following sections for configuration information.

In order to establish connectivity to your ODBC compliant database, there are two configuration steps you must follow:

- Edit `odbc.ini` to add the Data Source Name you will be using.
- Edit and run `odbc.sh` to set up your environment variables.

To configure odbc.ini

1. Navigate to the `/nvdmodbc` directory located in your Radia Integration Sever directory.
2. Use a text editor to edit `odbc.ini`.
3. Add your DSN to the bottom of the [ODBC Data Sources] section.
4. Copy an entire individual Data Source section that is similar to your DSN and paste it at the bottom of the file.
5. Use this copied section to enter your DSN information.
6. Save and close `odbc.ini`.

After you have added your DSN to the odbc.ini file, you need to set your environment variables in order to load the correct library files for use with your ODBC drivers.

To set environment variables

1. Navigate to the `/nvdmodbc` directory located in your Radia Integration Sever directory.

2. Use a text editor to edit `odbc.sh` and make sure the information is correct.
3. Save any changes and exit the file.
4. To set the environment variables, at the command prompt type **`./odbc.sh`** and press Enter.

Starting the Radia Integration Server

To start the Radia Integration Server

- After you have installed and configured the Radia Integration Server, it must be started by navigating to the directory where you installed the Inventory Manager (`/opt/Novadigm/IntegrationServer` by default), and typing:

```
./nvdkit httpd.tkd
```

Stopping the Radia Integration Server

To stop the Radia Integration Server

1. Obtain the process ID (PID) for the Radia Integration Server using the UNIX `ps -ef` command. If you need assistance, contact your local UNIX system administrator.

   Example: `ps -ef | grep nvdkit`

2. Kill the process.

Installing the Inventory Manager Sample Reporting Database (optional)

After installing the Radia Integration Server, you are ready to install the sample reporting database. The sample reporting database is an Access '97 database, and should be installed on a 32-bit Windows platform.

Access is not an enterprise database solution and should only be used for testing purposes.

To install the sample database

1 Make sure the Radia Integration Server is started.

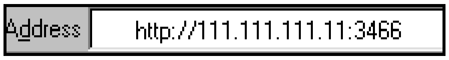
2 At a Windows computer, start your Web browser and type the address and port number of the Radia Integration Server into the address field:

```
http://<I/P Address or Hostname>:<Port>.
```

— The `I/P Address` is the I/P address of the computer running the Radia Integration Server.

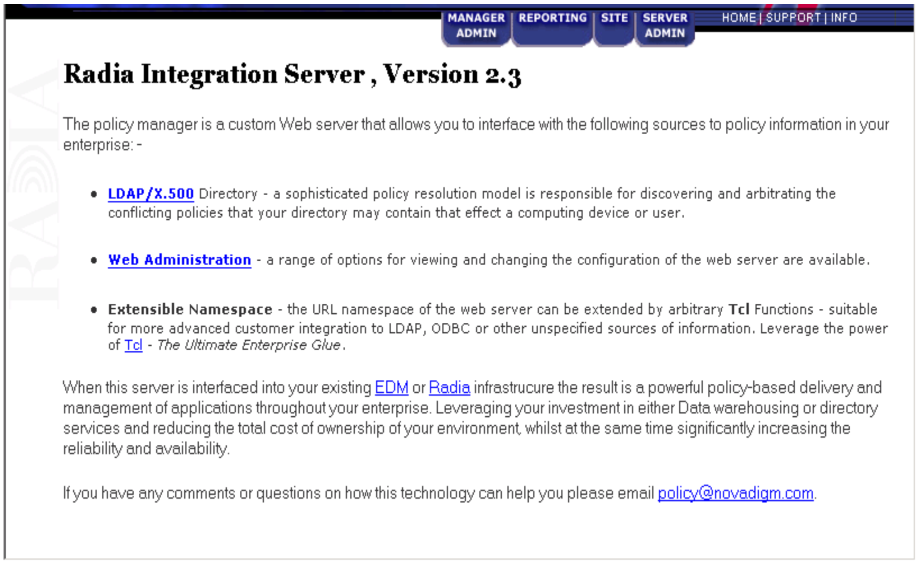
— The `Hostname` is the host name of the computer running the Radia Integration server.

— The `Port` is the port number of the Radia Integration Server. This port number is usually 3466.



http://111.111.111.11:3466

The home page of the Radia Integration Server opens.



Radia Integration Server , Version 2.3

The policy manager is a custom Web server that allows you to interface with the following sources to policy information in your enterprise: -

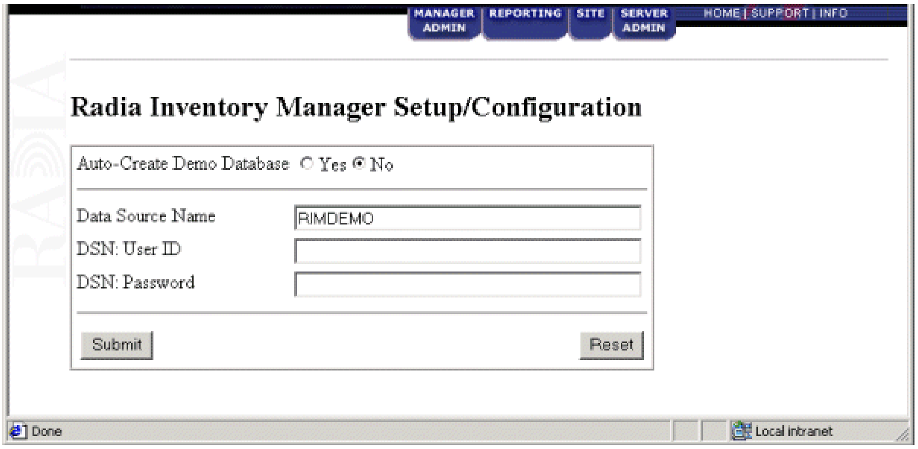
- LDAP/X.500 Directory - a sophisticated policy resolution model is responsible for discovering and arbitrating the conflicting policies that your directory may contain that effect a computing device or user.
- Web Administration - a range of options for viewing and changing the configuration of the web server are available.
- **Extensible Namespace** - the URL namespace of the web server can be extended by arbitrary **Tcl** Functions - suitable for more advanced customer integration to LDAP, ODBC or other unspecified sources of information. Leverage the power of Tcl - *The Ultimate Enterprise Glue*.

When this server is interfaced into your existing EDM or Radia infrastrucure the result is a powerful policy-based delivery and management of applications throughout your enterprise. Leveraging your investment in either Data warehousing or directory services and reducing the total cost of ownership of your environment, whilst at the same time significantly increasing the reliability and availability.

If you have any comments or questions on how this technology can help you please email policy@novadigm.com.

3 Click the **REPORTING** tab.

The Inventory Manager Setup/Configuration window opens.



Radia Inventory Manager Setup/Configuration

Auto-Create Demo Database ○ Yes ● No

Data Source Name: RIMDEMO

DSN: User ID:

DSN: Password:

The Inventory Manager Setup/Configuration windows appears upon the first connection to the REPORTING section.

Use Table 11 below to complete the configuration information for the Inventory Manager Setup/Configuration.

Table 11: Inventory Manager Setup/Configuration

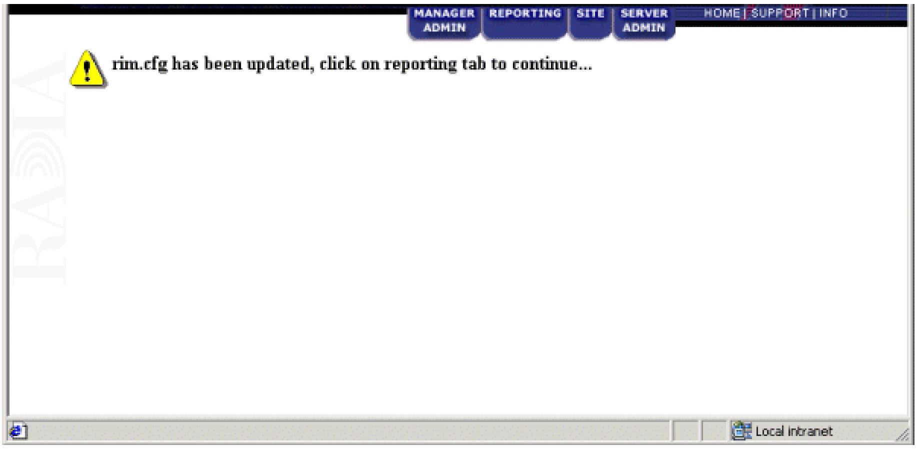
Item	Description
Auto-Create Demo Database	Select **Yes** to create the reporting database sample.
Data Source Name	Unique name used to create a data connection to a database using ODBC. The data source name (DSN) is used by applications that need to access or manage data in the database. The default, RIMDEMO, is automatically filled in. If you want to use the sample database installed with the Radia Integration Server, accept this default. If you want to use an ODBC driver for a different database, enter that data source name here. Note: The ODBC driver for the database you choose must be installed prior to installing the Radia Integration Server.

Item	Description
DSN: User ID	If the data source database requires a user ID, enter that ID here. The sample data source does not require a user ID.
DSN: Password	If the data source requires a password, enter that here. The sample data source does not require a password.

If you accept the default of Auto Create, the Radia Integration Server will create a Microsoft Access 97 DSN named RIMDEMO automatically.

4 For the **Auto-Create Demo Database** option, select **Yes** to create the demo database, and then click **Submit**.

An alert message is displayed indicating a successful installation.



rim.cfg has been updated, click on reporting tab to continue...

The Radia Integration Server is now ready to process data received from the Configuration Server.

Summary

- We recommended installing the Radia Integration Server on a separate computer from the Configuration Server.
- Installing the Inventory Manager installs the Radia Integration Server. The default location of the installation is `/opt/Novadigm/IntegrationServer`.
- After installation, configure the Radia Inventory Server using the `rim.cfg` configuration file.
- After installation, modify the [MGR_RIM] section of the Configuration Server's EDMPROF file to specify the `HTTP_HOST` and `HTTP_PORT` number for the Radia Integration Server.
- Start and stop the Inventory Manager by starting and stopping the Radia Integration Service.
- Establish connectivity to your ODBC-compliant database. Edit `odbc.ini` to add the Data Source Name you will be using, and run `odbc.sh` to set up your environment variables.
- The Radia Integration Server creates the necessary tables in the ODBC database you choose. You can install the provided sample database.

4 Inventory Manager and the Radia Database

At the end of this chapter, you will:

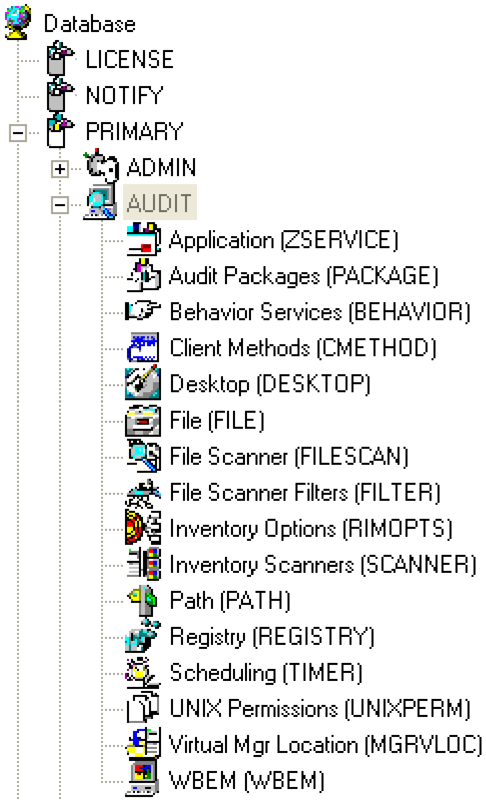
- Understand the changes made to the Radia Database.
- Understand the Inventory Manager Database.

This manual helps you install and use the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Changes to the Radia Database

The installation of the Inventory Manager adds the AUDIT domain to the Radia Database PRIMARY file.

The following figures and instructions use the System Explorer, which is available for 32-bit Windows platforms. For more information, refer to the System Explorer Guide.



- Database
  - LICENSE
  - NOTIFY
  - PRIMARY
    - ADMIN
    - AUDIT
      - Application (ZSERVICE)
      - Audit Packages (PACKAGE)
      - Behavior Services (BEHAVIOR)
      - Client Methods (CMETHOD)
      - Desktop (DESKTOP)
      - File (FILE)
      - File Scanner (FILESCAN)
      - File Scanner Filters (FILTER)
      - Inventory Options (RIMOPTS)
      - Inventory Scanners (SCANNER)
      - Path (PATH)
      - Registry (REGISTRY)
      - Scheduling (TIMER)
      - UNIX Permissions (UNIXPERM)
      - Virtual Mgr Location (MGRVLOC)
      - WBEM (WBEM)

Figure 3: Radia Database PRIMARY.AUDIT file.

The AUDIT domain contains the classes required to:

- Configure the tasks needed to collect the inventory information.
- Manage the client computer's assets.

AUDIT Domain Defined

The AUDIT domain is structured very much like the SOFTWARE domain. The following table describes the classes present in the AUDIT domain.

Table 12: Audit Domain

Class	Description
Audit Application (ZSERVICE)	Sample services distributed with the Inventory Manager. The AUDIT.ZSERVICE instance is connected to a policy instance. A policy instance can be an instance of the Users, Departments, or Workgroups class. It can also be a customer-defined class within the POLICY domain. Each of the sample ZSERVICE classes is connected to the PACKAGE instances.
Audit Packages (PACKAGE)	Defines what information to collect and then what actions to take. These packages would contain various audit components. A good example is an audit of running services on a desktop. The AUDIT.ZSERVICE instance must contain a connection to an AUDIT.PACKAGE instance.
Behavior Services (BEHAVIOR)	Defines instances that enable the execution of auditing on the client. Normally, there is no need to add or modify instances in this class.
Client Methods (CMETHOD)	Used to configure method points for Tcl inventory scans. The base instance of the SCANNER class is connected to the CMETHOD.INV_FULL instance. This instance can be used for all inventory scans defined in the SCANNER class.
Desktop (DESKTOP)	This class is reserved for future use.

Class	Description
File (FILE)	Defines file scans, such as auditing system executables.
File Scanner (FILESCAN)	Persistent component class used to configure an inventory scan. Adding File Scanner components to an audit package creates instances of the FILESCAN class.
File Scanner Filters (FILTER)	Persistent component class used to configure an inventory scan. Adding File Scanner Filters components to an audit package creates instances of the FILTER class.
Inventory Options (RIMOPTS)	Contains the attributes that offer options to control an inventory management task.
Inventory Scanners (SCANNER)	Persistent component class that is used to configure an inventory scan. Create instances of the SCANNER class by adding Inventory Scanners components to an audit package.
Path (PATH)	Stores the drive and directory required to install a resource. Packages can be relocated by updating instances of this class.
Registry (REGISTRY)	Uses WMI to obtain a Registry scan of a Windows machine. Create instances of the REGISTRY class to run scans of the Windows Registry and obtain a Registry Scan report. See the *Registry Class* topics in the *Inventory Manager Guide* for more information.
Scheduling (TIMER)	Contains the instances that enable the Radia administrator to set a timer on end users' computers. One or multiple auditing services can be processed whenever the timer expires.
UNIX Permissions (UNIXPERM)	Contains UNIX file permission information.
Virtual Mgr Location (MGRVLOC)	Used to specify the initial path for files being transferred to the Configuration Server during a FILE audit.

Class	Description
WBEM (WBEM)	Contains instances that define Inventory Manager scans of WMI classes. These can include any class in the WMI database such as Win32_ Services. This example would provide information on Windows NT or Windows 2000 services.

Table 13: FILTER Instances

Instance	Description
NAME	Friendly Name
ACTION	Action Flags: I – Initial (Used for file auditing only [not currently supported]) N – New C – Changed D – Deleted S – Send (upload to Configuration Server) D – Delete (not currently supported) C – Custom (not currently supported)
DIR	Directory to scan.
DEPTH	Number of subdirectory levels to scan Values: -1 root directory and all of its subdirectories 0 root directory only 1 root directory and its files >1 root directory and its files down to the specified depth
INCLUDE	Include globe pattern.
EXCLUDE	Exclude globe pattern.
COMPRESS	Compress [Y/N]

Instance	Description
ZRSCVLOC	Name of an instance in the PRIMARY.AUDIT.MGRVLOC class that defines the location to place the uploaded scanned files. Default is RADIA_UPLOAD.

ZMTHPRMS Variable

The ZMTHPRMS variable found in the SYSTEM.ZMETHOD.POST_WBEM instance specifies the HTTP POST for the Radia Integration Server. As shipped from HP, this instance assumes that the Radia Integration Server and the Configuration Server will be running on the same computer.

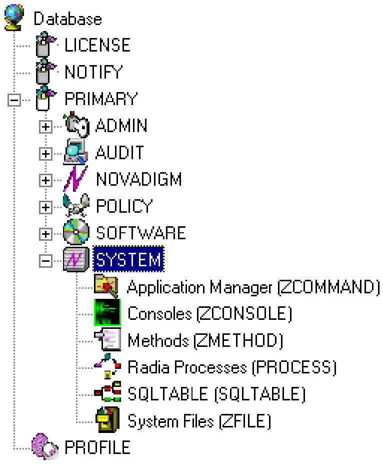
If the Radia Integration Server is running on a computer other than the one running the Configuration Server, you must edit the POST_WBEM instance to direct the POST to the proper URL.

The general form for this addition is:
http://<hostname> or i/P *`address:port`* **`/proc/wbem&ZCURINOB`**

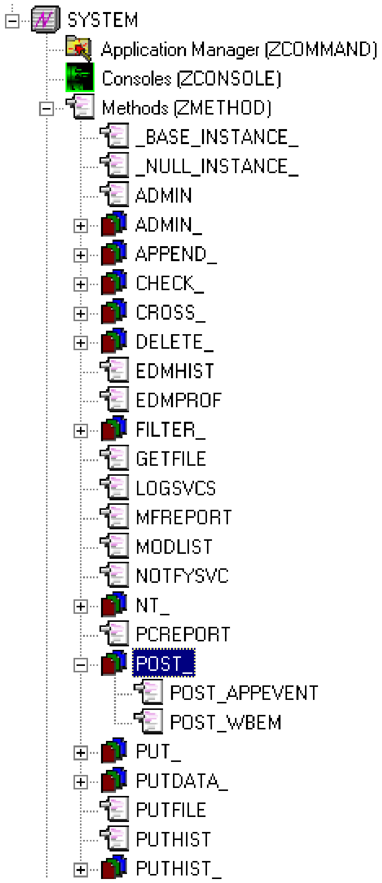
To edit the POST_WBEM instance

1 If you have not already done so, start the System Explorer.

2 Navigate to and expand the PRIMARY.SYSTEM domain.



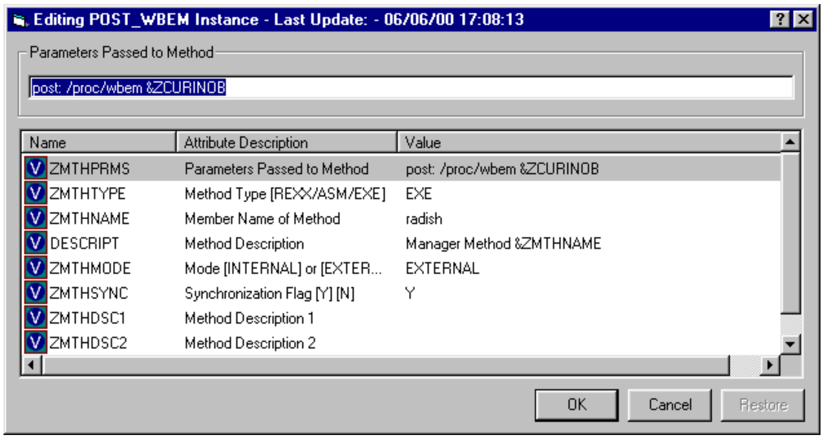
3 Expand the Methods (ZMETHOD) class.



4 Expand the POST_ instance and select POST_WBEM.

5 Double-click the **ZMTHPRMS** variable in the list view of the System Explorer window.

The Editing instance dialog box opens.



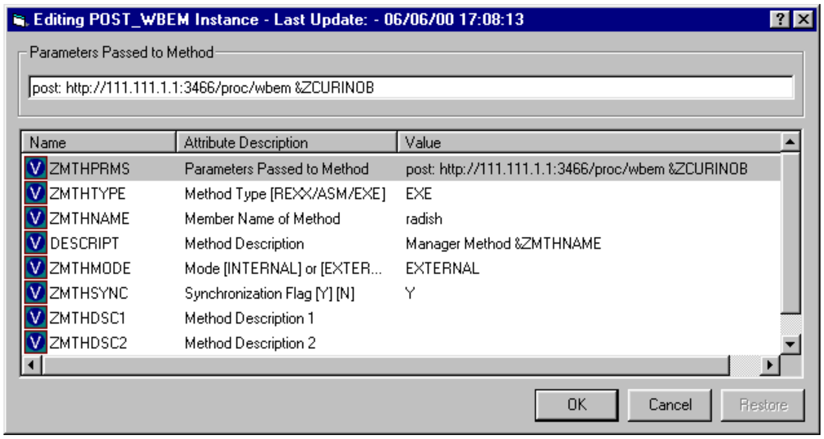
Editing POST_WBEM Instance - Last Update: - 06/06/00 17:08:13

Parameters Passed to Method: post: /proc/wbem &ZCURINOB

Name	Attribute Description	Value
ZMTHPRMS	Parameters Passed to Method	post: /proc/wbem &ZCURINOB
ZMTHTYPE	Method Type [REXX/ASM/EXE]	EXE
ZMTHNAME	Member Name of Method	radish
DESCRIPT	Method Description	Manager Method &ZMTHNAME
ZMTHMODE	Mode [INTERNAL] or [EXTER...	EXTERNAL
ZMTHSYNC	Synchronization Flag [Y] [N]	Y
ZMTHDSC1	Method Description 1	
ZMTHDSC2	Method Description 2	

6 In the **Parameters Passed to Method** text box at the top of the dialog box, type:

http://<hostname> or i/P *address*:*port*/**proc /wbem&ZCURINOB**



Editing POST_WBEM Instance - Last Update: - 06/06/00 17:08:13

Parameters Passed to Method: post: http://111.111.1.1:3466/proc/wbem &ZCURINOB

Name	Attribute Description	Value
ZMTHPRMS	Parameters Passed to Method	post: http://111.111.1.1:3466/proc/wbem &ZCURINOB
ZMTHTYPE	Method Type [REXX/ASM/EXE]	EXE
ZMTHNAME	Member Name of Method	radish
DESCRIPT	Method Description	Manager Method &ZMTHNAME
ZMTHMODE	Mode [INTERNAL] or [EXTER...	EXTERNAL
ZMTHSYNC	Synchronization Flag [Y] [N]	Y
ZMTHDSC1	Method Description 1	
ZMTHDSC2	Method Description 2	

In the example shown, the IP address of the Radia Integration Server has been used. Instead of an IP address, you can use the host name. The port, 3466, is the default port number attended by the Radia Integration Server.

7 Click **OK**, and then click **Yes** to confirm your changes.

Summary

- The AUDIT domain contains the classes required to configure the tasks needed to collect the inventory information and to manage the client computers assets.
- If installed, the information obtained by auditing client computers is stored in the reporting database.

5 Software and Hardware Auditing

At the end of this chapter, you will:

- Understand file auditing.
- Understand WBEM auditing.
- Understand hardware auditing and the ZCONFIG object.

This manual helps you implement the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

CIM Schema and Inventory Collection

As a guide for collecting hardware and software inventory, HP uses the Common Information Model (CIM) schema version 2.6. This allows inventory to be collected based on industry standards, as defined by the Distributed Management Task Force (DMTF).

The CIM schema allows real-world objects to be mapped to objects defined in the different schema classes and attributes. After data is discovered using these standards, the output is collected by Radia and is available for reporting purposes.

For a description of the CIM schema classes used, see Table 14 below.

Table 14: CIM classes

CIM Class	Description
CIM_SCSIController	Subclass of the CIM_Controller used to represent SCSI controllers.
CIM_ResidesOnExtent	Subclass of CIM_Dependancy. This is an association between the logical volume and the file system on the logical volume.
CIM_Processor	Used to represent computer processor information.
CIM_ParallelController	Subclass of CIM_Controller used to represent parallel controllers.
CIM_NFS	Used to represent general information about NFS mounted file systems.
CIM_MediaPresent	Used to represent relationship with the MediaAccessDevice. Represents logical volume or volume group and one of the disks it resides on.

CIM Class	Description
CIM_LogicalDiskBasedOnVolume	Subclass of LogicalDiskBasedOnExtent used to represent the relationship between logical volume and its volume group.
CIM_LogicalDisk	Used to represent general information about the logical volume.
CIM_IDEController	Subclass of CIM_Controller used to represent IDE controllers, including ATA and ATAPI controllers.
CIM_EthernetAdapter	Used to represent capabilities of the Ethernet card.
CIM_DiskDrive	Subclass of CIM_MediaAccessDevice, includes all hard disk drives, non-removable and removable. Models the reader/writer properties of disk drives.
CIM_Directory	Used for exported directory.
CIM_DVDDrive	Subclass of CIM_MediaAccessDevice includes all of the types of DVD reader and writer drives.
CIM_CDROMDrive	Subclass of CIM_MediaAccessDevice includes CDROM reader and writer drives.
CIM_Service	Used to represent general information about NFS client/server service.
CIM_SCSIInterface	Subclass of CIM_ControlledBy. Represents unique data from the relationship between the controller and the device.
CIM_UnixLocalFileSystem	Used to represent UNIX specific information about the local file system.
CIM_UnixComputerFileSystem	Used to represent general information about the computer.

CIM Class	Description
CIM_StorageVolume	Used to represent the hand-off point between providers or the result of a redundancy.
CIM_UnixOperatingSystem	Used to represent general information about the UNIX operating system. General information about the volume groups.
CIM_SoftwareElement	Used to represent the SVR4 packages or filesets. On HP-UX, this class also collects SD products and creates the appropriate classes.
CIM_Export	Used to represent an association between a LocalFileSystem and its directories indicating that the specified directories are available for mount. When exporting an entire FileSystem, the directory should reference the topmost directory of the FileSystem.

For more information about the CIM schema 2.6 visit the DMTF Web site:

`http://www.dmtf.org/.`

Auditing Types

When configuring your audits, the administrator should understand exactly what types of things can be audited and what the expected results from an audit will comprise.

The Inventory Manager for UNIX allows for three types of audits:

- File auditing
- WBEM auditing
- Hardware auditing

➤ Previously, Windows and UNIX auditing used different technologies and techniques to collect file and WBEM audit information. While the current UNIX methods described below are still supported (`filescan.tkd` for file auditing and `nvdcim.tkd` for WBEM auditing), the Windows modules (RIMFSCAN and RIMDIFF for file auditing and RIMWBEM for WBEM auditing) are now also available for use on UNIX as well. This is an effort to merge these technologies, and in the future, to provide one consistent method of performing file audits for both Windows and UNIX. Please see Appendix A for more information on these new alternatives to performing UNIX audits.

File Auditing

Audit.FILESCAN

The AUDIT.FILESCAN class instances in an audit package control the auditing function for files on the client computer. The `filescan.tkd` methods on the client computer perform the actual file auditing operations by specifying what files to look for. There can be one or more AUDIT.FILESCAN instances in an audit package. Each AUDIT.FILESCAN instance can specify a scan for one or more files.

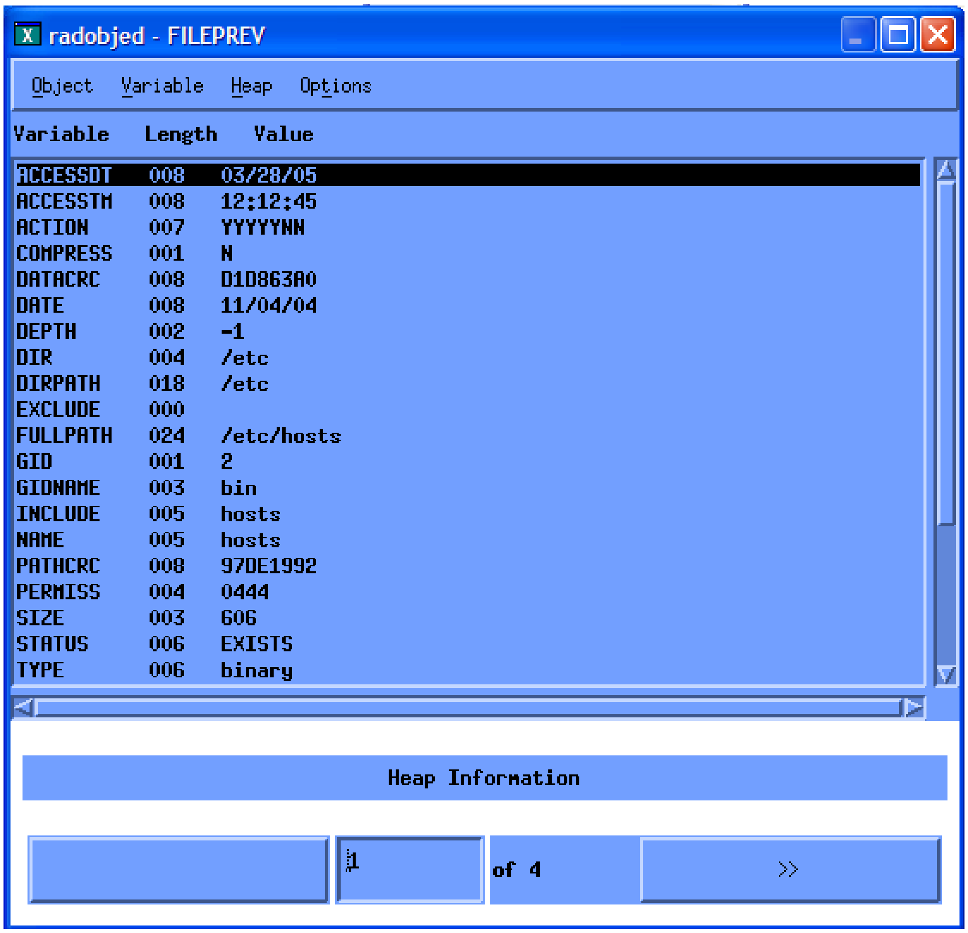
See Inventory Scan Results on page 119 for additional information on the `filescan.tkd` methods.

The following table summarizes the attributes in an AUDIT.FILESCAN class instance and their affects on the `filescan.tkd` method.

