HP OpenView Inventory Manager Using Radia

Radia Inventory Manager Guide

Server Software Version: 4.0
Client Software Version: 3.1

for the UNIX operating system

Manufacturing Part Number: T3424-90049

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There you will find contact information and details about the products, services, and support that HP OpenView offers.

The support site includes:

- Downloadable documentation
- Troubleshooting information
- Patches and updates
- Problem reporting
- Training information
- Support program information

Preface

About this Guide

Who this Guide is for

This guide should be used by systems administrators who want to install and use the Radia Inventory Manager (RIM) for UNIX. You should be familiar with:

- the Radia Database and the Radia System Explorer.
- Web-Based Enterprise Management, also known as WBEM.

What this Guide is about

The *Radia Inventory Manager Guide for UNIX*, version 4.0

- Describes how to install and configure the Radia Inventory Manager Server, version 4.0, and the Radia Inventory Manager Client, version 3.1.x
- Discusses the AUDIT domain in the Radia Database.
- Discusses the different types of auditing.
- Discusses all of the features of auditing such as:
  - Configuring a supplied audit service.
  - Creating your own audit service.
  - Auditing using a timer.

This book contains information for the UNIX platforms for Radia.

Summary of Changes

This printing of the *Radia Inventory Manager Guide for UNIX* is for use with the Radia Manager Inventory Server version 4.0 and the Radia Clients version 3.x. It contains the following changes to information and procedures for the following chapters:

Chapter 1: Introduction

- Page 16, Overview, added the following note regarding the role of the new Radia Messaging Server:

  "As of Radia 4.0, the Radia Messaging Server handles the actual delivery of the inspection results to the Radia Integration Server, which frees up Radia Configuration Server resources. See the *Radia Messaging Server Guide* for more information."

- Page 17, *About the Radia Reporting Server,* the Radia Reporting Server offers a web-based interface for querying the combined data in existing Radia Inventory Manager, Radia Patch Manager, and Radia Usage Manager databases, with the ability to filter the data against your LDAP directory levels.

Chapter 2: Installing the Radia Inventory Manager Client

- Page 28, *Radia Inventory Manager Client System Requirements*: Updated System Requirements to include SUSE Linux and RedHat Enterprise Linux requirements.

Chapter 3: Installing the Radia Inventory Manager Server

- Page 71, *Installing the Radia 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.

Chapter 4: The AUDIT Domain

- Page 98, *Table 4.1 ~AUDIT Domain*, Registry Class row added.

Editorial Improvements

In addition to the changes listed above, this version contains various editorial and style updates to each chapter and section and the index.

Conventions

You should be aware of the following conventions used in this book.

Table P.1 ~ Styles

Element	Style	Example
References	*Italic*	See the *Publishing Applications and Content* chapter in this book.
Dialog boxes and windows	**Bold**	The **Radia System Explorer Security Information** dialog box opens.
Code	`Andale Mono`	`radia_am.exe`
Selections	**Bold**	Click **Next** to continue.

Table P.2 ~ Usage

Element	Style	Example
Drives (system, mapped, CD)	Italicized placeholder	***SystemDrive*:\Program Files\Novadigm** might refer to C:\Program Files\Novadigm on your computer. ***CDDrive*:\client\radia_am.exe** might refer to D:\client\radia_am.exe on your computer.
Files (in the Radia Database)	All uppercase	PRIMARY
Domains (in the Radia Database)	All uppercase	PRIMARY.SOFTWARE May also be referred to as the SOFTWARE domain in the PRIMARY file.
Classes (in the Radia Database)	All uppercase	PRIMARY.SOFTWARE.ZSERVICE May also be referred to as the ZSERVICE class in the SOFTWARE domain in the PRIMARY file.

The table below describes terms that may be used interchangeably throughout this book.

Table P.3 ~ Terminology*

* Depends on the context. May not always be able to substitute.

Term	May also be called
Application	software, service
Client	Radia Application Manager and/or Radia Inventory Manager
Computer	workstation, server
NOVADIGM domain	PRDMAINT domain **Note**: As of the 4.0 release of the database, the NOVADIGM domain is being renamed the PRDMAINT domain. Therefore, if you are using an earlier version, you will see the NOVADIGM domain in the database.
Radia Configuration Server	Manager, Active Component Server
Radia Database	Radia Configuration Server Database

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1

Introduction

At the end of this chapter, you will:

- Understand the components of the Radia Inventory Manager.
- Understand the terminology associated with the Radia Inventory Manager.
- Understand the Radia prerequisites for the Radia Inventory Manager.
- Realize the skills needed to use the Radia 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 Radia Messaging Server, the Radia Management Portal, and the Radia Reporting Server.

About the Radia Inventory Manager

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

The Radia Inventory Manager client is used with the Radia Inventory Manager Server. The Radia 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 Radia Inventory Manager is to use the Radia Reporting Server, discussed on page 17. The Radia Integration Server component of the Radia 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 Radia Inventory Manager client and server components. Choose the appropriate strategies suited for your enterprise needs.

Overview

Systems administrators use the Radia System Explorer, which is available for 32-bit Windows platforms, or the Radia 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 Radia Inventory Manager client computer when a subscriber connects to the Radia Configuration Server and installs the auditing software as follows:

- **Radia Software Manager** installs the software when the user visits his Radia Web page.
- **Radia 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 Radia Configuration Server.

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

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

About the Radia Reporting Server

As part of the Radia extended infrastructure for Radia 4.0 Windows, the web-based Radia Reporting Server allows you to query the combined data in existing Radia Inventory Manager, Radia Patch Manager, and Radia 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 Figure 1.1.

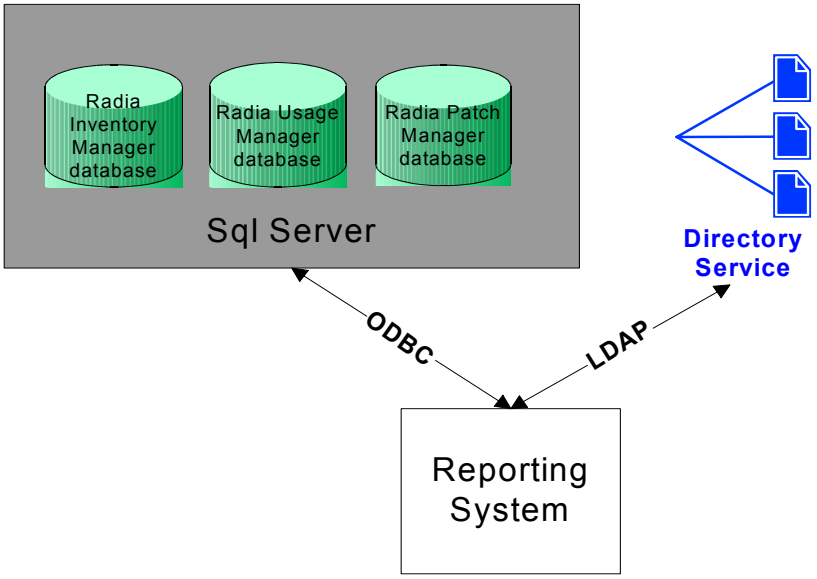

Figure 1.1 ~ Radia Reporting Environment.

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

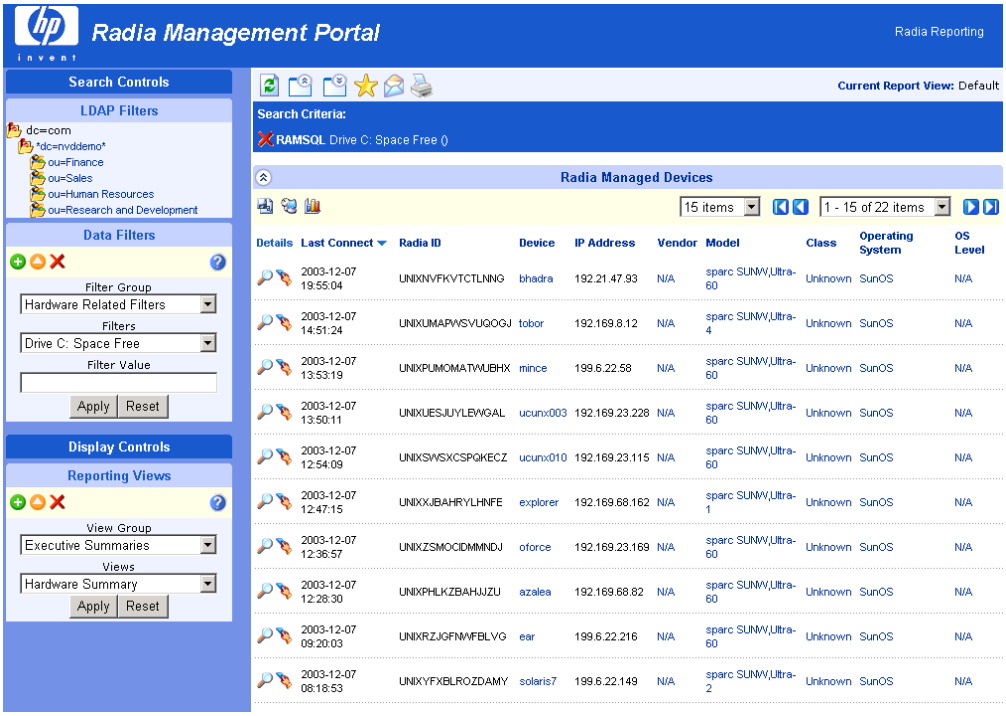

Figure 1.2 ~ Radia Reporting Server Web interface.

See the *Radia Reporting Server Guide* for more information on how to install the Radia 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.

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 Radia Application Manager, the Radia Software Manager, the Radia Inventory Manager, the Radia Patch Manager, and the Radia OS Manager.

Radia Integration Server

The Radia 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.

Radia Management Portal

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

Radia Messaging Server

The Radia 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 Radia Configuration Server, the Radia Messaging Server handles the delivery of Inventory, Operations, Patch, and Management Portal data collected from clients to the appropriate external location.

Radia Reporting Server

The Radia 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 Radia Inventory Manager, Radia Patch Manager, and Radia 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.

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 Radia Inventory Manager client.

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 Radia Inventory Manager 4.0 requires the following Radia components:

- Radia Configuration Server version 4.5.3 or higher
- Radia Client at version 3.1 or higher
  - Radia Application Manager

  and/or
  - Radia Software Manager
- Radia Messaging Server 2.0 is highly recommended. See the *Radia Messaging Server Guide* for more information on installing or upgrading the Radia Messaging Server.

Hardware/Software

Use the Radia System Explorer to manipulate the Radia Database. The Radia System Explorer is part of the Radia Administrator Workstation and is available for 32-bit Windows platforms. Install the Radia 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 Radia System Explorer. See the *Radia System Explorer Guide* for additional information. The Radia 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
```

Radia Inventory Manager Technology

While an administrator with little Web-based knowledge can use the Radia 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 Radia Inventory Manager client. As indicated in *Necessary Skills* on page 21, 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 Radia Inventory Manager client queries the WBEM namespace (i.e., the WBEM database) and sends the results back to the Radia Configuration Server. All information collected by WBEM is available to the Radia Inventory Manager client. The collected information is then stored in the Radia Integration Server.

For client computers with WBEM installed, the Radia Inventory Manager client executes an HP proprietary method (`nvdcim.tkd`) to query the WBEM namespace.

For client computers that do not have WBEM installed, the Radia 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 Radia 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 Radia Inventory Manager Client* starting on page 27 for more information.

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

Note

For *demonstrative purposes only*, a sample database with predefined queries is provided on the Radia 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 Radia Configuration Server to this daemon. When the daemon receives the Notify message, the Radia Application Manager connects to the Radia Configuration Server and performs the action initiated by the Notify operation.

> **Important Note**
>
> 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.

- 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 Radia 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 Radia Inventory Manager client when a subscriber connects to the Radia 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 Radia Inventory Manager client.
- The Radia Inventory Manager client queries the WBEM namespace (i.e., the WBEM database) and sends the results back to the Radia Configuration Server.

2

Installing the Radia Inventory Manager Client

At the end of this chapter, you will:

- Be able to install the Radia Inventory Manager (RIM) client using the graphical or non-graphical installation mode.
- Understand how to use the Remote Installation Setup installation mode.

Radia Inventory Manager Client System Requirements

- HP-UX Operating System Version 10.20 or above, PA Risc CPU, Motif 1.2 libraries.
- 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 2.5.1 or above, SPARC CPU, Motif 1.2 libraries.
- AIX Operating System Version 4.3.1, 5L, Motif 1.2 libraries.
- Siemens Reliant operating system Version 5.43 or 5.45 Reliant UNIX, R400, R4000 Risc.
- TCP/IP connection to a computer running Radia Configuration Server.
- Radia Client requires 20 MB free disk space.

Radia Inventory Manager Client Prerequisites

Caution

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 Radia 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 2.1 ~ 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`

Caution

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 2.2 ~ Environment Variables* below. 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.

Note to HP Users

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 2.2 ~ 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`

Table 2.2 ~ Environment Variables

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

In *Table 2.2 ~ Environment Variables* on page 29, $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.

Note

The inclusion of the MOTIF libraries is required only when running Radia Client or Radia Administrator Workstation graphical tools such as the Radia Publisher, the Radia 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
```

Troubleshooting

Should you encounter any problems while installing the Radia 3.1 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.

Note

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

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.

Table 2.2 ~ Command Line Parameters below describes the installation parameters.

Table 2.2 ~ 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.

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

- After you perform an installation, make sure the Radia Application Manager is successfully connected to the Radia 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 Radia 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 Radia Configuration Server immediately after the installation.
  - Ability to pre-configure the IP address and port number of the Radia 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.

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

> **Note**
>
> 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 62.

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.

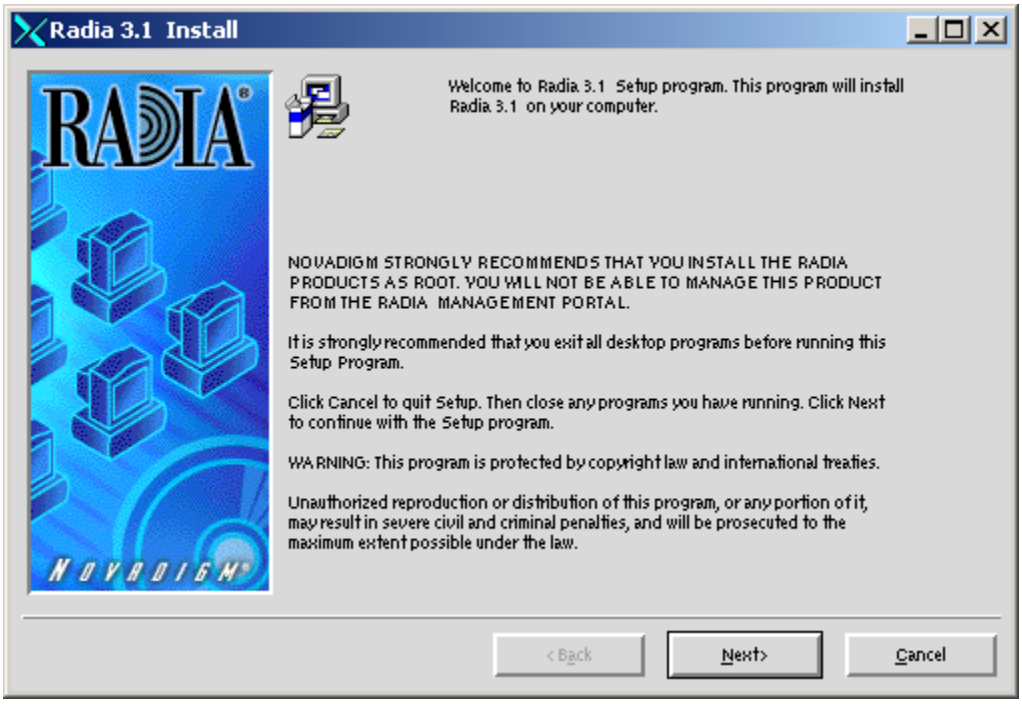

Figure 2.1 ~ Welcome window.

Note

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 **Select Components to Install** window opens.

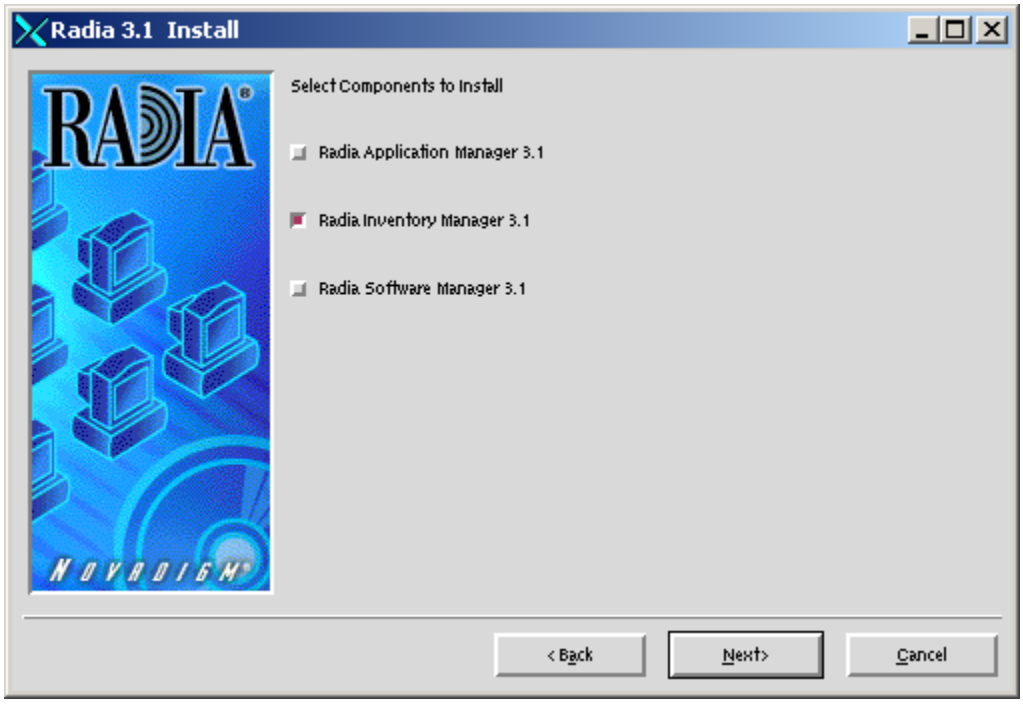

Figure 2.2 ~ Select Components to Install window.

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

The **Select Installation Type** window opens.

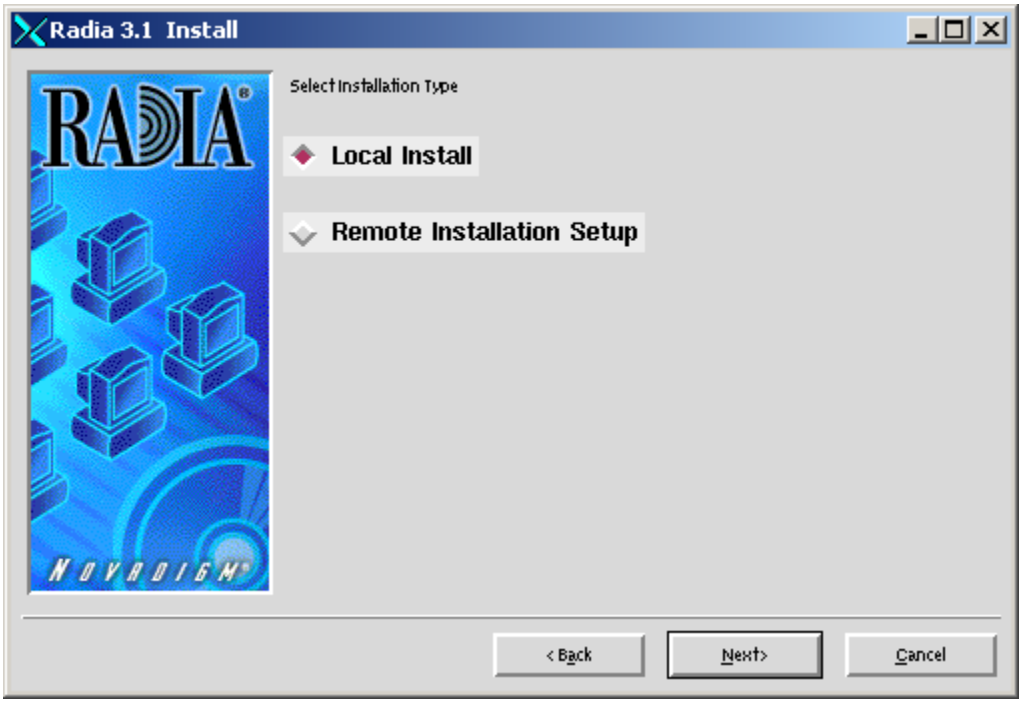

Figure 2.3 ~ Select Installation Type window.

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

The **Radia Components Location** window opens.