Table 15: AUDIT.FILESCAN Class Instances

Attribute	Description
NAME	Friendly name.
DIFF	Specifies if differencing is to be done or not. If DIFF = Y, then the information from the scanned files will be compared with the information from the previous file scan.
OUTPUT	Specifies the prefix to be used for the object names created. If OUTPUT=FILE, then FILEAUDIT, FILEPREV objects will be created on the client computer.

The FILEPREV object contains the results of the audit on the client computer as shown in Figure 4 below.



```
Variable   Length   Value
ACCESSDT    008    03/28/05
ACCESSTM    008    12:12:45
ACTION      007    YYYYYNN
COMPRESS    001    N
DATACRC     008    D1D863A0
DATE        008    11/04/04
DEPTH       002    -1
DIR         004    /etc
DIRPATH     018    /etc
EXCLUDE     000
FULLPATH    024    /etc/hosts
GID         001    2
GIDNAME     003    bin
INCLUDE     005    hosts
NAME        005    hosts
PATHCRC     008    97DE1992
PERMISS     004    0444
SIZE        003    606
STATUS      006    EXISTS
TYPE        006    binary
```

Figure 4: FILEPREV object.

The FILEPREV object contains one heap for each file discovered during the scan for the audit service. It contains the attributes from the AUDIT.FILESCAN class instance that controlled the scan, as described above. It also contains the attributes listed in the table below.

Table 16: FILEPREV Object

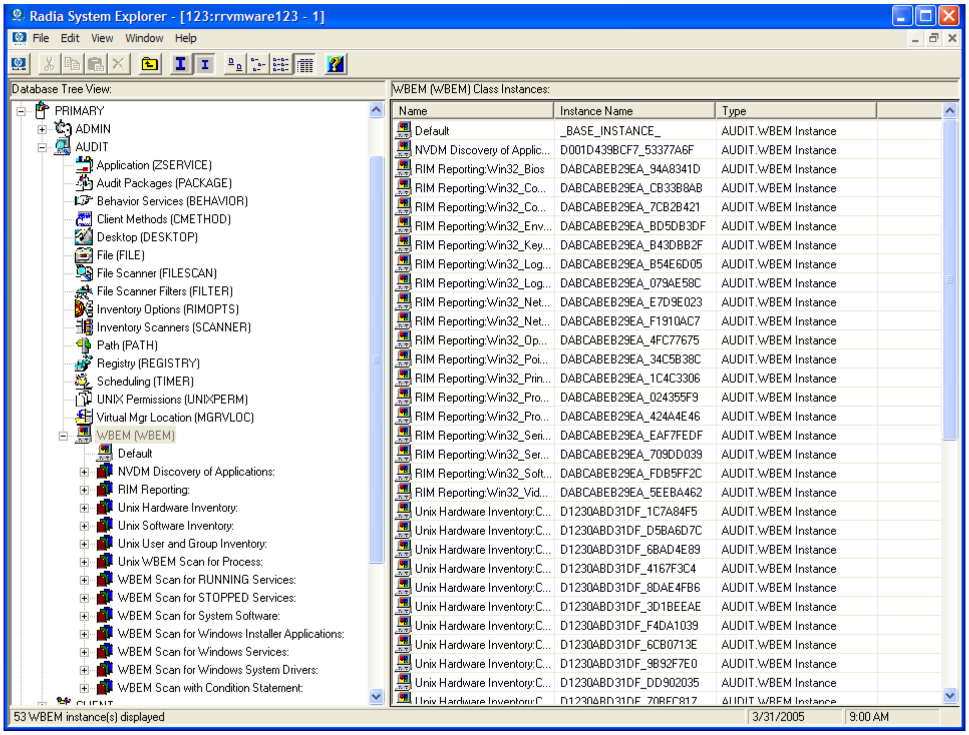
Attribute	Example	Description
ACCESSDT	12/21/01	Most recent access date.
ACCESSTM	17:03:30	Most recent access time.
ACTION	YYYYNNN	Action flags. First four flags determine when to report. Y – ignored Y – New file Y – File changed since last scan Y – Ignored Last three flags control action to be taken. Y – send the file to RCS Y – ignored Y – ignored
COMPRESS	Y	Compression setting.
DATACRC	EBF8AAB2	Data CRC
DATE	12/21/01	Date of most recent modification to this file.
DEPTH	-1	Number of subdirectory levels scanned. Values: -1 root directory and all of its subdirectories 2 root directory only 3 root directory and its files >1 root directory and its files down to the specified depth
DIR	/opt/test/rim	The system drive location of the file.
DIRPATH	/opt/test	The directory path of the file.
EXCLUDE		Parameter to exclude.
FULLPATH	/opt/test/rim	Fully qualified path and file name of the file.
GID	0	UNIX group ID of file owner
GIDNAME	Bin	UNIX group name of file owner
INCLUDE	Hosts	Parameter to include.

Attribute	Example	Description
NAME	Hosts	File name.
PATHCRC	49FCC425	A unique number that indicates the CRC path used for differencing.
PERMISS	0444	4-digit octal value for file permissions.
SIZE	100	File size in bytes.
STATUS	EXISTS	Indicates the status of the file on the client computer. Possible values are: • **Exists** - This is the first time scanning for this file and it was found. • **New** - This file was added to the client computer file system since the last scan was performed. • **Update** - This file exists in the new and previous scans. There have been changes to the date, time, size and/or version. • **Deleted** - This file was present in the previous scan but is missing in the new scan. • **Not found** - No files were found that matched this request.
TYPE	Directory	File type. Can be directory, LINK, or binary.
UID	0	UNIX ID of file owner.
UIDNAME	Bin	Username of the file owner.
ZOBJDATE	20011221	
ZOBJPID	DAAA4188DF9B	ID
ZOBJPNAM	DAAA891EE5A3_84248083	Unique Name
ZOBJPCLS	ZSERVICE	
ZOBJPID	DAAA7FF79F37	PID
ZOBJTIME	15:06:42	Time
ZRSCVLOC	RADIA_UPLOAD	Location

WBEM Auditing

The `nvdcim.tkd` method is used to query the WBEM namespaces to retrieve information about a system's hardware and software. The method constructs a query from the information contained in an instance of the AUDIT.WBEM class. WBEM has a query engine that processes the query statement and returns the query results to `nvdcim.tkd`. There is one heap in the query result object for every discovered instance.

An AUDIT.WBEM class instance defines a query into the WBEM namespace.



Database Tree View:

- PRIMARY
  - ADMIN
  - AUDIT
    - Application (ZSERVICE)
    - Audit Packages (PACKAGE)
    - Behavior Services (BEHAVIOR)
    - Client Methods (CMETHOD)
    - Desktop (DESKTOP)
    - File (FILE)
    - File Scanner (FILESCAN)
    - File Scanner Filters (FILTER)
    - Inventory Options (RIMOPTS)
    - Inventory Scanners (SCANNER)
    - Path (PATH)
    - Registry (REGISTRY)
    - Scheduling (TIMER)
    - UNIX Permissions (UNIXPERM)
    - Virtual Mgr Location (MGRVLOC)
    - WBEM (WBEM)
      - Default
      - NVDM Discovery of Applications:
      - RIM Reporting:
      - Unix Hardware Inventory:
      - Unix Software Inventory:
      - Unix User and Group Inventory:
      - Unix WBEM Scan for Process:
      - WBEM Scan for RUNNING Services:
      - WBEM Scan for STOPPED Services:
      - WBEM Scan for System Software:
      - WBEM Scan for Windows Installer Applications:
      - WBEM Scan for Windows Services:
      - WBEM Scan for Windows System Drivers:
      - WBEM Scan with Condition Statement:
  - CLIENT

WBEM (WBEM) Class Instances:

Name	Instance Name	Type
Default	_BASE_INSTANCE_	AUDIT.WBEM Instance
NVDM Discovery of Applic...	D001D439BCF7_53377A6F	AUDIT.WBEM Instance
RIM Reporting:Win32_Bios	DABCABEB29EA_94A8341D	AUDIT.WBEM Instance
RIM Reporting:Win32_Co...	DABCABEB29EA_CB33B8AB	AUDIT.WBEM Instance
RIM Reporting:Win32_Co...	DABCABEB29EA_7CB2B421	AUDIT.WBEM Instance
RIM Reporting:Win32_Env...	DABCABEB29EA_BD5DB3DF	AUDIT.WBEM Instance
RIM Reporting:Win32_Key...	DABCABEB29EA_B43DBB2F	AUDIT.WBEM Instance
RIM Reporting:Win32_Log...	DABCABEB29EA_B54E6D05	AUDIT.WBEM Instance
RIM Reporting:Win32_Log...	DABCABEB29EA_079AE58C	AUDIT.WBEM Instance
RIM Reporting:Win32_Net...	DABCABEB29EA_E7D9E023	AUDIT.WBEM Instance
RIM Reporting:Win32_Net...	DABCABEB29EA_F1910AC7	AUDIT.WBEM Instance
RIM Reporting:Win32_Op...	DABCABEB29EA_4FC77675	AUDIT.WBEM Instance
RIM Reporting:Win32_Poi...	DABCABEB29EA_34C5B38C	AUDIT.WBEM Instance
RIM Reporting:Win32_Prin...	DABCABEB29EA_1C4C3306	AUDIT.WBEM Instance
RIM Reporting:Win32_Pro...	DABCABEB29EA_024355F9	AUDIT.WBEM Instance
RIM Reporting:Win32_Pro...	DABCABEB29EA_424A4E46	AUDIT.WBEM Instance
RIM Reporting:Win32_Seri...	DABCABEB29EA_EAF7FEDF	AUDIT.WBEM Instance
RIM Reporting:Win32_Ser...	DABCABEB29EA_709DD039	AUDIT.WBEM Instance
RIM Reporting:Win32_Soft...	DABCABEB29EA_FDB5FF2C	AUDIT.WBEM Instance
RIM Reporting:Win32_Vid...	DABCABEB29EA_5EEBA462	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_1C7A84F5	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_D5BA6D7C	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_6BAD4E89	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_4167F3C4	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_8DAE4FB6	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_3D1BEEAE	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_F4DA1039	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_6CB0713E	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_9B92F7E0	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_DD902035	AUDIT.WBEM Instance
Unix Hardware Inventory:C...	D1230ABD31DF_70BEC817	AUDIT.WBEM Instance

53 WBEM instance(s) displayed 3/31/2005 9:00 AM

Figure 5: AUDIT.WBEM class instances.

The table below describes the attributes of the AUDIT.WBEM instance.

Table 17: AUDIT.WBEM Instance

Attribute	Description
ACTION	The filescan.tkd method performs actions on the WBEM namespaces (s) instances discovered on the user's computer during the Client Connect. - Y configures filescan.tkd to perform the reporting action. - N configures filescan.tkd to not perform the reporting action. The first four flags determine *when* to report that the WBEM namespace instance was found: Report on: Initial, New, Changed, Deleted - Initial means that the file was found during the first scan of the client computer. - New means that the file was found during the current scan. The file was not present during the previous scan. - Changed means that the file was present during the previous scan and is different from the file found during the current scan. - Deleted means that the file was found during the previous scan. The file is not present for the current scan. The last three flags are not applicable to WBEM audits.
NAMESPACE	Name of the WBEM namespace to query or HARDWARE.
CLASS	Name of the WBEM class to query or HARDWARE.
PROPERTY	Specify one or more property names to be queried and reported. Use commas to separate more than one property name. If this attribute is blank, all properties in the class will be queried and reported.
CNDITION	An optional condition to narrow results of an audit.
OUTPUT	This is the name of the object to send to the Configuration Server.

Attribute	Description
TYPE	Indicates that WBEM scan is to be employed for this audit package.
NAME	Friendly name for this instance. This name will appear in the System Explorer's tree view to identify this instance.

When the keyword HARDWARE is used in the NAMESPACE and/or CLASS attributes of AUDIT.WBEM, hardware information is collected. This information is essentially the same as the ZCONFIG object.

The Inventory Manager Client stores the results of a WBEM scan in a WBEM object. This object can be found in the service node of the client object tree. The results are also sent to the Configuration Server.

The WEBM object contains additional attributes described in the table below.

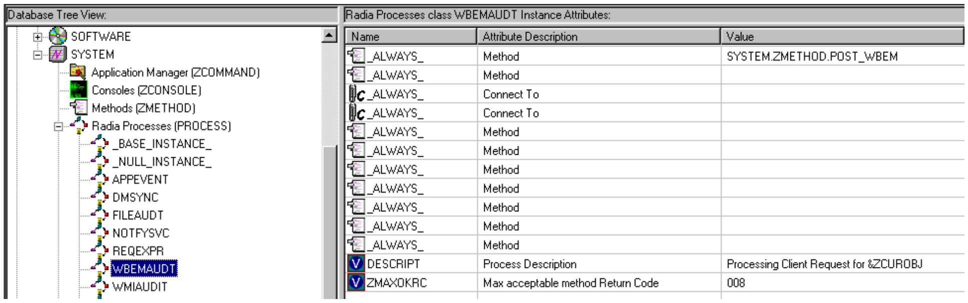
Table 18: WBEM Object Attributes

Attribute	Description
ZOBJCID	Object child ID.
ZOBJCLAS	The targeted class for the audit such as ZRSOURCE or ZSERVICE.
ZOBJCNUM	Number of children under current instance.
ZOBJCRC	The CRC of all persistent and transient objects under the current node.
ZOBJDATE	The last date under the current node.
ZOBJDOMN	The domain name of the object.
ZOBJID	The object ID of the instance used to obtain information from the Resource file.
ZOBJNAME	The instance name of the object.
ZOBJPCLS	The parent class name.
ZOBJPID	The parent class ID.
ZOBJRCRC	The resource CRC maintained by the Configuration Server.

Attribute	Description
ZOBJRSIZ	The resource size maintained by the Configuration Server.
ZOBJTIME	The latest time under the current node.
ZRSCSRC	The name of the program promoted the resource.
ZUNUSED1	For future use.

WBEM Objects and the Configuration Server

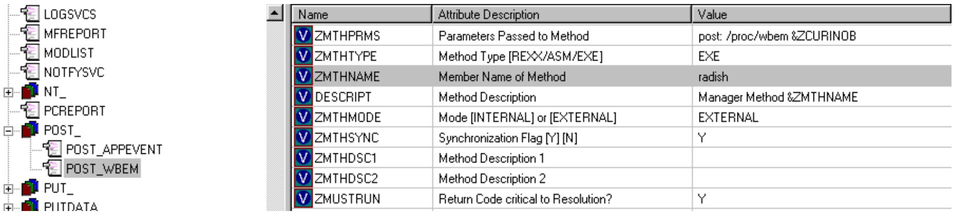
When the Inventory Manager Client sends a WBEMAUDT object to the Configuration Server, the processing is defined by the SYSTEM.PROCESS.WBEMAUDT instance in the Radia Database.



Name	Attribute Description	Value
ALWAYS	Method	SYSTEM.ZMETHOD.POST_WBEM
ALWAYS	Method	
ALWAYS	Connect To	
ALWAYS	Connect To	
ALWAYS	Method	
ALWAYS	Method	
ALWAYS	Method	
ALWAYS	Method	
ALWAYS	Method	
ALWAYS	Method	
ALWAYS	Method	
DESCRIPT	Process Description	Processing Client Request for &ZCUROBJ
ZMAXOKRC	Max acceptable method Return Code	008

Figure 6: SYSTEM.PROCESS.WBEMAUDT instance.

This instance calls upon the method in the SYSTEM.ZMETHOD.POST_WBEM instance.



Name	Attribute Description	Value
ZMTHPRMS	Parameters Passed to Method	post: /proc/wbem &ZCURINOB
ZMTHTYPE	Method Type [REXX/ASM/EXE]	EXE
ZMTHNAME	Member Name of Method	radish
DESCRIPT	Method Description	Manager Method &ZMTHNAME
ZMTHMODE	Mode [INTERNAL] or [EXTERNAL]	EXTERNAL
ZMTHSYNC	Synchronization Flag [Y] [N]	Y
ZMTHDSC1	Method Description 1	
ZMTHDSC2	Method Description 2	
ZMUSTRUN	Return Code critical to Resolution?	Y

Figure 7: SYSTEM.ZMETHOD.POST_WBEM instance.

The method executed in the Configuration Server is radish. This method is responsible for performing the following tasks:

- Compressing and encoding the information in the WBEMAUDT object and sending it to the Radia Integration Server (RIS) into pseudo-SQL for processing by the Radia Integration Server.
- Issuing an HTTP POST to transmit information to the Radia Integration Server.

The HTTP POST is specified in the [MGR_RIM] section of the edmprof file. As shipped from HP, this instance assumes that the Radia Integration Server is running on the same computer as the Configuration Server. By default, the radish method will issue the POST to:

```
http://localhost:3466
```

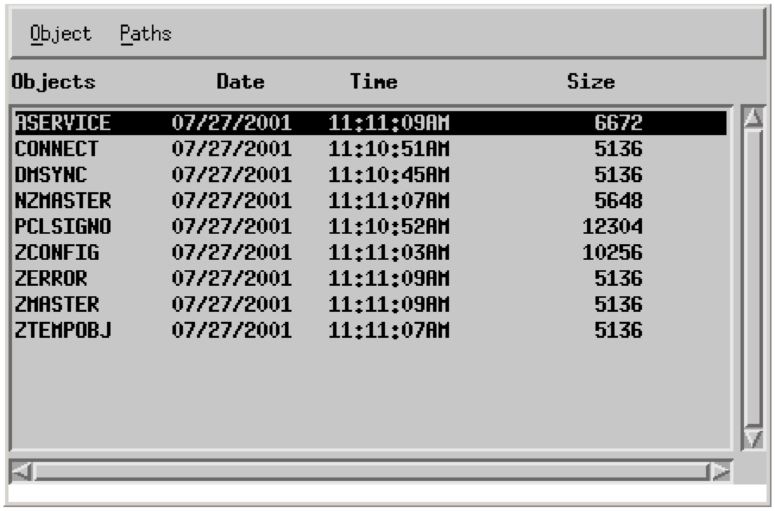
If the Radia Integration Server is running on a computer other than the one running the Configuration Server, you must edit the POST_WBEM instance to direct the POST to the proper URL. See the ZMTHPRMS attribute for information on how to edit this attribute.

The Radia Integration Server receives the information from the HTTP POST. It processes this information by executing SQL statements to append or update the information to the ODBC-compliant database.

The new information is immediately available for query and reporting purposes.

Hardware Auditing

Each time a client connects to the Configuration Server, information about the subscriber's hardware configuration is stored in the ZCONFIG object. The ZCONFIG object is calculated and stored in the application service directory of the Radia client's object directory tree.

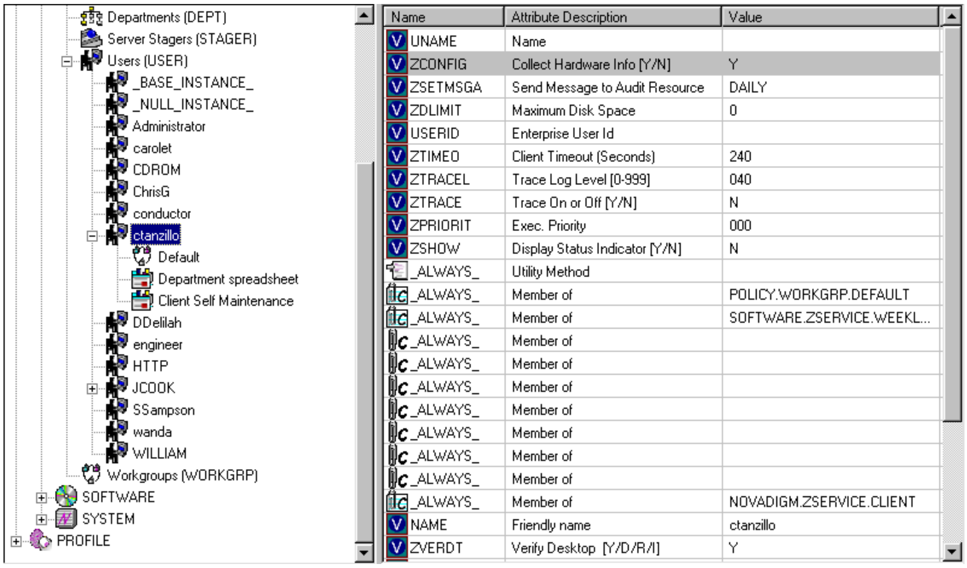


Objects	Date	Time	Size
ASERVICE	07/27/2001	11:11:09AM	6672
CONNECT	07/27/2001	11:10:51AM	5136
DMSYNC	07/27/2001	11:10:45AM	5136
NZMASTER	07/27/2001	11:11:07AM	5648
PCLSIGNO	07/27/2001	11:10:52AM	12304
ZCONFIG	07/27/2001	11:11:03AM	10256
ZERROR	07/27/2001	11:11:09AM	5136
ZMASTER	07/27/2001	11:11:09AM	5136
ZTEMPOBJ	07/27/2001	11:11:07AM	5136

Figure 8: ZCONFIG object.

A separate ZCONFIG object is calculated and stored for each service installed or updated during the Client Connect process.

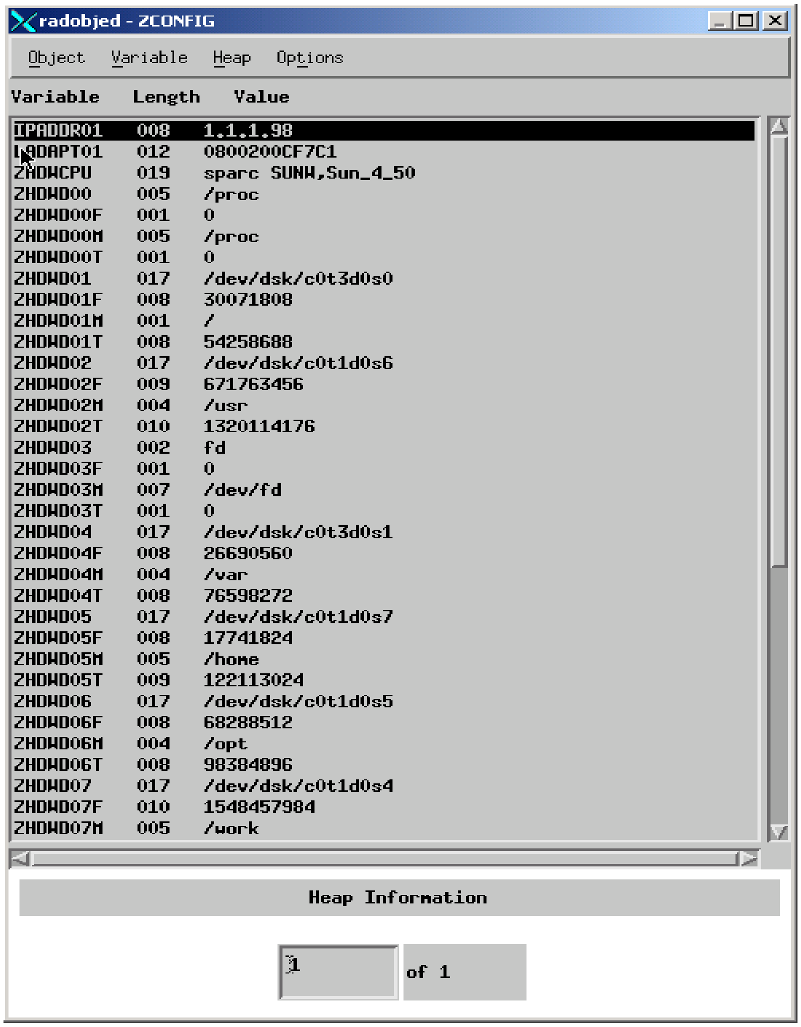
To force the transfer of the hardware information, the ZCONFIG variable *must* be set to Y in the POLICY.USER class (see figure below). To change this, use the System Explorer, which is available for 32-bit Windows platforms.



Name	Attribute Description	Value
UNAME	Name	
ZCONFIG	Collect Hardware Info [Y/N]	Y
ZSETMSGA	Send Message to Audit Resource	DAILY
ZDLIMIT	Maximum Disk Space	0
USERID	Enterprise User Id	
ZTIMEO	Client Timeout (Seconds)	240
ZTRACEL	Trace Log Level [0-999]	040
ZTRACE	Trace On or Off [Y/N]	N
ZPRIORIT	Exec. Priority	000
ZSHOW	Display Status Indicator [Y/N]	N
ALWAYS	Utility Method	
ALWAYS	Member of	POLICY.WORKGRP.DEFAULT
ALWAYS	Member of	SOFTWARE.ZSERVICE.WEEKL...
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	
ALWAYS	Member of	NOVADIGM.ZSERVICE.CLIENT
NAME	Friendly name	ctanzillo
ZVERDT	Verify Desktop [Y/D/R/I]	Y

Figure 9: POLICY.USER class – ZCONFIG variable

The ZCONFIG object contains a wealth of information about the client computer's hardware.



```
Variable   Length   Value
IPADDR01    008     1.1.1.98
LADAPT01    012     0800200CF7C1
ZHDWCPU     019     sparc SUNW,Sun_4_50
ZHDWD00     005     /proc
ZHDWD00F    001     0
ZHDWD00M    005     /proc
ZHDWD00T    001     0
ZHDWD01     017     /dev/dsk/c0t3d0s0
ZHDWD01F    008     30071808
ZHDWD01M    001     /
ZHDWD01T    008     54258688
ZHDWD02     017     /dev/dsk/c0t1d0s6
ZHDWD02F    009     671763456
ZHDWD02M    004     /usr
ZHDWD02T    010     1320114176
ZHDWD03     002     fd
ZHDWD03F    001     0
ZHDWD03M    007     /dev/fd
ZHDWD03T    001     0
ZHDWD04     017     /dev/dsk/c0t3d0s1
ZHDWD04F    008     26690560
ZHDWD04M    004     /var
ZHDWD04T    008     76598272
ZHDWD05     017     /dev/dsk/c0t1d0s7
ZHDWD05F    008     17741824
ZHDWD05M    005     /home
ZHDWD05T    009     122113024
ZHDWD06     017     /dev/dsk/c0t1d0s5
ZHDWD06F    008     68288512
ZHDWD06M    004     /opt
ZHDWD06T    008     98384896
ZHDWD07     017     /dev/dsk/c0t1d0s4
ZHDWD07F    010     1548457984
ZHDWD07M    005     /work
```

Figure 10: Sample ZCONFIG object.

The ZCONFIG object stores hardware information discovered by the Radia client's standard hardware auditing method. Certain types of hardware can occur multiple times. The ZCONFIG object automatically expands to allow additional information to be stored.

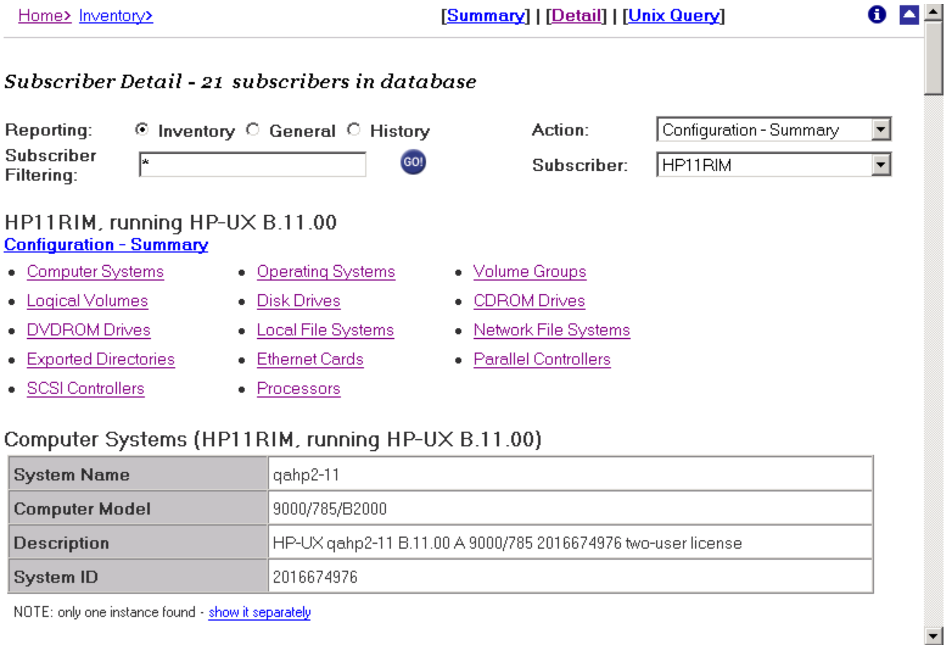
The following table describes the variables that are stored in a sample ZCONFIG object.

Table 19: Attributes in a Sample ZCONFIG

Attribute	Description	Example
DESCRIPT	*Internal use only*	Processing Client Request for &ZCUROBJ
IPADDR01	IP address of network adapter 1	1.1.1.99
LADAPT01	LAN Adapter 1	02608C2CBDCE
LANNUM	LAN Number	1643292
OSREV	Operating System revision number	4
OSVER	Operating System Version	3
ZHDWCPU	CPU Type	000019131C00
ZHDWD00	Drive Name for Drive 00	/dev/hd4
ZHDWD00F	Current free space on drive 00	7028736
ZHDWD00M	Drive 00 mount	/
ZHDWD00T	Total space for drive 00	25165824
ZHDWD01	Drive name for drive 01	/dev/hd2
ZHDWD01F	Current free space on drive 01	15859712
ZHDWD01M	Drive 01 mount	/usr
ZHDWD01T	Total space for drive 01	1577058304
ZHDWD02	Drive name for drive 02	/dev/hd9var
ZHDWD02F	Current free space on drive 02	2973696
ZHDWD02M	Drive 02 mount	/var
ZHDWD02T	Total space for drive 02	16777216
ZHDWD03	Drive name for drive 03	/dev/hd3
ZHDWD03F	Current free space on drive 03	28729344
ZHDWD03M	Drive 03 mount	/tmp
ZHDWD03T	Total space on drive 03	41943040
ZHDWDNUM	Number of drive letters assigned	9
ZHDWIPAD	IP address	&(IPADDR01)
ZHDWLANA	LAN Adapter	&(LADAPT01)

Attribute	Description	Example
ZHDWMEM	Total physical memory (RAM)	65536
ZHDWOS	Operating system and version	HPUX
ZHDWXHID	Host ID	0x1010163
ZHDWXHN	Host name	Hpuxdemo
ZOBJRRC	Resolution return code	000
ZOBJRSTY	Resolution type	C
ZSRCCLAS	Service class	ZCONFIG
ZSRCCRC	Service CRC	8B37472C
ZSRCDATE	Service date	20001211
ZSRCDOMN	Service domain	SYSTEMX
ZSRCNAME	Service name	HARDWARE_SCAN
ZSRCPID	Service parent ID	0000000000
ZSRCTIME	Service time	11:52:59
ZUSERID	User ID	royr

Whenever a client connects to the Configuration Server, certain hardware information concerning the subscriber is automatically forwarded to the Radia Integration Server.



Home> Inventory>

[Summary] | [Detail] | [Unix Query]

Subscriber Detail - 21 subscribers in database

Reporting: ● Inventory ○ General ○ History

Action: Configuration - Summary

Subscriber Filtering: *

Subscriber: HP11RIM

HP11RIM, running HP-UX B.11.00

Configuration - Summary

- Computer Systems
- Logical Volumes
- DVDROM Drives
- Exported Directories
- SCSI Controllers
- Operating Systems
- Disk Drives
- Local File Systems
- Ethernet Cards
- Processors
- Volume Groups
- CDROM Drives
- Network File Systems
- Parallel Controllers

Computer Systems (HP11RIM, running HP-UX B.11.00)

System Name	qahp2-11
Computer Model	9000/785/B2000
Description	HP-UX qahp2-11 B.11.00 A 9000/785 2016674976 two-user license
System ID	2016674976

NOTE: only one instance found - show it separately

Figure 11: Sample client configuration.

Summary

- The Inventory Manager allows for software and hardware auditing.
- Each time a client connects to the Configuration Server, information about the subscriber's hardware configuration is stored in the ZCONFIG object.
- To force the transfer of the hardware information, the ZCONFIG variable *must* be set to Y in the POLICY.USER class.
- The ZCONFIG object stores hardware information discovered by the Radia client's standard hardware auditing method.

6 Successful Auditing

At the end of this chapter, you will:

- Know how to use the prepackaged Audit Applications (ZSERVICE).
- Know how to design your own Audit Packages (PACKAGE).

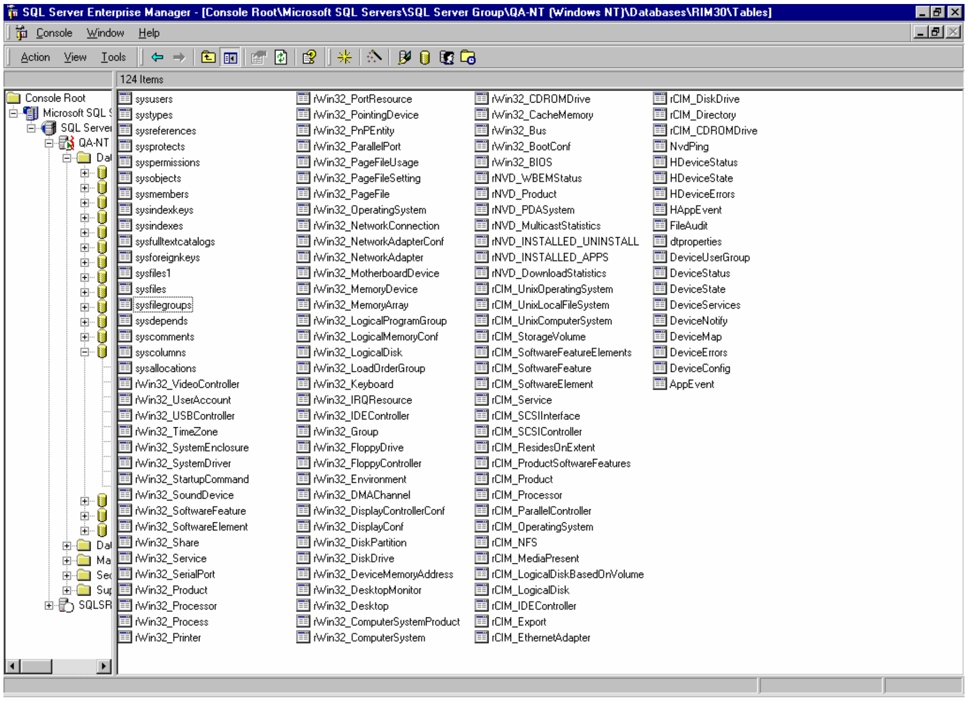
This manual is provided to help you implement the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Sample Database

When you install the Radia Integration Server, you have the option to install the Sample Reporting Database. HP provides a Microsoft Access '97 Database to sample the features of the Radia Integration Server. If installed, the information obtained by auditing client computers is stored here. The Radia systems administrator can then view the information obtained in an easy to read format.

Whether you have installed the sample reporting database or your own ODBC-compliant database, the same tables with the same names and data field names will be created in any database indicated by the data source name (DSN) supplied.

The figure below displays the sample reporting database tables in an SQL database. The table names denote the origin of the data that they contain.

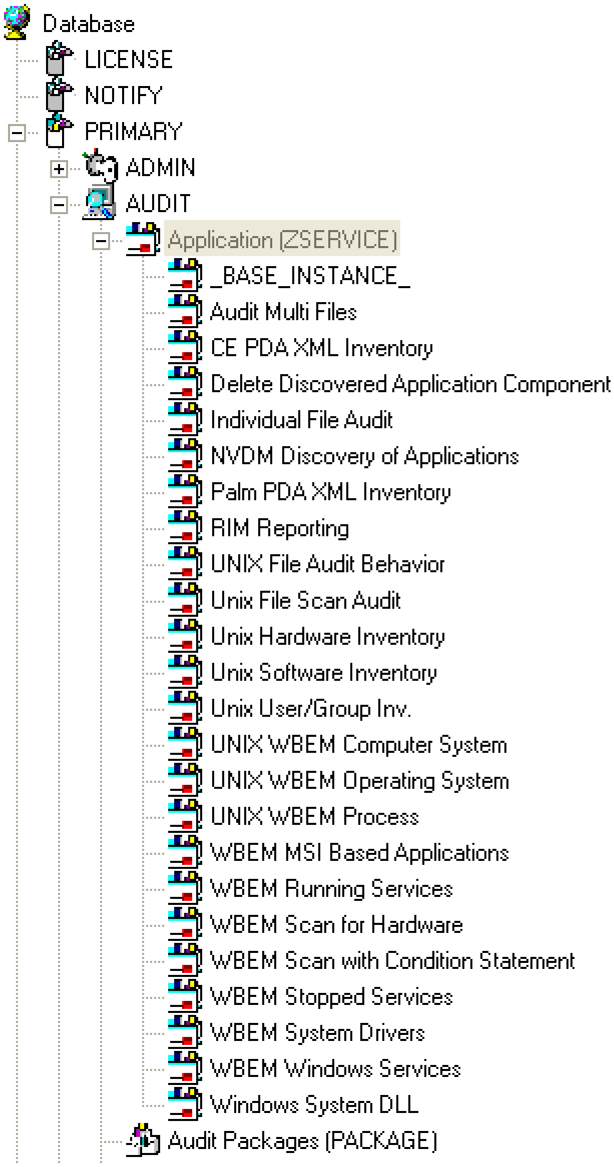

SQL Server Enterprise Manager - [Console Root\Microsoft SQL Servers\SQL Server Group\QA-NT (Windows NT)\Databases\RIM30\Tables]
Console
Window
Help
Action
View
Tools
124 Items
Console Root
Microsoft SQL S
SQL Server
QA-NT
Dat
Dat
Ma
Sec
Sup
SQLSR

sysusers
systypes
sysreferences
sysprotects
syspermissions
sysobjects
sysmembers
sysindexkeys
sysindexes
sysfulltextcatalogs
sysforeignkeys
sysfiles1
sysfiles
sysfilegroups
sysdepends
syscomments
syscolumns
sysallocations
rWin32_VideoController
rWin32_UserAccount
rWin32_USBController
rWin32_TimeZone
rWin32_SystemEnclosure
rWin32_SystemDriver
rWin32_StartupCommand
rWin32_SoundDevice
rWin32_SoftwareFeature
rWin32_SoftwareElement
rWin32_Share
rWin32_Service
rWin32_SerialPort
rWin32_Product
rWin32_Processor
rWin32_Process
rWin32_Printer
rWin32_PortResource
rWin32_PointingDevice
rWin32_PnPEntity
rWin32_ParallelPort
rWin32_PageFileUsage
rWin32_PageFileSetting
rWin32_PageFile
rWin32_OperatingSystem
rWin32_NetworkConnection
rWin32_NetworkAdapterConf
rWin32_NetworkAdapter
rWin32_MotherboardDevice
rWin32_MemoryDevice
rWin32_MemoryArray
rWin32_LogicalProgramGroup
rWin32_LogicalMemoryConf
rWin32_LogicalDisk
rWin32_LoadOrderGroup
rWin32_Keyboard
rWin32_IRQResource
rWin32_IDEController
rWin32_Group
rWin32_FloppyDrive
rWin32_FloppyController
rWin32_Environment
rWin32_DMAChannel
rWin32_DisplayControllerConf
rWin32_DisplayConf
rWin32_DiskPartition
rWin32_DiskDrive
rWin32_DeviceMemoryAddress
rWin32_DesktopMonitor
rWin32_Desktop
rWin32_ComputerSystemProduct
rWin32_ComputerSystem
rWin32_CDROMDrive
rWin32_CacheMemory
rWin32_Bus
rWin32_BootConf
rWin32_BIOS
rNVD_WBEMStatus
rNVD_Product
rNVD_PDASystem
rNVD_MulticastStatistics
rNVD_INSTALLED_UNINSTALL
rNVD_INSTALLED_APPS
rNVD_DownloadStatistics
rCIM_UnixOperatingSystem
rCIM_UnixLocalFileSystem
rCIM_UnixComputerSystem
rCIM_StorageVolume
rCIM_SoftwareFeatureElements
rCIM_SoftwareFeature
rCIM_SoftwareElement
rCIM_Service
rCIM_SCSIInterface
rCIM_SCSIController
rCIM_ResidesOnExtent
rCIM_ProductSoftwareFeatures
rCIM_Product
rCIM_Processor
rCIM_ParallelController
rCIM_OperatingSystem
rCIM_NFS
rCIM_MediaPresent
rCIM_LogicalDiskBasedOnVolume
rCIM_LogicalDisk
rCIM_IDEController
rCIM_Export
rCIM_EthernetAdapter
rCIM_DiskDrive
rCIM_Directory
rCIM_CDROMDrive
NvdPing
HDeviceStatus
HDeviceState
HDeviceErrors
HAppEvent
FileAudit
dtproperties
DeviceUserGroup
DeviceStatus
DeviceState
DeviceServices
DeviceNotify
DeviceMap
DeviceErrors
DeviceConfig
AppEvent

Figure 12: Sample Reporting Database tables.

Sample Auditing

To illustrate the concepts of inventory information collection, the Inventory Manager installation contains a set of representative audit service examples. These samples are located in the PRIMARY.AUDIT.Audit Application (ZSERVICE) class. To view these, use the System Explorer, which is available for 32-bit Windows platforms.



- Database
  - LICENSE
  - NOTIFY
  - PRIMARY
    - ADMIN
    - AUDIT
      - Application (ZSERVICE)
        - _BASE_INSTANCE_
        - Audit Multi Files
        - CE PDA XML Inventory
        - Delete Discovered Application Component
        - Individual File Audit
        - NVDM Discovery of Applications
        - Palm PDA XML Inventory
        - RIM Reporting
        - UNIX File Audit Behavior
        - Unix File Scan Audit
        - Unix Hardware Inventory
        - Unix Software Inventory
        - Unix User/Group Inv.
        - UNIX WBEM Computer System
        - UNIX WBEM Operating System
        - UNIX WBEM Process
        - WBEM MSI Based Applications
        - WBEM Running Services
        - WBEM Scan for Hardware
        - WBEM Scan with Condition Statement
        - WBEM Stopped Services
        - WBEM System Drivers
        - WBEM Windows Services
        - Windows System DLL
      - Audit Packages (PACKAGE)

Figure 13: Sample Auditing Services.

These sample services represent common scenarios for inventory collection and management. The best way to develop your own audit services is to study the samples that were installed with the Inventory Manager upgrade.

The sample audit services are described in the following table.

Table 20: Sample Auditing Services

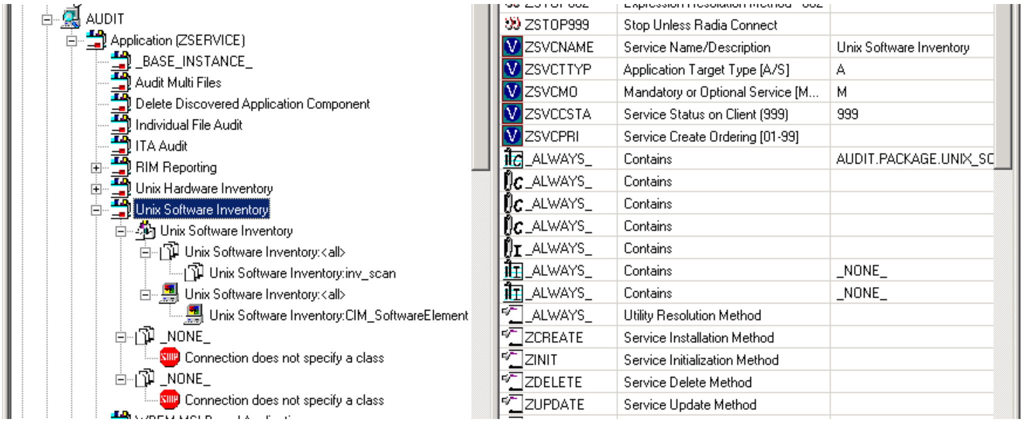
Service	Description
_BASE_INSTANCE_	This service instance is the base instance for the Audit Application (ZSERVICE) class.
Audit Multifiles	Windows only.
CE PDA XML Inventory	
Delete Discovered Application Component	Windows only.
Individual File Audit	Windows only.
NVDM Discovery of Applications	
Palm PDA XML Inventory	
RIM Reporting	Windows only.
UNIX File Audit Behavior	
Unix File Scan Audit	
Unix Hardware Inventory	This service performs an audit to discover UNIX-based hardware.
Unix Software Inventory	This service performs an audit to find UNIX-based software.
Unix User/Group Inv.	
UNIX WBEM Computer System	
UNIX WBEM Operating System	
UNIX WBEM Process	
WBEM MSI Based Applications	Windows only.
WBEM Running Services	Windows only.
WBEM Scan for Hardware	Windows only.
WBEM Scan with Condition Statement	Windows only.
WBEM Stopped Services WBEM Scan for STOPPED Services	Windows only.

Service	Description
WBEM System Drivers WBEM Scan for Windows System Drivers	Windows only.
WBEM Windows Services WBEM Scan for Windows Services	Windows only.
Windows System DLL Audit System DLL	Windows only.

Configuring a Sample Audit

All of the examples presented can be configured for individuals, departments, work-groups, and so forth. See the *System Explorer Guide* for additional information on manipulating the database components.

For documentation purposes, we will configure the sample audit service Unix Software Inventory. This type of audit scans for all UNIX software that is installed and managed on the client computer. The ACTION attribute indicates that the discovery of the file will be reported and sent to the Configuration Server for storage.



```
AUDIT
  Application (ZSERVICE)
    _BASE_INSTANCE_
    Audit Multi Files
    Delete Discovered Application Component
    Individual File Audit
    ITA Audit
    RIM Reporting
    Unix Hardware Inventory
    Unix Software Inventory
      Unix Software Inventory
        Unix Software Inventory:<all>
          Unix Software Inventory:inv_scan
        Unix Software Inventory:<all>
          Unix Software Inventory:CIM_SoftwareElement
      _NONE_
        Connection does not specify a class
      _NONE_
        Connection does not specify a class
```

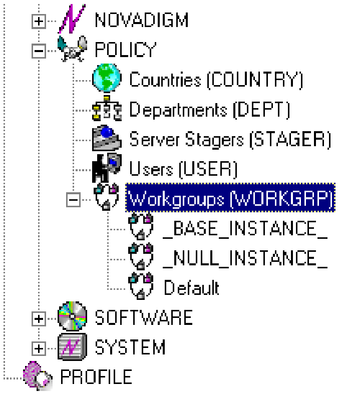
ZSTOP999	Stop Unless Radia Connect	
ZSVCNAME	Service Name/Description	Unix Software Inventory
ZSVCTTYP	Application Target Type [A/S]	A
ZSVCMO	Mandatory or Optional Service [M...	M
ZSVCCSTA	Service Status on Client (999)	999
ZSVCPRI	Service Create Ordering [01-99]	
ALWAYS	Contains	AUDIT.PACKAGE.UNIX_SC
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	_NONE_
ALWAYS	Contains	_NONE_
ALWAYS	Utility Resolution Method	
ZCREATE	Service Installation Method	
ZINIT	Service Initialization Method	
ZDELETE	Service Delete Method	
ZUPDATE	Service Update Method	

Figure 14: Unix Software sample audit.

To configure a sample Audit package

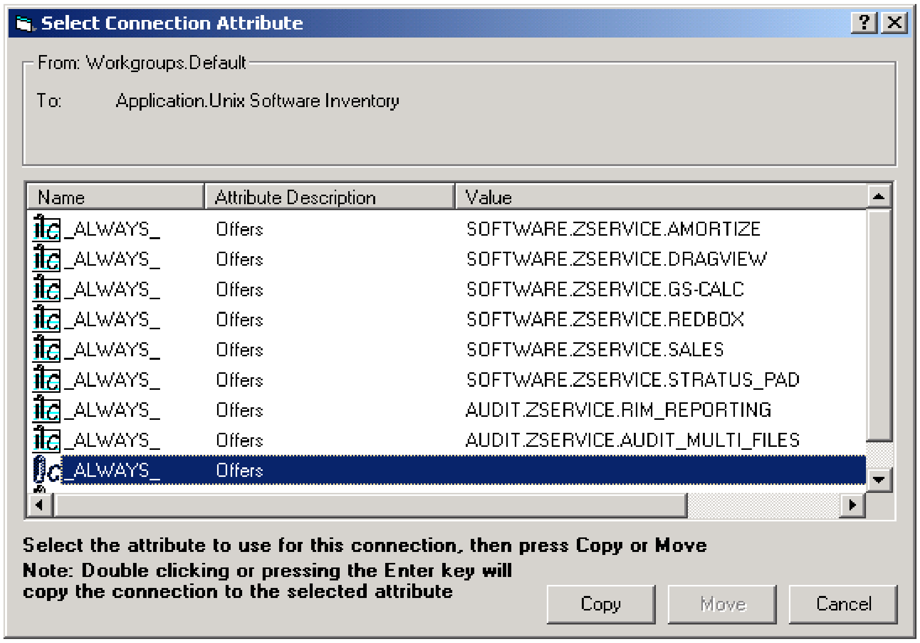
1. If you have not already done so, start the System Explorer.
2. Navigate to and expand the PRIMARY.AUDIT domain.
3. Double-click on **Application (ZSERVICE)** to expand the class.
4. Scroll to and expand the POLICY domain.

   For our example, we would like all users who are members of the Workgroup class to select this audit package from their Service Lists.
5. Expand the POLICY.WORKGROUPS class.



6. Select the **Unix Software Inventory** package from the ZSERVICE class, drag it to the POLICY.WORKGROUPS class, and drop it on the **Default** instance.

   The Select Connection Attribute window opens.



Select Connection Attribute

From: Workgroups.Default

To: Application.Unix Software Inventory

Name	Attribute Description	Value
ALWAYS	Offers	SOFTWARE.ZSERVICE.AMORTIZE
ALWAYS	Offers	SOFTWARE.ZSERVICE.DRAGVIEW
ALWAYS	Offers	SOFTWARE.ZSERVICE.GS-CALC
ALWAYS	Offers	SOFTWARE.ZSERVICE.REDBOX
ALWAYS	Offers	SOFTWARE.ZSERVICE.SALES
ALWAYS	Offers	SOFTWARE.ZSERVICE.STRATUS_PAD
ALWAYS	Offers	AUDIT.ZSERVICE.RIM_REPORTING
ALWAYS	Offers	AUDIT.ZSERVICE.AUDIT_MULTI_FILES
ALWAYS	Offers	

Select the attribute to use for this connection, then press Copy or Move

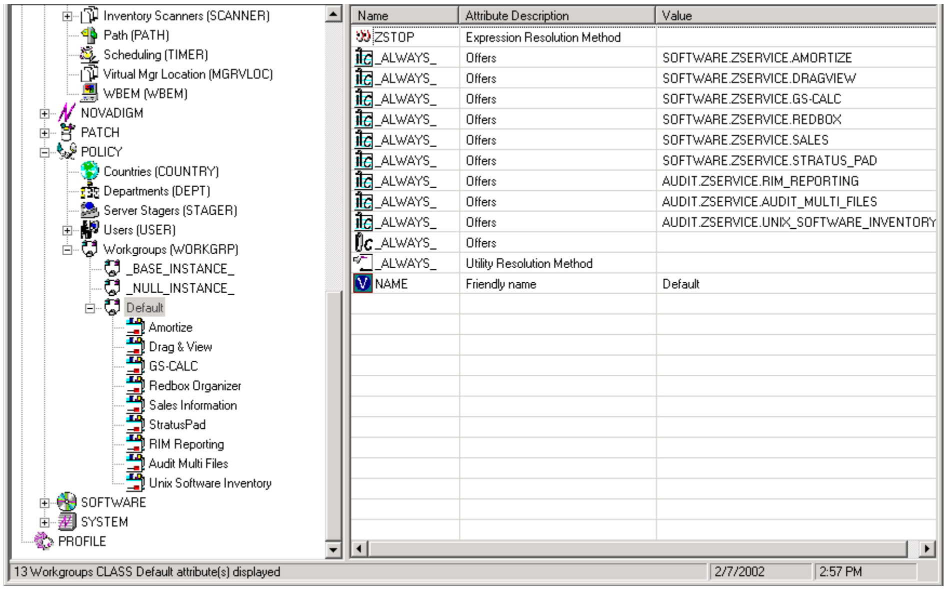
Note: Double clicking or pressing the Enter key will copy the connection to the selected attribute

7 Click **Copy** to add this package.

The Confirm Connection dialog box opens.

8 Click **Yes** to confirm the connection.

The Unix Software Inventory package is added to WORKGRP class.



Inventory Scanners (SCANNER)
Path (PATH)
Scheduling (TIMER)
Virtual Mgr Location (MGRVLOC)
WBEM (WBEM)
NOVADIGM
PATCH
POLICY
Countries (COUNTRY)
Departments (DEPT)
Server Stagers (STAGER)
Users (USER)
Workgroups (WORKGRP)
_BASE_INSTANCE_
_NULL_INSTANCE_
Default
Amortize
Drag & View
GS-CALC
Redbox Organizer
Sales Information
StratusPad
RIM Reporting
Audit Multi Files
Unix Software Inventory
SOFTWARE
SYSTEM
PROFILE

Name	Attribute Description	Value
ZSTOP	Expression Resolution Method	
ALWAYS	Offers	SOFTWARE.ZSERVICE.AMORTIZE
ALWAYS	Offers	SOFTWARE.ZSERVICE.DRAGVIEW
ALWAYS	Offers	SOFTWARE.ZSERVICE.GS-CALC
ALWAYS	Offers	SOFTWARE.ZSERVICE.REDBOX
ALWAYS	Offers	SOFTWARE.ZSERVICE.SALES
ALWAYS	Offers	SOFTWARE.ZSERVICE.STRATUS_PAD
ALWAYS	Offers	AUDIT.ZSERVICE.RIM_REPORTING
ALWAYS	Offers	AUDIT.ZSERVICE.AUDIT_MULTI_FILES
ALWAYS	Offers	AUDIT.ZSERVICE.UNIX_SOFTWARE_INVENTORY
ALWAYS	Offers	
ALWAYS	Utility Resolution Method	
NAME	Friendly name	Default

13 Workgroups CLASS Default attribute(s) displayed 2/7/2002 2:57 PM

The collection of inventory information occurs on the Inventory Manager Client computer when a user connects to the Configuration Server through the Application Manager client when scheduled or notified to connect.

Some scans may take several minutes to complete. This is a normal behavior of the audit scanning process.

Inventory Scan Results

Use the Client Explorer to locate the ZSERVICE instance for the **Unix Software Inventory** package in the LIB directory.

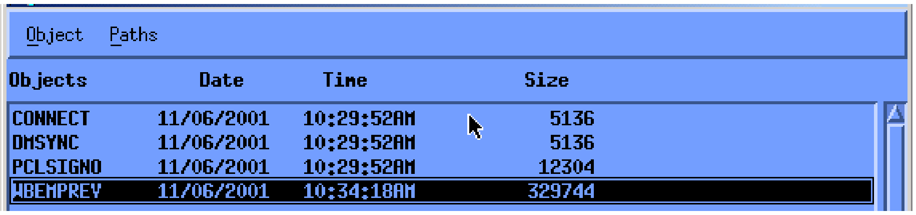
To locate the ZSERVICE object using the Client Explorer

1 Start the Client Explorer.

2 In the **Paths** menu, select **Change Object Path**.

3 In the dialog box that opens, enter the correct path to the Unix Software Inventory ZSERVICE instance. A sample location for the ZSERVICE object would be:

```
/opt/Novadigm/lib/SYSTEM/NVDM/SOFTWWARE/ZSERVICE/UNIX_SOFTW
ARE_INVENTORY
```



Objects	Date	Time	Size
CONNECT	11/06/2001	10:29:52AM	5136
DMSYNC	11/06/2001	10:29:52AM	5136
PCLSIGNO	11/06/2001	10:29:52AM	12304
WBEMPREV	11/06/2001	10:34:18AM	329744

Within the ZSERVICE, note the object WBEMPREV. This object is created and stored in the ZSERVICE of the LIB directory whenever a WBEM package is installed. The WBEMPREV object contains one heap for each file discovered during the scan. It also contains the variables from the AUDIT.WBEM instance that controlled the scan.

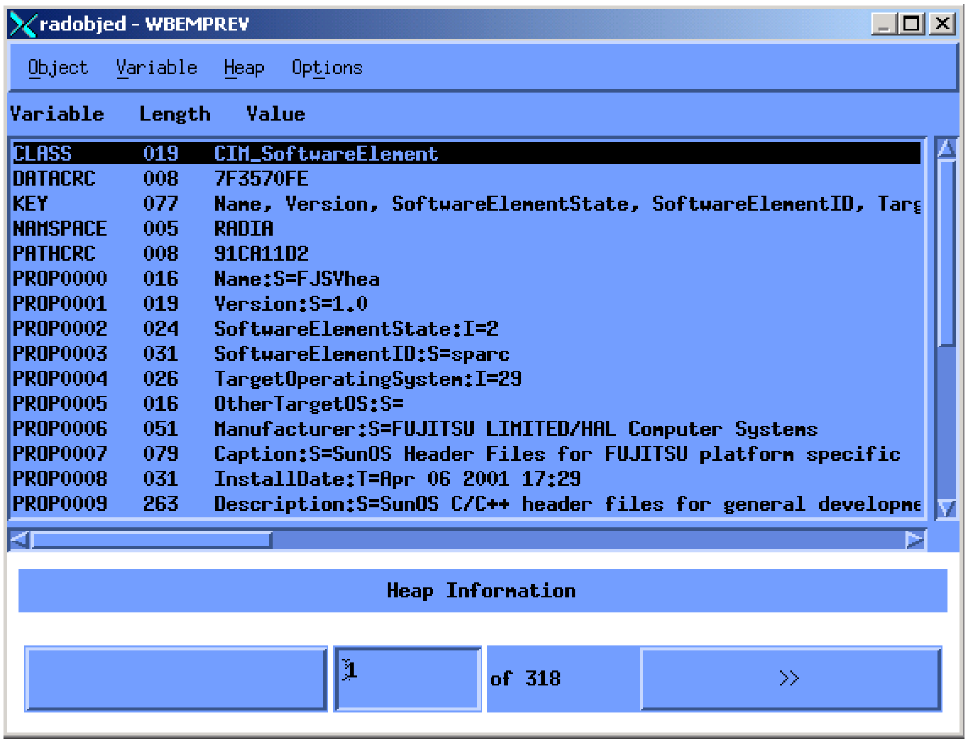
The AUDIT.WBEM class instances in an audit package control the auditing for files on the client computer.

- The Inventory Manager Client scans the client's computer file system based upon the values contained in the AUDIT.WBEM class instance in the audit package. It constructs an object called WBEMCURR.

- The WBEMCURR object contains one heap per instance of each WBEM class discovered during the current scan.

- The Inventory Manager Client compares the scan results from the current scan (the scan done during the current Client Connect stored in the WBEMCURR object) with the scan results from a previous scan (the scan done during a previous client connect process stored in the WBEMPREV object). It will construct the WBEMAUDT object that is then sent to the Configuration Server.

- The Inventory Manager Client then deletes the WBEMAUDT object and will rename the WBEMCURR object to WBEMPREV.



```
Variable    Length   Value
CLASS       019      CIM_SoftwareElement
DATACRC     008      7F3570FE
KEY         077      Name, Version, SoftwareElementState, SoftwareElementID, Targ
NAMSPACE    005      RADIA
PATHCRC     008      91CA11D2
PROP0000    016      Name:S=FJSVhea
PROP0001    019      Version:S=1.0
PROP0002    024      SoftwareElementState:I=2
PROP0003    031      SoftwareElementID:S=sparc
PROP0004    026      TargetOperatingSystem:I=29
PROP0005    016      OtherTargetOS:S=
PROP0006    051      Manufacturer:S=FUJITSU LIMITED/HAL Computer Systems
PROP0007    079      Caption:S=SunOS Header Files for FUJITSU platform specific
PROP0008    031      InstallDate:T=Apr 06 2001 17:29
PROP0009    263      Description:S=SunOS C/C++ header files for general developme
```

Figure 15: WBEMPREV heaps.

For our particular example, there were 318 instances for the WBEMPREV object located on the subscriber's computer.

Summary

- To illustrate the concepts of inventory information collection, the Inventory Manager installation contains a set of representative audit service examples.
- The best way to develop your own audit services is to study the samples that were installed with the Inventory Manager.
- The collection of inventory information occurs on the Inventory Manager Client computer when a user connects to the Configuration Server.