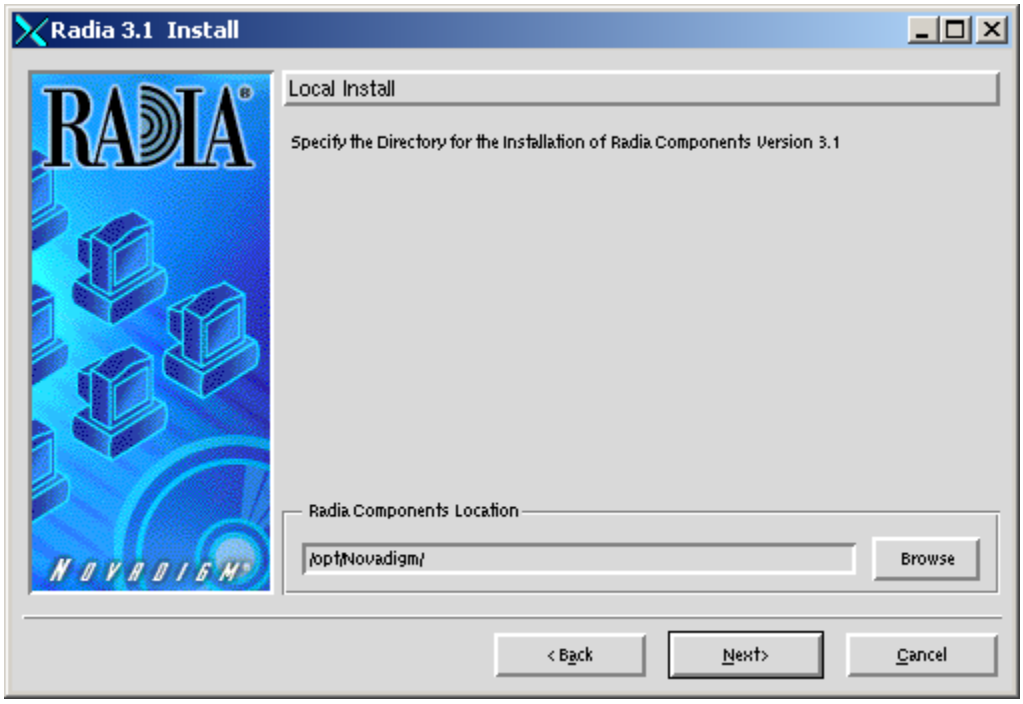

Figure 2.4 ~ Radia Client Components Location window.

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

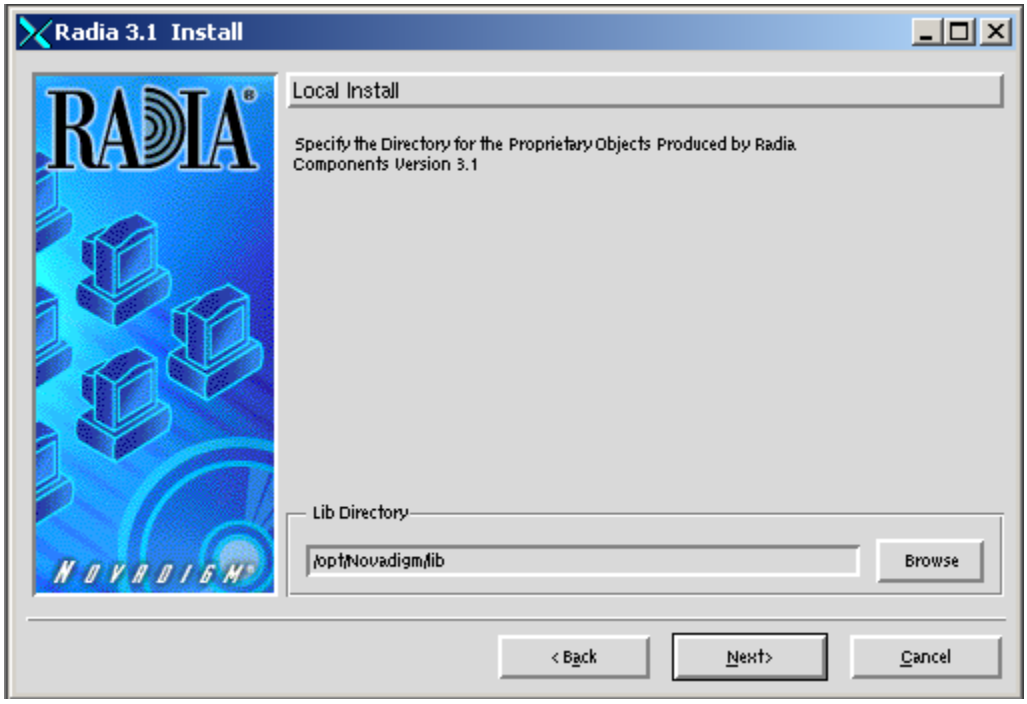

Figure 2.5 ~ Lib Directory window.

9. 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.

10. Click **Next**.

The **Log Directory** window opens.

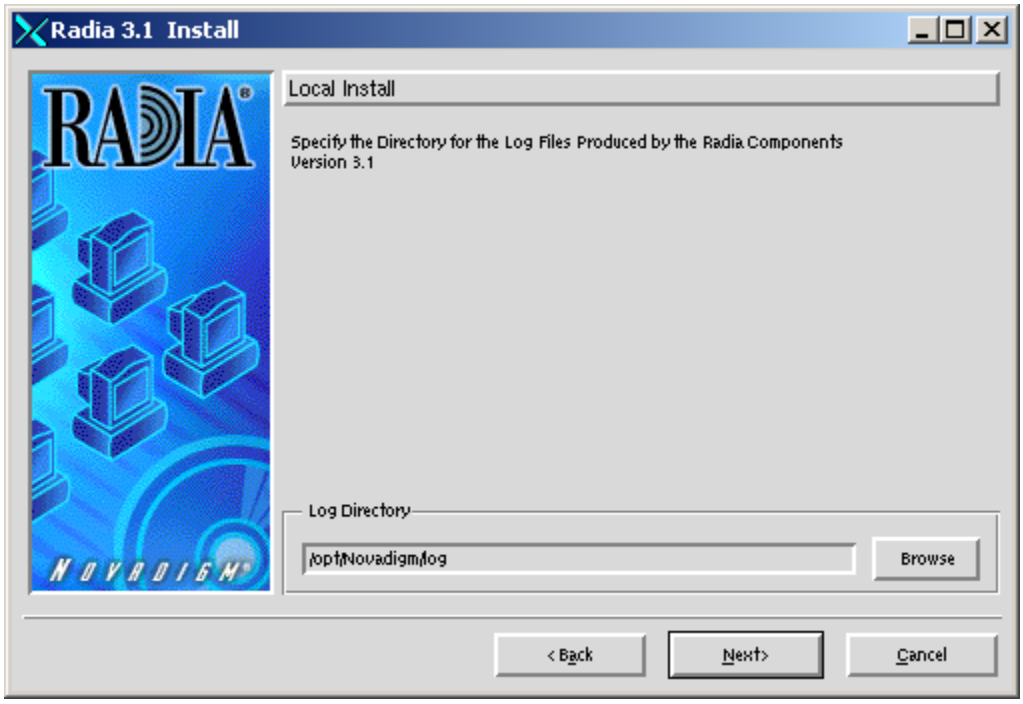

Figure 2.6 ~ Log Directory window.

11. 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.

12. Click **Next**.

The **Radia Configuration Server IP Address** window opens.

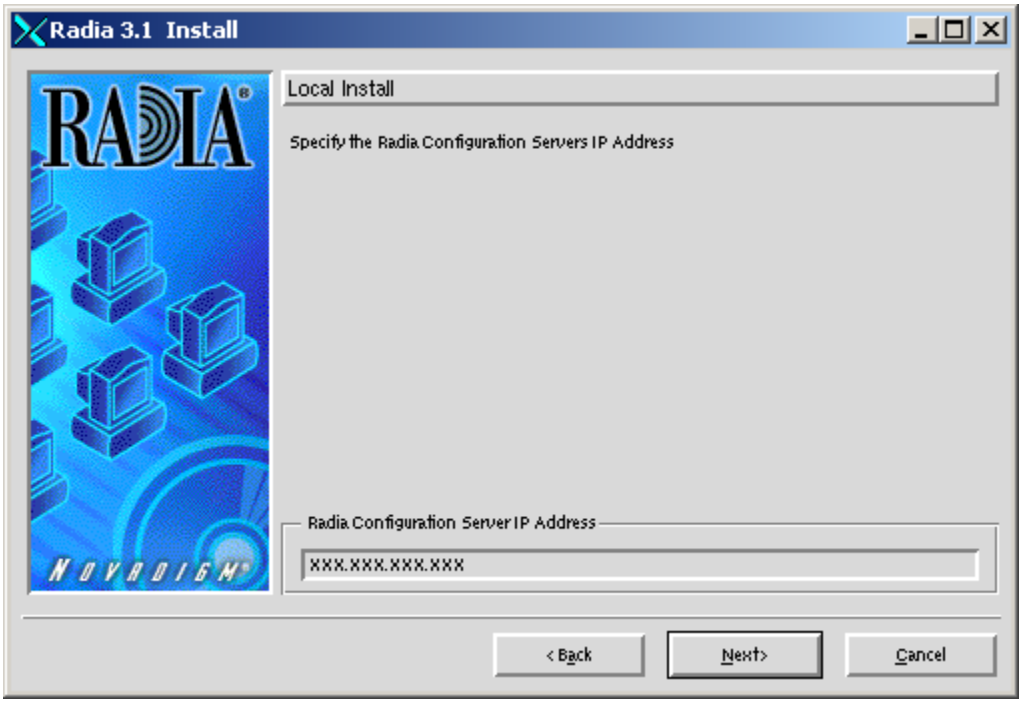

Figure 2.7 ~ Radia Configuration Server IP Address window.

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

14. Click **Next**.

The **Radia Configuration Server Port Number** window opens.

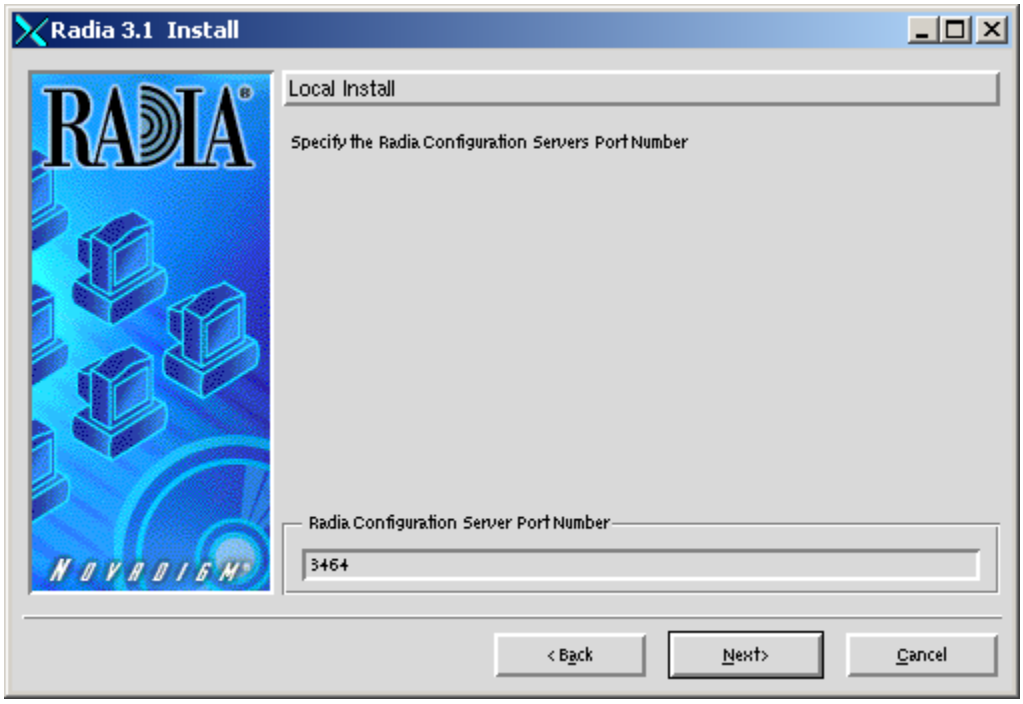

Figure 2.8 ~ Radia Configuration Server Port Number window.

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

16. Click **Next**.

The **Package Settings** window opens.

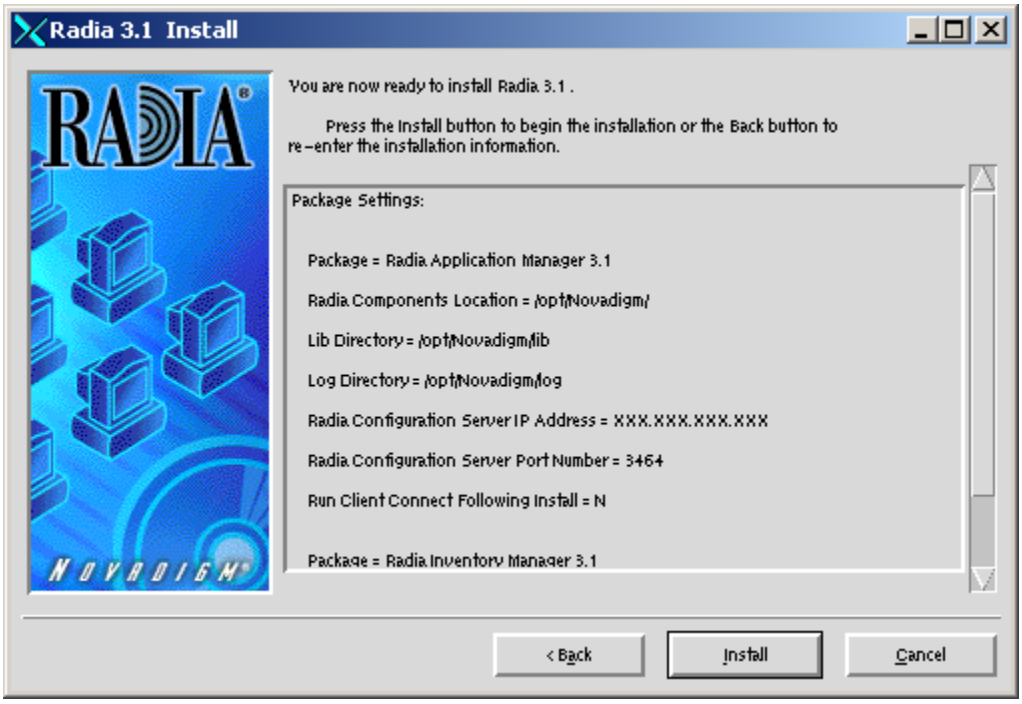

Figure 2.9 ~ Package Settings window.

17. 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.

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

The **Installation Progress** window opens.

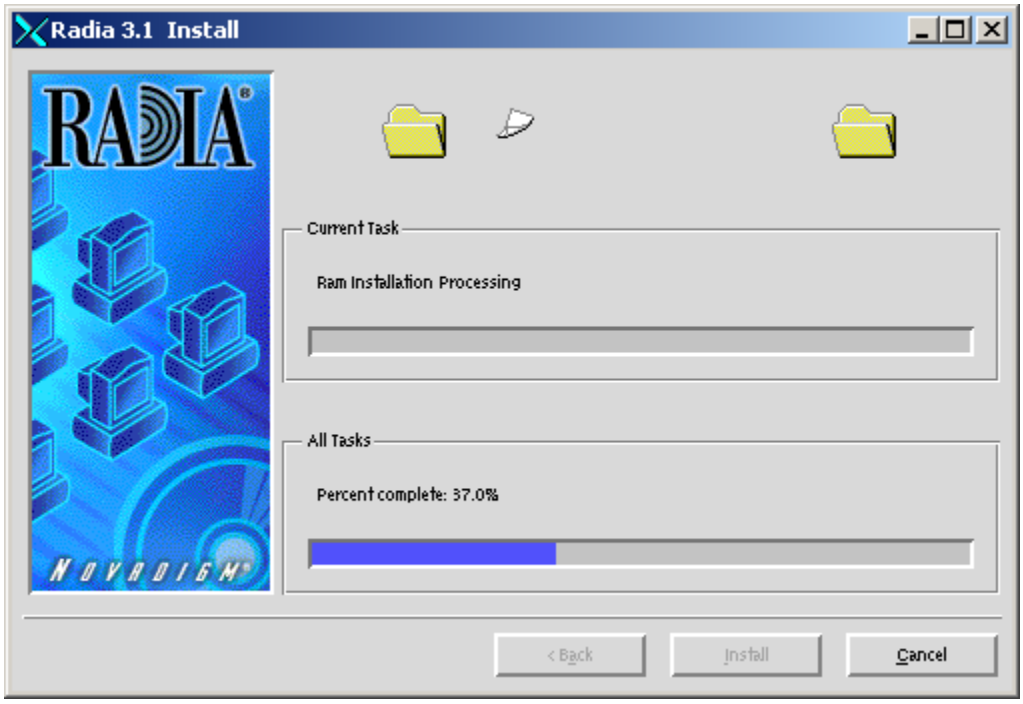

Figure 2.10 ~ Installation Progress window.

When the installation is finished, the **Successful installation** window opens.

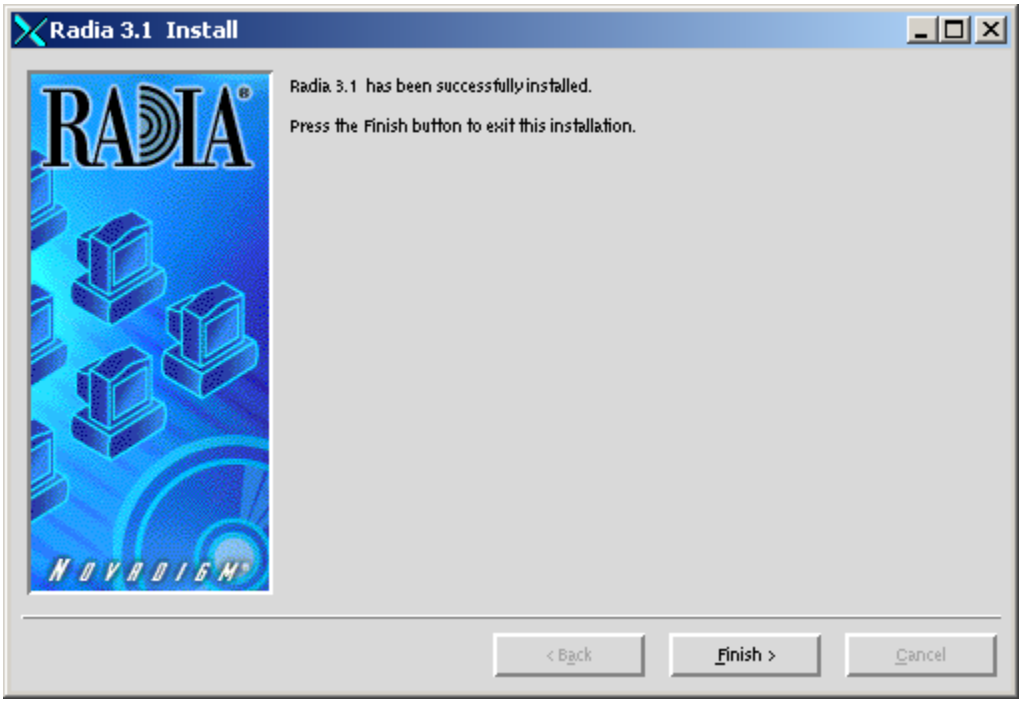

Figure 2.11 ~ Successful Installation window.

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

The Radia 3.1 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.

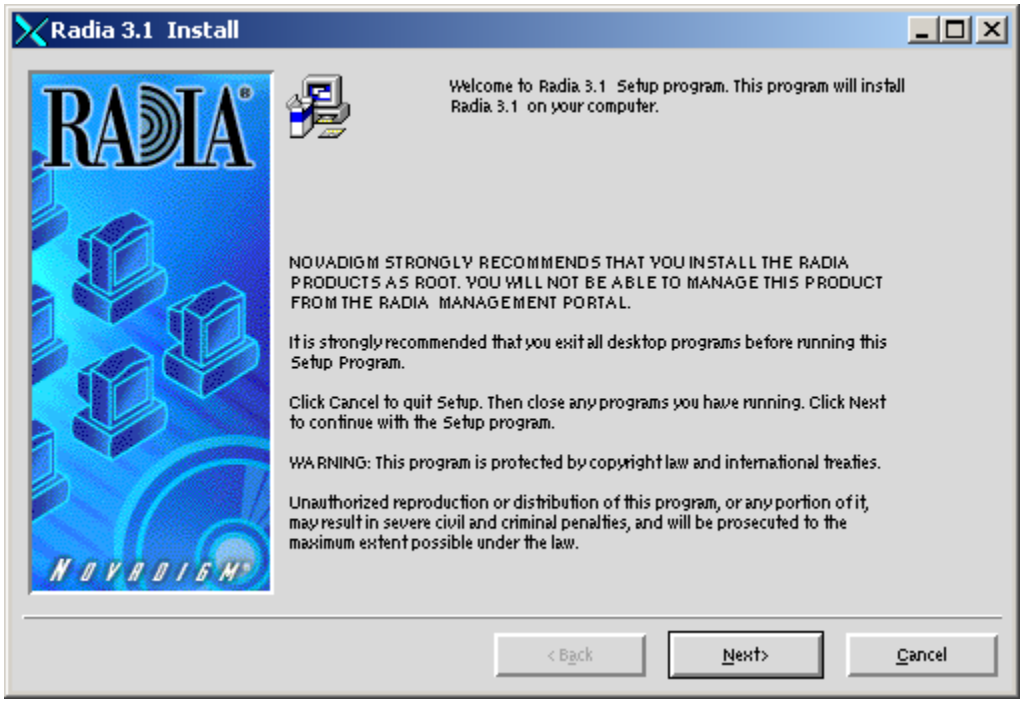

Figure 2.12 ~ Welcome window.