7 Creating Audit Packages

At the end of this chapter, you will:

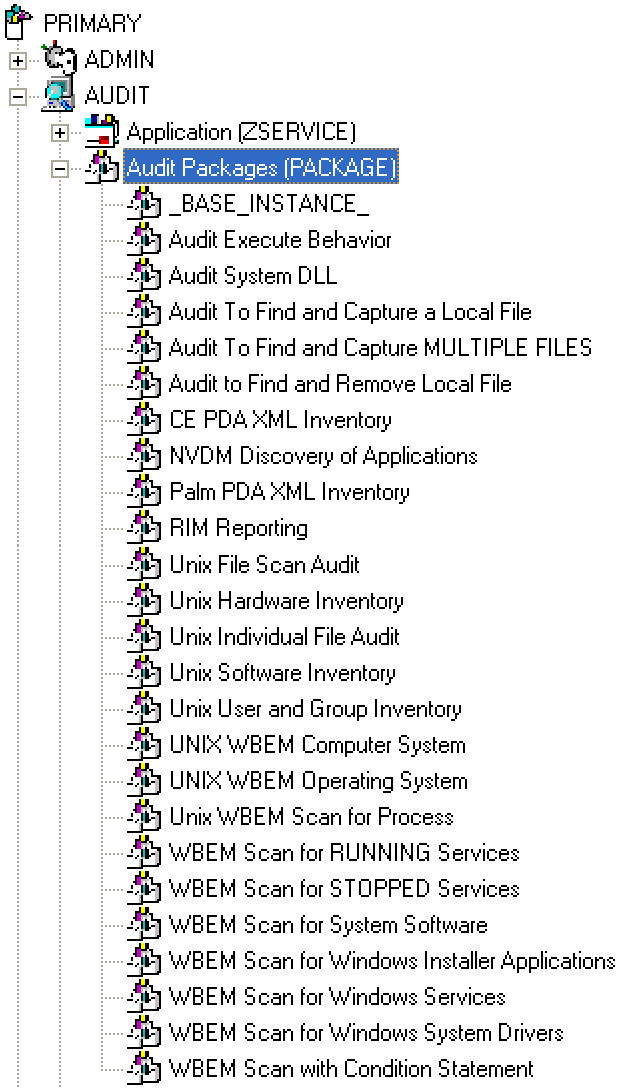
- Have created a new file audit package.
- Have created a new ZSERVICE for your package.

This manual helps you implement the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Audit Packages (PACKAGE) Class

Once you are comfortable auditing using the sample packages provided by HP, take the next step in designing your own audit packages.

By expanding the Audit Packages (PACKAGE) class, you will see the audit package instances.

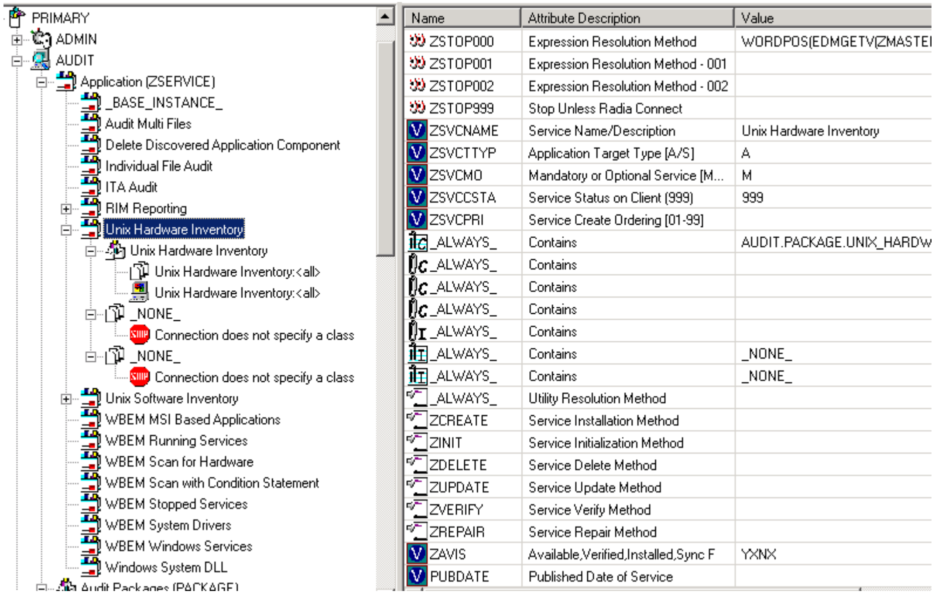


PRIMARY
- ADMIN
- AUDIT
  - Application (ZSERVICE)
  - Audit Packages (PACKAGE)
    - _BASE_INSTANCE_
    - Audit Execute Behavior
    - Audit System DLL
    - Audit To Find and Capture a Local File
    - Audit To Find and Capture MULTIPLE FILES
    - Audit to Find and Remove Local File
    - CE PDA XML Inventory
    - NVDM Discovery of Applications
    - Palm PDA XML Inventory
    - RIM Reporting
    - Unix File Scan Audit
    - Unix Hardware Inventory
    - Unix Individual File Audit
    - Unix Software Inventory
    - Unix User and Group Inventory
    - UNIX WBEM Computer System
    - UNIX WBEM Operating System
    - Unix WBEM Scan for Process
    - WBEM Scan for RUNNING Services
    - WBEM Scan for STOPPED Services
    - WBEM Scan for System Software
    - WBEM Scan for Windows Installer Applications
    - WBEM Scan for Windows Services
    - WBEM Scan for Windows System Drivers
    - WBEM Scan with Condition Statement

Figure 16: Audit Packages (PACKAGE) class.

A complete audit service consists of several connected instances in the AUDIT domain. The audit package instance is a container that "owns" the instances connected to it.

For example, open the AUDIT.ZSERVICE class and double-click on the **Unix Hardware Inventory** instance.



Name	Attribute Description	Value
ZSTOP000	Expression Resolution Method	WORDPOS(EDMGETV(ZMASTEI
ZSTOP001	Expression Resolution Method - 001	
ZSTOP002	Expression Resolution Method - 002	
ZSTOP999	Stop Unless Radia Connect	
ZSVCNAME	Service Name/Description	Unix Hardware Inventory
ZSVCTTYP	Application Target Type [A/S]	A
ZSVCMO	Mandatory or Optional Service [M...	M
ZSVCCSTA	Service Status on Client (999)	999
ZSVCPRI	Service Create Ordering [01-99]	
ALWAYS	Contains	AUDIT.PACKAGE.UNIX_HARDW
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	_NONE_
ALWAYS	Contains	_NONE_
ALWAYS	Utility Resolution Method	
ZCREATE	Service Installation Method	
ZINIT	Service Initialization Method	
ZDELETE	Service Delete Method	
ZUPDATE	Service Update Method	
ZVERIFY	Service Verify Method	
ZREPAIR	Service Repair Method	
ZAVIS	Available,Verified,Installed,Sync F	YXNX
PUBDATE	Published Date of Service	

Figure 17: Unix Hardware Inventory instance.

In the example, the **Unix Hardware Inventory** ZSERVICE instance "owns" the **Unix Hardware Inventory** instance. The fact that a package instance owns a component class instance means that all of the instances are managed as a package unit. If the package instance is deleted, all of its owned class instances are automatically deleted as well.

Sound database management practices dictate that the component class instances owned by a package are not connected to any other package instance.

Using System Explorer to Create and Maintain Audit Services

We will use the System Explorer to walk through the construction of a file audit. The inventory information to collect, and the action to take with that collected information, is specified in an instance of the AUDIT domain's Audit Packages (PACKAGE) class.

➤ The System Explorer is available for 32-bit Windows platforms. For more information, refer to the *System Explorer Guide*.

Prior to beginning the creation of the package, you should ask yourself the following questions:

- What am I auditing for? Will it be a hardware audit, a file audit, or a WBEM object audit?
- Will I be deploying to all users, or a select few?
- Will I want this to be connected to a timer for scheduled deployment?

By viewing and deploying the sample audits provided by HP, you will be able to create and use your own auditing packages.

➤ The following instructions require the use of the System Explorer. Currently, the System Explorer is available for 32-bit Windows platforms. For more information, refer to the *System Explorer Guide*.

To create a new Audit package

1 Go to **Start** → **Programs** → **Administrator Workstation** → **System Explorer**.

The System Explorer Security Information dialog box opens.

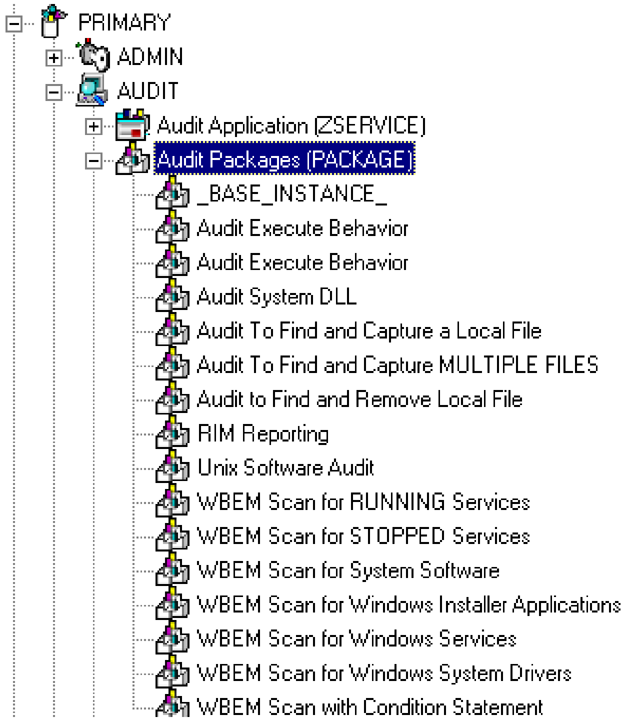
➤ The User ID, as shipped from HP, is RAD_MAST. No password is necessary. This may have been changed in your installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

2 If necessary, type a User ID and Password, and then click **OK**. The System Explorer window opens.

3 Double-click **PRIMARY**.

4 Expand the **AUDIT** domain.

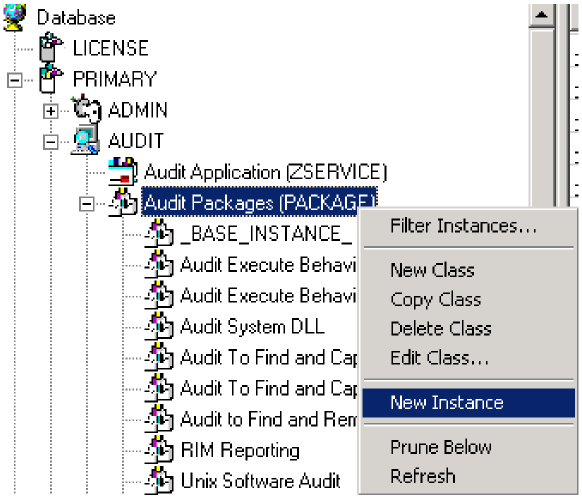
5 Double-click on **Audit Packages (PACKAGE)** class.



- PRIMARY
  - ADMIN
  - AUDIT
    - Audit Application (ZSERVICE)
    - Audit Packages (PACKAGE)
      - _BASE_INSTANCE_
      - Audit Execute Behavior
      - Audit Execute Behavior
      - Audit System DLL
      - Audit To Find and Capture a Local File
      - Audit To Find and Capture MULTIPLE FILES
      - Audit to Find and Remove Local File
      - RIM Reporting
      - Unix Software Audit
      - WBEM Scan for RUNNING Services
      - WBEM Scan for STOPPED Services
      - WBEM Scan for System Software
      - WBEM Scan for Windows Installer Applications
      - WBEM Scan for Windows Services
      - WBEM Scan for Windows System Drivers
      - WBEM Scan with Condition Statement

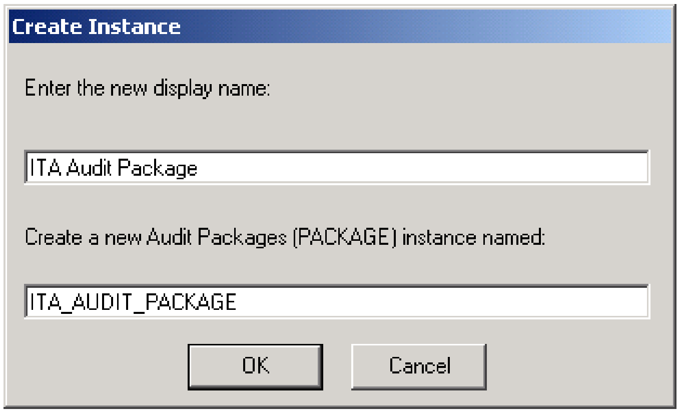
As an example, we will create a new auditing package called **ITA Audit Package**. This package will scan a user's computer, capture logical disk information, and return the results to the administrator.

6 Right-click on the **Audit Packages (PACKAGE)** class. A shortcut menu opens.



7 Select **New Instance** from the menu.

The Create Instance dialog box opens.



Create Instance

Enter the new display name:

ITA Audit Package

Create a new Audit Packages (PACKAGE) instance named:

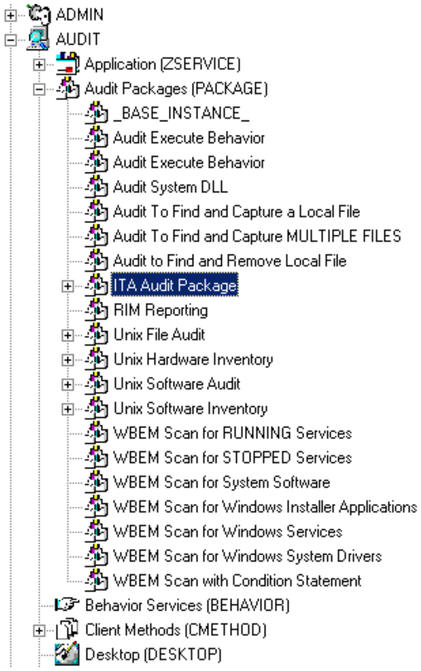
ITA_AUDIT_PACKAGE

8 In the upper text box, type a new display name for the package instance. This is the friendly name that will appear in the tree view.

9 In the lower text box, type a name for the **Create a new Audit Packages (PACKAGE) instance named**. This is the name that appears in the title bar of the list view (right side) of the System Explorer window when the instance is selected and opened in the tree view.

10 Click **OK** to continue.

The new Audit package is added to the AUDIT.PACKAGE class.

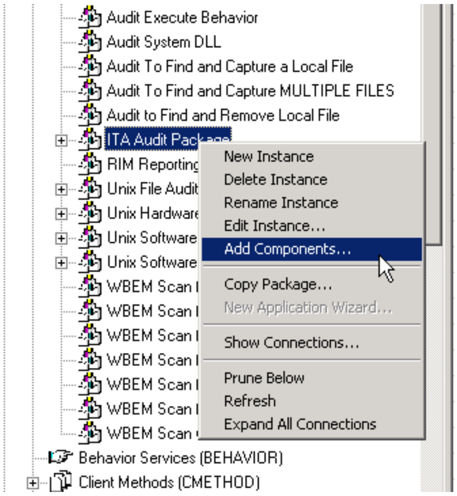

ADMIN
AUDIT
Application (ZSERVICE)
Audit Packages (PACKAGE)
_BASE_INSTANCE_
Audit Execute Behavior
Audit Execute Behavior
Audit System DLL
Audit To Find and Capture a Local File
Audit To Find and Capture MULTIPLE FILES
Audit to Find and Remove Local File
ITA Audit Package
RIM Reporting
Unix File Audit
Unix Hardware Inventory
Unix Software Audit
Unix Software Inventory
WBEM Scan for RUNNING Services
WBEM Scan for STOPPED Services
WBEM Scan for System Software
WBEM Scan for Windows Installer Applications
WBEM Scan for Windows Services
WBEM Scan for Windows System Drivers
WBEM Scan with Condition Statement
Behavior Services (BEHAVIOR)
Client Methods (CMETHOD)
Desktop (DESKTOP)

Once the Audit package is created, you will need to add its components.

To add a component to an Audit package

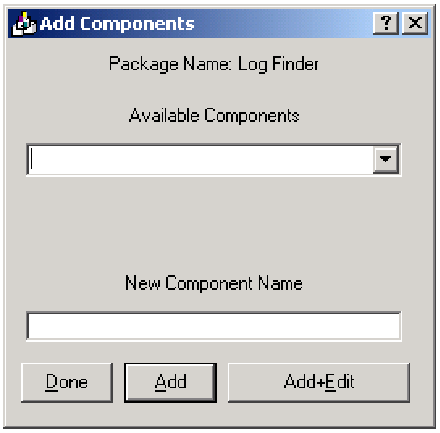
1 Right-click the new Audit package.

A shortcut menu opens.



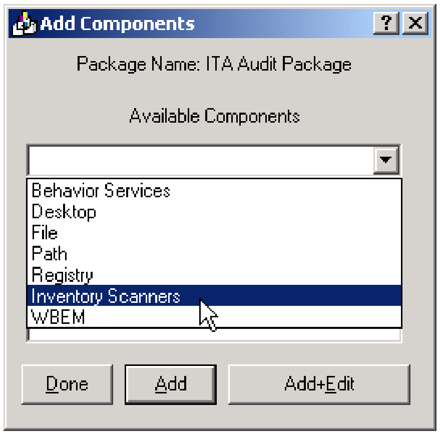
2 Select **Add Components** from the shortcut menu.

The Add Components dialog box opens.



Package Name: Log Finder

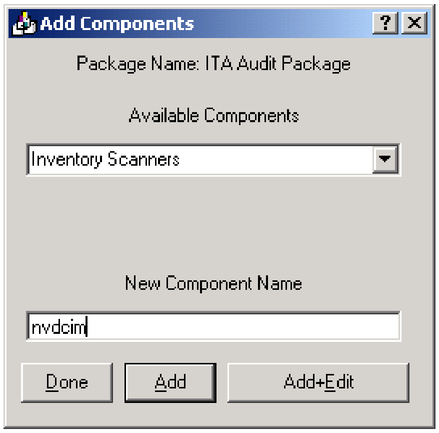
3 Click the **Available Components** down arrow.



Package Name: ITA Audit Package

4 From the list that opens, select **Inventory Scanners**.

5 In the **New Component Name** text box, type the name of the new component.

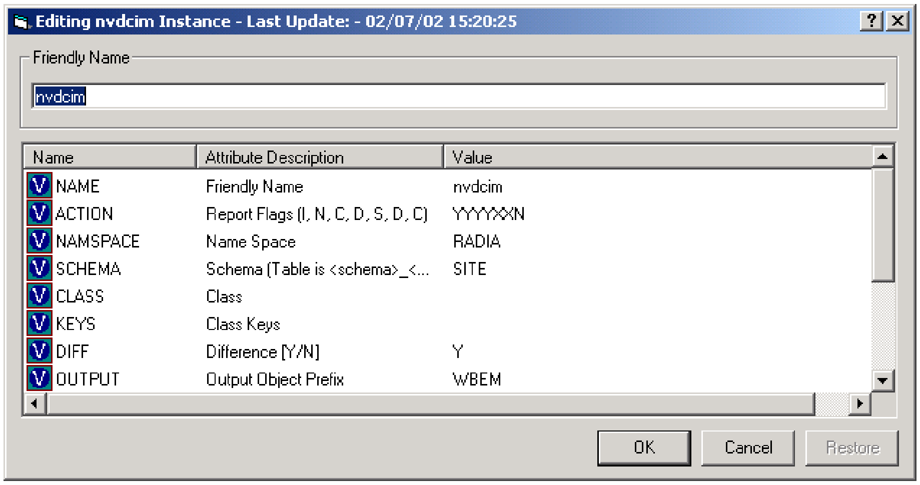


Package Name: ITA Audit Package

Available Components: Inventory Scanners

New Component Name: nvdcim

6 Click **Add+Edit**. The component is added to the package and the Editing Instance dialog box opens.

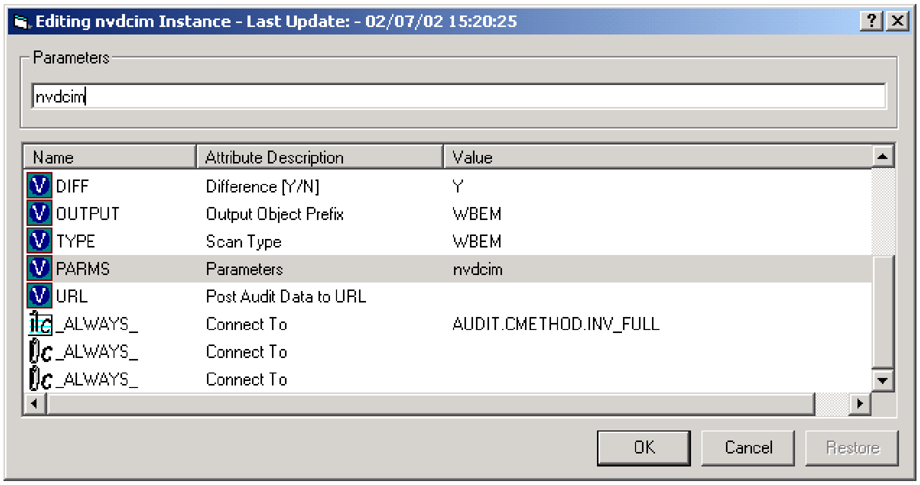


Friendly Name: nvdcim

Name	Attribute Description	Value
NAME	Friendly Name	nvdcim
ACTION	Report Flags (I, N, C, D, S, D, C)	YYYYXXN
NAMSPACE	Name Space	RADIA
SCHEMA	Schema (Table is <schema>_<...	SITE
CLASS	Class	
KEYS	Class Keys	
DIFF	Difference [Y/N]	Y
OUTPUT	Output Object Prefix	WBEM

In the Editing Instance dialog box you can edit the instances that will be used in your audit.

7 Scroll down to the **PARMS** attribute and select it.



Editing nvdcim Instance - Last Update: - 02/07/02 15:20:25

Parameters

nvdcim

Name	Attribute Description	Value
DIFF	Difference [Y/N]	Y
OUTPUT	Output Object Prefix	WBEM
TYPE	Scan Type	WBEM
PARMS	Parameters	nvdcim
URL	Post Audit Data to URL	
ALWAYS	Connect To	AUDIT.CMETHOD.INV_FULL
ALWAYS	Connect To	
ALWAYS	Connect To	

8 In the **Parameters** text box type **`nvdcim`**. This is the name of the Tcl script that will be executed by the client to initiate the inventory scan. The nvdcim Tcl script is included with the UNIX Inventory material.

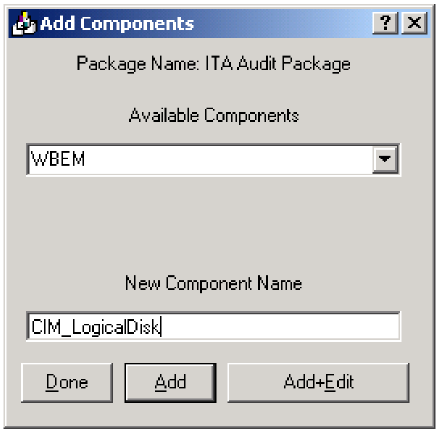
> A connection to the Scanner class may be used to run any custom client inventory method.

9 Click **OK** when you are done with your edit. You return to the Add Components dialog box.

10 Next, add a WBEM class component to the package. You will need to add a WBEM class component for each inventory shell script you execute.

11 From the **Available Components** drop-down list, select WBEM.

12 In the **New Component Name** text box, type the name of the WBEM component.

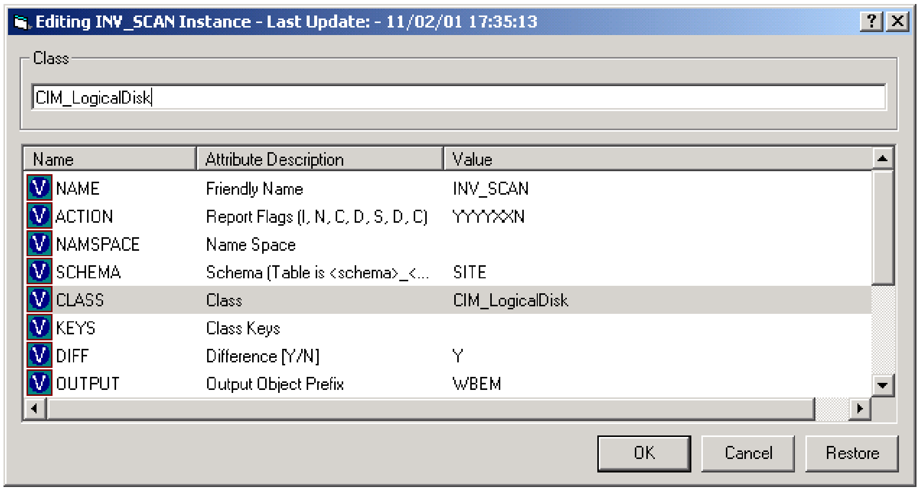


Package Name: ITA Audit Package

Available Components: WBEM

New Component Name: CIM_LogicalDisk

13 Click **Add+Edit**. The component has been added to the package and the Editing CIM_LogicalDisk Instance dialog box opens.


Editing INV_SCAN Instance - Last Update: - 11/02/01 17:35:13
OK
Cancel
Restore

Class: CIM_LogicalDisk

Name	Attribute Description	Value
NAME	Friendly Name	INV_SCAN
ACTION	Report Flags (I, N, C, D, S, D, C)	YYYYXXN
NAMSPACE	Name Space	
SCHEMA	Schema (Table is <schema>_<...	SITE
CLASS	Class	CIM_LogicalDisk
KEYS	Class Keys	
DIFF	Difference (Y/N)	Y
OUTPUT	Output Object Prefix	WBEM

14 Select the **CLASS** attribute, and in the **Class** text box type **`CIM_LogicalDisk`**. This is the name of the file that will be used to execute the inventory collection. CLASS is the only attribute used by the client Inventory Harness.

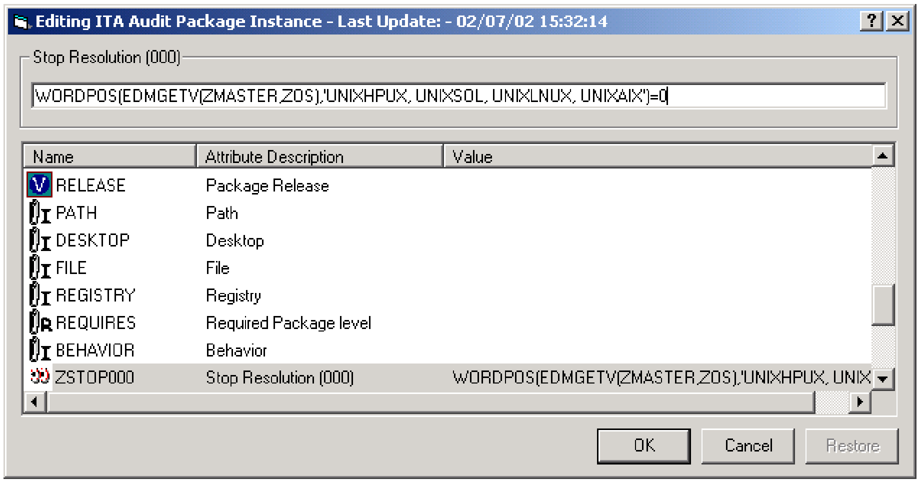
15 When finished, click **OK**.

16 Click **Done** in the Add Components dialog box.

Now edit the package class instance ZSTOP expression to reflect the supported UNIX platforms. The default ZSTOP expression is configured for Windows platforms.

To update the ZSTOP expression

1. In the tree view of the System Explorer, double-click the new audit package name, **ITA Audit Package**.
2. In the list view of the System Explorer, double-click the **ZSTOP** expression.
3. Replace the supported Windows platform names with the appropriate UNIX platforms.



Editing ITA Audit Package Instance - Last Update: - 02/07/02 15:32:14

Stop Resolution (000)

WORDPOS(EDMGETV(ZMASTER,ZOS),'UNIXHPUX, UNIXSOL, UNIXLNUX, UNIXAIX')=0

Name	Attribute Description	Value
RELEASE	Package Release	
PATH	Path	
DESKTOP	Desktop	
FILE	File	
REGISTRY	Registry	
REQUIRES	Required Package level	
BEHAVIOR	Behavior	
ZSTOP000	Stop Resolution (000)	WORDPOS(EDMGETV(ZMASTER,ZOS),'UNIXHPUX, UNIX

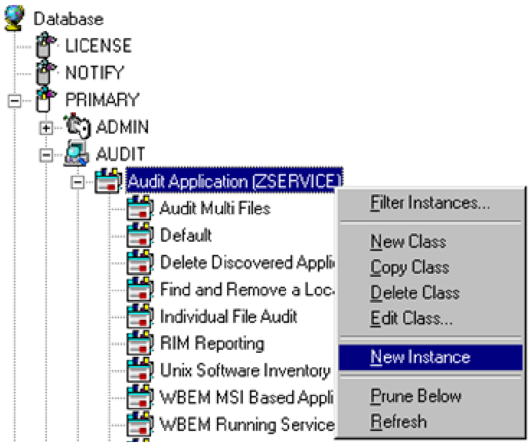
4. Click **OK**.

To create a ZSERVICE instance

Next, you will need to create a ZSERVICE instance to contain the package.

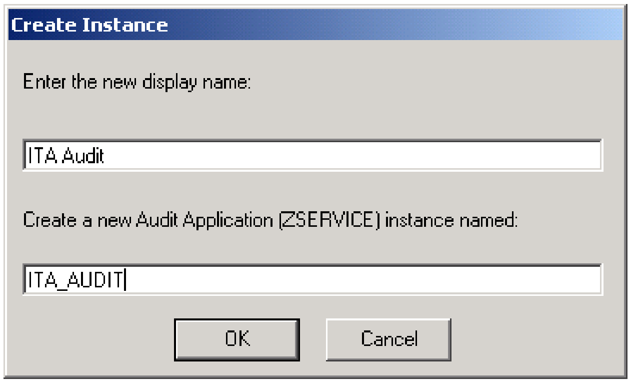
➤ While working within the AUDIT domain, note that the New Application Wizard is *not* available to connect a package to a service. You need to either copy an existing instance or create a new one.

1. In the System Explorer, expand the AUDIT.ZSERVICE class.
2. Right-click on **Audit Application (ZSERVICE)** and a shortcut menu opens.



3 Select **New Instance** from the shortcut menu.

The Create Instance dialog box opens.