Note

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 **Select Components to Install** window opens.

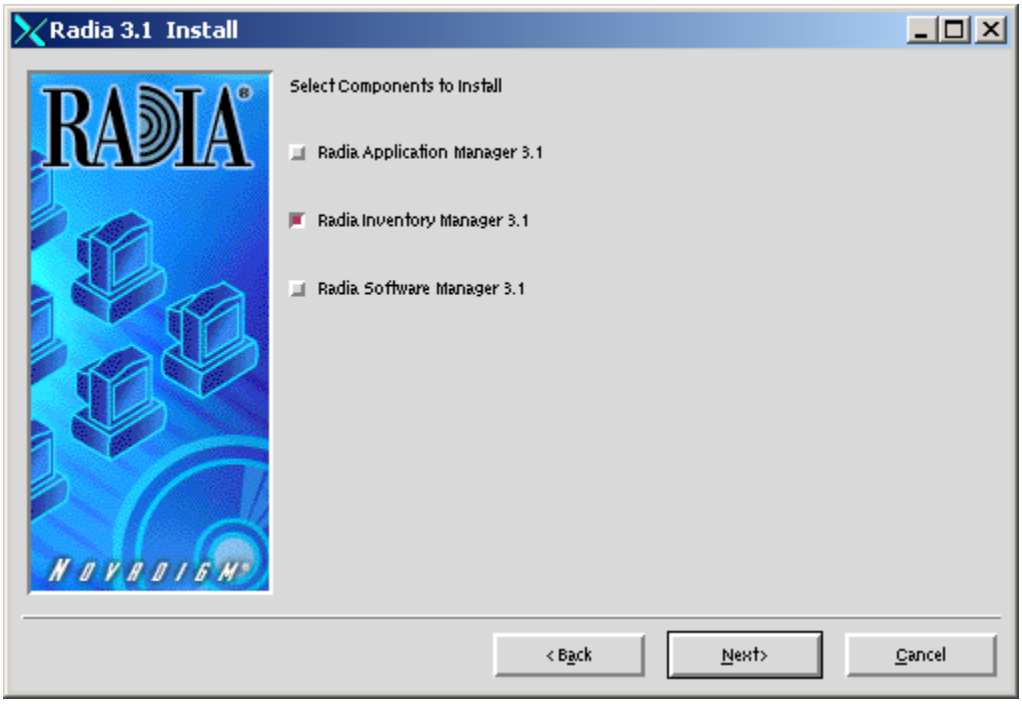

Figure 2.13 ~ Select Components to Install window.

4. Select the appropriate check boxes for the Radia Clients you would like to install.

5. Click **Next**.

The **Select Installation Type** window opens.

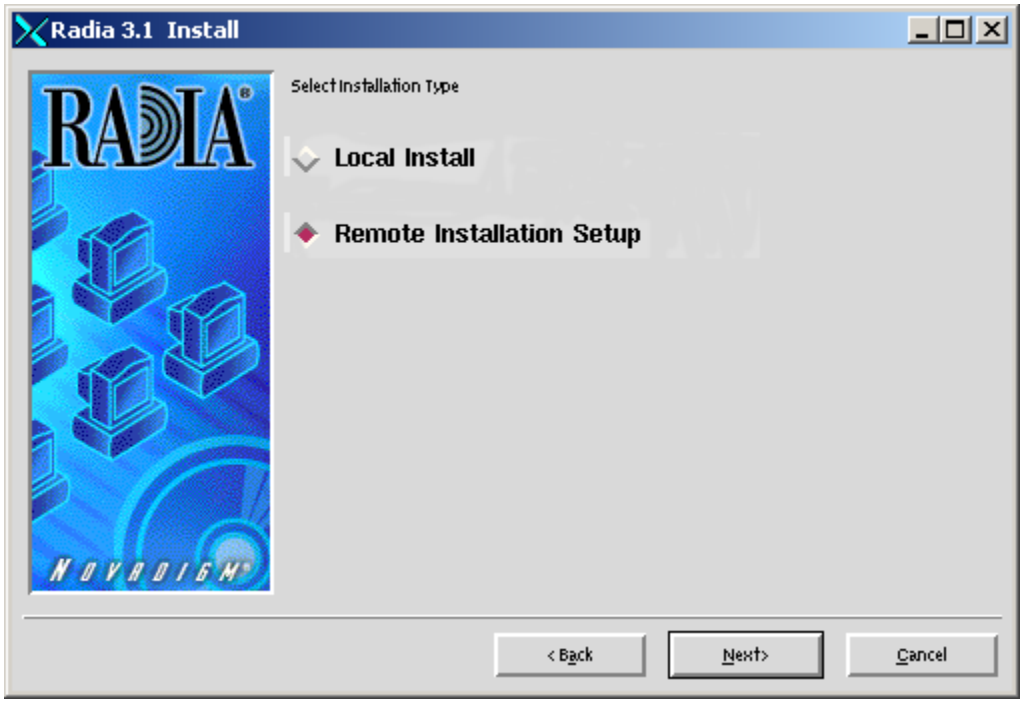

Figure 2.14 ~ Select Installation Type window.

6. 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.

7. Then click **Next**.

The **Radia Components Location** window opens.

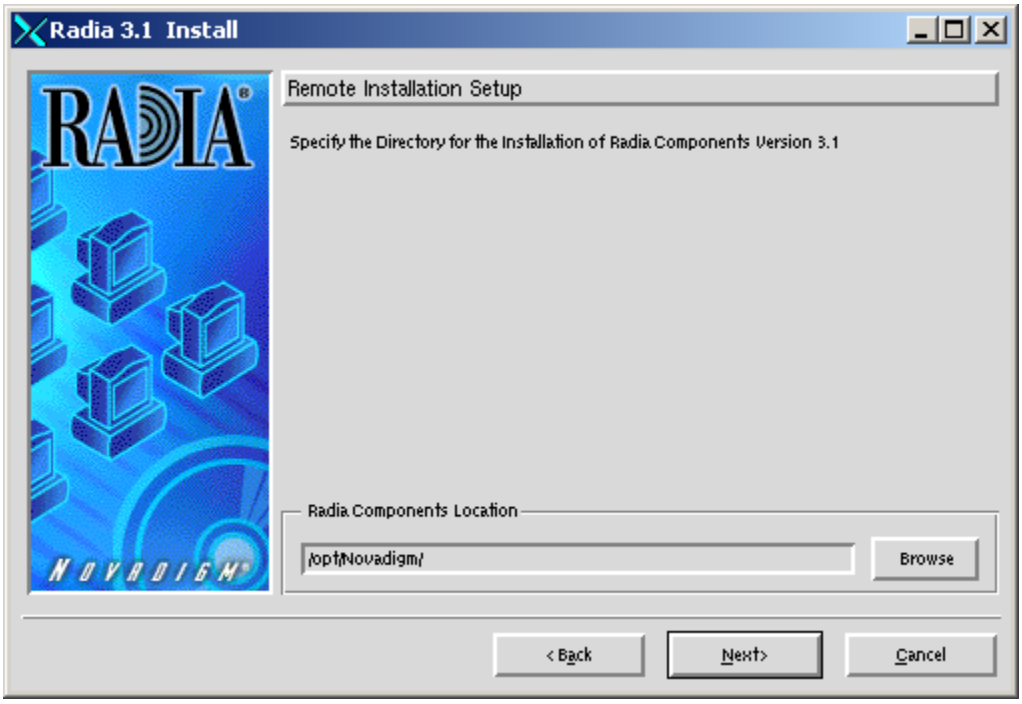

Figure 2.15 ~ Radia Components Location window.

8. 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.
9. Click **Next**.

The **Lib Directory** window opens.

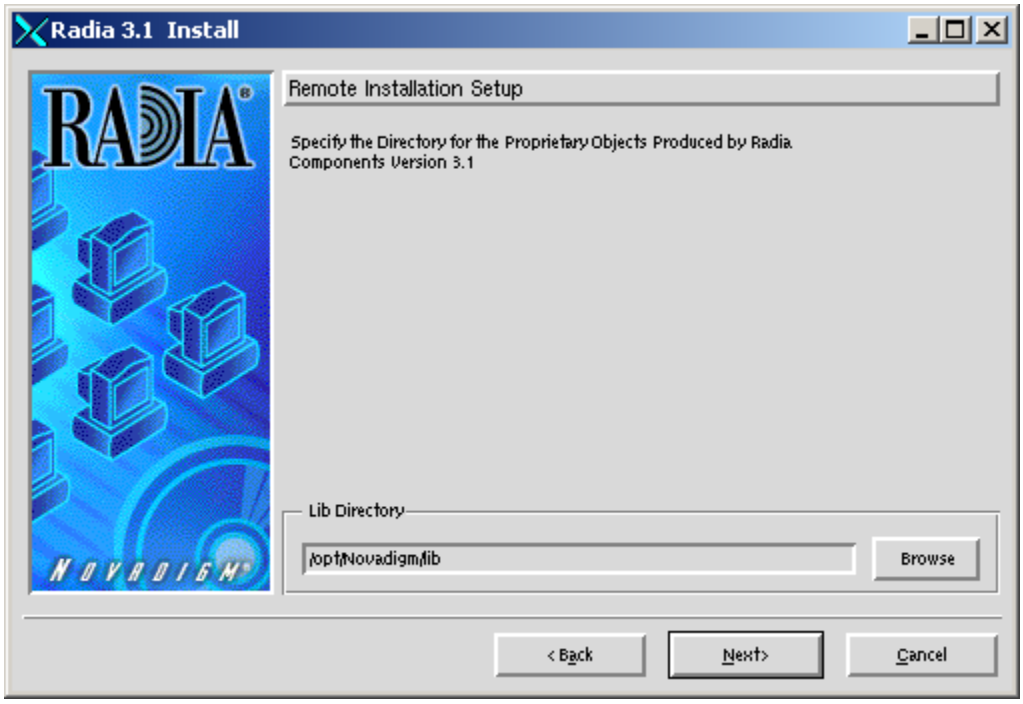

Figure 2.16 ~ Lib Directory window.

10. 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.

11. Click **Next**.

The **Log Directory** window opens.

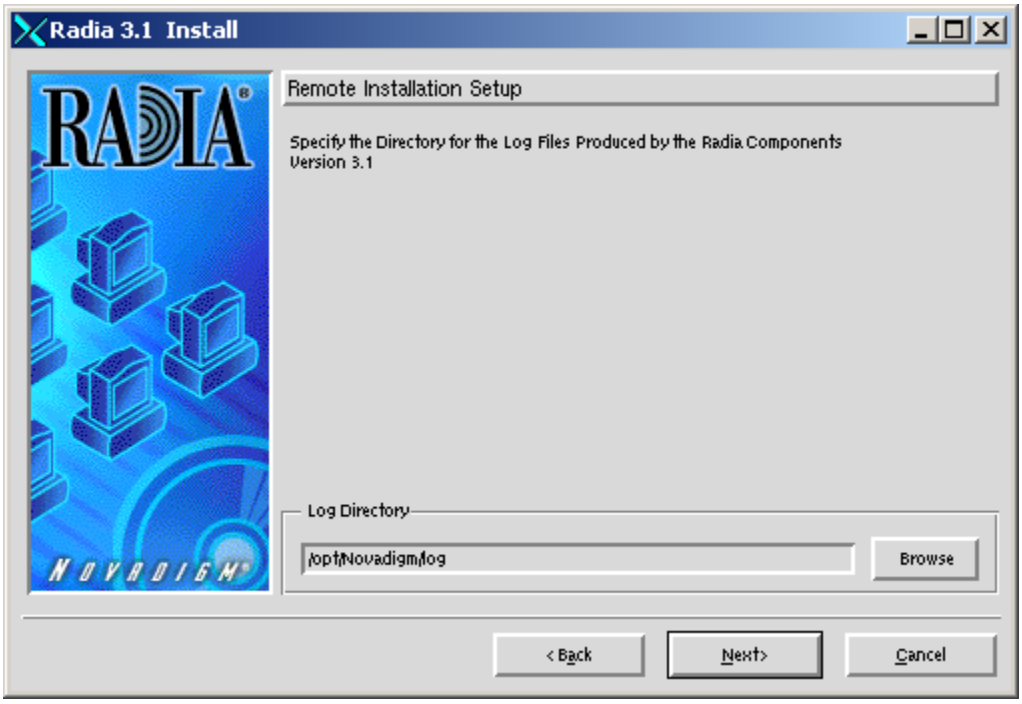

Figure 2.17 ~ Log Directory window.

12. 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.

13. Click **Next**.

The **Radia Configuration Server IP Address** window opens.

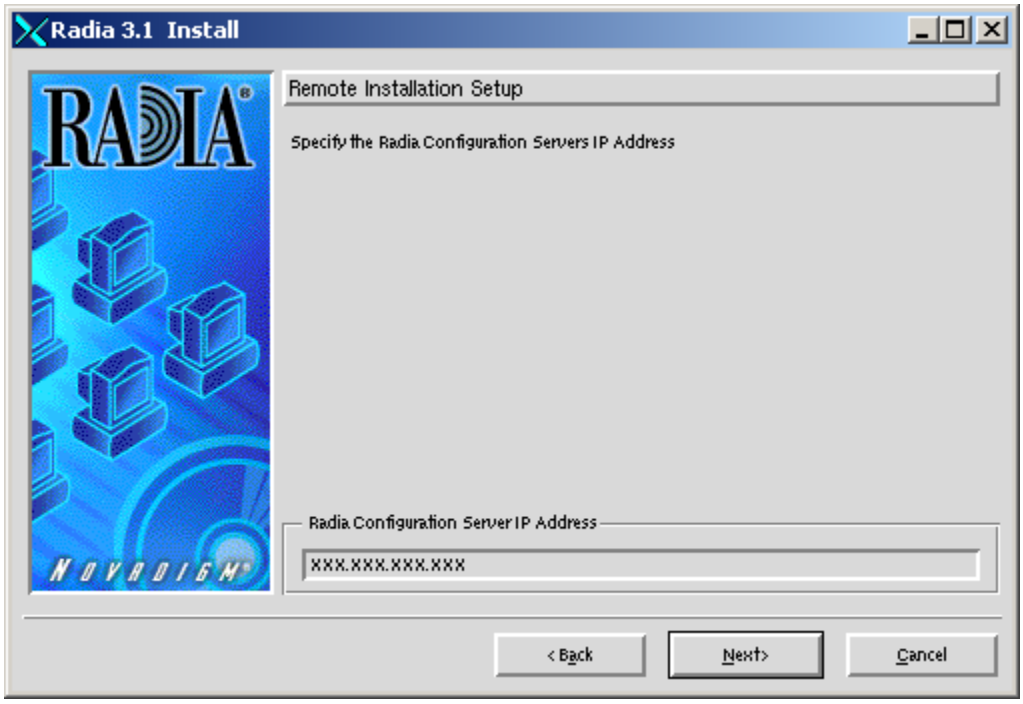

Figure 2.18 ~ Radia Configuration Server IP Address window.

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

15. Click **Next**.

The **Radia Configuration Server Port Number** window opens.

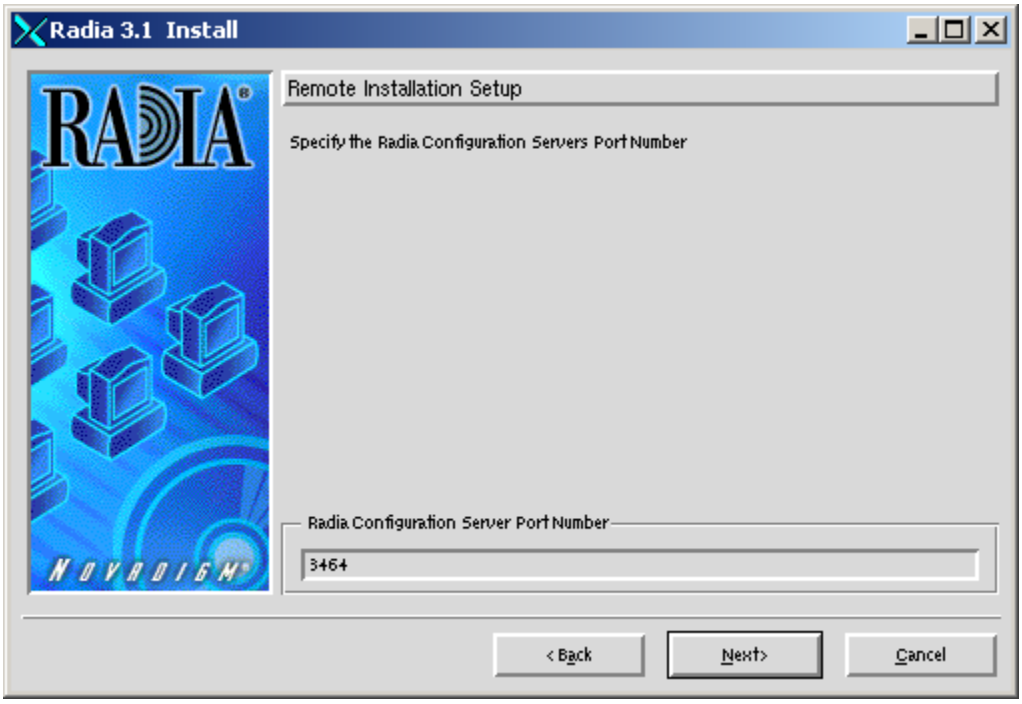

Figure 2.19 ~ Radia Configuration Server Port Number window.

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

17. Click **Next**.

The **Package Location** window opens.

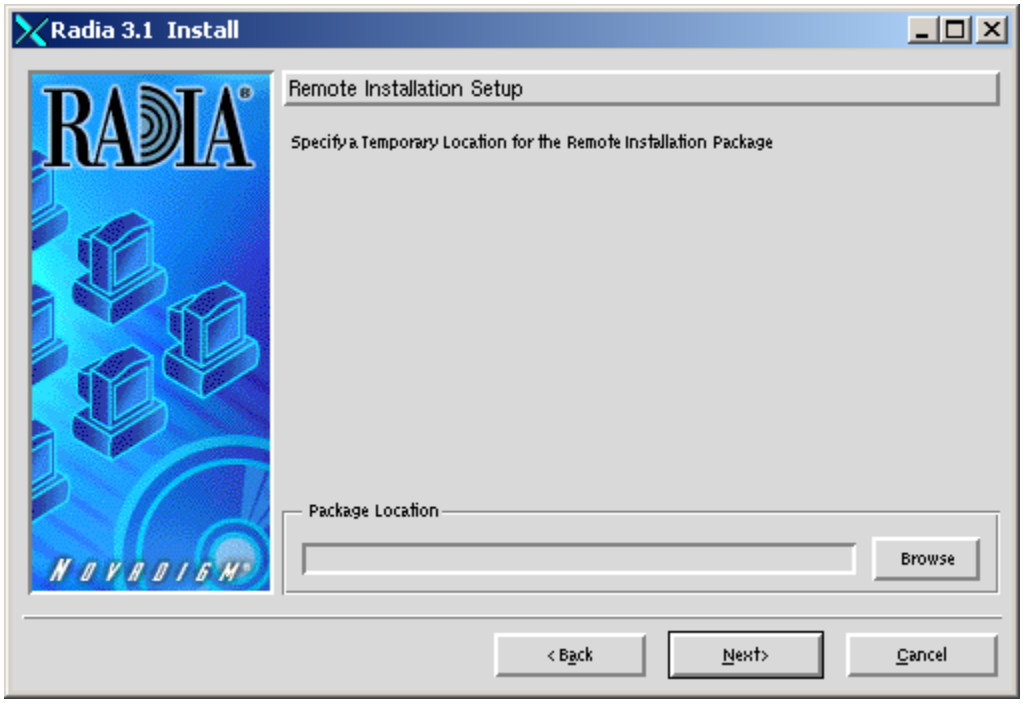

Figure 2.20 ~ Package Location window.

18. 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.

19. Click **Next**.

The **Package Configuration Name** window opens.

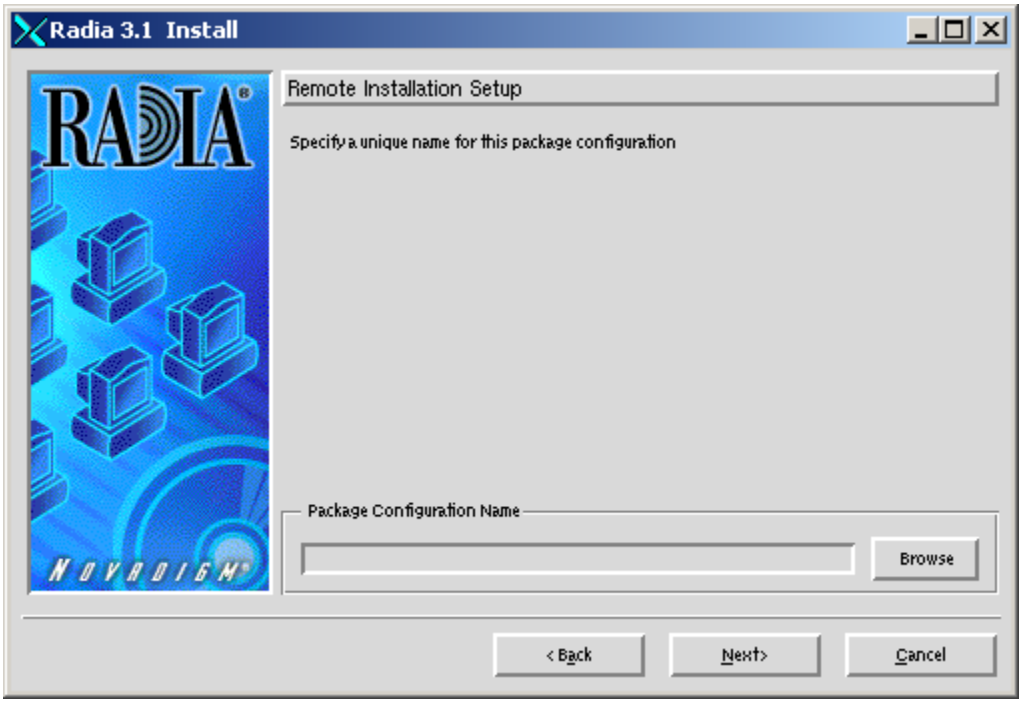

Figure 2.21 ~ Package Configuration Name window.

20. 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.

21. Click **Next**.

The **Package Settings** window opens.

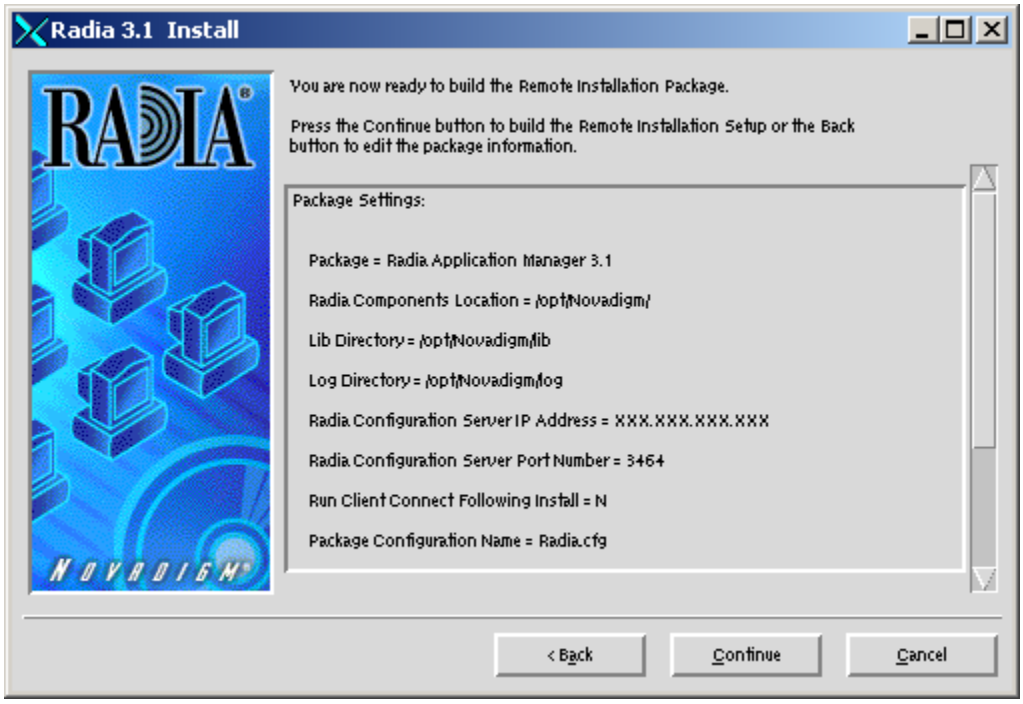

Figure 2.22 ~ Package Settings window.

22. Review the settings displayed in the **Package Settings** window.

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

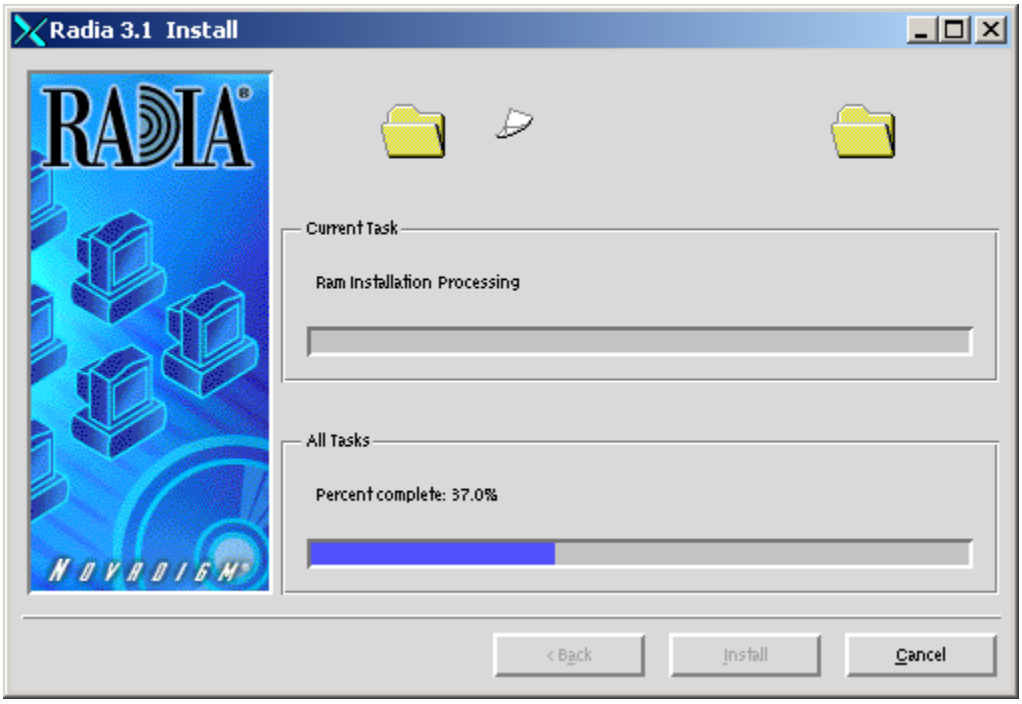

Figure 2.23 ~ Installation Progress window.

24. When the installation is finished, the **Successful Installation** window opens, and the **Finish** button appears.

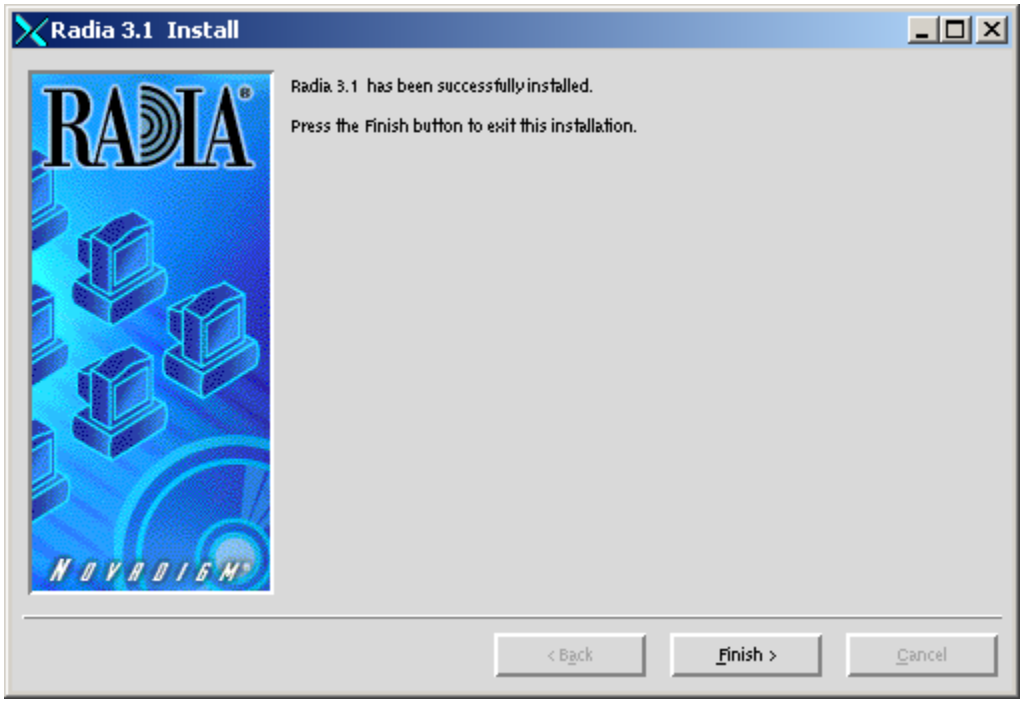

Figure 2.24 ~ Successful Installation window.

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

The Radia 3.1 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 *Table 2.3 ~ Configuration File Variables* below.

Table 2.3 ~ 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 Radia Configuration Server.
MGRPORT	3464	The default port number for connection to the Radia Configuration Server.
NTFYPORT	3465	The default Notify port used.
CONNECT	Y	Connects to the Radia Configuration Server immediately after the installation. Default behavior is **N**. Set to **Y** if you want your Radia Client to connect to the Radia 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 Radia Configuration Server in order to process mandatory applications. Figure 2.25 below, is part of a shell script that initiates the connection to the Radia 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
```

Figure 2.25 ~ Sample shell script that runs a Client Connect.

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

Note

We recommend the client be installed 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. *Table 2.4 ~ Silent Installation Command Line Parameters* below describes these.

Table 2.4 ~ 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 58.

Table 2.4 ~ Silent Installation Command Line Parameters

Parameter	Example	Description
-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 58.

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

> **Note**
>
> 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 33.

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.

```
Installing Radia 3.1 Products
Welcome to Radia 3.1 Products Setup program.
This program will install Radia 3.1 Products on your computer.

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

Type Q to quit Setup, then close any programs you have
running. Type C to continue with the Setup program.
(To exit install at any prompt, type <cancel>)

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.

Enter C to Continue with the installation or Q to Quit the setup program:
```

Figure 2.26 ~ Radia Client non-graphical installation.

3. Type **C**, and press ENTER.

```
Select Components to Install

Radia Application Manager 3.1
Install? Y|N (Y):
```

Figure 2.27 ~ Select Components to install: Radia Application Manager.

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

```
Radia Inventory Manager 3.1
Install? Y|N (Y):
```

Figure 2.28 ~ Select Components to install: Radia Inventory Manager.

5. Press ENTER to accept the default component, the Radia Inventory Manager.

```
Radia Software Manager 3.1
Install? Y|N (Y):
```

Figure 2.29 ~ Select Components to install: Radia Software Manager.

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

```
Select Installation Type
1) Local_Install
2) Remote_Installation_Setup
Enter Type index (1 - 2) (1):
```

Figure 2.30 ~ Select the installation type.

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.

```
Specify the Radia Installation Location
Radia Components Location
Default value: /opt/Novadigm/
```

Figure 2.31 ~ Specify the location for the Radia Client.

8. Specify the installation location for the Radia Client, and then press ENTER.

```
Specify the Directory for the Proprietary Objects Produced by Radia Components
Version 3.1
Lib Directory
Default value: /opt/Novadigm/lib/
```

Figure 2.32 ~ Specify the location of the lib directory.

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

```
Specify the Directory for the Log Files Produced by the Radia Components Version
3.1
Log Directory
Default value: /opt/Novadigm/log/
```

Figure 2.33 ~ Specify the location for the log directory.

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

```
Specify the Radia Configuration Servers IP Address
Radia Configuration Server IP Address
Default value: XXX.XXX.XXX.XXX
```

Figure 2.34 ~ Specify the Radia Configuration Server's IP address.

11. Specify the IP address of the Radia Configuration Server, and then press ENTER.

```
Specify the Radia Configuration Servers Port Number
Radia Configuration Server Port Number
Default value: 3464
```

Figure 2.35 ~ Specify the Radia Configuration Server's port number.

12. Specify the port number for the Radia Configuration Server, and then press ENTER.

```
Installation Settings:
Install Radia Application Manager 3.1
  Package Settings:

    Radia Components Location = /opt/Novadigm/
    Lib Directory = / opt /Novadigm/lib/
    Log Directory = / opt /Novadigm/log/
    Radia Configuration Server IP Address = 1.1.1.98
    Radia Configuration Server Port Number = 3464

Install Radia Inventory Manager 3.1

  Package Settings:
    Radia Components Location = /opt/Novadigm/

Install Radia Software Manager 3.1

  Package Settings:
    Radia Components Location = /opt/Novadigm/

Enter Y to begin the installation
Enter N to re-enter the installation information.
Please enter your choice (Y):
```

Figure 2.36 ~ Installation Settings.

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.