Create Instance

Enter the new display name:

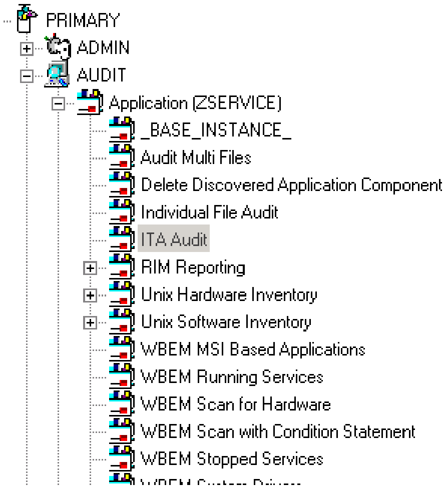
ITA Audit

Create a new Audit Application (ZSERVICE) instance named:

ITA_AUDIT

4 Type a display name and an instance name.

5 Click **OK**. The ZSERVICE is added to the AUDIT.ZSERVICE class.



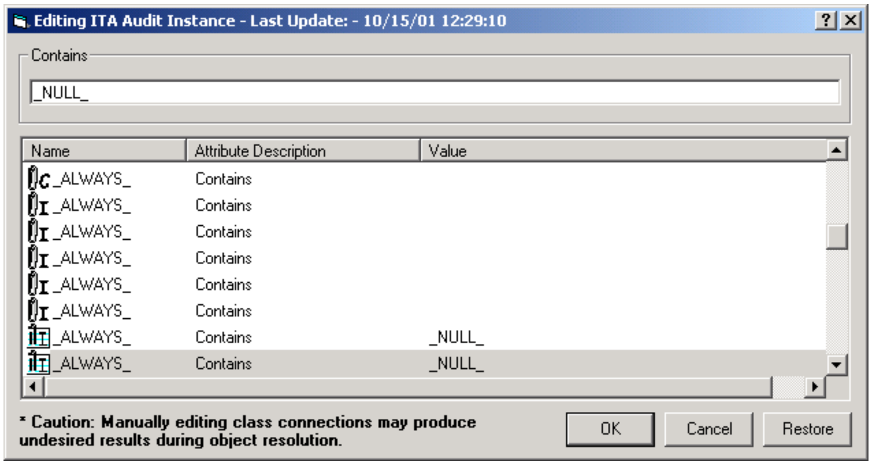
- PRIMARY
  - ADMIN
  - AUDIT
    - Application (ZSERVICE)
      - _BASE_INSTANCE_
      - Audit Multi Files
      - Delete Discovered Application Component
      - Individual File Audit
      - ITA Audit
      - RIM Reporting
      - Unix Hardware Inventory
      - Unix Software Inventory
      - WBEM MSI Based Applications
      - WBEM Running Services
      - WBEM Scan for Hardware
      - WBEM Scan with Condition Statement
      - WBEM Stopped Services

Use the System Explorer to connect the new ZSERVICE instance to the Audit Package.

Now, add _NONE_ to the RIMOPTS and BEHAVIOR connections. These are default connections from the base instance and are only applicable to Windows clients.

6 Double click the ZSERVICE instance.

7 Double-click the two class connections and change their values to _NONE_.



Editing ITA Audit Instance - Last Update: - 10/15/01 12:29:10

Contains

NULL

Name	Attribute Description	Value
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	_NULL_
ALWAYS	Contains	_NULL_

* Caution: Manually editing class connections may produce undesired results during object resolution.

8 Click **OK**.

Creating UNIX File Audit Methods

Unix File Audit methods are run for reporting purposes. The AUDIT classes FILESCAN and FILTER are used when creating Unix File Audit methods. Creating a new Unix File Audit method is similar to creating a new package for inventory scanning, as seen in the previous section.

To create a new Unix File Audit method package

1 Go to **Start** → **Programs** → **Administrator Workstation** → **System Explorer**.

The System Explorer Security Information dialog box opens.

The User ID, as shipped from HP, is RAD_MAST. No password is necessary. This may have been changed in your installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

2 If necessary, type a User ID and Password, and then click **OK**. The System Explorer window opens.

3 Double-click **PRIMARY**.

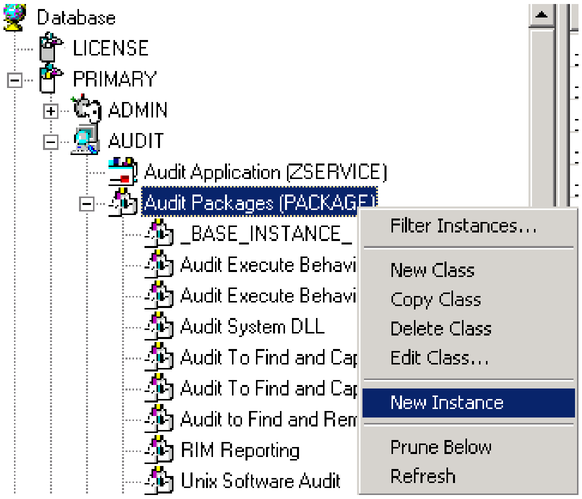
4 Expand the **AUDIT** domain.

5 Double-click on **Audit Packages (PACKAGE)** class.

As an example, we will create a new auditing package called **Unix File Audit**. This package will scan a user's computer.

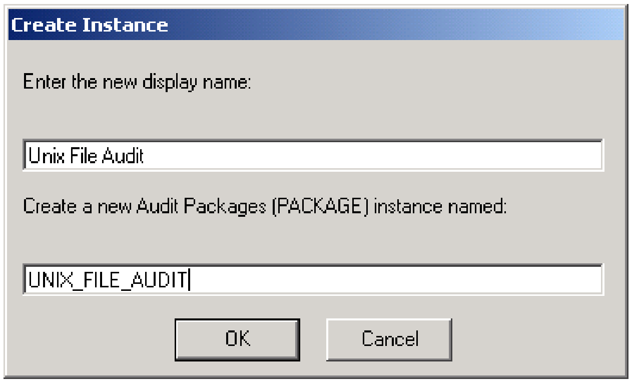
6 Right-click on the **Audit Packages (PACKAGE)** class.

A shortcut menu opens.



7 Select **New Instance** from the menu.

The Create Instance dialog box opens.



Create Instance

Enter the new display name:

Unix File Audit

Create a new Audit Packages (PACKAGE) instance named:

UNIX_FILE_AUDIT

8 Type a new display name for the package instance. This is the friendly name that will appear in the tree view.

9 Type a name for the **Create a new Audit Packages (PACKAGE) instance named**. This name appears in the title bar of the list view of the System Explorer window when the instance is selected and opened in the tree view.

10 Click **OK** to continue.

The new Audit Package is added to the AUDIT.PACKAGE class.

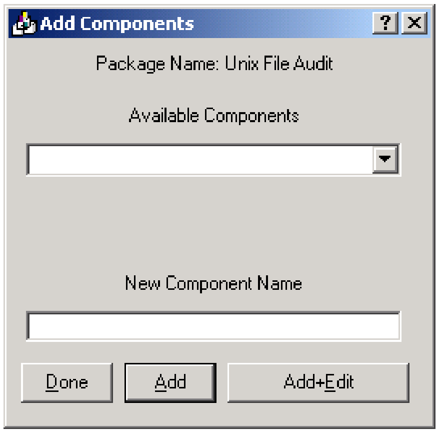
11 After you create the Audit package, add the components for the Unix File Audit method.

To add a component to an audit package

1 Right-click on the new Audit package.

2 Select **Add Components** from the context menu.

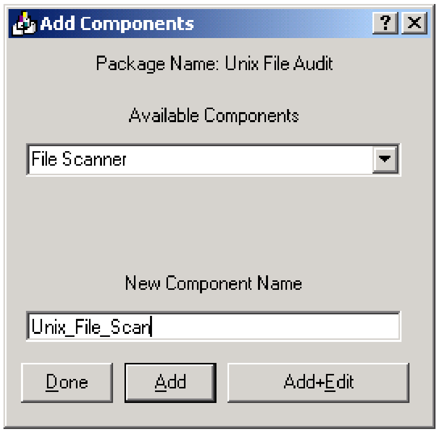
The Add Components dialog box opens.



Package Name: Unix File Audit

3 Click the **Available Components** down arrow. Select **File Scanner** from the list.

4 In the **New Component Name** text box, type the name of the component.

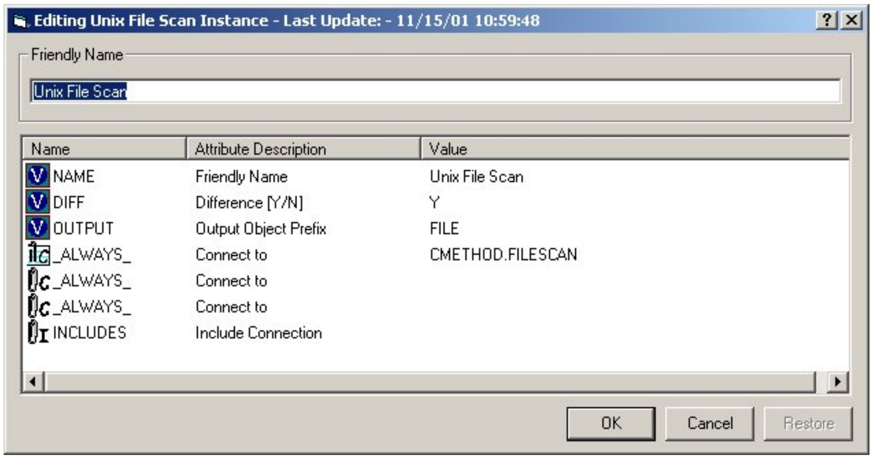


Package Name: Unix File Audit

Available Components: File Scanner

New Component Name: Unix_File_Scan

5 Click **Add+Edit**. This adds the component to the package and opens the Editing Instance dialog box.



Editing Unix File Scan Instance - Last Update: - 11/15/01 10:59:48

Friendly Name: Unix File Scan

Name	Attribute Description	Value
V NAME	Friendly Name	Unix File Scan
V DIFF	Difference [Y/N]	Y
V OUTPUT	Output Object Prefix	FILE
C _ALWAYS_	Connect to	CMETHOD.FILESCAN
C _ALWAYS_	Connect to	
C _ALWAYS_	Connect to	
I INCLUDES	Include Connection	

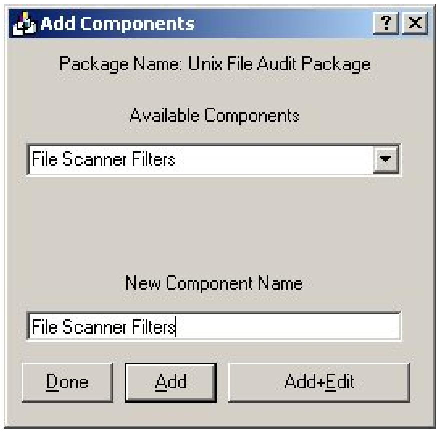
Use the Editing Instance dialog box to edit the instances used in your file scan.

6 Click **OK** when you are finished editing your instance.

7 Now add a File Scanner Filters component.

8 From the **Available Components** drop-down list, select **File Scanner Filters**.

9 In the New Component Name text box, type `File Scanner Filters`.



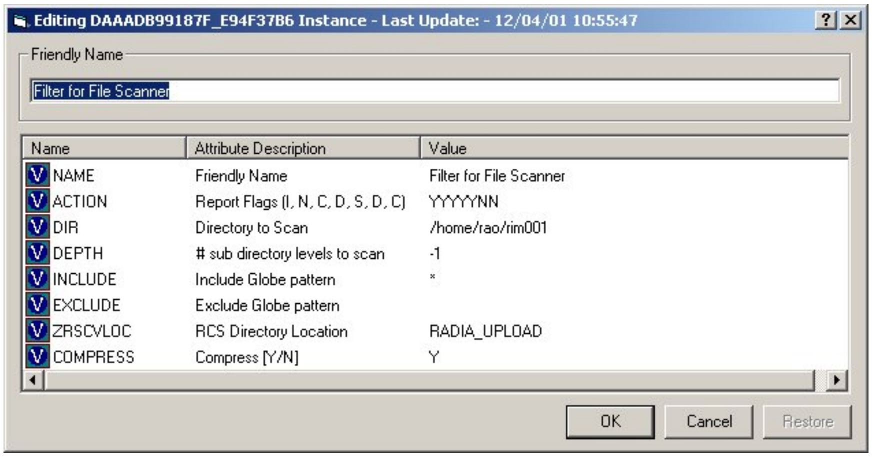
Add Components

Package Name: Unix File Audit Package

Available Components: File Scanner Filters

New Component Name: File Scanner Filters

10 Click **Add+Edit** to add the component to the package and open the Editing Instance dialog box.



Editing DAAADB99187F_E94F37B6 Instance - Last Update: - 12/04/01 10:55:47

Friendly Name: Filter for File Scanner

Name	Attribute Description	Value
NAME	Friendly Name	Filter for File Scanner
ACTION	Report Flags (I, N, C, D, S, D, C)	YYYYYNN
DIR	Directory to Scan	/home/rao/rim001
DEPTH	# sub directory levels to scan	-1
INCLUDE	Include Globe pattern	*
EXCLUDE	Exclude Globe pattern	
ZRSCVLOC	RCS Directory Location	RADIA_UPLOAD
COMPRESS	Compress [Y/N]	Y

11 Click **OK** when you are finished editing the instance.

12 Click **Done** in the **Add Components** dialog box.

13 Now create a ZSERVICE instance and connect the package. Make sure to add _NONE_ to the two ALWAYS connections in the ZSERVICE instance. See To create a ZSERVICE instance on page 135 for instructions on creating a ZSERVICE and removing the required ALWAYS connections.

Summary

- A complete audit service consists of several connected instances in the AUDIT domain.
- The audit package instance is a container that owns the instances connected to it. The fact that a package instance owns a component class instance means that all of the instances are managed as a package unit.
- By viewing and deploying the sample audits provided by HP, systems administrators will be able to create and use their own auditing packages.
- The New Application Wizard is *not* available to connect a package to a service within the Audit domain. You need to either copy an existing instance or create a new one.

8 Configuring Timers for Audit Collection

At the end of this chapter, you will:

- Have created an Audit TIMER instance for an audit package.
- Have created an Audit TIMER ZSERVICE for an audit package.

This manual helps you install and implement the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

The Scheduling (TIMER) Class

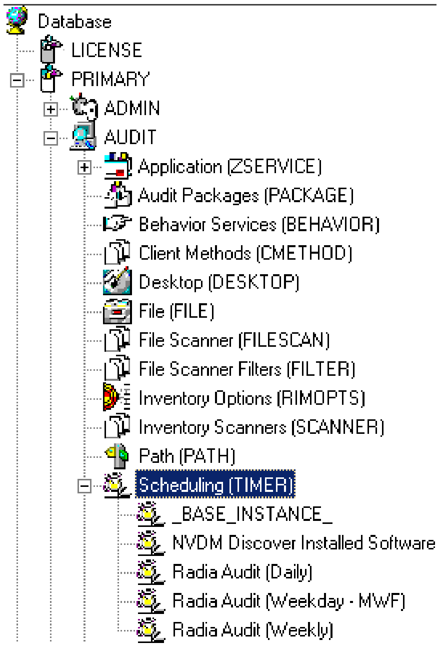
The Scheduling (TIMER) class enables the Radia administrator to set a timer on the client computer and will cause one or more audit services to be processed whenever the timer expires. The administrator can use this method to process mandatory audit services automatically according to a predetermined schedule.

> As distributed by HP, the SOFTWARE domain also contains a Scheduling (TIMER) class. Timers can be specified in instances of either Scheduling (TIMER) class and can be connected to an Application (ZSERVICE) class instance in either the SOFTWARE or AUDIT domains interchangeably.

Housed within the AUDIT.Scheduling (TIMER) class are three sample Timer packages:

- **Daily**
  which will deploy a ZSERVICE everyday at the time specified.
- **Weekday**
  which will deploy a ZSERVICE on Mondays, Wednesdays, and Fridays at a specified time.
- **Weekly**
  which will deploy a ZSERVICE every seven days at a specified time.

These sample packages can be copied, changing the time parameters to suit your needs. Refer to the *System Explorer Guide* for information on copying an instance. Or, you can create a new timer instance by following the procedure To create a new timer in the AUDIT domain beginning on page 151.



- Database
  - LICENSE
  - PRIMARY
    - ADMIN
    - AUDIT
      - Application (ZSERVICE)
      - Audit Packages (PACKAGE)
      - Behavior Services (BEHAVIOR)
      - Client Methods (CMETHOD)
      - Desktop (DESKTOP)
      - File (FILE)
      - File Scanner (FILESCAN)
      - File Scanner Filters (FILTER)
      - Inventory Options (RIMOPTS)
      - Inventory Scanners (SCANNER)
      - Path (PATH)
      - Scheduling (TIMER)
        - _BASE_INSTANCE_
        - NVDM Discover Installed Software
        - Radia Audit (Daily)
        - Radia Audit (Weekday - MWF)
        - Radia Audit (Weekly)

Figure 18: AUDIT Scheduling (TIMER) class.

Timers can be set to expire periodically (hourly, daily, weekly, monthly, or at defined intervals), on a specific date, or at a specific time. Each Radia client is installed with the Radia Scheduler service. This service contains an executable timer component that executes any program on the end-user desktop when a timer expires.

Typically, the Radia Scheduler service lies dormant in the background, and wakes up once per minute to see if a timer has expired. When a timer expires, the command line associated with the expired timer is executed. Normally, this command line invokes a connection to the Configuration Server to deploy or maintain a service.

The following table explains the Scheduling (TIMER) class attributes:

Table 21: Scheduling (TIMER) Class

Attribute	Description
ZOBJPRI	Sets the priority for deployment of ZTIMEQ object, which is deployed relative to the other elements being deployed during the client connect. Elements with a priority number less than the value of ZOBJPRI are deployed *before* the ZTIMEQ object. A value of 90 is inherited from the base instance and should not be changed.
ZSTOP	This expression is used to assign timer conditions. Indicate **`true`** to cause resolution of the instance to be skipped. The timer is not deployed for end users. Leave blank for the instance to be accepted, and resolution will continue.
ZSCHMODE	This attribute specifies the timer owner. It is recommended that you accept the default configuration of USER.
ZSCHDEF	Indicates when timer expires. The syntax varies depending on the frequency of expiration, which can be DAILY, HOURLY, INTERVAL, NUMDAY, WEEKDAY, WEEKLY.
ZSCHTYPE	*Used only when* ZSCHFREQ = PERIODIC. Set ZSCHTYPE to DEFERRED to indicate that the first time an event is attempted to be launched, it will be deferred until the next scheduled time, no matter when the timer instance is evaluated. This was designed to handle the case of a daily 4 AM (non-peak) scheduled event that is sent to the client computer during the day. If it was not deferred, it would launch during the day instead of "waiting" until the next morning. Example 1: Suppose you create and deploy a timer with the ZSCHDEF = DAILY(&ZSYSDATE,4:00:00) If ZSCHTYPE = IMMEDIATE and it is: • Before 4:00:00, the command in the instance will be executed the same day at 4:00:00 • After 4:00:00, the command in the instance will be executed immediately If ZSCHTYPE = DEFERRED and it is: • Before 4:00:00, the command in the instance will be executed the *next* day at 4:00:00 • After 4:00:00, the command in the instance will be

Attribute	Description
	executed the *next* day at 4:00:00 Example 2: Suppose you create and deploy a timer with the ZSCHDEF = WEEKDAY(FRIDAY,4:00:00) If ZSCHTYPE = IMMEDIATE and it is: • Not Friday or Friday and before 4:00:00, the command in the instance will be executed on Friday at 4:00:00 • Friday and after 4:00:00, the command in the instance will be executed immediately If ZSCHTYPE = DEFERRED and it is: • Not Friday or Friday and before 4:00:00, the command in the instance will be executed a week later on Friday at 4:00:00 • Friday and after 4:00:00, the command in the instance will be executed a week later on Friday at 4:00:00
ZSCHFREQ	This attribute indicates how often the timer should expire according to the frequency specified in the ZSCHDEF attribute. • Once for a one-time expiration. • Periodic for a repeated expiration. • Random for random intervals.
ZRSCCMDL	This attribute indicates the command line that is executed on the subscriber's computer when the timer expires.
ZSVCOID	This attribute specifies the object ID of the Application instance that this Scheduling instance is connected to. This value is inherited from the base instance and should not be modified.
ALWAYS	Stores the connections to other instances.
NAME	The friendly name for this instance.
APPSVC	The Application Name.
REQUEST	The Application Request.
DOMAIN	The server's domain name.

Attribute	Description
IPADDR	The server's IP address/name.
SOCKET	The server's socket number.
MGRNAME	The server's name.
ZCREATE	The Scheduler CREATE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZVERIFY	The Scheduler VERIFY method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZUPDATE	The Scheduler UPDATE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZDELETE	The Scheduler DELETE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZNOPING	Controls the automatic sensing of a network connection between the client computer and the Configuration Server. An expired time will continually evaluate whether communications with the Configuration Server can be established. When communications are established, the command line associated with the time is executed. After executing the command line, the Scheduler service resumes normal evaluation of whether the timer has expired again. Use this attribute when there is a possibility that the client will not be able to connect with the Configuration Server, such as when the client is a mobile user. Note: In order to use this attribute, you must add it to the TIMER class template.

Creating a Timer Instance

This section covers how to create and configure a timer and connect it to the service that you want to deploy. Prior to creating and configuring a timer, consider the following:

- What time of day should the timer expire?
- How often do you want the timer to expire?
- Does the timer need to expire more than once?
- What should happen when the timer expires?

To create a timer in the Radia Database, use the System Explorer to create a Scheduling (TIMER) instance in the AUDIT domain.

> As distributed by HP, the SOFTWARE domain also contains a Scheduling (TIMER) class. Timers can be specified in instances of either Scheduling (TIMER) class and can be connected to an Application (ZSERVICE) class instance in either the SOFTWARE or AUDIT domains interchangeably.

For the purposes of documentation, the timer created will be created from within the AUDIT domain.

For additional information concerning the Schedule (TIMER) class, see the *Deploying Applications* chapter of the *Application Manager Guide*.

> The following section uses the System Explorer, which is available for 32-bit Windows platforms.

To create a new timer in the AUDIT domain

1 Go to **Start** → **Programs** → **Administrator Workstation** → **System Explorer**.

The System Explorer Security Information dialog box opens.

> The User ID, as shipped from HP, is RAD_MAST. No password is necessary. This may have been changed in your installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

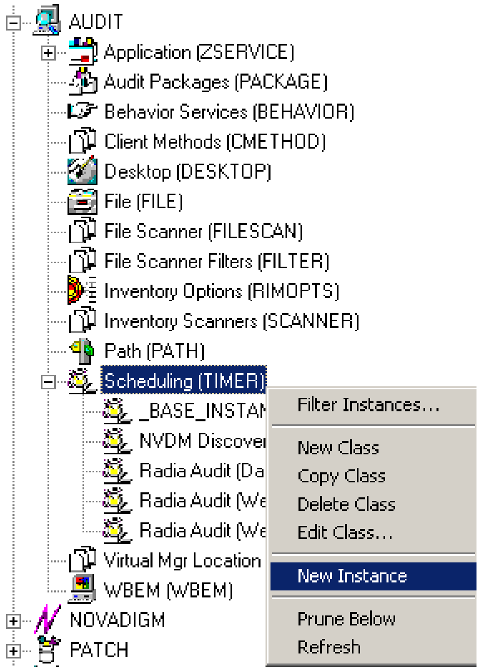
2 If necessary, type a User ID and Password, and then click **OK**. The System Explorer window opens.

3 Double-click **PRIMARY**.

4 Expand the **AUDIT** domain.

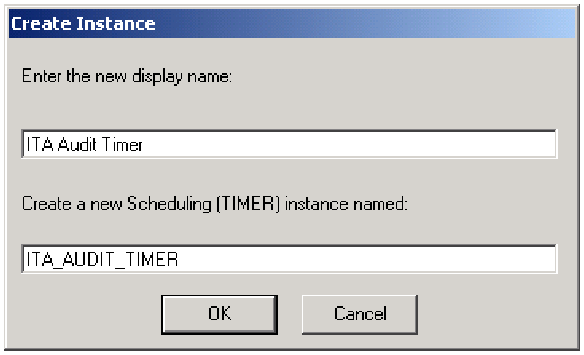
5 Right-click **Scheduling (TIMER)**.

A shortcut menu opens.



6 Select **New Instance**.

The Create Instance dialog box opens.


Create Instance

Enter the new display name:

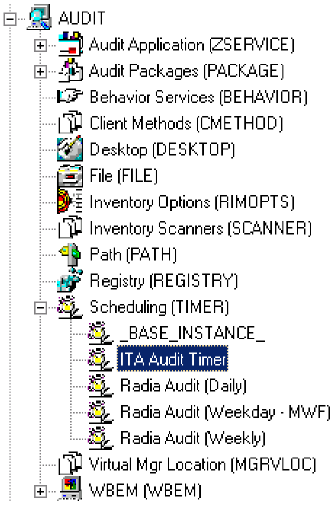
ITA Audit Timer

Create a new Scheduling (TIMER) instance named:

ITA_AUDIT_TIMER

7 Type a name for the new timer instance.

8 Click **OK**. The timer instance appears in the **Scheduling (TIMER)** class.



- AUDIT
  - Audit Application (ZSERVICE)
  - Audit Packages (PACKAGE)
  - Behavior Services (BEHAVIOR)
  - Client Methods (CMETHOD)
  - Desktop (DESKTOP)
  - File (FILE)
  - Inventory Options (RIMOPTS)
  - Inventory Scanners (SCANNER)
  - Path (PATH)
  - Registry (REGISTRY)
  - Scheduling (TIMER)
    - _BASE_INSTANCE_
    - ITA Audit Timer
    - Radia Audit (Daily)
    - Radia Audit (Weekday - MWF)
    - Radia Audit (Weekly)
  - Virtual Mgr Location (MGRVLOC)
  - WBEM (WBEM)

Specifying Timer Settings

Whether you copied an existing timer or you created a new Timer instance, you will need to review and/or customize your timer settings.

See the Deploying Applications chapter in the *Application Manager Guide* for additional Schedule (TIMER) class information.

Specifying ZSCHDEF

Use ZSCHDEF to indicate when the timer should expire. The syntax varies depending upon the expiration frequency. When configuring ZSCHDEF, the variable is set in the following form:

```
freq(date,time[,limit_time][count])
```

- The value of `freq` can be:

  `DAILY, WEEKLY, WEEKDAY, HOURLY, INTERVAL, NUMDAYS`

  — If the value of `freq` is `DAILY, WEEKLY, HOURLY, INTERVAL`, or `NUMDAYS`, the date is then specified in the following form:

  `YYYY/MM/DD`

— If the value of `freq` is `WEEKDAY`, the `date` is then specified as the name of a day of the week in all uppercase letters. This would be one of the following:

```
MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY
```

- The value for `time` or `limit_time` is optional. It is specified in the following form:

  ```
  HH:MM:SS
  ```

- The value for `count` is optional. It is specified as an integer.
- The timer expiration can also be configured on the value of ZSCHFREQ. Use the following table to help you determine the appropriate syntax.

Table 22: Syntax of ZSCHDEF Variables

Type	Syntax	Timer Expires
DAILY	DAILY(&ZSYSDATE,24:00:00)	Daily at midnight by the system's date.
WEEKLY	WEEKLY(&ZSYSDATE,01:00:00)	Every 7 days at 1:00 AM.
WEEKDAY	WEEKDAY(MONDAY,01:00:00)	Every *`Name of Weekday`** starting on MONDAY at 1:00 AM. The weekday must be specified in uppercase.
HOURLY	HOURLY(&ZSYSDATE,08:41:00)	Hourly starting at 8:41 AM on the systems date.
INTERVAL	INTERVAL(&ZSYSDATE,08:41:00,,30)	Every 30 minutes starting at 8:41 AM based on system's date.
NUMDAYS	NUMDAYS(20000803,08:00:00,,14)	Every 14 days starting on August 3, 2000 at 8:00 AM.

* *`Name of Weekday`* is the name of a specific weekday in uppercase letters, e.g. MONDAY.

Specifying ZSCHTYPE

The ZSCHTYPE controls how the timer handles the scheduled event when the client receives the initial TIMER definition for a service. There are two valid controls:

- **IMMEDIATE**
  will execute the command specified in the ZRSCCMDL immediately if the

date and time indicated in ZSCHDEF has passed when the ZTIMEQ object is initially created.

- **DEFERRED**
  will defer the execution if the date and time defined in the ZSCHDEF has passed and will wait until the next occurrence to execute. This is the recommended setting.

If the time and date indicated in ZSCHDEF has not passed when the ZTIMEQ object is deployed, this setting has no effect.

Specifying ZSCHFREQ

Use ZSCHFREQ to specify whether the timer should expire once (ONCE) or repeatedly (PERIODIC) according to the frequency specified in ZSCHDEF.

Specifying ZRSCCMDL

Use ZRSCCMDL to execute a command on the subscriber's computer when the timer expires.

Use the following command line to run the audit service when the scheduled time occurs:

```
radskman,cat=y,uid=&(ZMASTER.ZUSERID),startdir=&(ZMASTER
.LOCALUID),mname=&(ZMASTER.ZMGRNAME,dname=&(ZMASTER.ZDOMNAME,
sname=&(ZSERVICE.ZOBJNAME)
```

➤ The parameters indicated in the `radskman` command may differ depending upon customer specific implementations.

Specifying ZNOPING

The ZNOPING attribute controls automatic sensing of a network connection between the client computer and the Configuration Server. Use this attribute when there is a possibility that the client will not be able to connect with the Configuration Server, such as when the client is a mobile user.

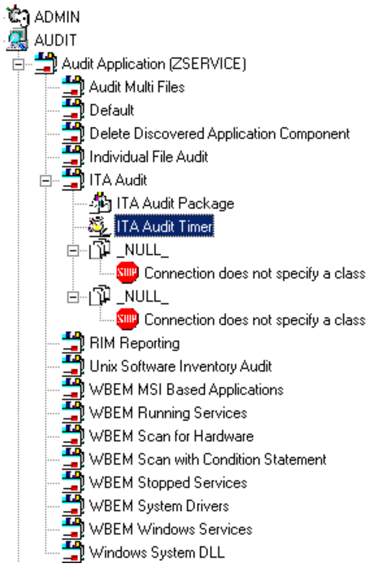
- If the ZNOPING attribute is not in the ZTIMEQ object, or if ZNOPING is not equal to N, the Scheduler service does not ping the Configuration Server.
- If ZNOPING = N, the Scheduler service will ping the Configuration Server.

- If the Configuration Server is pinged successfully, the command in ZRSCCMDL is executed. The PENDING attribute in the client's ZTIMEQ object is then set to N. This will indicate that the Scheduler service does not need to ping the Configuration Server again.
- If the Configuration Server is not pinged successfully, the timer is not processed any further. The PENDING attribute value remains set to Y. The next time the Scheduler service expires, it should ping the Configuration Server again.

Connecting the Timer to a Service

Once you have created your timer, you must connect it to a service. Each subscriber that receives the ZSERVICE to which the timer is connected, will receive the timer information in the ZTIMEQ object the next time the Radia client connects to the Configuration Server.

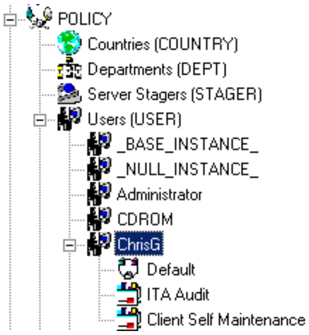
Use the System Explorer to connect the **ITA Audit Timer** to the **ITA Audit ZSERVICE** created earlier in this document.



- ADMIN
- AUDIT
  - Audit Application (ZSERVICE)
    - Audit Multi Files
    - Default
    - Delete Discovered Application Component
    - Individual File Audit
    - ITA Audit
      - ITA Audit Package
      - ITA Audit Timer
      - _NULL_
        - Connection does not specify a class
      - _NULL_
        - Connection does not specify a class
    - RIM Reporting
    - Unix Software Inventory Audit
    - WBEM MSI Based Applications
    - WBEM Running Services
    - WBEM Scan for Hardware
    - WBEM Scan with Condition Statement
    - WBEM Stopped Services
    - WBEM System Drivers
    - WBEM Windows Services
    - Windows System DLL

Figure 19: Audit Timer instance connected to service.

Then connect the AUDIT.ZSERVICE .ITA Audit to a user or group of users within the POLICY domain.



POLICY

Countries (COUNTRY)

Departments (DEPT)

Server Stagers (STAGER)

Users (USER)

_BASE_INSTANCE_

_NULL_INSTANCE_

Administrator

CDROM

ChrisG

Default

ITA Audit

Client Self Maintenance

Figure 20: Service attached to a user.

Summary

- The Scheduling (TIMER) class enables the Radia administrator to set a timer on the client computer and will cause one or more audit services to be processed whenever the timer expires.
- As distributed by HP, the SOFTWARE domain also contains a Scheduling (TIMER) class. Timers can be specified in instances of either Scheduling (TIMER) class and can be connected to an Application (ZSERVICE) class instance in either the SOFTWARE or AUDIT domains interchangeably.
- Typically, the Radia Scheduler service lies dormant in the background, and wakes up once per minute to see if a timer has expired.
- Use ZSCHDEF to indicate when the timer should expire.
- Use ZRSCCMDL to execute a command on the subscriber's computer when the timer expires.

9 Viewing Inventory from the Radia Integration Server

At the end of this chapter, you will:

- Know how to access and use the Radia Integration Server pages to view the inventory information obtained from client computers. The web pages can be accessed whether or not you have the Management Portal installed.
- Know how to use the **Summary** link in the Radia Integration Server to view information about *all* Radia clients.
- Know how to use the **Detail** link in the Radia Integration Server to view in-depth information about a *single* subscriber.
- Be able to navigate through the information collected by clicking on hyperlinks embedded within any table.

Accessing the Radia Integration Server

To access the Radia Integration Server

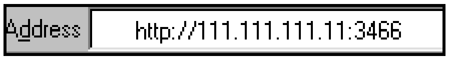
1. Make sure the Radia Integration Server has been started. (See Starting the Radia Integration Server on page 76).
2. Start your Web browser and type the IP address and port number of the Radia Integration Server into the address field:

   http:/*I/P Address* or *hostname*:*port*

   — The *I/P Address* is the IP address of the computer running the Radia Integration Server.

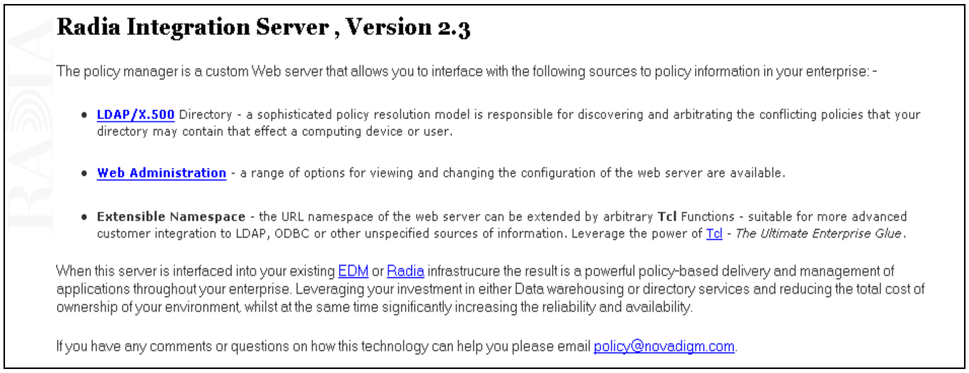
   — The *hostname* is the name of the computer running the Radia Integration Server.

   — The *port* is the port number of the Radia Integration Server. This port number is usually 3466.

   http://111.111.111.11:3466

   The home page of the Radia Integration Server opens.



Radia Integration Server , Version 2.3

The policy manager is a custom Web server that allows you to interface with the following sources to policy information in your enterprise: -

- **LDAP/X.500** Directory - a sophisticated policy resolution model is responsible for discovering and arbitrating the conflicting policies that your directory may contain that effect a computing device or user.
- **Web Administration** - a range of options for viewing and changing the configuration of the web server are available.
- **Extensible Namespace** - the URL namespace of the web server can be extended by arbitrary **Tcl** Functions - suitable for more advanced customer integration to LDAP, ODBC or other unspecified sources of information. Leverage the power of Tcl - *The Ultimate Enterprise Glue*.

When this server is interfaced into your existing EDM or Radia infrastrucure the result is a powerful policy-based delivery and management of applications throughout your enterprise. Leveraging your investment in either Data warehousing or directory services and reducing the total cost of ownership of your environment, whilst at the same time significantly increasing the reliability and availability.

If you have any comments or questions on how this technology can help you please email policy@novadigm.com.

Maneuvering Within the Radia Integration Server

The Radia Integration Server home page is a Web page designed to facilitate your use of various Radia products such as the Inventory Manager, the Radia Policy Adapter, and the Policy Manager (also known as the Push Manager).

➤ For more information on any of these add-on features, contact your sales representative.

The tabs and links across the top of the page enable you to access the following:

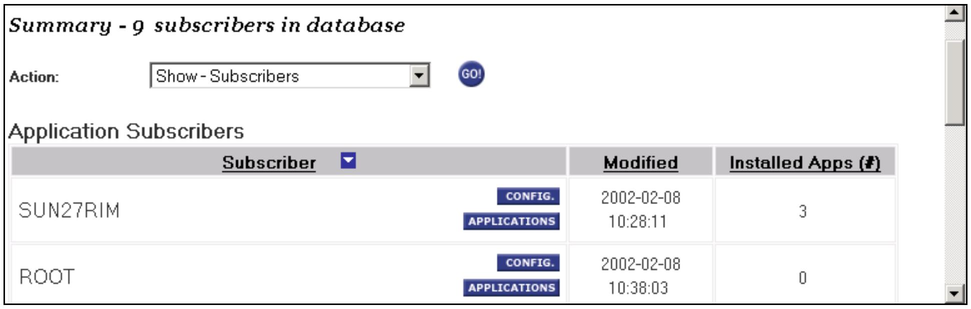
Table 23: Radia Integration Server – Tabs and Links

Tab/Link	Information
Manager Admin	Click this tab to view and navigate through the Radia Database. Note: In order to use this feature, the Radia Integration Server must be installed to the same computer as the Configuration Server.
Reporting	Click this tab to go to Web-based reports that show the information collected through the Inventory Manager. This area is specific to and is the primary focal point for the Inventory Manager.
Site	Click this tab to go to a place where custom HTML can be stored. This area is specific to the Radia Integration Server.
Server Admin	Click this tab to change the settings of the Web server itself. This area is specific to the Radia Integration Server.
Home	Click this link at any time to return to the Radia Integration Server home page.
Support	Click this link at any time to open another Web browser pointing at the HP home page. From here, you can access support and technical publications as well as our corporate information.
Info	Click this link to go to additional Radia Integration Server documentation.

Information specifically related to the Radia Integration Server can be found on the HP OpenView web site.

Reporting

Click the **Reporting** tab to access the Queries page.



Summary - 9 subscribers in database

Action: Show - Subscribers

Application Subscribers

Subscriber	Modified	Installed Apps (#)
SUN27RIM	2002-02-08 10:28:11	3
ROOT	2002-02-08 10:38:03	0

At the top of the page (see the next figure), select either:

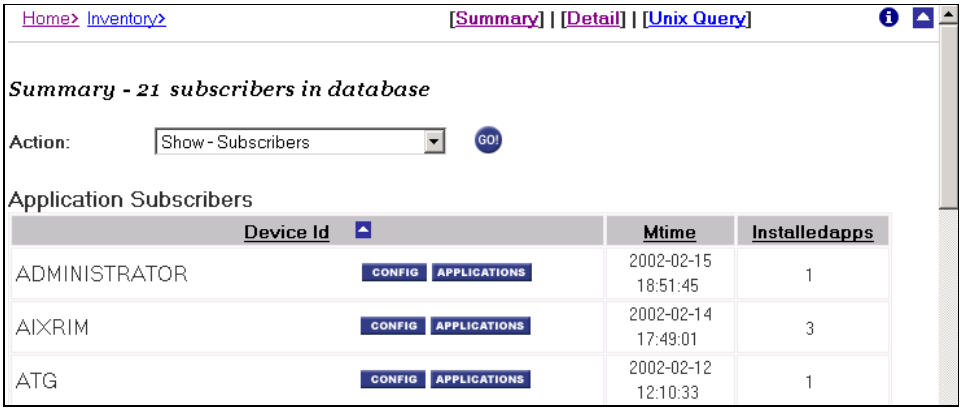
- The **Summary** link – which shows information about *all* subscribers

  OR

- The **Detail** link – which shows in-depth information about a *single* subscriber.

REPORTING Tab - Summary Information

Click on the **Summary** link to display the following:



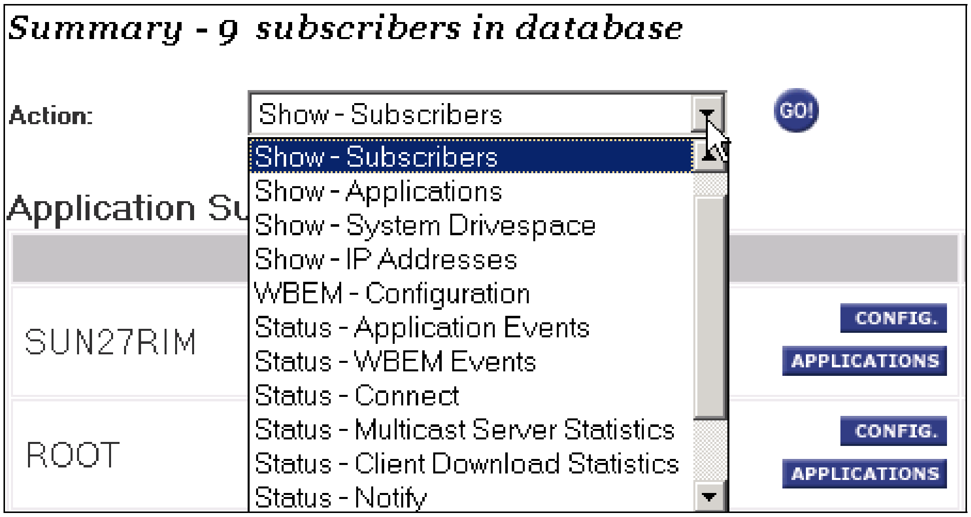
Summary - 21 subscribers in database

Action: Show - Subscribers

Application Subscribers

Device Id	Mtime	Installedapps
ADMINISTRATOR	2002-02-15 18:51:45	1
AIXRIM	2002-02-14 17:49:01	3
ATG	2002-02-12 12:10:33	1

Click the arrow for **Action** to make a selection from a drop-down menu:



Summary - 9 subscribers in database

Action: Show - Subscribers

Table 24 below indicates the information that can be accessed from the **Action** drop-down menu:

Table 24: Reporting Tab – Actions Drop-Down Selections

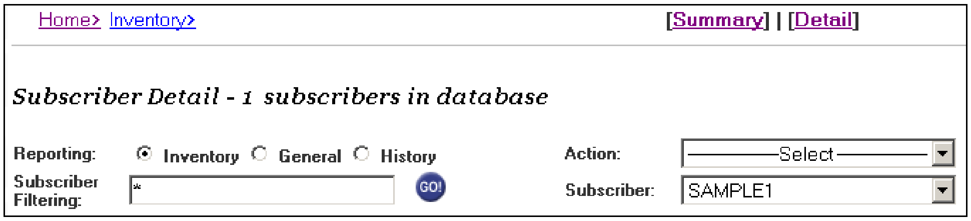
Action	Reporting Available
Show - Subscribers	Lists all the subscribers that have connected to the Configuration Server, the most recent date and time the subscriber connected, and the number of applications that a subscriber has installed. Use this in conjunction with the **Limit To** drop-down menu to control the number of subscribers to be viewed. You can access the subscribers' system configurations and application information.
Show - Applications	Lists the applications available to subscribers. It also shows how many users have subscribed to a particular application.
Show - System Drivespace	Lists the subscriber's system drive space. Including the system drive name, the size of the drive, amount of free space on the drive, and the percentage of free space.
Show - IP Addresses	Lists the IP addresses of all subscribers including their MAC addresses.

Action	Reporting Available
WBEM - Configuration	A summary of configuration information for all subscribers.
Status - Application Events	Will show the last event (install, uninstall, verify, repair, etc.) for all subscribers and all applications.
Status - WBEM Events	Displays status of all WBEM events.
Status - Connect	Shows statistics concerning the last connect for all subscribers.
Status - Multicast Server Statistics	Shows activity statistics for Multicast Servers in your network. Includes the following information for each multicast session: number of clients connected, transmission start and duration, files requested, rejected, and transmitted, and total bytes transmitted. . For a sample of fields reported, see Table 36 on page 210.
Status - Client Download Statistics	Shows statistics for all client downloaded resources in your network. This is useful for obtaining a network profile of your client downloads, as well as debugging client download problems. Includes the following information for all client downloaded resources: the exact source of a resource delivery (for example, a Radia Proxy Server, Stager, Configuration Server, or Radia Multicast Server), how many files were delivered from each source, how long the delivery took from each source, and the total size of resources downloaded from each source. For a sample of fields reported, see Table 36 on page 210.
Status - Notify	This report is not applicable for the Inventory Manager.
Errors - Connect	Summary of error information for all subscribers.
Errors - Notify	This report is not applicable for the Inventory Manager.
Admin - Configuration	Lists current configuration setting of the Inventory Manager module.

For most of the Summary Reports, it is possible to obtain more detailed reports by clicking on the buttons and hyperlinks embedded within the reporting tables. For more information on Detail Reports, see *REPORTING Tab – Detail Information* below.

REPORTING Tab – Detail Information

Click the **Detail** link to display the following:



Home> Inventory>

[Summary] | [Detail]

Subscriber Detail - 1 subscribers in database

Reporting: ● Inventory ○ General ○ History

Action: ——Select——

Subscriber Filtering: *

Subscriber: SAMPLE1

Figure 21: Reporting Tab – Detail Report.

Use the **Reporting** options and the drop-down menus to configure what you would like to see reported. The type of Reporting you select directly impacts the **Action** you can take. For example, if you would like to see the General Reporting items, select the **General** option. Then click on the **Action** drop-down arrow to see what Action items are available to you. Table 25 on page 166 indicates the information that can be accessed from the **Action** drop-down menu for each of the Reporting options.

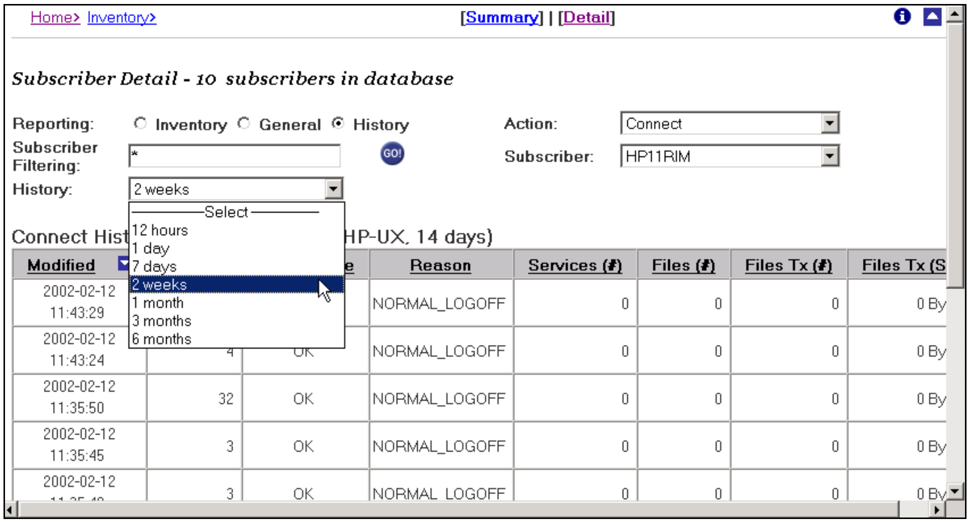
Table 25: Reporting Tab – Detail Reporting – Type

Reporting Type	Reporting Available
Inventory	Allows you to select the following Actions: • WBEM Applications For Managed and Audited WBEM applications • WBEM Features For WBEM features • WBEM Elements For WBEM elements • **Configuration Summary** Displays OS configuration, hardware, disk drive information, environment, and Windows services • Applications For Managed and Audited applications • Installed Applications For installed applications • Audited Files Displays audited files information such as name, version, status, etc. • **PDA Devices** For future use • WBEM PDA Config For future use

Reporting Type	Reporting Available
General	Allows you to select the following Actions: • Show - Config Detailed reporting on such things as devices, hardware and software for a particular subscriber • Status - Application Events Displays the Application Events (application packages) for a specific subscriber • Status - Connect Displays the connection status for a specific subscriber. This also includes a report on any errors • Status - Services Displays the service state of the devices • Status - Notify Displays the notification status of the devices • Status - Summary Displays connection status for a specific user • Status - Detailed Displays the connection status as well as errors for a specific subscriber
History	Allows you to select the following Actions: • Application Events Displays application event history • Connect Displays connect history • Errors Displays error history • State Displays state history

Detailed Reporting – Reporting History

Select the **History** Reporting option to see historical data for the subscribers you select. Use the **History** drop-down menu to change the scope of history for each particular Action you would like to see reported.



Subscriber Detail - 10 subscribers in database

Reporting: ○ Inventory ○ General ● History

Action: Connect

Subscriber Filtering: *

Subscriber: HP11RIM

History: 2 weeks

Connect Hist HP-UX, 14 days)

Modified		e	Reason	Services (#)	Files (#)	Files Tx (#)	Files Tx (S
2002-02-12 11:43:29			NORMAL_LOGOFF	0	0	0	0 By
2002-02-12 11:43:24	4	OK	NORMAL_LOGOFF	0	0	0	0 By
2002-02-12 11:35:50	32	OK	NORMAL_LOGOFF	0	0	0	0 By
2002-02-12 11:35:45	3	OK	NORMAL_LOGOFF	0	0	0	0 By
2002-02-12	3	OK	NORMAL_LOGOFF	0	0	0	0 By

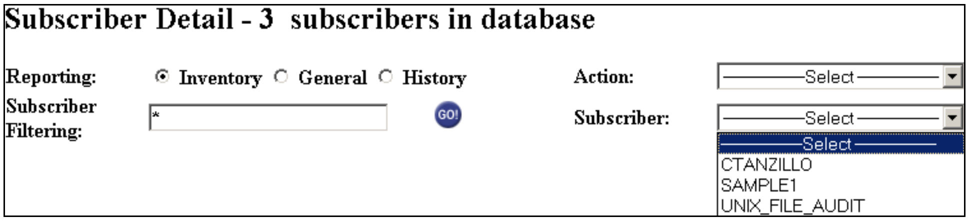
Figure 22: History Reporting drop-down menu.

Detailed Reporting - Subscriber

The **Subscriber** drop-down menu lists all of the subscribers (clients and/or end users) that reporting is available for.

> Remember, the Detail reporting functions focus on individual users. If you wish to view more than one user, click the **Summary** link to enable viewing multiple users.

To view a specific user, click the **Subscriber** drop-down menu as follows:



Subscriber Detail - 3 subscribers in database

Reporting: ● Inventory ○ General ○ History

Action: ——Select——

Subscriber Filtering: *

Subscriber: ——Select——

Figure 23: Details – Subscriber drop-down menu.

To select a subscriber, click the down arrow to display a list of subscribers. Then hold your cursor over the list and click on the desired user.

Subscriber Filtering

Before you use the **Subscriber** drop-down menu, you can filter the available subscribers list by entering all or part of a subscriber's name in the **Subscriber Filtering** text box. If you enter only part of a subscriber's name, be sure to use the asterisk (*), which acts as a wild card variable, before or after the text you typed. For example, to filter all subscribers containing TEST in their names, type **`*TEST*`** in the **Subscriber Filtering** text box.

Maneuvering in the Radia Integration Server: Management Portal Users

The Management Portal is a Web-based interface used to manage your Radia infrastructure. The Management Portal consists of the Radia Integration Server service, the Management Portal service, and the Management Portal Directory. You can perform administrative and operational tasks to objects in your infrastructure.

Actions performed in Management Portal are accessed through one interface. Accessing the inventory functions in the Management Portal by clicking on the **INVENTORY** button, located in the upper right hand corner of the Management Portal interface.

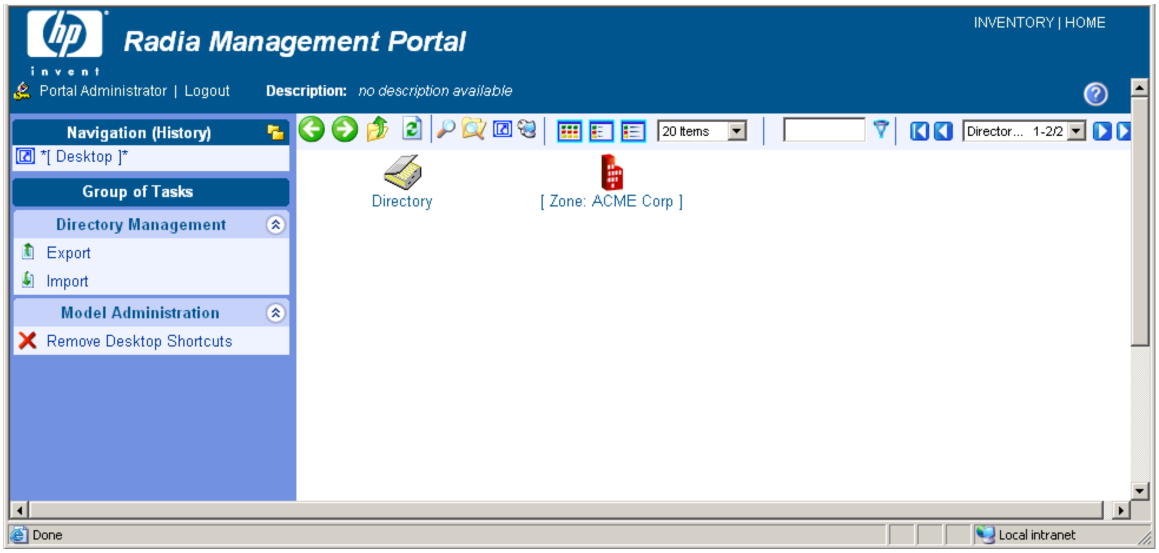
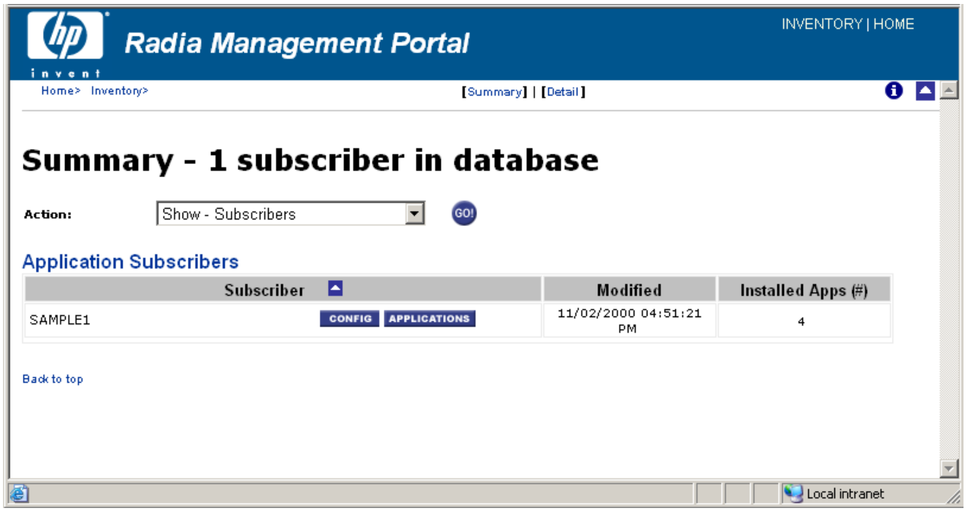


Figure 24: Management Portal Home Page

For specific information about the features of the Management Portal, refer to the *Management Portal Guide*.

Once you have accessed the Radia Integration Server from within the portal, the functionality of the interface is the same as non-portal users.



Summary - 1 subscriber in database

Action: Show - Subscribers GO!

Application Subscribers

Subscriber	Modified	Installed Apps (#)
SAMPLE1 CONFIG APPLICATIONS	11/02/2000 04:51:21 PM	4

Figure 25: Radia Inventory Server homepage viewed from within the Management Portal.

Administrator Hints and Tips

When viewing reports, you can navigate through the information collected by clicking on hyperlinks embedded in any table. These links are in a table header or in the actual body of a particular report.

The following example shows how an administrator might navigate through a Summary report for **Show – Applications.**

To navigate through a Summary report for Show - Applications

1 If you have not already done so, start the Radia Integration Server.

2 Access your Web browser and type the address and port number of the Radia Integration Server into the address field:

```
http://<I/P Address or hostname>:<Port>
```

— The `I/P Address` is the IP address of the computer running the Radia Integration Server.

— The `hostname` is the name of the computer running the Radia Integration Server.

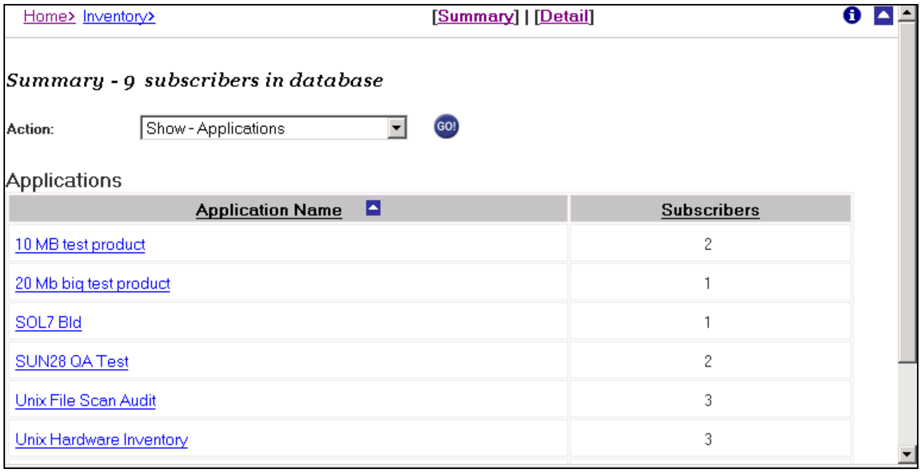
- The `port` is the port number of the Radia Integration Server. This port number is usually 3466.

3 Click the **Reporting** tab.

4 Click the **Summary** link.

5 From the **Action** drop-down menu, select **Show – Applications**.

When the screen refreshes, the **Applications** table is displayed.



Home> Inventory> [Summary] | [Detail]

Summary - 9 subscribers in database

Action: Show - Applications GO!

Applications

Application Name ▲	Subscribers
10 MB test product	2
20 Mb big test product	1
SOL7 Bld	1
SUN28 QA Test	2
Unix File Scan Audit	3
Unix Hardware Inventory	3

The table shows all applications that are available to all subscribers. A variety of actions and information can now be accessed.

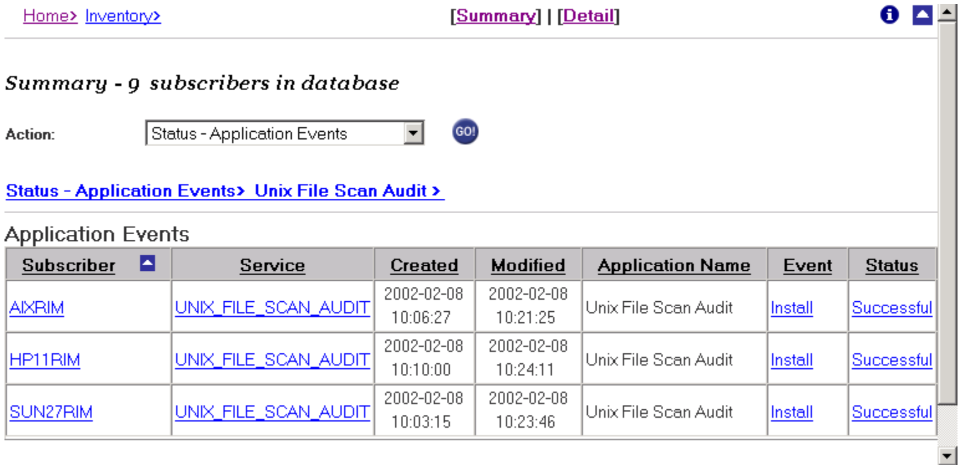
6 To sort a column:

- Click the **Application Name** column heading to arrange the applications in ascending order. Click the column heading again to sort the table in descending order.
- Click the **Subscribers** column heading to sort the list in ascending order. Click the column heading again to sort the table in descending order.

▲ indicates the column heading the table is currently sorted by and designates whether the table is sorted in ascending ▲ or descending order ▼.

7 To sort a row:

- Click any of the applications to view the subscribers for that particular application.



Home> Inventory> [Summary] | [Detail]

Summary - 9 subscribers in database

Action: Status - Application Events GO!