```
Starting Install . . .
Complete the configured install process? Y|N (Y):
```

Figure 2.37 ~ Complete the Radia Client installation.

15. When you're satisfied with the settings, press ENTER to install the Radia Client.

The Radia Client is installed.

Summary

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

3

Installing the Radia Inventory Manager Server

At the end of this chapter, you will:

- Be familiar with the installation media for the Radia Inventory Manager (RIM) Server.
- Have installed the server for the Radia Inventory Manager.
- Have installed a sample reporting database.
- Configured your Radia Configuration Server for Radia Inventory Manager support.

Radia Inventory Manager Server System Requirements

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

> **Note**
>
> Solaris Operating System Version 2.7 or above is required when using the embedded Connect ODBC drivers. For ODBC driver requirements, see *Table 3.3 ~ ODBC Driver Compatibility*.

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

Radia Inventory Manager Server Prerequisites

- We strongly recommend installing the Radia 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 Radia 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.
- If you elect to use the embedded Connect ODBC drivers with the Radia Inventory Manager, you must register to use it. Prior to installation, please contact HP OpenView Support using the HP OpenView web site (see page 4) to obtain a Connect ODBC driver registration key. You must enter the registration key to complete the Radia Inventory Manager installation.
- If you intend to run any of the graphical components of the Radia 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 3.1 ~ Setting the DISPLAY Variable

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

Table 3.1 ~ Setting the DISPLAY Variable

In a…..	Type….
Bourne, Bash, or Korn shell	`DISPLAY=IP address or hostname:0.0` `export DISPLAY`

Caution

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 3.2 ~ Environment Variables* 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 Radia Inventory Manager.

Note to HP Users

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 3.2 ~ 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`

Table 3.2 ~ Environment Variables

Platforms	Examples
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 3.2 ~ Environment Variables on page 69,* 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.

Note

The inclusion of the MOTIF libraries is required only when running Radia Client or Radia Administrator Workstation graphical tools such as the Radia Publisher, the Radia 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 Radia 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.

Note

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

Installing the Radia Inventory Manager Server

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

Cautions

- 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 Radia Inventory Manager.
- To manage Radia products using the Radia 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 Radia 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.

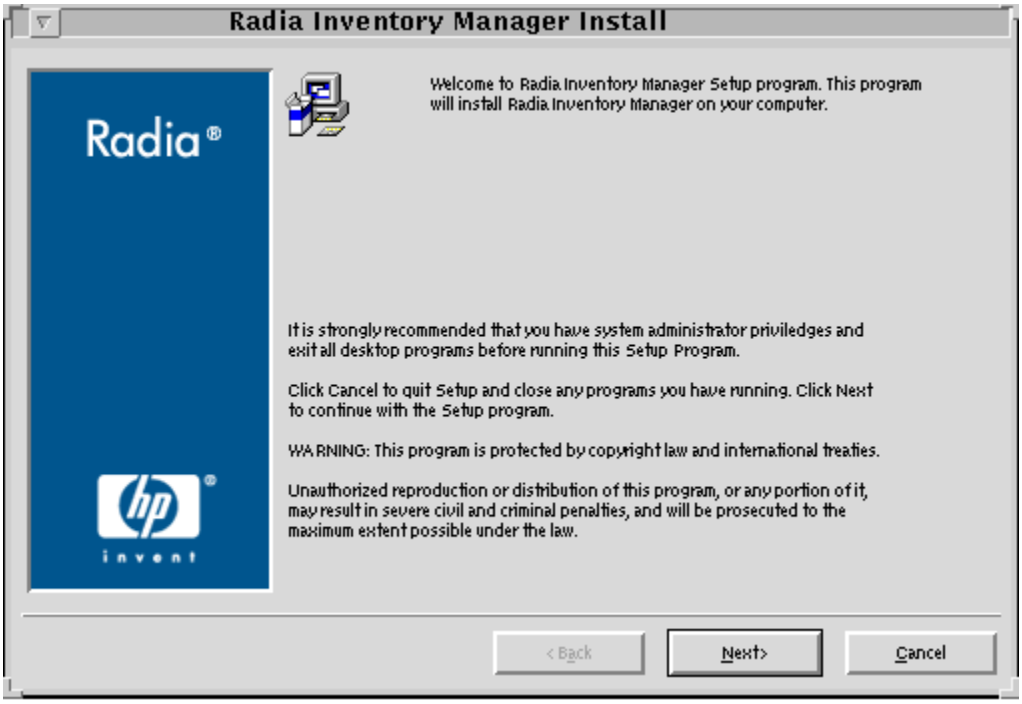

Figure 3.1 ~ Radia Inventory Manager Welcome window.

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.

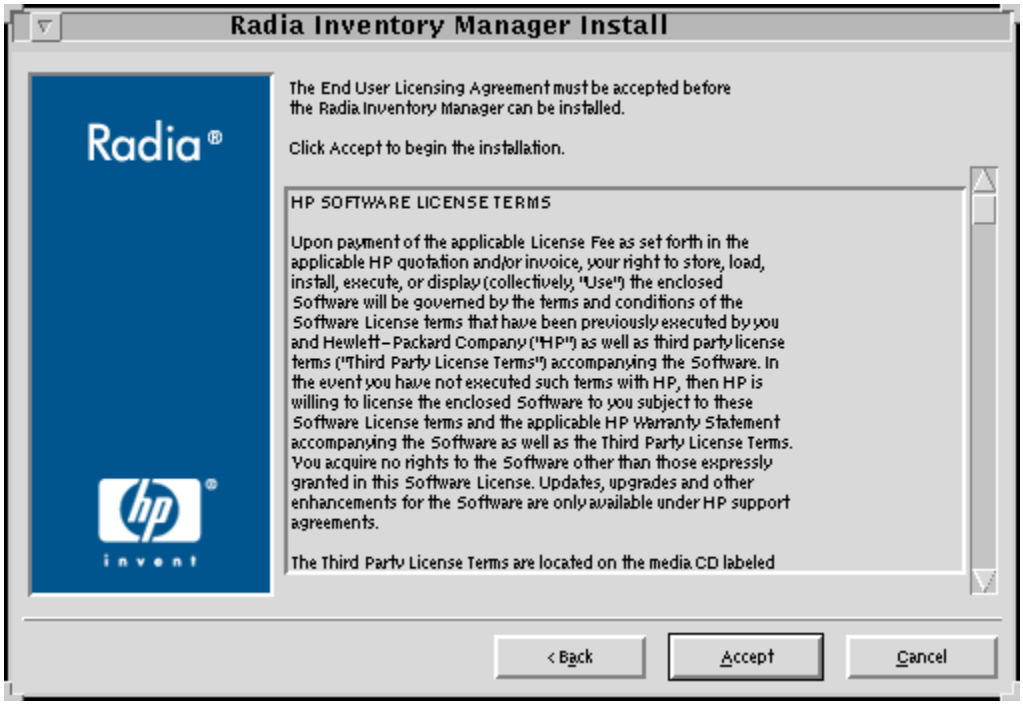

Figure 3.2 ~ End User Licensing Agreement.

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

The **Radia Inventory Manager Location** window opens.

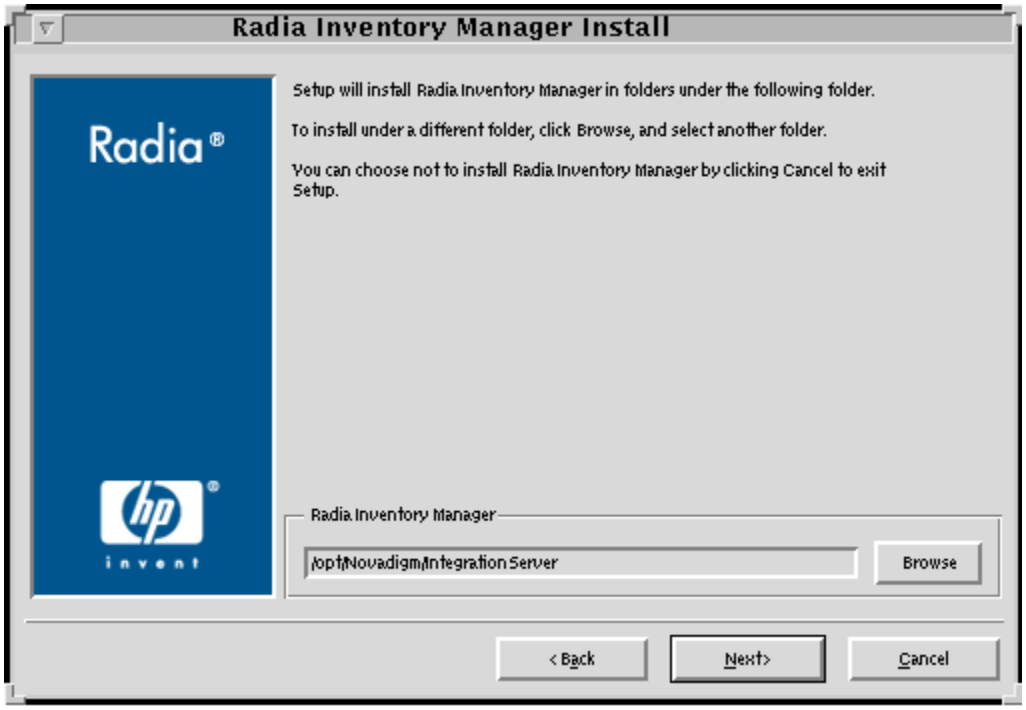

Figure 3.3 ~ Radia Inventory Manager location window.

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

The **License File** window opens.

Figure 3.4 ~ License File window.

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.

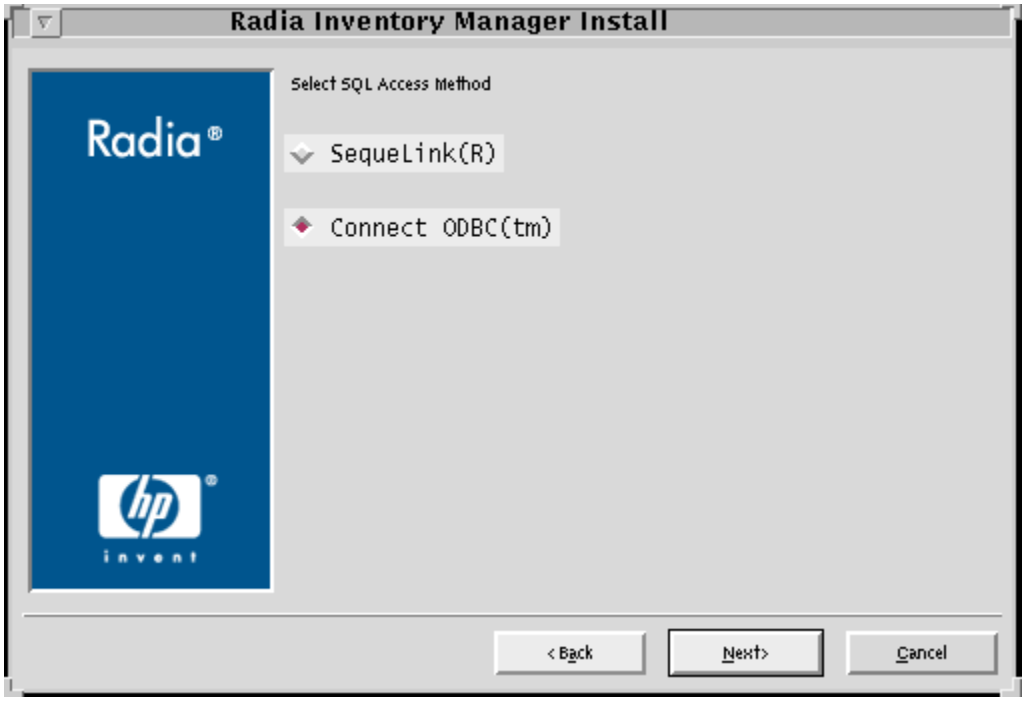

Figure 3.5 ~ Select SQL Access Method window.

9. Select the SQL access method you will use to connect to your ODBC compliant database. See *Table 3.3 ~ ODBC Driver Compatibility* on page 77 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 Radia Inventory Manager.

ODBC Driver Requirements

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

Table 3.3 ~ 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
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

Note

After the Radia 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 86, 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.

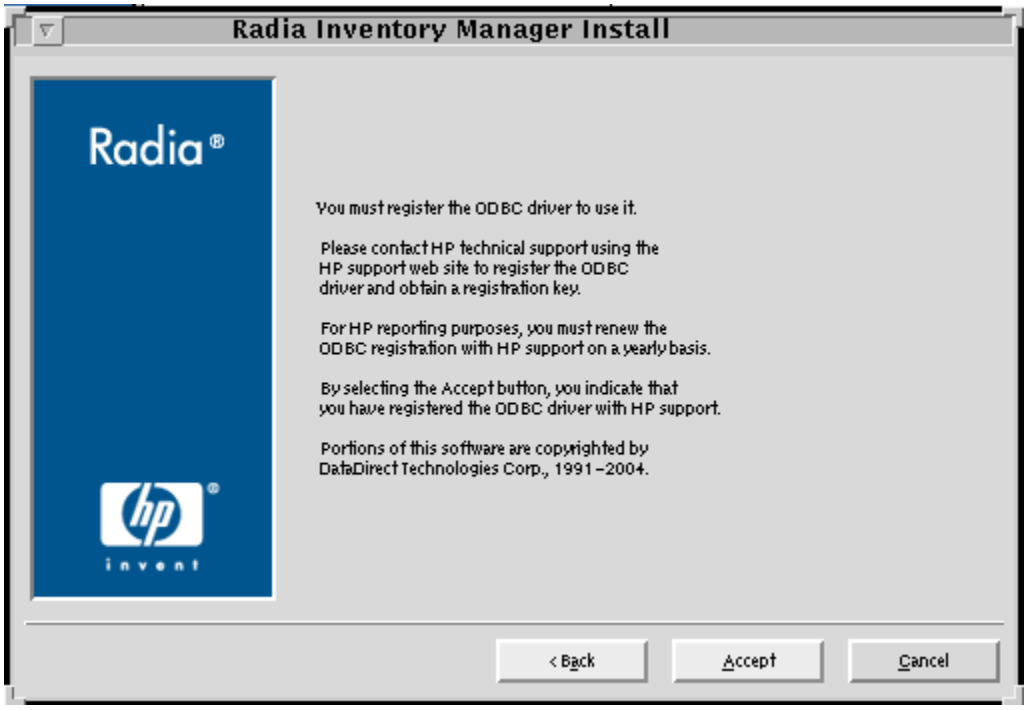

Figure 3.6 ~ Pre-registration window.

If you haven't already done so, you must register the Connect ODBC driver. To register, contact HP OpenView Support (see page 4).

11. Once you've obtained your registration number, click **Accept**.

The **Post-Registration window** opens.

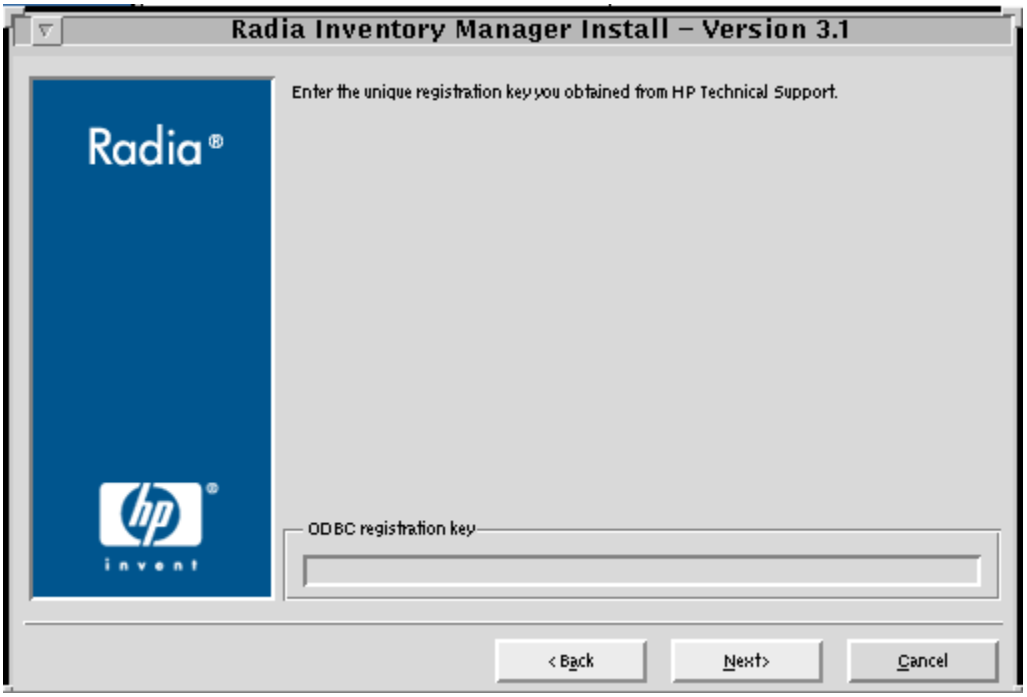

Figure 3.7 ~ Post-registration window.

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

The **Installation Settings** window opens.

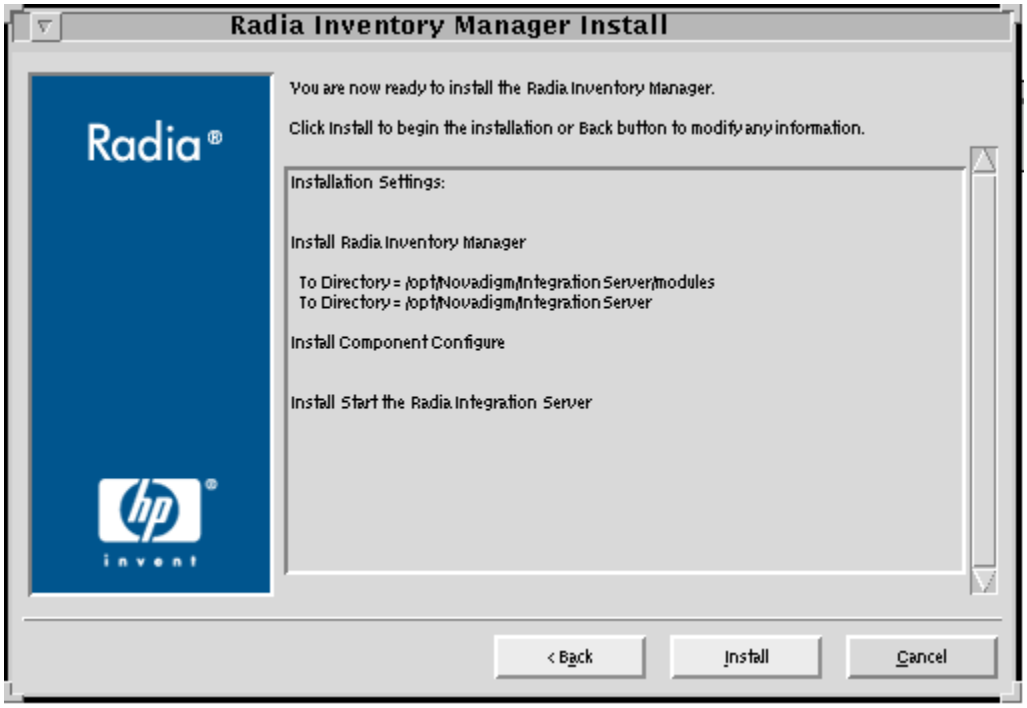

Figure 3.8 ~ Installation Settings window.

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

14. Click **Next**.

The Radia Inventory Manager is installed.

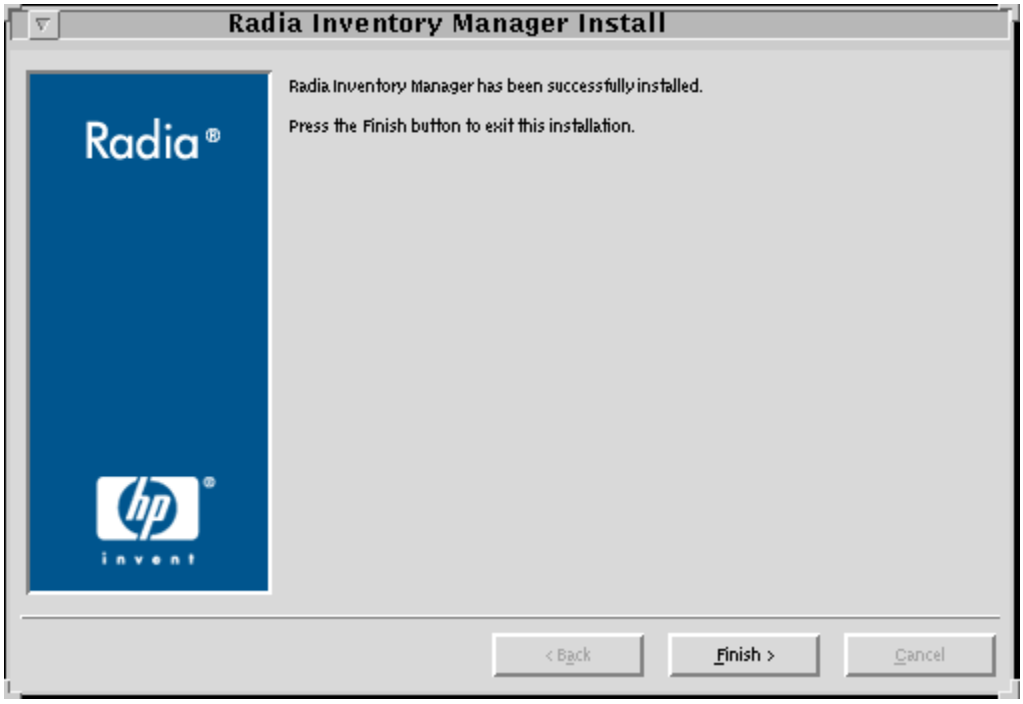

Figure 3.9 ~ Successful Installation window.

15. Click **Finish**.

The Radia Inventory Manager has been installed on your computer.

Configuring the Radia Configuration Server for Radia Inventory Manager Support

Once the Radia Inventory Manager components have been installed, it is necessary to configure two additional Radia 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 Radia Configuration Server will be running on the same computer.

> **Note**
>
> We recommend running the Radia 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 Radia 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 Radia 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
```

Figure 3.10 ~ [MGR_RIM] section of the edmprof file.

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
```

Figure 3.11 ~ Enter either the IP address or the host name.

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 88.

```
# $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 (Radia 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
#
```

Figure 3.12 ~ Sample rim.cfg file.

Table 3.4 ~ rim.cfg Parameters

Parameter	Default Value	Description
DSN	RIMDEMO	Data Source Name.
DSN_USER	N/A	User name used to connect to the DSN.

Table 3.4 ~ rim.cfg Parameters

Parameter	Default Value	Description
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.
WORKER_RETRY	3	Number of times to retry before a message is discarded.
COMMIT_INTERNAL	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 Radia 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.

Radia Inventory Manager Enhancements

Previous versions of the Radia 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 Radia 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. Refer to *Table 3.4 ~ rim.cfg Parameters* on page 84, for further details.

Configuring ODBC Drivers for use with Radia

During the installation of the Radia 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 Radia 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`.

```
[ODBC Data Sources]
DB2 Wire Protocol=DataDirect 4.00 DB2 Wire Protocol Driver
dBase=DataDirect 4.0 dBaseFile(*.dbf)
Informix=DataDirect 4.0 Informix
Informix Wire Protocol=DataDirect 4.0 Informix Wire Protocol
Oracle=DataDirect 4.0 Oracle
Oracle Wire Protocol=DataDirect 4.0 Oracle Wire Protocol
SQLServer Wire Protocol=DataDirect 4.0 SQL Server Wire Protocol
Sybase Wire Protocol=DataDirect 4.0 Sybase Wire Protocol
Text=DataDirect 4.0 TextFile(*.*)
SNRAO=DataDirect 4.0 SQL Server Wire Protocol
RIMGA=DataDirect 4.0 SQL Server Wire Protocol
OQA73=DataDirect 4.0 Oracle Wire Protocol
ONRAO=DataDirect 4.0 Oracle Wire Protocol

[OQA73]
QEWSD=37315
Driver=/work3/ConnectODBC/odbc/lib/NDora17.sl
Description=DataDirect 4.0 Oracle Wire Protocol
LogonID=system
Password=manager
HostName=192.168.104.127
PortNumber=1521
SID=orc1
CatalogOptions=0
ProcedureRetResults=0
EnableDescribeParam=0
EnableStaticCursorsForLongData=0
ApplicationUsingThreads=1
DriverExpirationBehavior=1
```

Figure 3.13 ~ odbc.ini file.

3. Add your DSN to the bottom of the **[ODBC Data Sources]** section.

```
[ODBC Data Sources]
DB2 Wire Protocol=DataDirect 4.00 DB2 Wire Protocol Driver
dBase=DataDirect 4.0 dBaseFile(*.dbf)
Informix=DataDirect 4.0 Informix
Informix Wire Protocol=DataDirect 4.0 Informix Wire Protocol
Oracle=DataDirect 4.0 Oracle
Oracle Wire Protocol=DataDirect 4.0 Oracle Wire Protocol
SQLServer Wire Protocol=DataDirect 4.0 SQL Server Wire Protocol
Sybase Wire Protocol=DataDirect 4.0 Sybase Wire Protocol
Text=DataDirect 4.0 TextFile(*.*)
SNRAO=DataDirect 4.0 SQL Server Wire Protocol
OQA73=DataDirect 4.0 Oracle Wire Protocol
ONRAO=DataDirect 4.0 Oracle Wire Protocol
RIMGA=DataDirect 4.0 SQL Server Wire Protocol <-- Newly added DSN
```

Figure 3.14 ~ New DSN added to 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.

```
[RIMGA]
Driver=/work/rcs451mgr/Ris/nvdmodbc/lib/NDmsss17.sl
Description=DataDirect 4.0 SQL Server Wire Protocol
Database=RIMGA
LogonID=rim30
Password=password
Address=qa-nt,1433
QuotedId=No
AnsiNPW=No
DriverExpirationBehavior=1
```

Figure 3.15 ~ Use a copy of an existing DSN 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 Radia 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 Radia 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.

> **Note**
>
> 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.

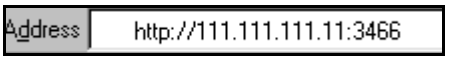

Figure 3.16 ~ Enter the IP address and port number in the address bar of your Web browser.

The home page of the Radia Integration Server opens.

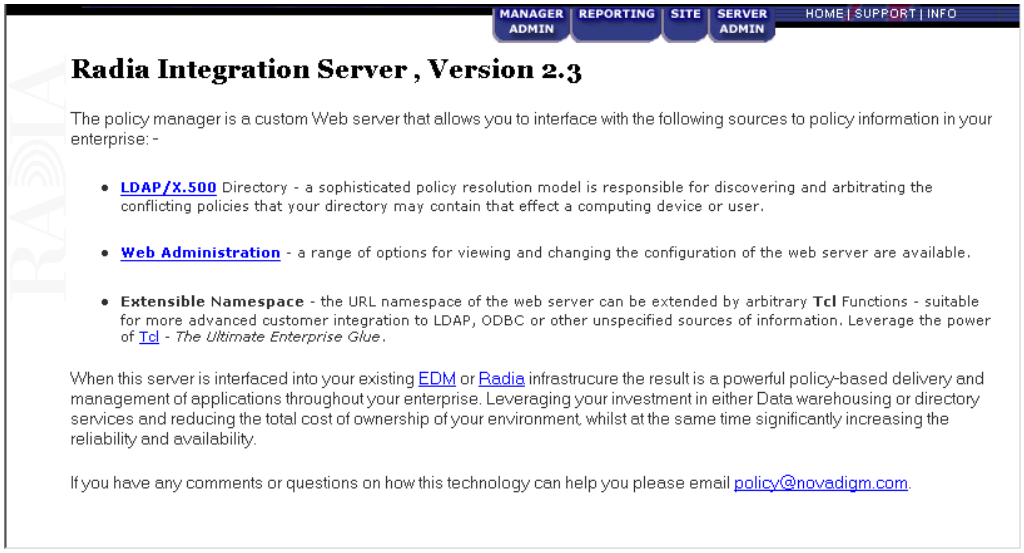

Figure 3.17 ~ Radia Integration Server home page.

3. Click the **REPORTING** tab.

The **Radia Inventory Manager Setup/Configuration** window opens.

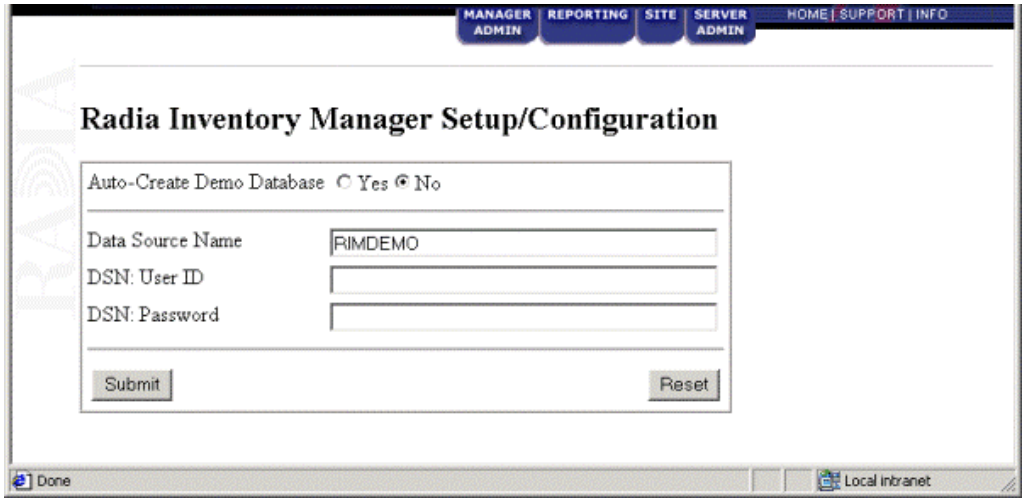

Figure 3.18 ~ Radia Inventory Manager Setup/Configuration window.

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

Use *Table 3.5 ~ Radia Inventory Manager Setup/Configuration* on page 92 to complete the configuration information for the Radia Inventory Manager Setup/Configuration.

Table 3.5 ~ Radia Inventory Manager Setup/Configuration

Item	Description
Auto-Create Demo Database	Select **Yes** to create the reporting database sample.
Data Source Name	This is a 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 for you. If you wish to use the sample database installed with the Radia Integration Server, accept this default. If you wish 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.
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.

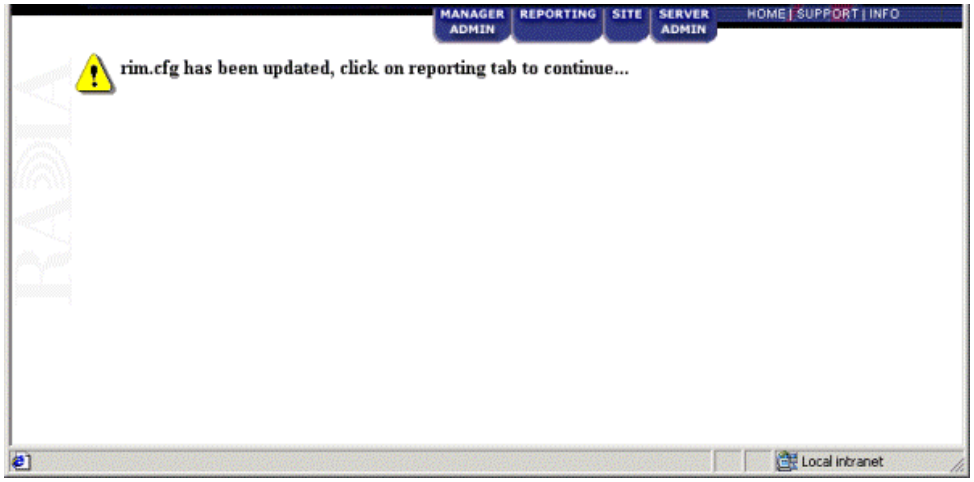

Figure 3.19 ~ Alert message indicating a successful installation.

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

Summary

- We recommended installing the Radia Integration Server on a separate computer from the Radia Configuration Server.
- Installing the Radia 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 Radia Configuration Server's EDMPROF file to specify the `HTTP_HOST` and `HTTP_PORT` number for the Radia Integration Server.
- Start and stop the Radia 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

Radia Inventory Manager and the Radia Database

At the end of this chapter, you will:

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

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

Changes to the Radia Database

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

Note

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

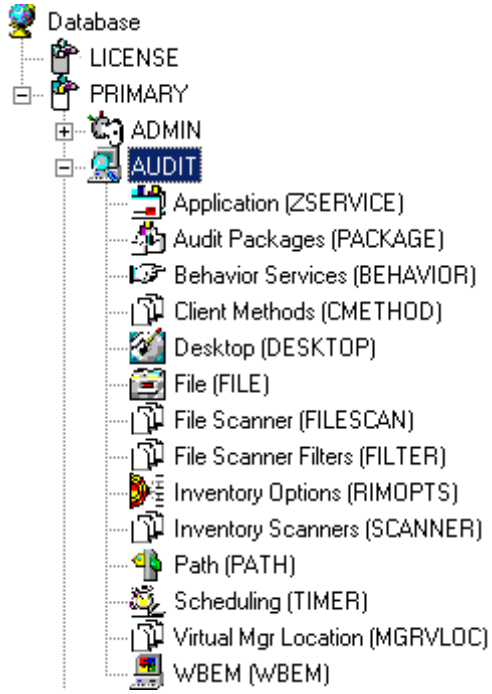

Figure 4.1 ~ Radia Database PRIMARY.AUDIT file.

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.

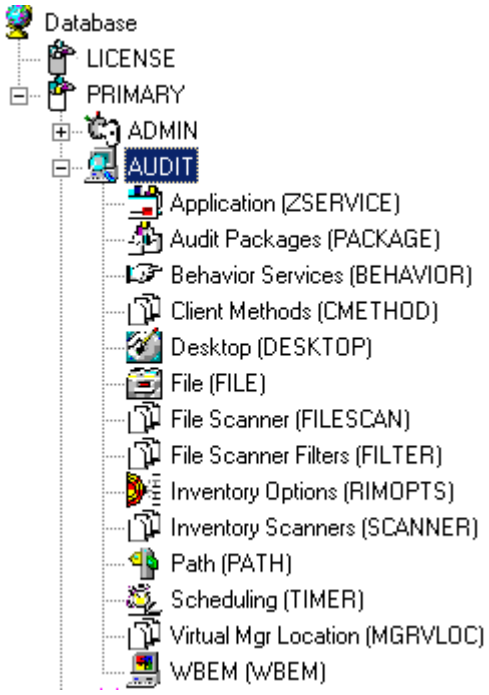

Figure 4.2 ~ The AUDIT domain.

The following table describes the classes present in the AUDIT domain.

Table 4.1 ~ AUDIT Domain

Class	Description
Audit Application (ZSERVICE)	These are sample services distributed with the Radia 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)	This class is 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.
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)	This is a 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)	This class stores the drive and directory required to install a resource. Packages can be relocated by updating instances of this class.
Registry (REGISTRY)	This class 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 *Radia Inventory Guide for Windows* for more information.
Scheduling (TIMER)	This class 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.
Virtual Mgr Location (MGRVLOC)	This class is used to specify the initial path for files being transferred to the Radia Configuration Server during a FILE audit.

Table 4.1 ~ AUDIT Domain

Class	Description
WBEM (WBEM)	This class contains instances that define Radia 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 4.2 ~ 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 Radia 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.
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 Radia 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 Radia 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 Radia System Explorer.
2. Navigate to and expand the PRIMARY.SYSTEM domain.

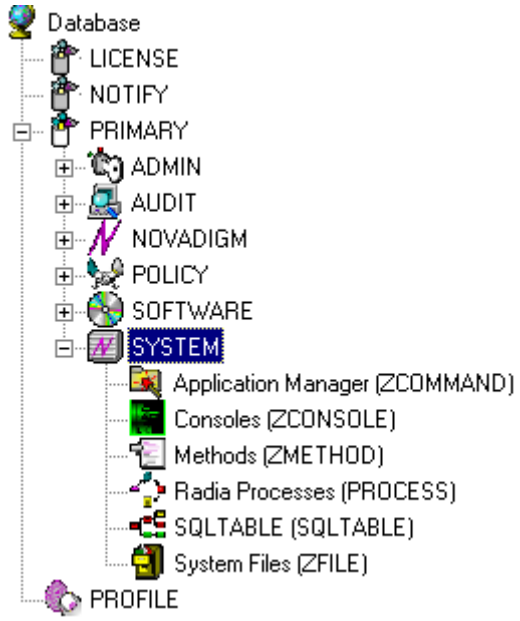

Figure 4.3 ~ PRIMAY.SYSTEM domain.

3. Expand the Methods (ZMETHOD) class.

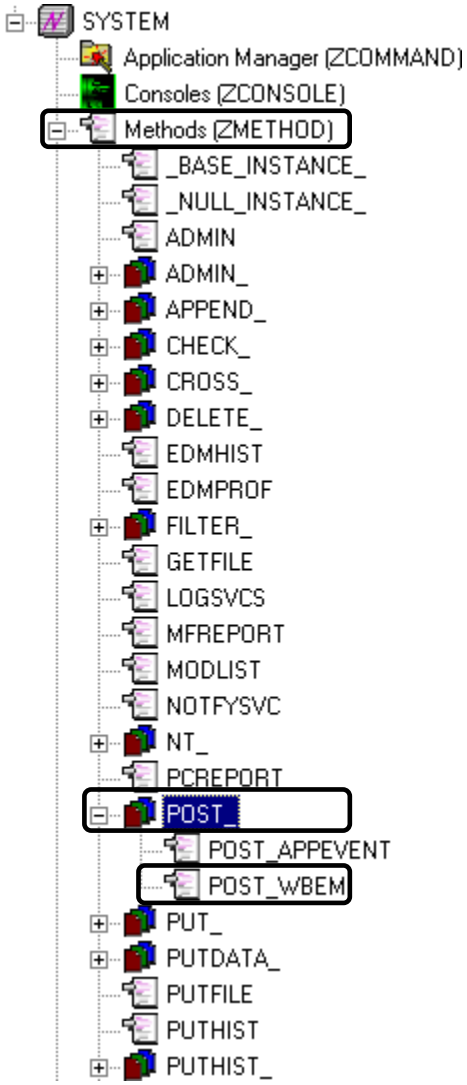

Figure 4.4 ~ POST_WBEM instance.

4. Expand the POST_ instance and select POST_WBEM.
5. Double-click on the **ZMTHPRMS** variable in the list view of the Radia System Explorer window.

   The **Editing instance** dialog box opens.

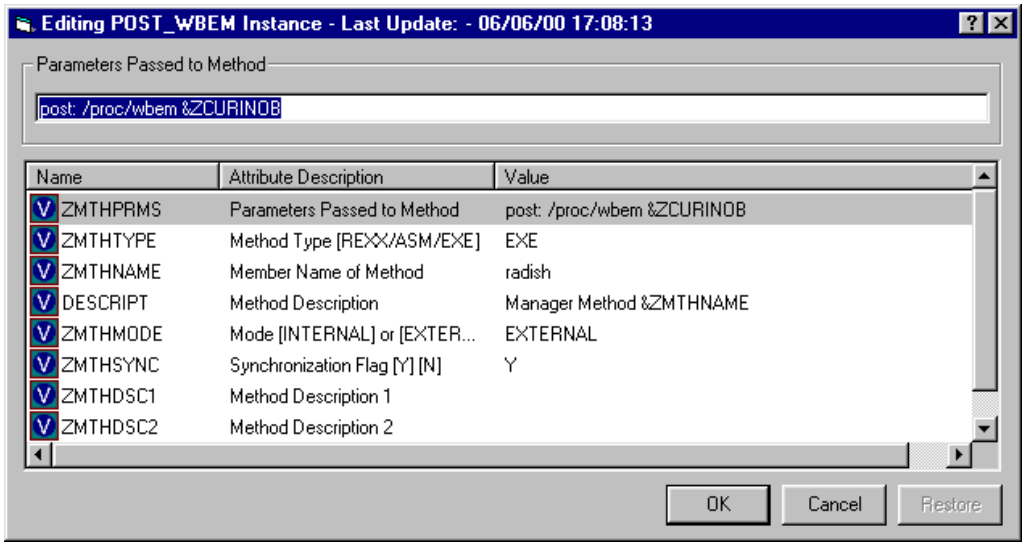

Figure 4.5 ~ Editing Instance dialog box.

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
```

See *Figure 4.6 ~ Editing Instance dialog box* on page 103.

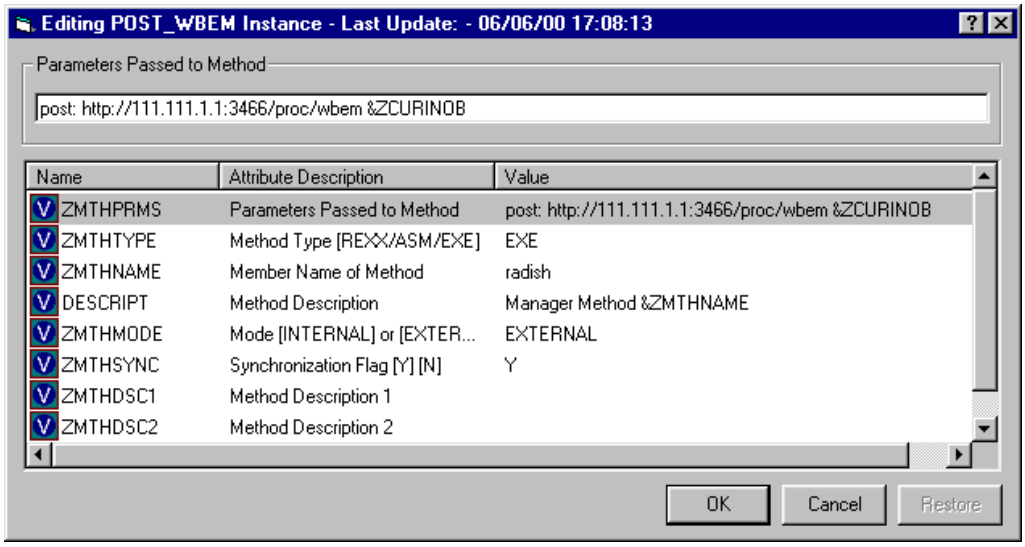

Figure 4.6 ~ Editing Instance dialog box.

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 Radia Inventory Manager (RIM). 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 5.1 below.

Table 5.1 ~ 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_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.

Table 5.1 ~ CIM classes

CIM Class	Description
CIM_UnixLocalFileSystem	Used to represent UNIX specific information about the local file system.
CIM_UnixComputerFileSystem	Used to represent general information about the computer.
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 Radia Inventory Manager for UNIX allows for three types of audits:

- File auditing
- WBEM auditing
- Hardware auditing

File Auditing

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 *What Happened during the Scan?* on page 132 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 5.2 ~ 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 as shown in *Figure 5.1 ~ FILEPREV object* on page 109.

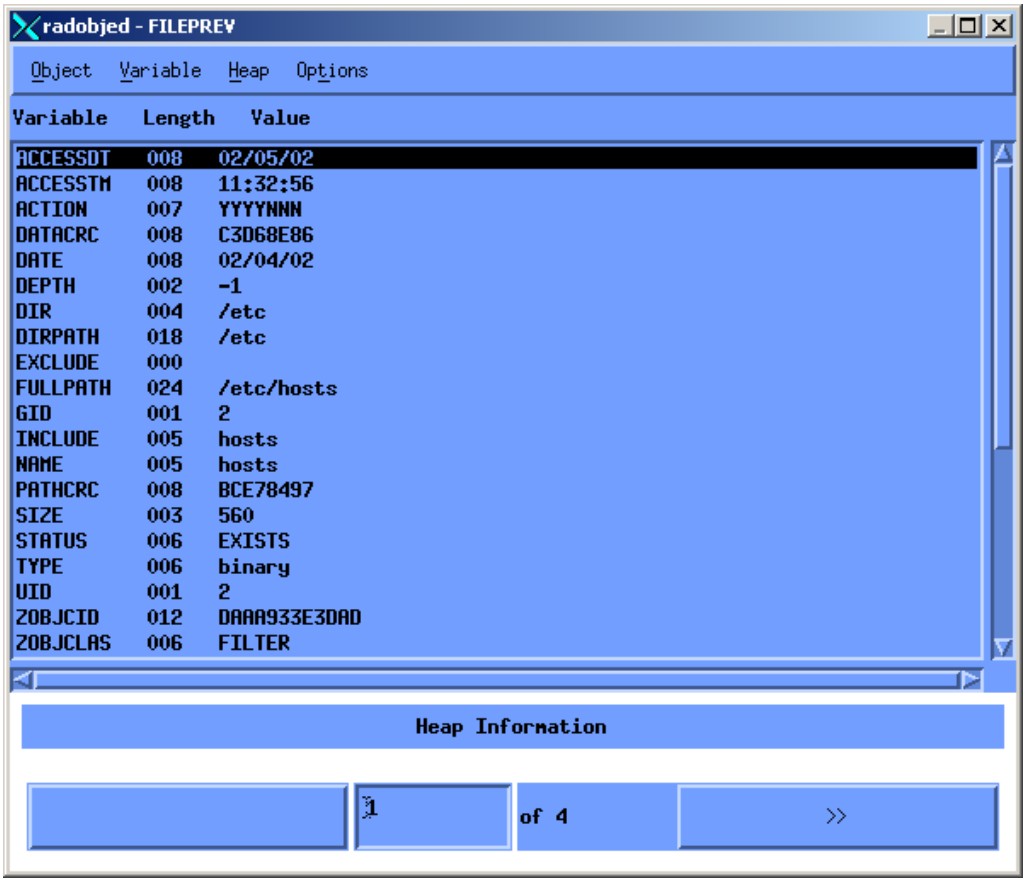

Figure 5.1 ~ FILEPREV object.

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 following attributes:

Table 5.3 ~ 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	The date of the 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	*	Parameter to include.
NAME	rim	File name.
PATHCRC	49FCC425	A unique number that indicates the CRC path used for differencing.
PERMISS	0777	4-digit octal value for file permissions.
SIZE	100	File size in bytes.

Table 5.3 ~ FILEPREV Object

Attribute	Example	Description
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.
ZOBJCID	DAAA933E3DAD	
ZOBJCLAS	FILTER	
ZOBJCRC	00000000	
ZOBJDATE	20011221	
ZOBJDOMN	AUDIT	Domain
ZOBJID	DAAA4188DF9B	ID
ZOBJNAME	DAAA891EE5A3_84248083	Unique Name
ZOBJPCLS	ZSERVICE	
ZOBJPID	DAAA7FF79F37	PID
ZOBJRCRC	FFFFFFFF	
ZOBJRSIZ	00000000	Size
ZOBJTIME	15:06:42	Time
ZRSCVLOC	RADIA_UPLOAD	Location
ZUNUSED1		

WBEM Auditing

The `nvdcim.tkd` method is used to query the WBEM namespaces to retrieve information about a system's hardware and software. The `nvdcim.tkd` 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.

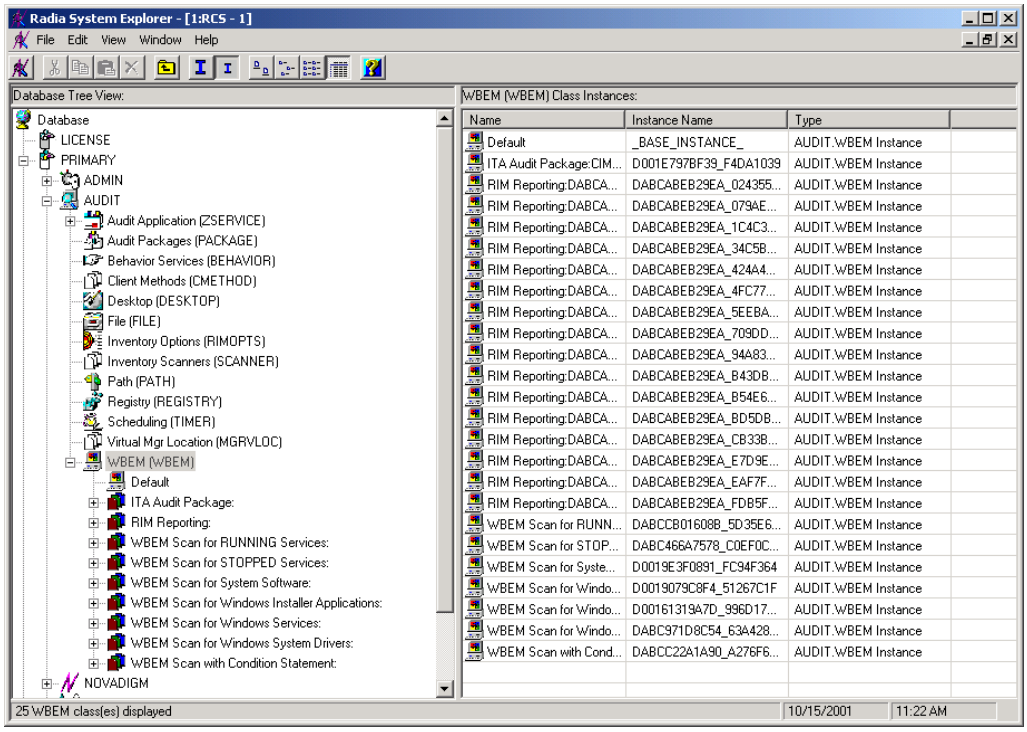

Figure 5.2 ~ AUDIT.WBEM class instances.