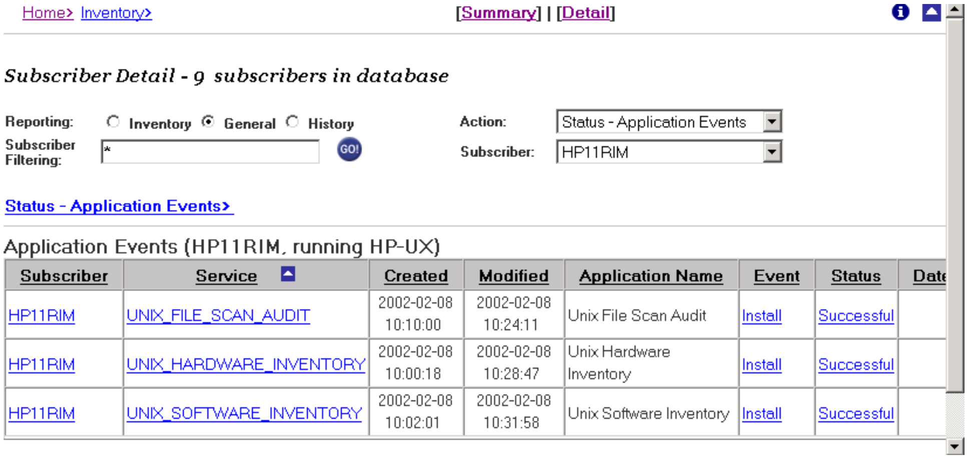
Status - Application Events> Unix File Scan Audit >

Application Events

Subscriber	Service	Created	Modified	Application Name	Event	Status
AIXRIM	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:06:27	2002-02-08 10:21:25	Unix File Scan Audit	Install	Successful
HP11RIM	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:10:00	2002-02-08 10:24:11	Unix File Scan Audit	Install	Successful
SUN27RIM	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:03:15	2002-02-08 10:23:46	Unix File Scan Audit	Install	Successful

From here, it is possible to access even more information. Just as on the Applications page, click any of the column headings to sort the table. Click any of the hyperlinks within the rows to provide additional information for that item.

8 Click any subscriber instance and the **Application Events** for that subscriber opens.



Home> Inventory> [Summary] | [Detail]

Subscriber Detail - 9 subscribers in database

Reporting: ○ Inventory ● General ○ History

Subscriber Filtering: * GO!

Action: Status - Application Events

Subscriber: HP11RIM

Status - Application Events>

Application Events (HP11RIM, running HP-UX)

Subscriber	Service	Created	Modified	Application Name	Event	Status	Date
HP11RIM	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:10:00	2002-02-08 10:24:11	Unix File Scan Audit	Install	Successful	
HP11RIM	UNIX_HARDWARE_INVENTORY	2002-02-08 10:00:18	2002-02-08 10:28:47	Unix Hardware Inventory	Install	Successful	
HP11RIM	UNIX_SOFTWARE_INVENTORY	2002-02-08 10:02:01	2002-02-08 10:31:58	Unix Software Inventory	Install	Successful	

Since you are accessing information on a specific user, the mode of reporting has refreshed to the options available through Detail reporting.

The administrator can continue to access additional information about a particular subscriber or application simply by clicking on the embedded hyperlinks.

Table 26 below shows the results of clicking on specific links.

Table 26: Summary Links – All Actions

Action	Embedded Links
Show - Subscribers	• Click **Config** to show a detail report for a specific user including operating system configuration, hardware, disk drive information, environment, and Windows services. • Click **Application** to show a detail report for a specific user including managed and audited applications.
Show - Applications	• Click an application to show **Status Application Events** for that application. • Click a subscriber to view detailed **Application Events** for that subscriber.
Show - System Drivespace	List the end user's system drives space. Includes the drive indicator (such as C: drive), the drive size in megabytes, the systems free drive space (MB), and the free drive space expressed in a percentage.
Show - IP addresses	List the IP address and MAC (Machine) addresses for each subscriber.
WBEM - Configuration	Click a subscriber to obtain a detailed report for that user including operating system hardware, disk drive information, environment, and Windows services. This is the same as clicking on **Config** in the **Show - Subscribers** summary report.
Status - Application Events	• Click a subscriber to obtain a detailed report of application events for that subscriber. • Click **Install** or **Uninstall** in the **Event** column to filter. • Click **Successful** or **Unsuccessful** to filter in the **Status** column.
Status - WBEM Events	Not applicable at this time.

Action	Embedded Links
Status - Connect	Click on a subscriber to obtain detailed reports on that subscriber's connect status and any errors encountered.
Status - Multicast Server Statistics	Not applicable at this time.
Status - Client Download Statistics	Not applicable at this time.
Status - Notify	Notify Status for use with Push Manager.
Errors - Connect	Click a subscriber to display detailed information concerning that subscriber's connect and error information.
Errors - Notify	Used by the Push Manager.
Admin – Configuration	There are no embedded hyperlinks for this report.

Table 27: Detail – Inventory Reporting

Action	Embedded Links
Applications	**Managed Applications** • Click a subscriber to see a detailed report of all of the applications for that subscriber. • Click a service to see a summary report of Application Events. **Audited Applications** No embedded links.
WBEM Audited Applications	No embedded links.
Audited Files	No embedded links.
Configuration	No embedded links.
WBEM Audited Files	No embedded links.

Table 28: Detail – General Reporting

Action	Embedded links
Show - Config	No embedded links.
Status - Application Events	• Click **Subscriber** to display a detailed history of this application. • Click a service to display the summarized report for an application event. • Click **Install** or **Uninstall** in the **Event** column to filter. • Click **Successful** or **Unsuccessful** to filter in the **Status** column.
Status - Connect	No embedded links.
Status - Services	EDM service status.
Status - Notify	Notify Status for use with Push Manager.
Status - Summary	No embedded links.
Status - Detailed	No embedded links.

Viewing Audit Information Using the Radia Integration Server

We'll use the Unix Software Inventory example to examine how the collected information is presented within some of the Radia Integration Server reports.

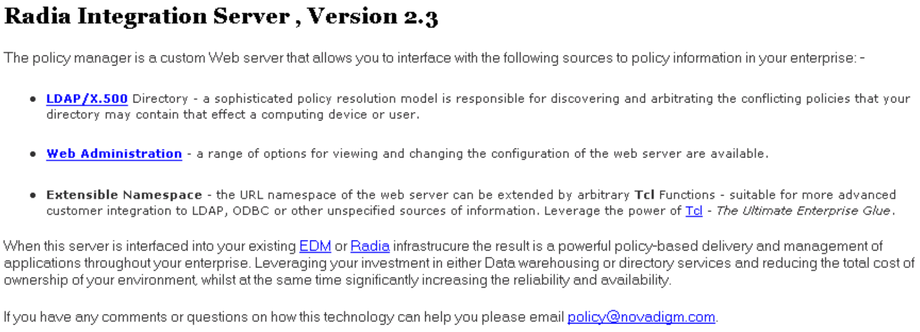
Summary Reporting Examples

To view a sample report

1. In Services, ensure that the Radia Integration Server is started.
2. Start your Web browser and type the address and port number of the Radia Integration Server into the address field:

   ```
   http:/<I/P Address or hostname>:<Port>
   ```

   The home page of the Radia Integration Server opens.

   Radia Integration Server , Version 2.3

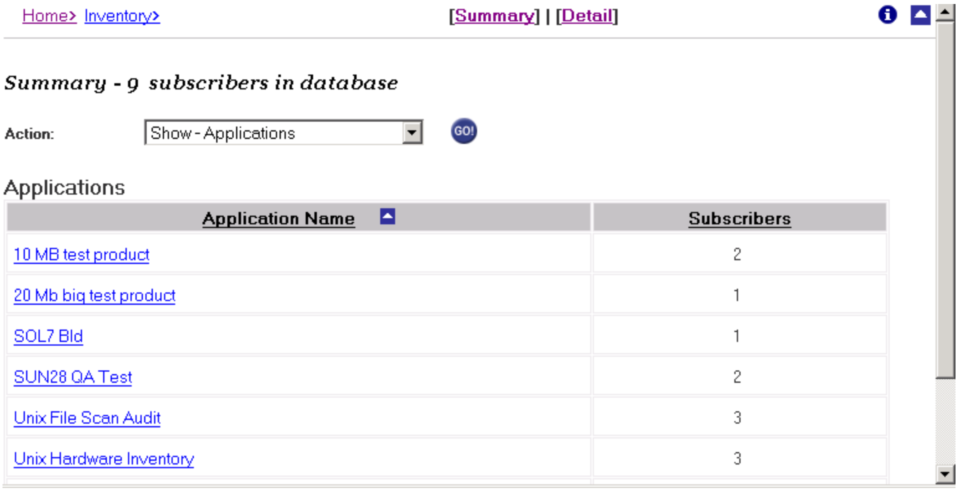
   The policy manager is a custom Web server that allows you to interface with the following sources to policy information in your enterprise: -

   - **LDAP/X.500** Directory - a sophisticated policy resolution model is responsible for discovering and arbitrating the conflicting policies that your directory may contain that effect a computing device or user.
   - **Web Administration** - a range of options for viewing and changing the configuration of the web server are available.
   - **Extensible Namespace** - the URL namespace of the web server can be extended by arbitrary **Tcl** Functions - suitable for more advanced customer integration to LDAP, ODBC or other unspecified sources of information. Leverage the power of Tcl - *The Ultimate Enterprise Glue*.

   When this server is interfaced into your existing EDM or Radia infrastrucure the result is a powerful policy-based delivery and management of applications throughout your enterprise. Leveraging your investment in either Data warehousing or directory services and reducing the total cost of ownership of your environment, whilst at the same time significantly increasing the reliability and availability.

   If you have any comments or questions on how this technology can help you please email policy@novadigm.com.

3. Click the **Reporting** tab.
4. From the **Action** drop-down list, select **Show Applications**.



Home> Inventory> [Summary] | [Detail]

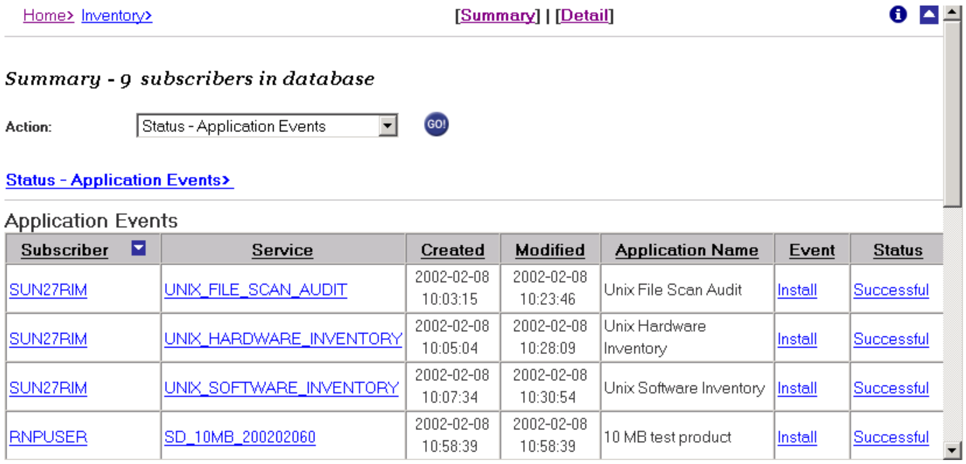
Summary - 9 subscribers in database

Action: Show - Applications

Applications

Application Name	Subscribers
10 MB test product	2
20 Mb big test product	1
SOL7 Bld	1
SUN28 QA Test	2
Unix File Scan Audit	3
Unix Hardware Inventory	3

5 Click on **Unix Software scan** in the **Application Name** column.



Home> Inventory> [Summary] | [Detail]

Summary - 9 subscribers in database

Action: Status - Application Events

Status - Application Events>

Application Events

Subscriber	Service	Created	Modified	Application Name	Event	Status
SUN27RIM	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:03:15	2002-02-08 10:23:46	Unix File Scan Audit	Install	Successful
SUN27RIM	UNIX_HARDWARE_INVENTORY	2002-02-08 10:05:04	2002-02-08 10:28:09	Unix Hardware Inventory	Install	Successful
SUN27RIM	UNIX_SOFTWARE_INVENTORY	2002-02-08 10:07:34	2002-02-08 10:30:54	Unix Software Inventory	Install	Successful
RNPUSER	SD_10MB_200202060	2002-02-08 10:58:39	2002-02-08 10:58:39	10 MB test product	Install	Successful

To see more detailed reporting for specific users, see the next section, *Detail Reporting Example*.

Detail Reporting Example

To view a sample report

1 Make sure the Radia Integration Server is started.

2 Start your Web browser and type the address and port number of the Radia Integration Server into the address field:

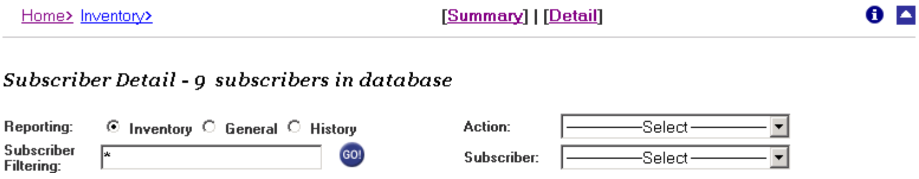
```
http://<I/P Address or hostname>:<Port>
```

The home page of the Radia Integration Server opens.

3 Click the **Reporting** tab.

4 Click on the **Detail** hyperlink.

The following page opens:



Home> Inventory> [Summary] | [Detail]

Subscriber Detail - 9 subscribers in database

Reporting: ● Inventory ○ General ○ History

Subscriber Filtering: *

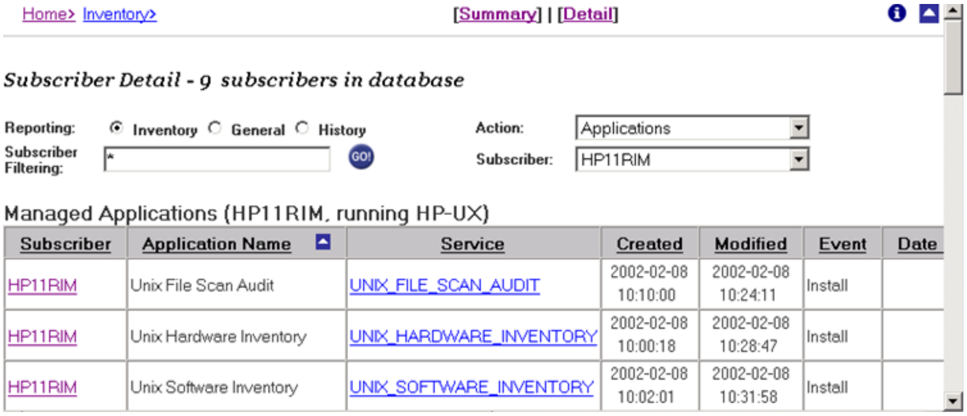
Action: ——Select——

Subscriber: ——Select——

5 Select what type of reporting you would like to view. For our example, select **Inventory** Reporting.

6 Select the **Action**. For our example, we selected **Applications**.

7 Select a subscriber from the **Subscriber** drop-down list.



Home> Inventory> [Summary] | [Detail]

Subscriber Detail - 9 subscribers in database

Reporting: ● Inventory ○ General ○ History

Subscriber Filtering: *

Action: Applications

Subscriber: HP11RIM

Managed Applications (HP11RIM, running HP-UX)

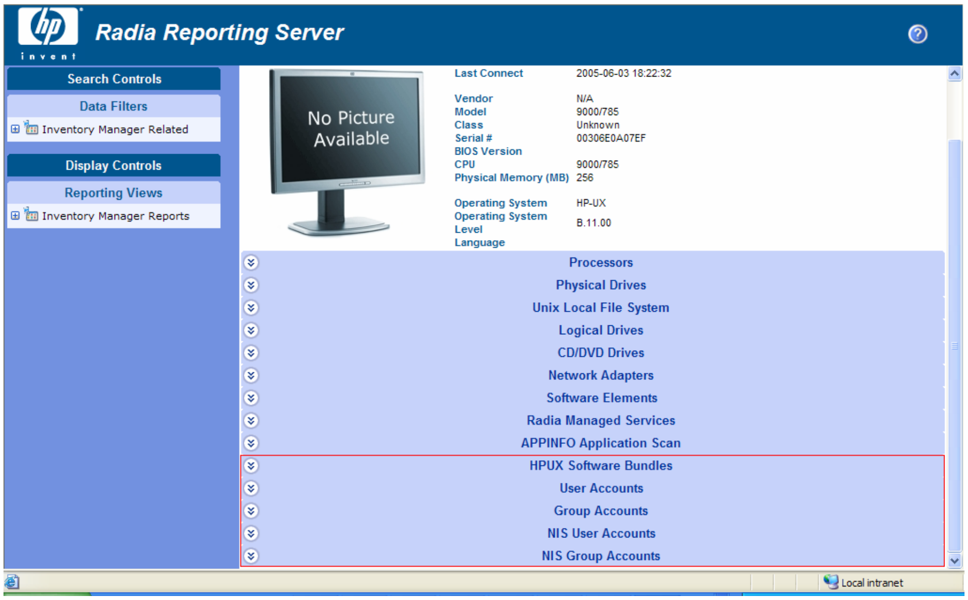
Subscriber	Application Name	Service	Created	Modified	Event	Date
HP11RIM	Unix File Scan Audit	UNIX_FILE_SCAN_AUDIT	2002-02-08 10:10:00	2002-02-08 10:24:11	Install	
HP11RIM	Unix Hardware Inventory	UNIX_HARDWARE_INVENTORY	2002-02-08 10:00:18	2002-02-08 10:28:47	Install	
HP11RIM	Unix Software Inventory	UNIX_SOFTWARE_INVENTORY	2002-02-08 10:02:01	2002-02-08 10:31:58	Install	

You will be presented with all of the applications files for the user you selected. You can continue to view the information in various formats by using the drop-down menus to specify the reporting configuration.

Inventory Reports and the Radia Reporting Server

The Radia Inventory Manager 4.1 offers reports that are available within the Radia Reporting Server as **Inventory Manager Related** reports. These include User and Group accounts, NIS User and NIS Group accounts, and HPUX Software Bundles.

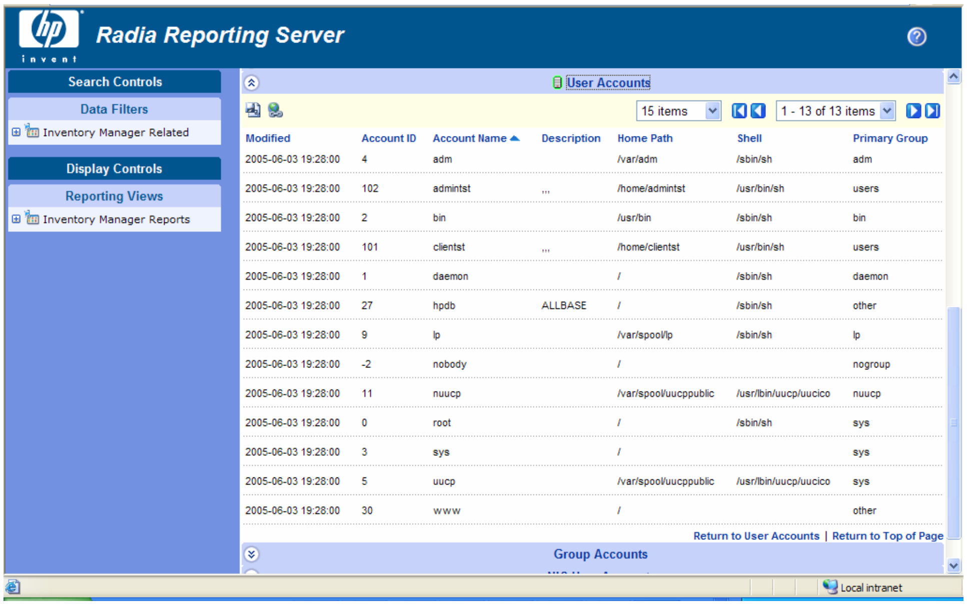
Access these reports by clicking the details icon next to any UNIX device in the Radia Managed Devices report.



Last Connect	2005-06-03 18:22:32
Vendor	N/A
Model	9000/785
Class	Unknown
Serial #	00306E0A07EF
BIOS Version	
CPU	9000/785
Physical Memory (MB)	256
Operating System	HP-UX
Operating System Level	B.11.00
Language	

Figure 26: Inventory Manager Related reports – device details.

Click an individual report name beneath the device details to view the report.



Modified	Account ID	Account Name	Description	Home Path	Shell	Primary Group
2005-06-03 19:28:00	4	adm		/var/adm	/sbin/sh	adm
2005-06-03 19:28:00	102	admintst	,,,	/home/admintst	/usr/bin/sh	users
2005-06-03 19:28:00	2	bin		/usr/bin	/sbin/sh	bin
2005-06-03 19:28:00	101	clientst	,,,	/home/clientst	/usr/bin/sh	users
2005-06-03 19:28:00	1	daemon		/	/sbin/sh	daemon
2005-06-03 19:28:00	27	hpdb	ALLBASE	/	/sbin/sh	other
2005-06-03 19:28:00	9	lp		/var/spool/lp	/sbin/sh	lp
2005-06-03 19:28:00	-2	nobody		/		nogroup
2005-06-03 19:28:00	11	nuucp		/var/spool/uucppublic	/usr/lbin/uucp/uucico	nuucp
2005-06-03 19:28:00	0	root		/	/sbin/sh	sys
2005-06-03 19:28:00	3	sys		/		sys
2005-06-03 19:28:00	5	uucp		/var/spool/uucppublic	/usr/lbin/uucp/uucico	sys
2005-06-03 19:28:00	30	www		/		other

Figure 27: Inventory Manager Related reports – User Accounts.

Summary

- If installed, the information obtained by auditing client computers is stored in the Radia Integration Server.
- The **Summary** link in the Radia Integration Server will show information about *all* Radia clients.
- The **Detail** link in the Radia Integration Server will show in-depth information about a *single* subscriber.
- When viewing reports within the Radia Integration Server, you are able to navigate through the information collected by clicking on hyperlinks embedded within any table.

A Version 4.1 Alternative File and WBEM Auditing Methods

Previously, Windows and UNIX file auditing used different technologies and techniques to collect file and WBEM audit information. While the current UNIX methods described in Chapter 5, Software and Hardware Auditing are still supported (`filescan.tkd` for file auditing and `nvdcim.tkd` for WBEM auditing), the Windows modules (RIMFSCAN and RIMDIFF for file auditing and RIMWBEM for WBEM auditing) are now also available for use on UNIX as well. This is an effort to merge these technologies, and in the future, to provide one consistent method of performing file audits for both Windows and UNIX.

This appendix describes the alternative file and WBEM auditing methods which were previously available only for Windows implementations of the Inventory Manager Client.

AUDIT.FILE

The AUDIT.FILE class instances in an audit package control the auditing function for files on the client computer. The RIMFSCAN and the RIMDIFF methods on the client computer perform the actual file auditing operations by specifying what files to look for. There can be one or more AUDIT.FILE instances in an audit package. Each AUDIT.FILE instance can specify a scan for one or more files.

The following table summarizes the attributes in an AUDIT.FILE class instance and their effects on the RIMFSCAN method.

Table 29: AUDIT.FILE Class Instances

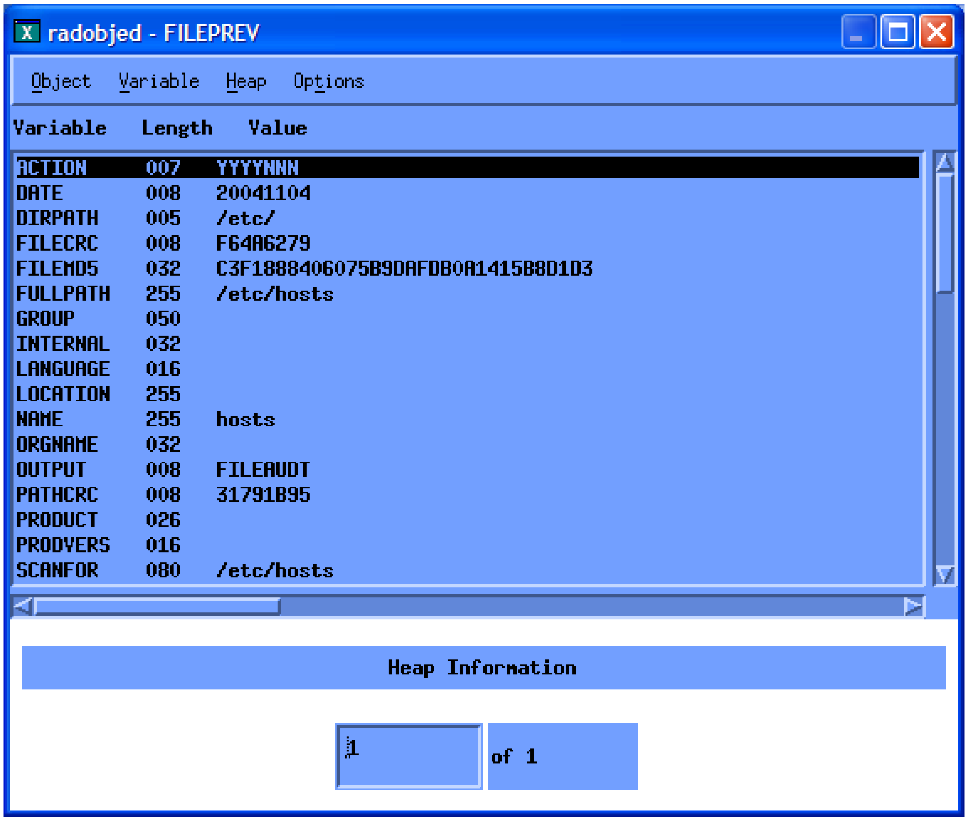
Attribute	**Description** **Examples**
SCANFOR	Indicate a fully qualified path and file name to search for. Wildcards are permitted.
ACTION	The RIMDIFF method performs actions on the files discovered on the user's computer during the Client Connect. • **Y** configures RIMDIFF to perform the action. • **N** configures RIMDIFF to not perform the action. The first four flags determine when to report that the files were found: Report on: **Initial, New, Changed, Deleted** • **Initial** means that the file was found during the first scan of the client computer. • **New** means that the file was found during the current scan. The file was not present during the previous scan. • **Changed** means that the file was present during the previous scan and is different from the file found during the current scan. • **Deleted** means that the file was found during the previous scan. The file is not present for the current scan. The last three flags control the actions to take on the files detected during the current scan. Action to take on discovery: **Send, Delete, Custom** • **Send** means to send the files to the Configuration Server and store them in the location indicated by the ZRSCVLOC attribute (see ZRSCVLOC in this table). • **Delete** means to delete the files from the user's computer. • **Custom** means to execute the method indicated in the CUSTOM attribute. YYYYNYN – Report whenever encountered and delete the files.

Attribute	**Description** **Examples**
	NNYYNNN – Report when changed or deleted and take no action. NYYNYYN – Report when the files are new or changed. Then send and delete the files.
OUTPUT	Output object name.
TYPE	Scan different file locations. Available scans are Behavior Services, Desktop, File, Path, Registry, and WBEM. File.
GROUP	Optional way to identify a set of scan results. This maybe useful for querying and reporting on the audited files from the database where audit results can be stored. Games, MPEGs.
ZVERINFO	Collect extended information. • Set the value to **1** to collect additional information for a file. • Set the value to **0** to not collect additional information. In order for this data to be collected, the associated attribute must exist in the AUDIT.FILE class template. You can limit the scan to only those files that have some particular values in their extended information. You do so by supplying a value (either 1 or 0) for any of the associated attributes in an AUDIT.FILE instance. This causes the scan to be filtered. Only those files whose extended information data element contains the value you specify in its associated attribute will be scanned. Extended file information consists of one ore more of the following data elements. The associated attribute name for the data element is in parentheses: (VENDOR) The seller of the file/product (PRODUCT) The name of the item for which the file is a part. (PRODVERS) The version of the product which the file is a part.

Attribute	Description Examples
	(ORGNAME) The name of the organization. (INTERNAL) The internal data element encoded in the file. (VERSION) The version of the file. (LANGUAGE) The language of the file.
ZRSCSTYP	Server file type. This can be either Binary or Text. The administrator does not set this.
ZRSCMFIL	Manager directory location.
ZRSCVLOC	The location on the Configuration Server where the files are stored because of the Send Action (see ACTION in this table). This variable needs to be configured when sending a file back to the Configuration Server. The variable should contain the name of the MGRVLOC instance that will be used to resolve the location to store the uploaded file.
ZRSCMMEM	PDS member name. This field is optional.
PRODUCT	The product name. See ZVERINFO on page 185 for more detail.
PRODVERS	The product version. See ZVERINFO on page 185 for more detail.
ORGNAME	The organization name. See ZVERINFO on page 185 for more detail.
INTERNAL	The internal data element encoded in the file. See ZVERINFO on page 185 for more detail.
VERSION	The version of the file. See ZVERINFO on page 185 for more detail.
LANGUAGE	The language of the file. See ZVERINFO on page 185 for more detail.
VENDOR	The product vendor. See ZVERINFO on page 185 for more detail.

Attribute	**Description** **Examples**
ZRSCCRC	Resource CRC.
ZCRCINFO	Collect file CRC.
ZRSCOBJN	Persistent object name.
ZRSCPADM	Administrator ID.
ZRSCSRC	Resource Source, i.e. Publisher.
ZINIT	Not applicable at this time.
NAME	Not applicable at this time.
LOCATION	Not applicable at this time.
ZMD5INFO	Set to Y to collect MD5 info. This is a 32 character value that can be used to uniquely identify a file based on its contents.

Use the Client Explorer to view the FILEPREV object results as shown below.



```
Variable    Length   Value
ACTION      007      YYYYNNN
DATE        008      20041104
DIRPATH     005      /etc/
FILECRC     008      F64A6279
FILEMD5     032      C3F1888406075B9DAFDB0A1415B8D1D3
FULLPATH    255      /etc/hosts
GROUP       050
INTERNAL    032
LANGUAGE    016
LOCATION    255
NAME        255      hosts
ORGNAME     032
OUTPUT      008      FILEAUDT
PATHCRC     008      31791B95
PRODUCT     026
PRODVERS    016
SCANFOR     080      /etc/hosts
```

Figure 28: FILEPREV object created with RIMFSCAN.