Table 5.4 ~ AUDIT.WBEM Instance on page 113 describes the attributes of the AUDIT.WBEM instance.

Table 5.4 ~ 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	The name of the WBEM namespace to query or HARDWARE.
CLASS	The 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 Radia 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 Radia System Explorer's tree view to identify this instance.

Note

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 Radia 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 Radia Configuration Server.

The WEBM object contains additional attributes described in *Table 5.5 ~ WBEM Object Attributes* on page 114.

Table 5.5 ~ WBEM Object Attributes

Attribute	Description
ZOBJCID	Object child ID.
ZOBJCLAS	The targeted class for the audit such as ZRSOURCE or ZSERVICE.
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 Radia Configuration Server.
ZOBJRSIZ	The resource size maintained by the Radia Configuration Server.
ZOBJTIME	The latest time under the current node.
ZRSCSRC	The name of the program promoted the resource.

WBEM Objects and the Radia Configuration Server

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

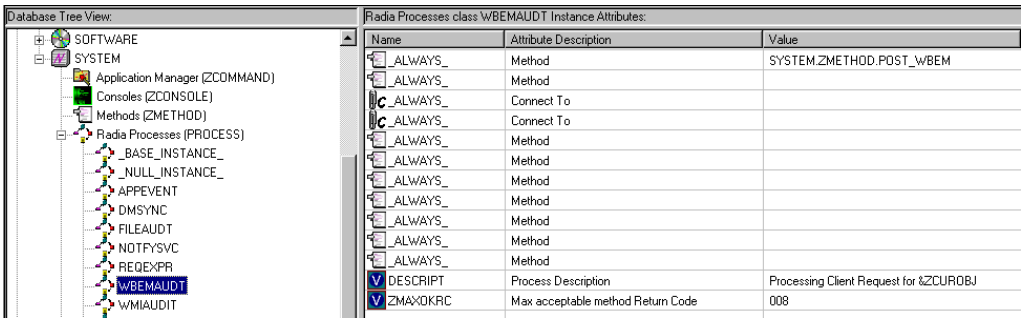

Figure 5.3 ~ SYSTEM.PROCESS.WBEMAUDT instance.

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

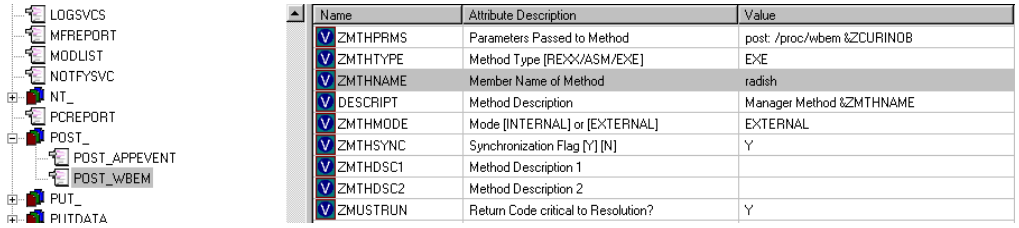

Figure 5.4 ~ SYSTEM.ZMETHOD.POST_WBEM instance.

The method executed in the Radia 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 Radia Configuration Server. By default, the **radish** method will issue the POST to:

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

Note

If the Radia Integration Server is running on a computer other than the one running the Radia 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 Radia 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.

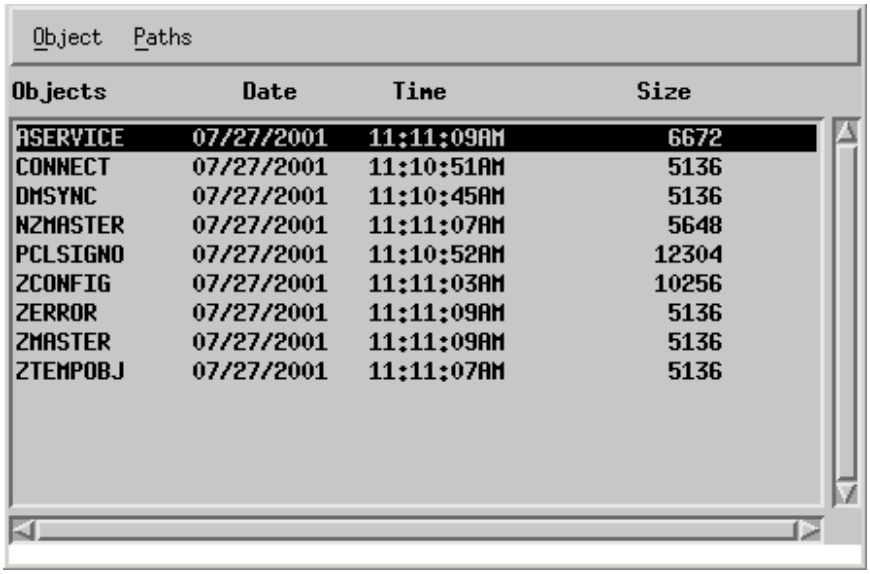

Figure 5.5 ~ ZCONFIG object.

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 5.6 below). To change this, use the Radia System Explorer, which is available for 32-bit Windows platforms.

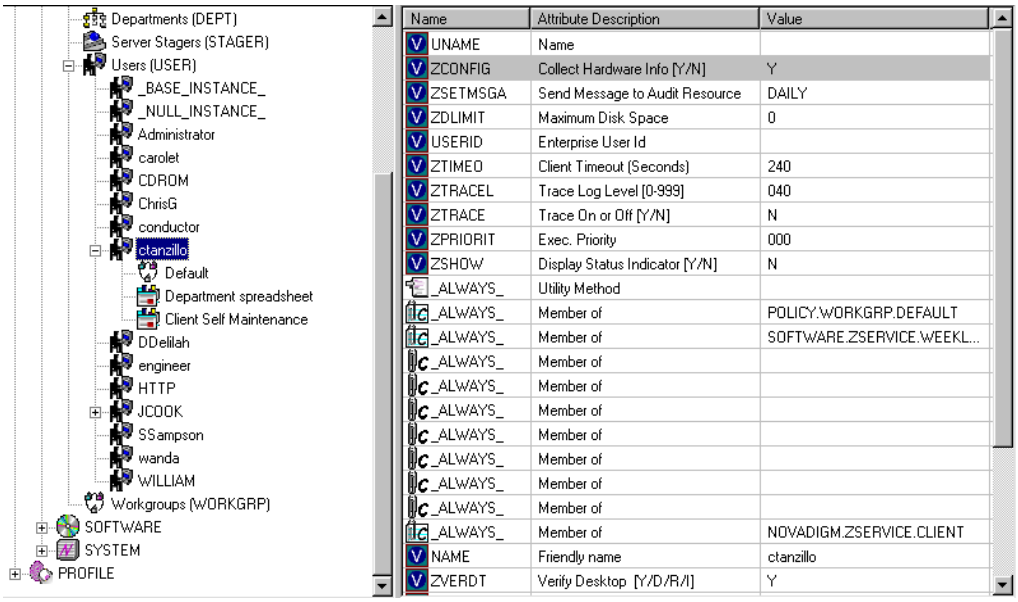

Figure 5.6 ~ POLICY.USER class – ZCONFIG variable in the Radia System Explorer.

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

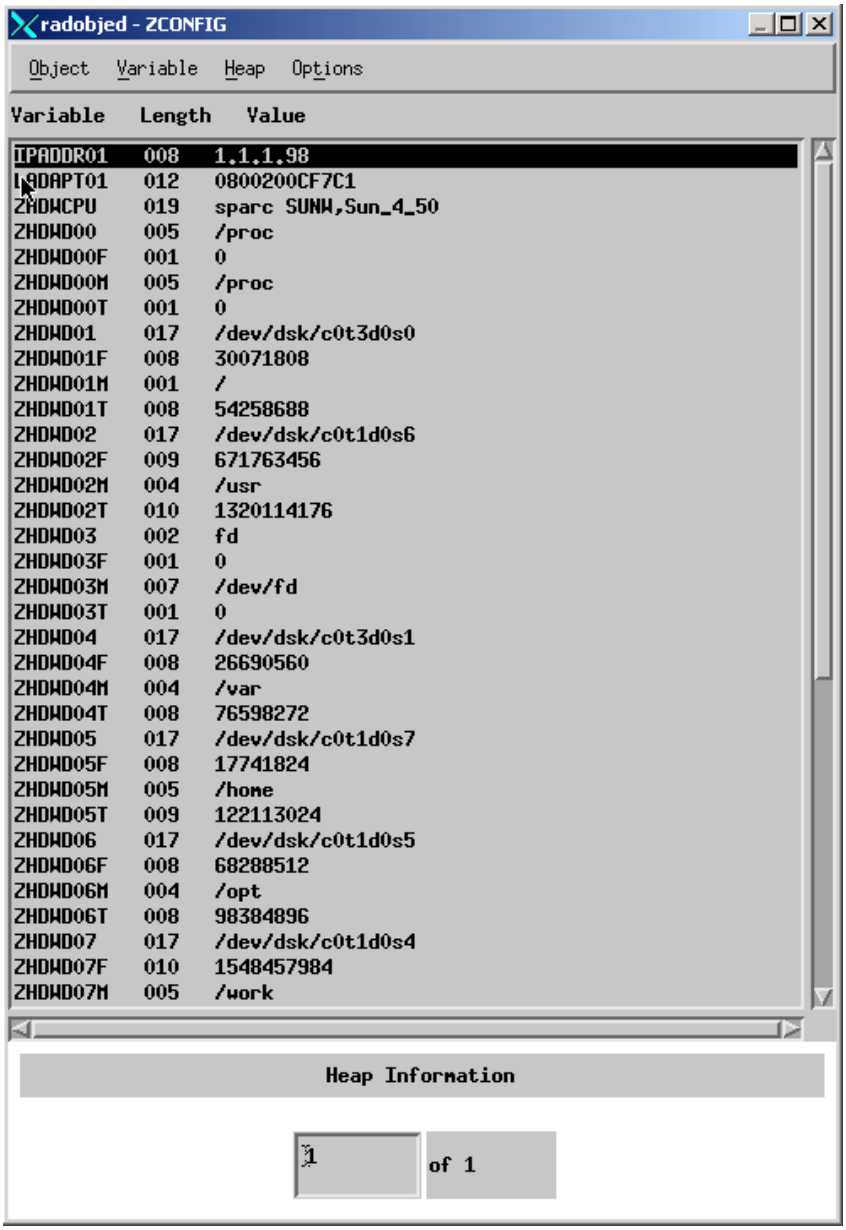

Figure 5.7 ~ Sample ZCONFIG object.

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 5.6 ~ 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)
ZHDWMEM	Total physical memory (RAM)	65536
ZHDWOS	Operating system and version	AIX
ZHDWXHID	Host ID	0x1010163
ZHDWXHN	Host name	aixnvdemo

Table 5.6 ~ Attributes in a Sample ZCONFIG

Attribute	Description	Example
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	someone

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

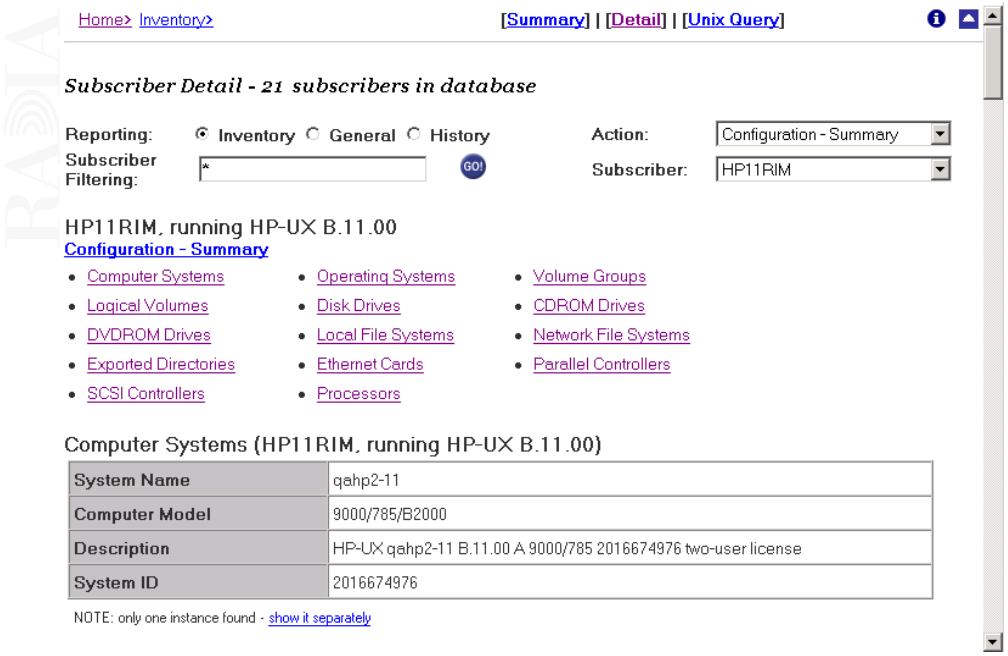

Figure 5.8 ~ Sample client configuration.

Summary

- The Radia Inventory Manager allows for software and hardware auditing.
- Each time a client connects to the Radia 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 helps you implement the Radia Inventory Manager (RIM). Choose the appropriate strategies suited for your enterprise needs.

Sample Database

When you install the Radia Integration Server, you have the option of installing 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.

Figure 6.1 below displays the sample reporting database tables in an SQL database. The table names denote the origin of the data that they contain.

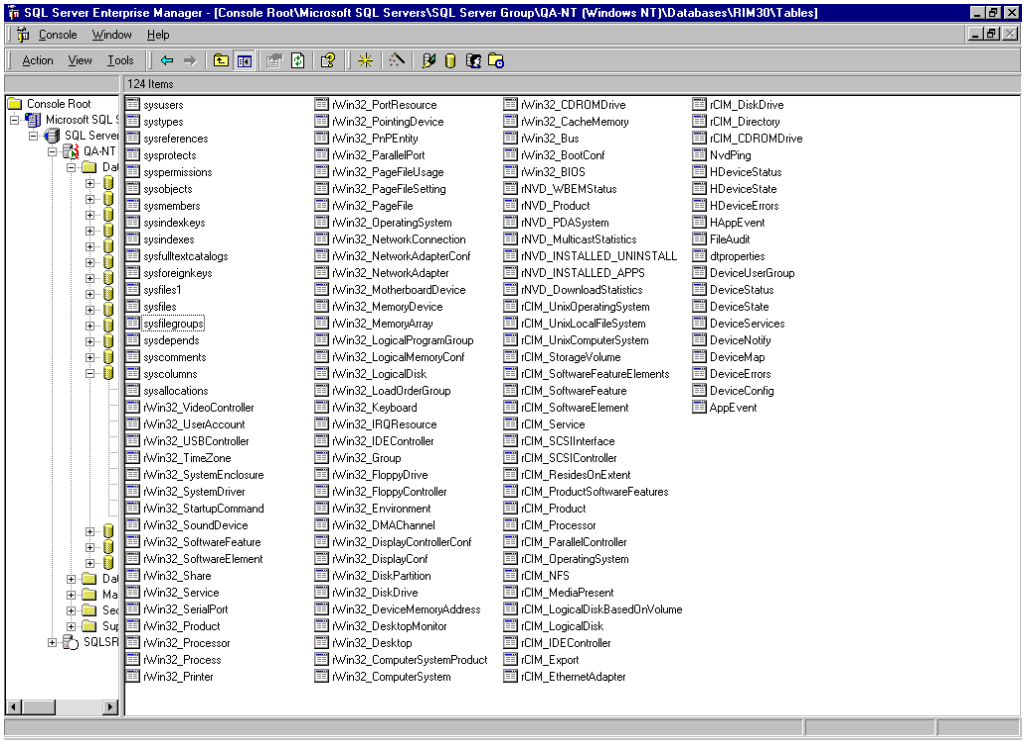

Figure 6.1 ~ Sample Reporting Database Tables.

Sample Auditing

To illustrate the concepts of inventory information collection, the Radia 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 Radia System Explorer, which is available for 32-bit Windows platforms.

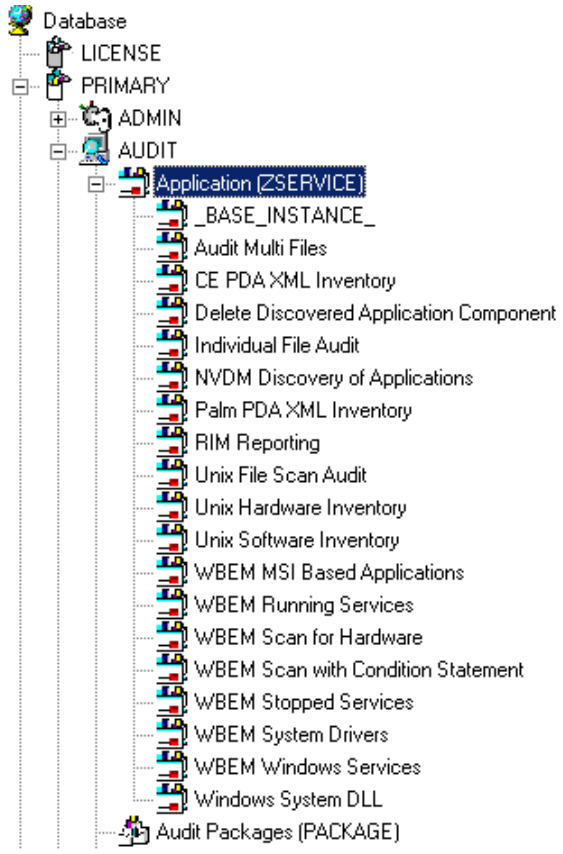

Figure 6.2 ~ Sample Auditing Services.

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 Radia Inventory Manager upgrade.

The sample audit services are described in Table 6.1 on page 126.

Table 6.1 ~ Sample of Auditing Services

Service	Connected to Audit Package (PACKAGE)	Description
_BASE_INSTANCE_		This service instance is the base instance for the Audit Application (ZSERVICE) class.
Audit Multifiles	Audit to Find and Capture Multiple Files	Wintel only.
Delete Discovered Application Component	Audit to Find and Remove Local File	Wintel only.
Individual File Audit	Audit to Find and Capture Local File	Wintel only.
RIM Reporting	RIM Reporting	Wintel only.
Unix Hardware Inventory	Unix Hardware Audit	This service performs an audit to discover UNIX-based hardware.
Unix Software Inventory	Unix Software Audit	This service performs an audit to find UNIX-based software.
WBEM MSI Based Applications	WBEM Scan for Windows Installer Applications	Wintel only.
WBEM Running Services	WBEM Scan for Running Services	Wintel only.
WBEM Scan for Hardware	WBEM Scan for System Software	Wintel only.
WBEM Scan with Condition Statement	WBEM Scan with Condition Statement	Wintel only.
WBEM Stopped Services	WBEM Scan for STOPPED Services	Wintel only.
WBEM System Drivers	WBEM Scan for Windows System Drivers	Wintel only.
WBEM Windows Services	WBEM Scan for Windows Services	Wintel only.
Windows System DLL	Audit System DLL	Wintel only.

Configuring a Sample Audit

All of the examples presented can be configured for individuals, departments, work-groups, and so forth. See the *Radia 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 Radia Configuration Server for storage.

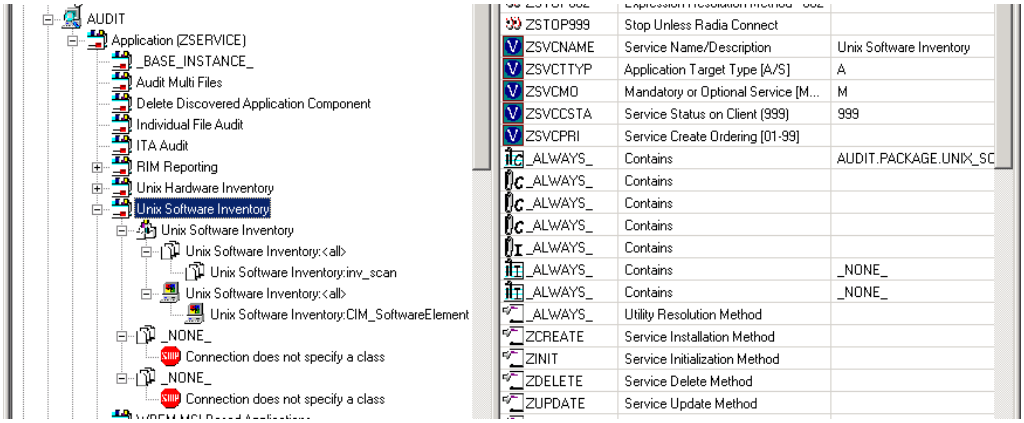

Figure 6.3 ~ Unix Software sample audit.