The FILEPREV object contains one heap for each file discovered during the scan for the audit service. It contains the attributes from the AUDIT.FILE class instance that controlled the scan, as described above. It also contains the following attributes:

Table 30: FILEPREV Object

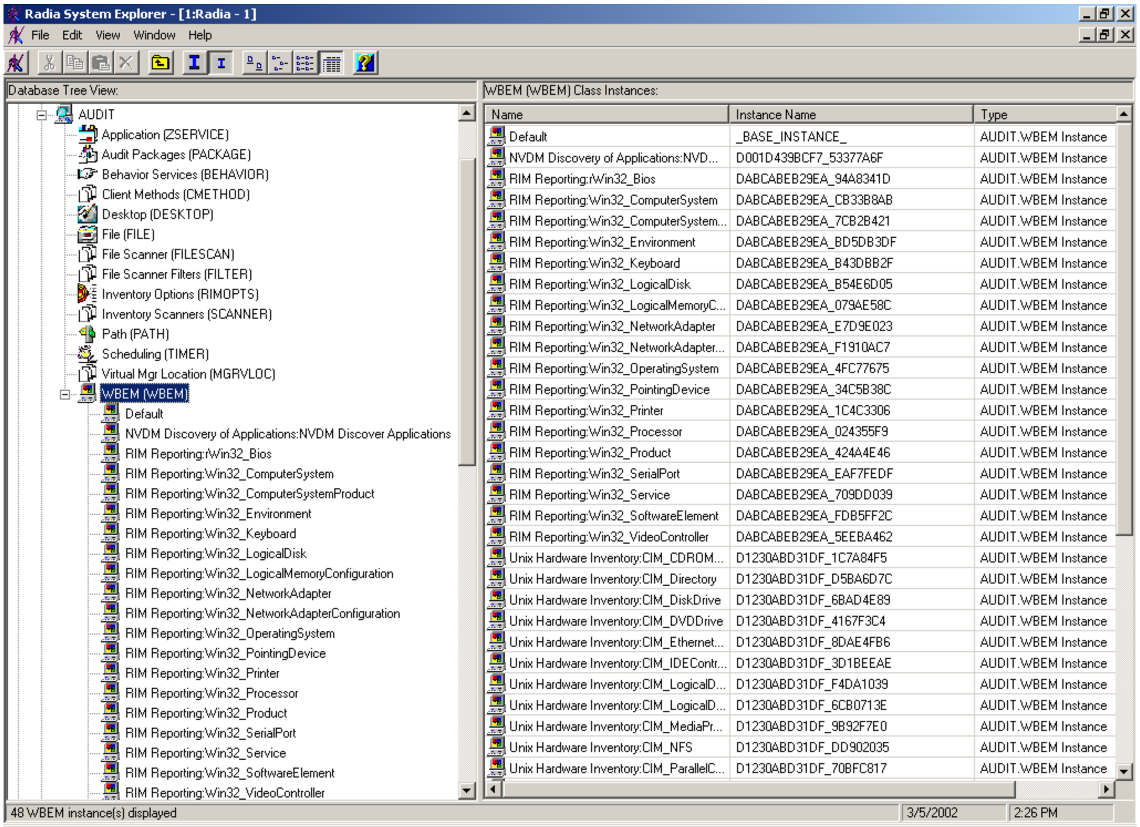
Attribute	Description
ACTION	Action flags. First four flags determine when to report. Y – ignored Y – New file Y – File changed since last scan Y – Ignored Last three flags control action to be taken. Y – send the file to RCS Y – ignored Y – ignored
ACCESSDT	The date of the most recent access of this file.
ACCESSTM	The time of the most recent access of this file.
COMPRESS	Compression setting.
DATACRC	Data CRC
DATE	The date of the most recent modification to this file.
DIR	System drive location of the file.
DIRPATH	The directory path of the file.
EXCLUDE	Parameter to exclude.
FULLPATH	Fully qualified path and file name of the file.
GID	Unix group ID of file owner.
GIDNAME	Unix group name of file owner.
INCLUDE	Parameter to include.
NAME	File name.
PATHCRC	A unique number that indicates the CRC path used for differencing.
PERMISS	4-digit octal value for file permissions.
SIZE	File size in bytes.
TIME	The time of the most recent modification to this file.
TYPE	File type. Can be directory, LINK, or binary.

Attribute	Description
UID	UNIX ID of file owner.
UIDNAME	Username of the file owner.
ZOBJDATE	Date
ZOBJPCLAS	Class
ZOBJCID	Object Child ID
ZOBJPNAM	Unique Name
ZOBJTIME	Time
ZRSCVLOC	Location

WBEM Auditing

Use the RIMWBEM method to query the WBEM namespaces to retrieve information about how a system's hardware and software is used. The RIMWBEM method constructs a query from the information contained in an instance of the AUDIT.WBEM class. WBEM has a query engine that processes the query statement and returns the query results to RIMWBEM. There is one heap in the query result object for every discovered instance.

An AUDIT.WBEM class instance defines a query into the WBEM namespace.



Database Tree View:

- AUDIT
  - Application (ZSERVICE)
  - Audit Packages (PACKAGE)
  - Behavior Services (BEHAVIOR)
  - Client Methods (CMETHOD)
  - Desktop (DESKTOP)
  - File (FILE)
  - File Scanner (FILESCAN)
  - File Scanner Filters (FILTER)
  - Inventory Options (RIMOPTS)
  - Inventory Scanners (SCANNER)
  - Path (PATH)
  - Scheduling (TIMER)
  - Virtual Mgr Location (MGRVLOC)
  - WBEM (WBEM)
    - Default
    - NVDM Discovery of Applications:NVDM Discover Applications
    - RIM Reporting:rWin32_Bios
    - RIM Reporting:Win32_ComputerSystem
    - RIM Reporting:Win32_ComputerSystemProduct
    - RIM Reporting:Win32_Environment
    - RIM Reporting:Win32_Keyboard
    - RIM Reporting:Win32_LogicalDisk
    - RIM Reporting:Win32_LogicalMemoryConfiguration
    - RIM Reporting:Win32_NetworkAdapter
    - RIM Reporting:Win32_NetworkAdapterConfiguration
    - RIM Reporting:Win32_OperatingSystem
    - RIM Reporting:Win32_PointingDevice
    - RIM Reporting:Win32_Printer
    - RIM Reporting:Win32_Processor
    - RIM Reporting:Win32_Product
    - RIM Reporting:Win32_SerialPort
    - RIM Reporting:Win32_Service
    - RIM Reporting:Win32_SoftwareElement
    - RIM Reporting:Win32_VideoController

WBEM (WBEM) Class Instances:

Name	Instance Name	Type
Default	_BASE_INSTANCE_	AUDIT.WBEM Instance
NVDM Discovery of Applications:NVD...	D001D439BCF7_53377A6F	AUDIT.WBEM Instance
RIM Reporting:rWin32_Bios	DABCABEB29EA_94A8341D	AUDIT.WBEM Instance
RIM Reporting:Win32_ComputerSystem	DABCABEB29EA_CB33B8AB	AUDIT.WBEM Instance
RIM Reporting:Win32_ComputerSystem...	DABCABEB29EA_7CB2B421	AUDIT.WBEM Instance
RIM Reporting:Win32_Environment	DABCABEB29EA_BD5DB3DF	AUDIT.WBEM Instance
RIM Reporting:Win32_Keyboard	DABCABEB29EA_B43DBB2F	AUDIT.WBEM Instance
RIM Reporting:Win32_LogicalDisk	DABCABEB29EA_B54E6D05	AUDIT.WBEM Instance
RIM Reporting:Win32_LogicalMemoryC...	DABCABEB29EA_079AE58C	AUDIT.WBEM Instance
RIM Reporting:Win32_NetworkAdapter	DABCABEB29EA_E7D9E023	AUDIT.WBEM Instance
RIM Reporting:Win32_NetworkAdapter...	DABCABEB29EA_F1910AC7	AUDIT.WBEM Instance
RIM Reporting:Win32_OperatingSystem	DABCABEB29EA_4FC77675	AUDIT.WBEM Instance
RIM Reporting:Win32_PointingDevice	DABCABEB29EA_34C5B38C	AUDIT.WBEM Instance
RIM Reporting:Win32_Printer	DABCABEB29EA_1C4C3306	AUDIT.WBEM Instance
RIM Reporting:Win32_Processor	DABCABEB29EA_024355F9	AUDIT.WBEM Instance
RIM Reporting:Win32_Product	DABCABEB29EA_424A4E46	AUDIT.WBEM Instance
RIM Reporting:Win32_SerialPort	DABCABEB29EA_EAF7FEDF	AUDIT.WBEM Instance
RIM Reporting:Win32_Service	DABCABEB29EA_709DD039	AUDIT.WBEM Instance
RIM Reporting:Win32_SoftwareElement	DABCABEB29EA_FDB5FF2C	AUDIT.WBEM Instance
RIM Reporting:Win32_VideoController	DABCABEB29EA_5EEBA462	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_CDROM...	D1230ABD31DF_1C7A84F5	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_Directory	D1230ABD31DF_D5BA6D7C	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_DiskDrive	D1230ABD31DF_6BAD4E89	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_DVDDrive	D1230ABD31DF_4167F3C4	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_Ethernet...	D1230ABD31DF_8DAE4FB6	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_IDEContr...	D1230ABD31DF_3D1BEEAE	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_LogicalD...	D1230ABD31DF_F4DA1039	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_LogicalD...	D1230ABD31DF_6CB0713E	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_MediaPr...	D1230ABD31DF_9B92F7E0	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_NFS	D1230ABD31DF_DD902035	AUDIT.WBEM Instance
Unix Hardware Inventory:CIM_ParallelC...	D1230ABD31DF_70BFC817	AUDIT.WBEM Instance

48 WBEM instance(s) displayed 3/5/2002 2:26 PM

Figure 29: AUDIT.WBEM class instances.

The following table describes the attributes of the AUDIT.WBEM instance.

Table 31: AUDIT.WBEM Instance

Attribute Name	Description
ACTION	RIMDIFF method performs actions on the WBEM namespaces (s) instances discovered on the user's computer during the Client Connect. • **Y** configures RIMDIFF to perform the reporting action. • **N** configures RIMDIFF to not perform the reporting action. The first four flags determine *when* to report that the WBEM namespace instance was found: Report on: **Initial, New, Changed, Deleted, Scan, Delete, Custom** • **Initial** means that the file was found during the first scan of the client computer. • **New** means that the file was found during the current scan. The file was not present during the previous scan. • **Changed** means that the file was present during the previous scan and is different from the file found during the current scan. • **Deleted** means that the file was found during the previous scan. The file is not present for the current scan. • **Scan** means that the file was found during the current scan. • **Delete** means that the file was found during the previous scan. The file is not present for the current scan. • **Custom** means that the file was found during a custom scan. The last three flags are not applicable to WBEM audits.
NAMESPACE	Name of the WBEM namespace to query or HARDWARE.
CLASS	Name of the WBEM class to query or HARDWARE.

Attribute Name	Description
PROPERTY	Specify one or more property names to be queried and reported. Use commas to separate more than one property name. If this attribute is blank, all properties in the class will be queried and reported.
CNDITION	An optional condition to narrow results of an audit.
OUTPUT	This is the name of the object to send to the Configuration Server.
TYPE	Indicates that WBEM scan is to be employed for this audit package.
NAME	Friendly name for this instance. This name will appear in the System Explorer's tree view to identify this instance.

When the keyword HARDWARE is used in the NAMESPACE and/or CLASS attributes of AUDIT.WBEM, hardware information is collected. This information is essentially the same as the ZCONFIG object.

The Inventory Manager Client stores the results of a WBEM scan in a WBEM object. This object can be found in the service node of the client object tree. The results are also sent to the Configuration Server.

In addition to the attributes described above, the WBEM object also contains the following:

Table 32: WBEM Object Attributes in the Client

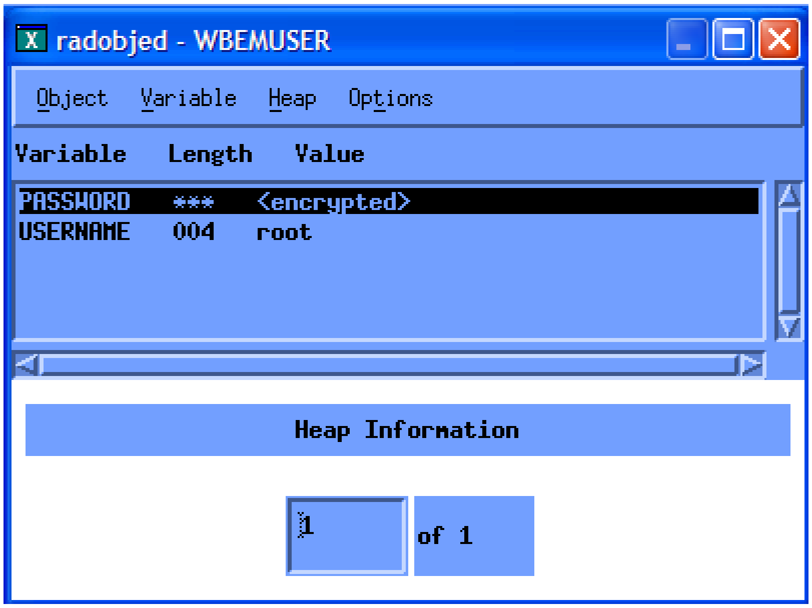
Attribute	Description
ZOBJCID	Object child ID.
ZOBJCLAS	Targeted class for the audit such as ZRSOURCE or ZSERVICE.
ZOBJCRC	CRC of all persistent and transient objects under the current node.
ZOBJDATE	Last date under the current node.
ZOBJDOMN	Domain name of the object.

Attribute	Description
ZOBJID	Object ID of the instance used to obtain information from the Resource file.
ZOBJNAME	Instance name of the object.
ZOBJPCLS	Parent class name.
ZOBJPID	Parent class ID.
ZOBJRCRC	Resource CRC maintained by the Configuration Server.
ZOBJRSIZ	Resource size maintained by the Configuration Server.
ZOBJTIME	Latest time under the current node.
ZRSCSRC	Name of the program promoted the resource.

Additional WBEM Objects

WBEMUSER (Solaris Only)

The Solaris version of the Inventory Manager requires an additional WBEM object called WBEMUSER. This object contains two attributes, USERNAME and PASSWORD, which must both contain a valid value in order to retrieve Solaris inventory information. WBEMUSER is located by default in the `IDMROOT` directory.



```
Variable   Length   Value
PASSWORD   ***      <encrypted>
USERNAME   004      root
```

Figure 30: WBEMUSER Object

B Inventory Manager Detail and Summary Reporting Tables

Table 33: Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
Configuration - Summary	CDROM Drive	wName / Name wOtherIdentifyingInfo / Hardware Path	rCIM_DVDROMDrive
		wOtherIdentifyingInfo / Hardware Path	
		wCaption / Caption	
	CDROM Drives	wName / Name	
		wDescription / Description	
	Exported Directory	wName / Exported Directory Name	rCIM_Directory
		wCreationDate / Creation Date	
		wCaption / Caption	
		wDescription / Description	
		wFSName/ File System Name	
	Exported Directories	wName / Exported Directory Name	
		wDescription / Description	
	Disk Drive	wName / Name	rCIM_DiskDrive
		wMaxMediaSize / Size (MB)	
		wOtherIdentifyingInfo / Hardware Path	
		wCaption / Caption	
		wDescription / Description	
	Disk Drives	wName / Name	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wMaxMediaSize / Size (MB)	
		wDescription / Description	
	DVDROM Drive	wName / Name	rCIM_DVDDrive
		wOtherIdentifyingInfo / Hardware Path	
		wCaption / Caption	
		wDescription / description	
	DVDROM Drives	wName / Name	
		wOtherIdentifyingInfo / Hardware Path	
	Ethernet Card	wName / IP Address	rCIM_EthernetAdapter
		rCIM_EthernetAdapter	
		wDeviceID / MAC Address	
		wTotalPacketsReceived / Total Packets Received	
		wTotalPacketsTransmitted / Total Packets Transmitted	
		wCaption / Caption	
	Ethernet Cards	wDeviceID / MAC Address	
		wName / IP Address	
	Logical Volume	wName / Lvame	rCIM_LogicalDisk
		wBlockSize / VG PE Size (MB)	
		wNumberOfBlocks / Current LE	
		wAccess / LV Permission	
		wAvailability / LV Status	
		wCaption / Caption	
		wDescription / Description	
	Logical Volumes	wName / LV Name	
		wBlockSize / VG PE Size (MB)	
		wNumberOfBlocks / Current LE	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
	Network File System	wRoot / Local Mount Point	rCIM_NFS
		wFileSystemType / File System Type	
		wFileSystemSize / File System Size (MB)	
		wAvailableSpace / Available Space (MB)	
		wBlockSize / Block Size (bytes)	
		wReadOnly / Read Only	
		wAttributeCaching / Directory Attribute Caching	
		wAttrCachingForDirectoriesMax / Max Time To Cache Directory Attributes	
		wAttrCachingForDirectoriesMin / Min Time To Cache Directory Attributes	
		wAttrCachingForRegularFilesMax / Max Time To Cache File Attributes	
		wAttrCachingForRegularFilesMin / Min Time To Cache File Attributes	
		wForegroundMount / Foreground Mount	
		wHardMount / Hard Mount	
		wInterrupt / Interrupt	
		wMountFailureRetries / Mount Failure Retries	
		wRetransmissionAttempts / Retransmission Attempts	
		wRetransmissionTimeout / Retransmission Timeout (tenths of seconds)	
		wServerCommunicationPort / Server Communication Port	
		wWriteBufferSize / Write Buffer Size (bytes)	
		wReadBufferSize / Read Buffer Size (bytes)	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wCaption / Caption	
	Network File Systems	wRoot / Local Mount Point	
		wFileSystemSize / File System Size (MB)	
		wCaption / Caption	
	Parallel Controller	wDeviceID / Hardware Path	rCIM_ParallelController
		wCaption / Caption	
	Parallel Controllers	wDeviceID / Hardware Path	
		wCaption / Caption	
	Processor	wDeviceID / Hardware Path	rCIM_Processor
		wCurrentClockSpeed / Clock Speed (MHz)	
		wAvailability / Availability	
	Processors	wDeviceID / Hardware Path	
		wCurrentClockSpeed / Clock Speed (MHz)	
		wAvailability / Availability	
	Installed Product	wName / Tag	rCIM_Product
		wVersion / Version	
		wVendor / Vendor	
		wIdentifyingNumber / Software Spec	
		wCaption / Caption	
	Installed Products	wName / Tag	
		wVersion / Version	
		wIdentifyingNumber / Software Spec	
	SCSI Controller	wDeviceID / Hardware Path	rCIM_SCSIController
		wCaption / Caption	
	SCSI Controllers	wDeviceID / Hardware Path	
		wCaption / Caption	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
	Installed Fileset/Package	wName / Tag	rCIM_SoftwareElement
		wVersion / Version	
		wSoftwareElementID / Software Spec	
		wTargetOperatingSystem / Target OS	
		wManufacturer / Vendor	
		wCaption / Caption	
		wInstallDate / Install Date	
	Installed Filesets/Packages	wName / Tag	
		wVersion / Version	
		wSoftwareElementID / Software Spec	
	Volume Group	wName / VG Name	rCIM_StorageVolume
		wBlockSize / PE Size (MB)	
		wNumberOfBlocks / Total PE	
		wAccess / VG Write Access	
		wAvailability / VG Status	
		wCaption / Caption	
		wDescription / Description	
	Volume Groups	wName / VG Name	
		wBlockSize / PE Size (MB)	
		wNumberOfBlocks / Total PE	
	Computer System	wName / System Name	rCIM_UnixComputerSystem
		wCaption / Computer Model	
		wDescription / Description	
		wOtherIdentifyingInfo / System ID	
	Computer Systems	wName / System Name	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wCaption / Computer Model	
		wDescription / Description	
	Local File System	wRoot / File System Root	rCIM_UnixLocalFileSystem
		wName / Device File	
		wFileSystemType / File System Type	
		wFileSystemSize / File System Size (MB)	
		wAvailableSpace / Available Space (MB)	
		wReservedCapacity / Reserved Space (MB)	
		wBlockSize / Block Size (bytes)	
		wTotalSlots / Total I-Nodes	
		wTotalSlots / Total I-Nodes	
		wFreeSlots / Free I-Nodes	
		wAccessMode / Access Mode	
		wAccessMode / Access Mode	
		wMaxFileNameLength / Max File Name Length	
		wClusterSize / Fragment Size (bytes)	
		wDescription / Description	
	Local File Systems	wName / Device File	
		wRoot / File System Root	
		wFileSystemSize / File System Size (MB)	
	Operating System	wCSName / System Name	rCIM_UnixOperatingSystem
		wName / OS Name And Release	
		wLastBootUpTime / Last Boot Date	
		wCurrentTimeZone / Time Zone	
		wNumberOfUsers / Number Of Users Logged In	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wNumberOfProcesses / Number Of Active Processes	
		wMaxNumberOfProcesses / Max Number Of Processes	
		wMaxProcessesPerUser / Max Processes Per User	
		wTotalVisibleMemorySize / Total Physical Memory (MB)	
		wFreePhysicalMemory / Free Physical Memory (MB)	
		wTotalSwapSpaceSize / Total Swap (MB)	
		wFreeSpaceInPagingFiles / Free Swap Space (MB)	
		wTotalVirtualMemorySize / Virtual Memory Size (MB)	
		wFreeVirtualMemory / Free Virtual Memory (MB)	
		wCaption / Caption	
	Operating Systems	wName / OS Name And Release	
		wCaption / Caption	
	Group Account	wName / Group Account Name	rNVD_GroupAccount
		wDescription / Description	
	Group Accounts	wName / Group Account Name	
		wDescription / Description	
	User Account	wName / Account Name	rNVD_UserAccount
		wUserUID / Account ID	
		wPrimaryGroup / Account's Primary Group	
		wHomeDirPathName / Home Directory	
		wInitialShell / Initial Shell	
		wAgeMax / Max Password Aging Time (days)	
		wAgeMin / Min Password Aging Time (days)	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
	User Accounts	wName / Account Name	
		wUserUID / Account ID	
		wPrimaryGroup / Account's Primary Group	
	Network Adapter Information	mtime / Modified	rWin32_NetworkAdapter Conf
		wDescription / Type	
		wIPAddress / IP Address	
		wMACAddress / MAC Address	
	Disk Drive Information	mtime / Modified	rWin32_LogicalDisk
		wDeviceID / Drive Letter	
		wDescription / Type	
		wFileSystem / File System	
		wSize / Size (MB)	
		wFreeSpace / Free Space (MB)	
		wProviderName / Provider Name	
		wVolumeSerialNumber / Serial Number	
	Environment	mtime / Modified	rWin32_Environment
		wUserName / Account	
		wSystemVariable / System Variable	
		wName / Name	
		wVariableValue / Value	
	Windows Services	mtime / Modified	rWin32_Service
		wDisplayName / Service	
		wState / Status	
		wStartMode / Startup	
		wName / Name	
		wStartName / Logon	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wDesktopInteract / Interact with Desktop	
		wPathName / Path	
	Add/Remove Applications	wDisplayName / Application Name	rNVD_Intalled_Uninstall
		mtime / Modified	
		wUninstallString / Uninstall String	
	PDA Installed Products	mtime / Modified	rNVD_Product
		wDescription / Type	
		wStatus / Status	
		wVersion / Version	

Table 34: General Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
Show-Config	Device Configuration	ctime/Created	DeviceConfig
		mtime/Modified	
		os/OS	
		os_level/OS Level	
	Software	protocol/Protocol	
		timeout/Timeout	
		trace/Trace	
		edmsys/Sys Dir	
		edmlib/Lib Dir	
		edmlog/Log Dir	
	Hardware	ipaddr/IP Address	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		macaddr/MAC Address	
		cpu/CPU	
		memory/Mem (MB)	
Status – Application	Application Events	device_id/Subscriber	AppEvent
		service_id/Services	
		ctime/Created	
		mtime/Modified	
		app_name/Application Name	
		event/Event	
		status/Status	
		del_time/Date Deleted	
		ver_time/Date Verified	
		inst_time/Date Installed	
		fix_time/Date Fixed	
Status - Connect	Connect Status	mtime / Modified	DeviceStatus
		duration / Duration	
		mrc / Return Code	
		reason / Reason	
		svc_count / Services (#)	
		rsrc_count / Files (#)	
		rsrc_transfer / Files Tx (#)	
		rsrc_transfer_size / Files Tx (Sz)	
		ctime / Created	
	Errors	mtime / Modified	DeviceErrors
		type / Type	
		code / Code	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		reason / Reason	
		module / Module	
		object / Object	
		component / Component	
Status - Services	Service State	mtime / Modified	DeviceServices
		DeviceServices	
		service_id / Service	
		svc_actv / Svc Actv	
		rsrc_active / Files Active (#)	
		rsrc_inactive / Files Inactive (#)	
		ver_error / Vers Err	
		reason / Reason	
Status - Notify	Notification Status	device_id / Subscriber	DeviceNotify
		nfy_status / Status	
		mtime / Modified	
		nfy_reason / Reason	
		nfy_cmd / Command	
		ctime / Created	
		nfy_type / CommsType	
		nfy_attempts / Attempts (#)	
		nfy_userid / User Id	
		nfy_addr / Address	
		nfy_port / Port	
		nfy_maxretry / Max (#)	
		nfy_delay / Delay (s)	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		nfy_timeout / Timeout (s)	
		nfy_retry2 / Retry2 (#)	
		nfy_timeout2 / Timeout2 (s)	
Status - Summary	Connect Status	mtime / Modified	DeviceState
		mrc / Return Code	
		duration / Duration	
		svc_count / Services (#)	
		rsrc_count / Files (#)	
		reason / Reason	
	Client State	mtime /Modified	
		state / State	
		svc_count / Services (#)	
		rsrc_count / Files (#)	
		rsrc_error / File Err	
		ver_error / Vers Err	
		reason / Reason	
	Service State	status-services.tsp	
Status - Detailed	Connect Status	status-summary.tsp	
	Client State	mtime /Modified	
		state / State	
		svc_count / Services (#)	
		svc_count / Services (#)	
		rsrc_count / Files (#)	
		rsrc_error / File Err	
		ver_error / Vers Err	
		reason / Reason	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
	Service State	status-services.tsp	
	Errors	status-errors.tsp	

Table 35: History Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
Application Events	Application Event History	device_id / Subscriber	HAppEvent
		service_id / Service	
		mtime / Modified	
		app_name / Application Name	
		event / Event	
		status / Status	
		del_time / Date Deleted	
		ver_time / Date Verified	
		inst_time / Date Installed	
		fix_time / Date Fixed	
		nvd_domain / Domain	
		nvd_class / Class	
Connect	Connect History	mtime / Modified	HDeviceStatus
		duration / Duration	
		mrc / Return Code	
		reason / Reason	
		svc_count / Services (#)	
		rsrc_count / Files (#)	
		rsrc_transfer / Files Tx (#)	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		rsrc_transfer_size / Files Tx (Sz)	
Errors	Error History	mtime / Modified	HDeviceErrors
		type / Type	
		code / Code	
		reason / Reason	
		module / Module	
		object / Object	
State	State History	mtime / Modified	HDeviceState
		state / State	
		svc_count / Services (#)	
		ver_error / Vers Error	
		rsrc_count / Files (#)	
		rsrc_error / File Err	
		rsrc_active / Files Active (#)	
		rsrc_active_size / Files Active (Sz)	
		rsrc_inactive / Files Inactive (#)	
		rsrc_inactive_size / Files Inactive (Sz)	
		reason / Reason	

Table 36: Summary Reporting

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
Show - Subscribers	Application Subscribers	device_id/subscriber	DeviceStatus
		mtime/Modified	AppEvent

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		llength [*]/InstalledApps (#)	
Show - Applications	Applications	app_name or service_id / Application Name	AppEvent
		count (device_id)/Subscribers	DeviceServices
Show - System Drivespace	Subscribers System Drive Space	device_id/Subscriber	DeviceConfig
		sysdrv/Sys Drive	
		sysdrv_total/Sys Drive Size (MB)	
		sysdrv_free/Sys Drive Free (MB)	
		(sysdrv_free*100)/sysdrv_total / Percent Free	
Show - IP Addresses	Subscribers IP Addresses	device_id/Subscriber	DeviceConfig
		ipaddr/IP Address	
		macaddr/MAC Address	
WBEM Configuration	Configuration	userid/Subscriber	rWin32_Bios
		mtime/Modified	rWin32_OperatingSystem
		wCaption, wBuildNumber, wCSDVersion/OS	rWin32_LogicalDisk
		wSystemDirectory/System Drive	rWin32_ComputerSystem
		wSize/System Drive Size (MB)	rWin32_Processor
		wFreeSpace/System Drive Free (MB)	rWin32_LogicalMemoryConf
		wSystemType/System	
		wManufacturer,	
		wCurrentClockSpeed/Processor	
		wTotalPhysicalMemory/Physical Memory (MB)	
		wVersion/Bios	
Status - Application Events	Application Events	device_id/Subscriber	AppEvent
		service_id/Service	
		ctime/Created	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		mtime/Modified	
		app_name/Application Name	
		event/Event	
		event/Event	
		status/Status	
		del_time/Date Deleted	
		ver_time/Date Verified	
		inst_time/Date Installed	
		fix_time/Date Fixed	
Status - Connect	Connections	mtime/Modified	DeviceStatus
		device_id/Subscriber	
		duration/Duration	
		mrc/Return Code	
		reason/Reason	
		rsrc_transfer/File Tx (#)	
		rsrc_transfer_size/Files Tx (Sz)	
Status – Multicast Server Statistics	Multicast Server Statistics	mtime	rNVD_MulticastStatistics

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		userid	
		wDuration/Transmit Duration	
		wNamespace	
		wNbytesRej	
		wNbytesReq	
		wNbytesXmt/Bytes Transmitted	
		wNclients/Clients Connected	
		wNdevices	
		wNfilesRej/Files Rejected	
		wNfilesReq/Files Requested	
		wNfilesXmt/Files Transmitted	
		wServiceID/Service	
		wSourceID/Multicast Session	
		wSourceType	
		wStartTime/Transmit Start	
Status – Client Download Statistics	Client Downlaod Statistics	mtime	RNVD_DownloadStatistics
		userid/Subscriber	
		wDuration/Transmit Duration (sec)	
		wNamespace	
		wNbytesRcv/Bytres Received	
		wNbytesRej	
		wNbytesReq	
		wNfilesRej/FilesRejected	
		wNfilesRcv/Files Received	
		wNfilesReq/Files Requested	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		wNpktsDrp	
		wNpktsRcv	
		wServiceID/Service	
		wSourceID	
		wSourceType/Source Type	
		wStartTime/Transmit Start	
		nfy_type/Comms Type	
Status - Notify	Notify Queue	mtime/Modified	DeviceNotify
		device_id/Subscriber	
		nfy_status/Status	
		nfy_reason/Reason	
		nfy_type/CommsType	
		nfy_attempts/Attempts (#)	
Errors - Connect	Connect Errors	mtime/Modified	DeviceErrors
		device_id/Subscriber	
		type/Type	
		code/Code	
		reason/Reason	
Errors - Notify	Notify Errors	mtime/Modified	DeviceNotify
		device_id/Subscriber	
		nfy_attempts/Attempts (#)	
		nfy_status/Status	
		nfy_reason/Reason	
		nfy_type/Comms Type	
Admin- Configuration			

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