To configure a sample Audit package

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

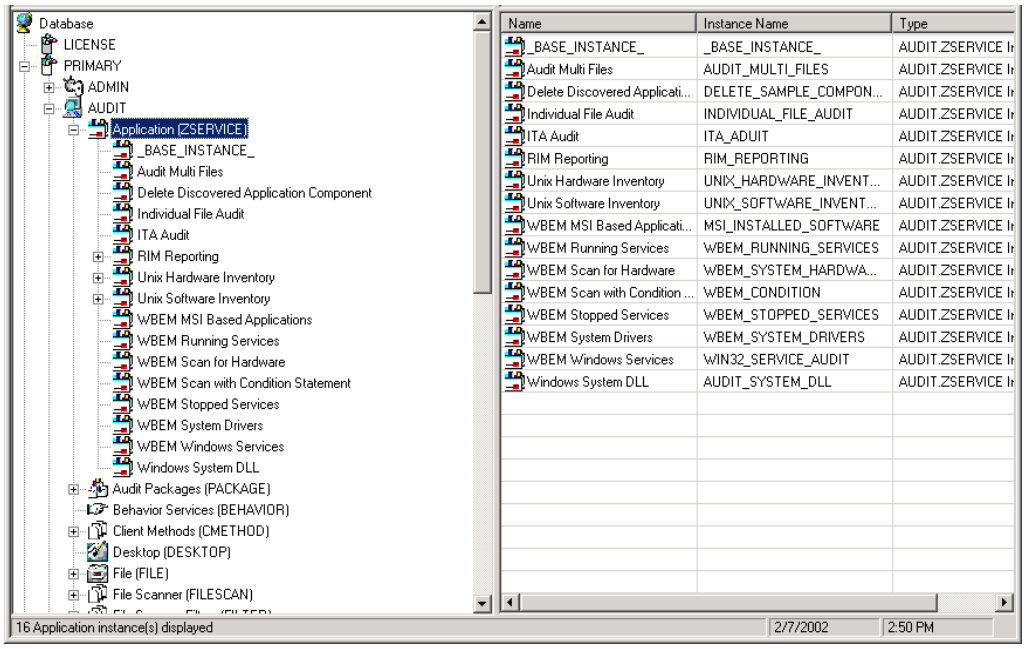

Figure 6.4 ~ AUDIT.ZSERVICE.

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.

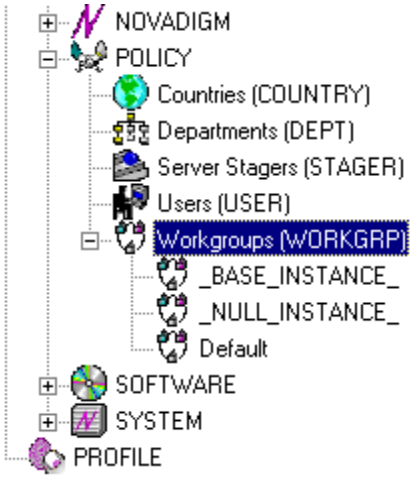

Figure 6.5 ~ Expanded POLICY.WORKGRP class.

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.

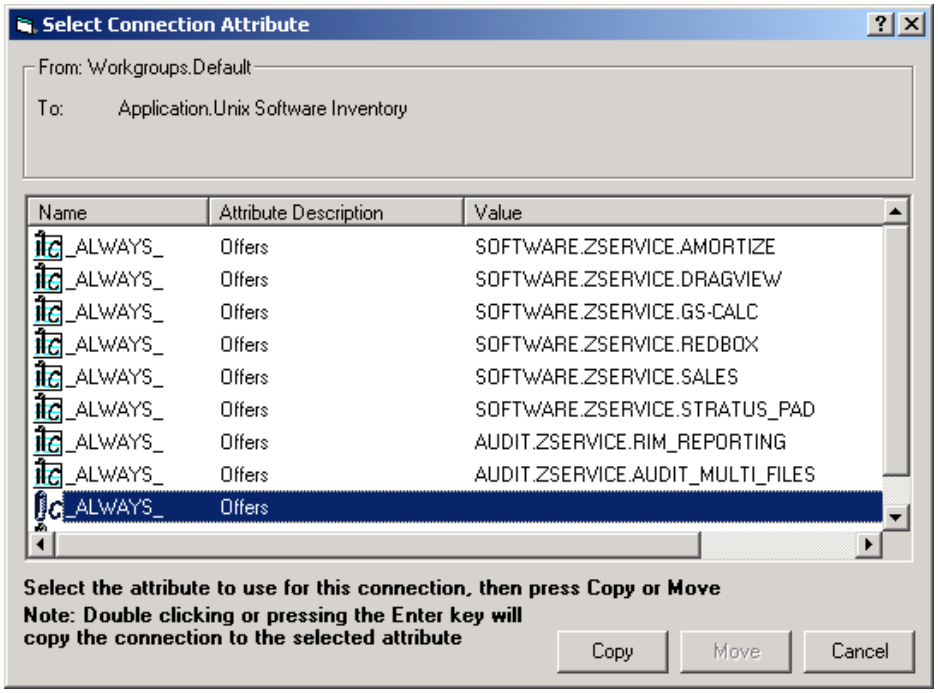

Figure 6.6 ~ Select Connection Attribute window.

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.

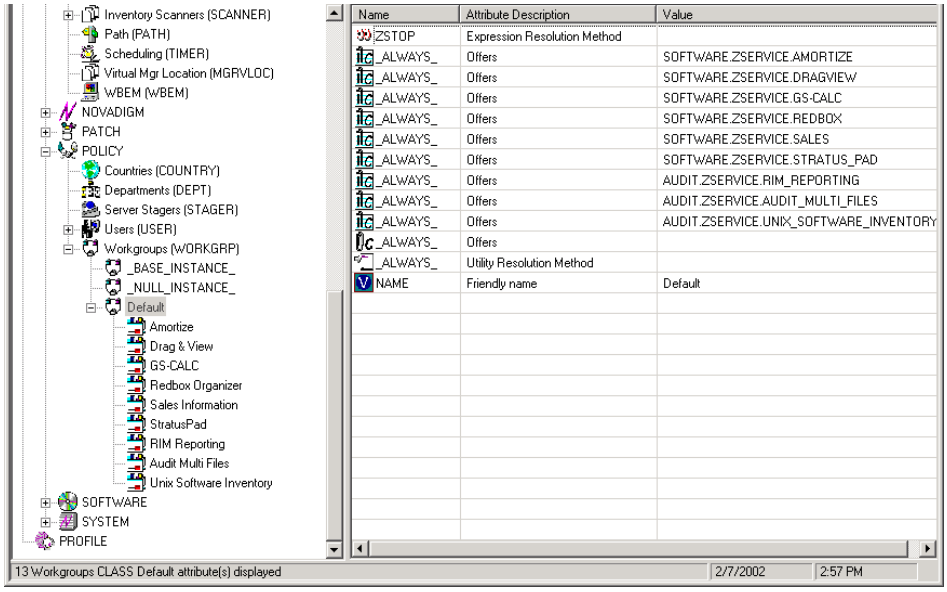

Figure 6.7 ~ The Unix Software Inventory package has been added to the WORKGRP class.

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

Note

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

What Happened during the Scan?

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

To locate the ZSERVICE object using the Radia Client Explorer

1. Start the Radia 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_SOFTWARE_INVENTORY
   ```

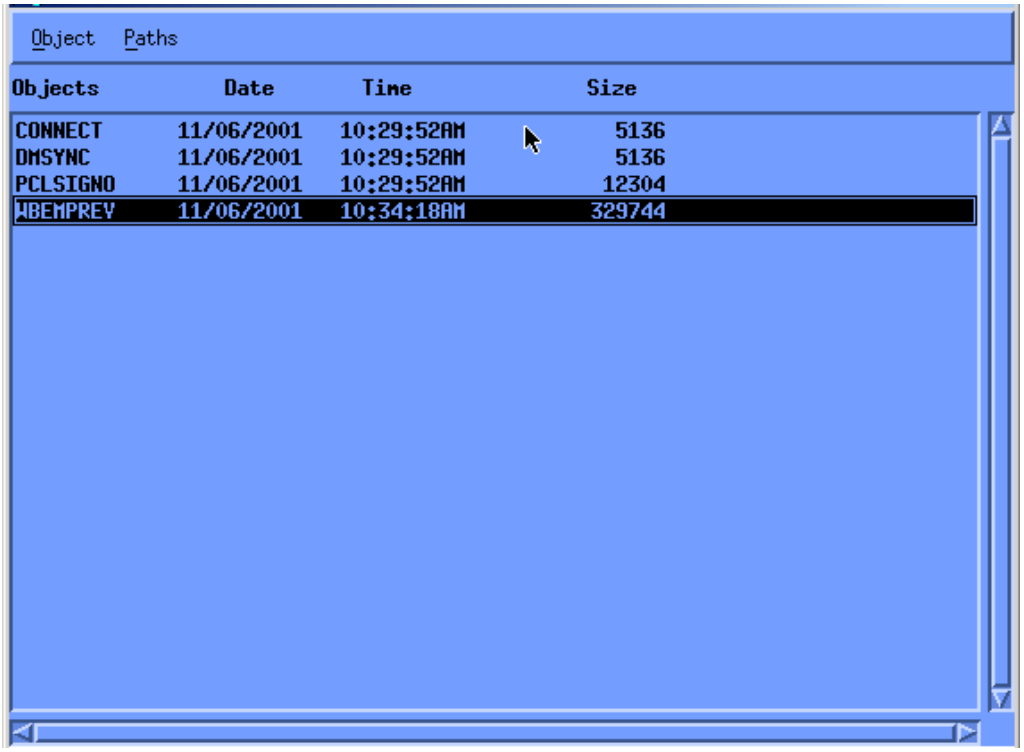

Figure 6.8 ~ Unix Software Inventory in the LIB directory.

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 `nvdcim.tkd` methods on the client computer perform the actual file auditing operations by specifying what files to look for.

- The `nvdcim.tkd` method scans the clients 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 `nvdcim.tkd` method 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 Radia Configuration Server.
- The `nvdcim.tkd` method then deletes the WBEMAUDT object and will rename the WBEMCURR object to WBEMPREV.

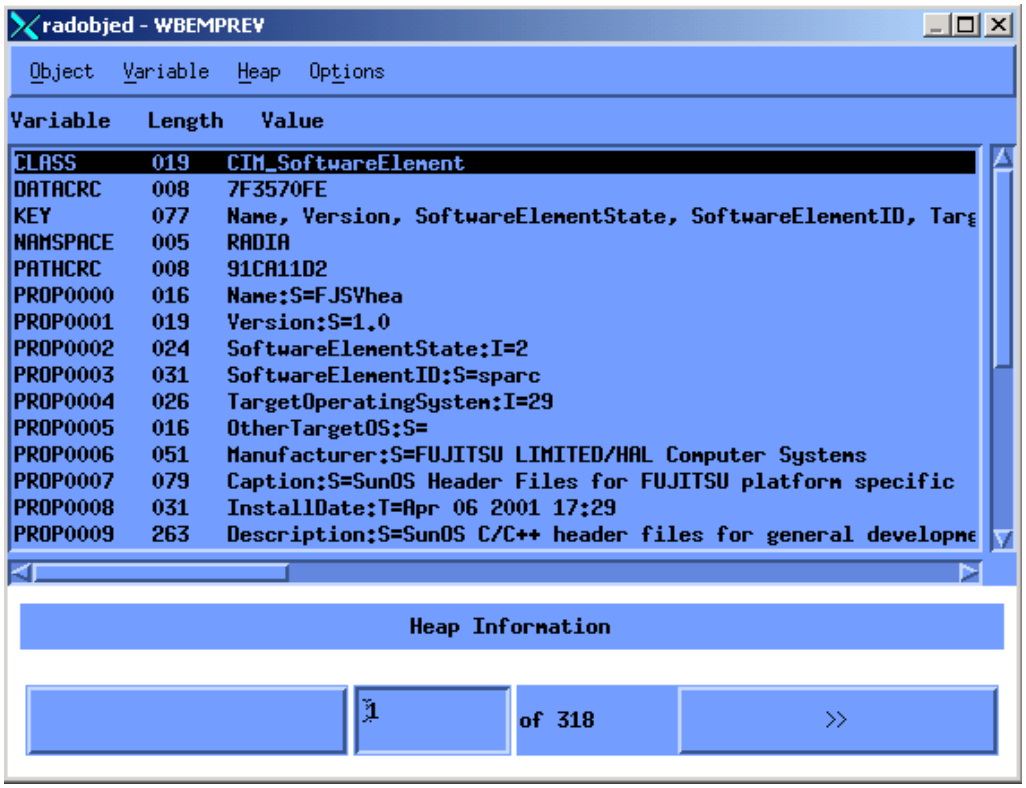

Figure 6.9 ~ WBEMPREV heaps.

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 Radia 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 Radia Inventory Manager.
- The collection of inventory information occurs on the Radia Inventory Manager client computer when a user connects to the Radia Configuration Server.

7

Auditing – Creating Your Own 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 Radia Inventory Manager (RIM). 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.

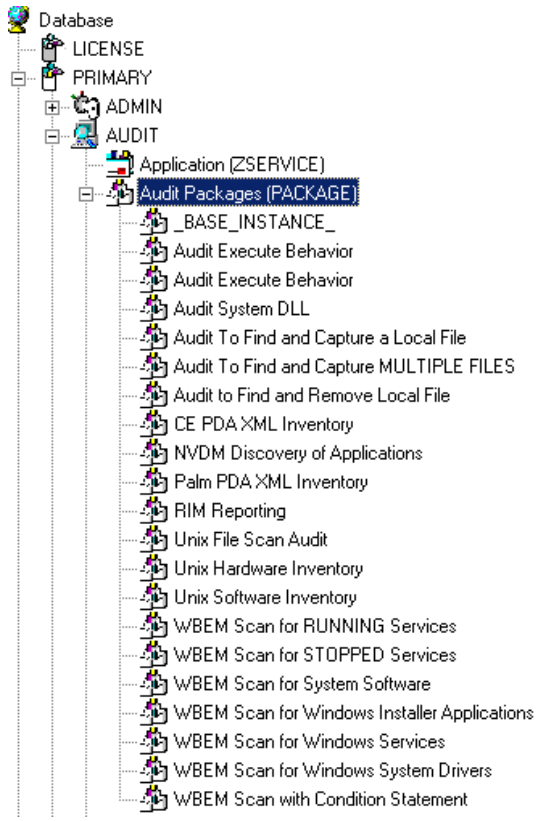

Figure 7.1 ~ Audit Packages (PACKAGE) class.

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.

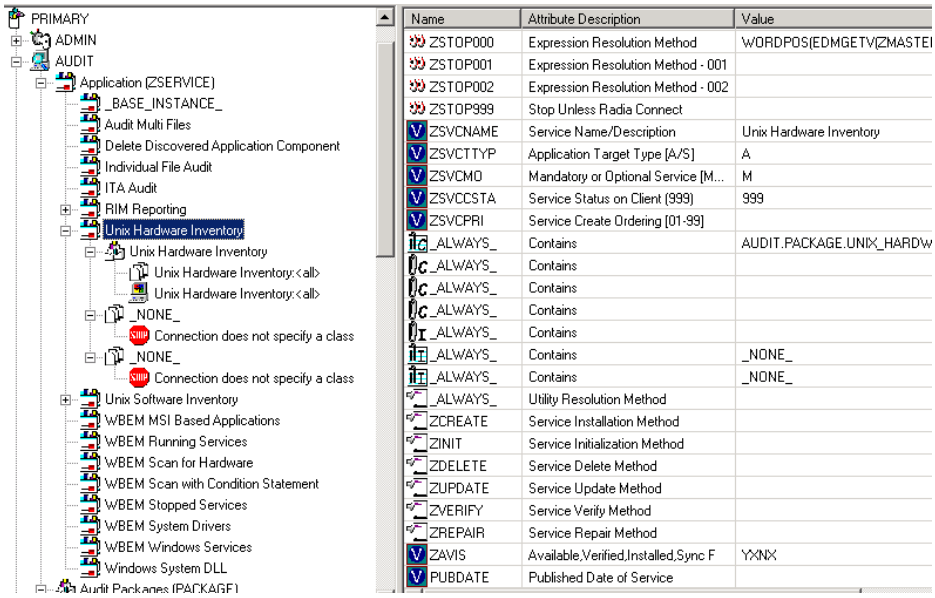

Figure 7.2 ~ Unix Hardware Inventory instance.

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.

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

Using Radia System Explorer to Create and Maintain Audit Services

We will use the Radia 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.

> **Note**
>
> The Radia System Explorer is available for 32-bit Windows platforms. For more information, see the *Radia 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.

> **Note**
>
> The following instructions require the use of the Radia System Explorer. Currently, the Radia System Explorer is available for 32-bit Windows platforms. For more information, see the *Radia System Explorer Guide*.

To create a new Audit package

1. From the **Start** menu, select **Programs, Radia Administrator Workstation, Radia System Explorer**.

   The **Radia System Explorer Security Information** dialog box opens.

   > **Note**
   >
   > 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 **Radia System Explorer** window opens.

3. Double-click **PRIMARY**.
4. Expand the **AUDIT** domain.
5. Double-click on **Audit Packages (PACKAGE)** class.

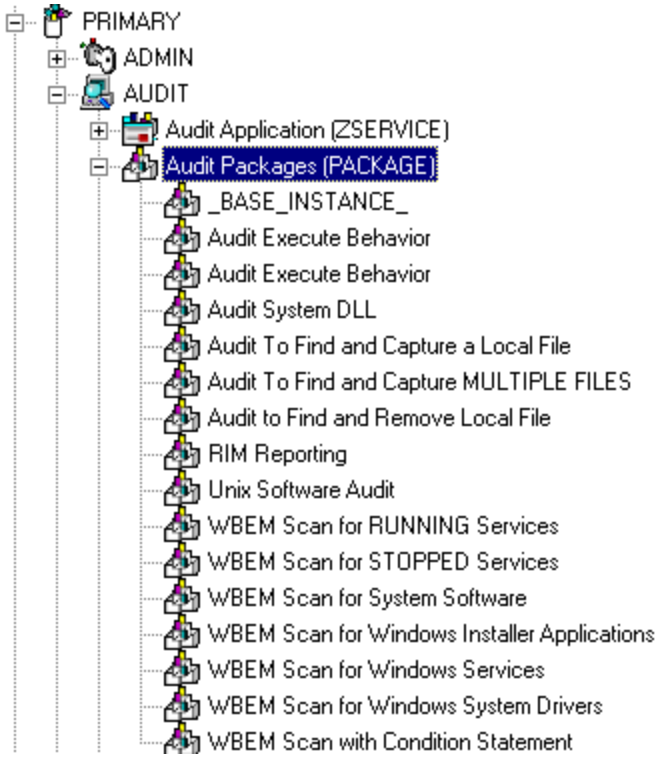

Figure 7.3 ~ AUDIT. Audit Packages (PACKAGE) class.

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.

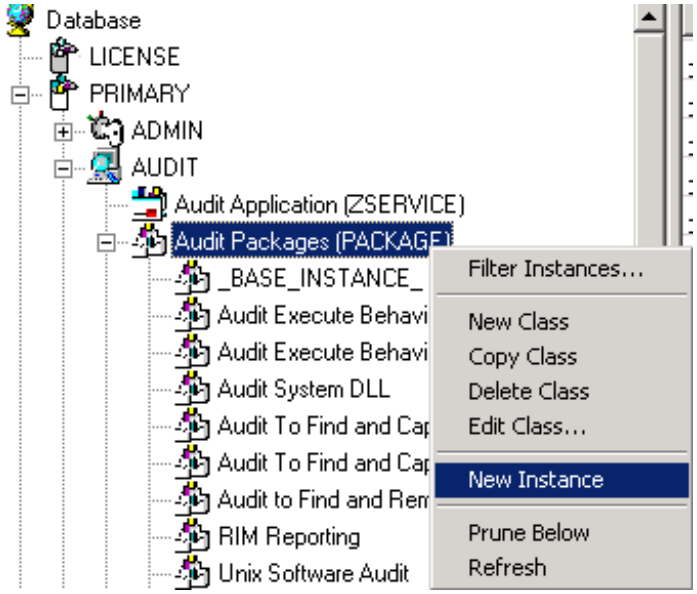

Figure 7.4 ~ New Instance option.

7. Select **New Instance** from the menu.
The **Create Instance** dialog box opens.

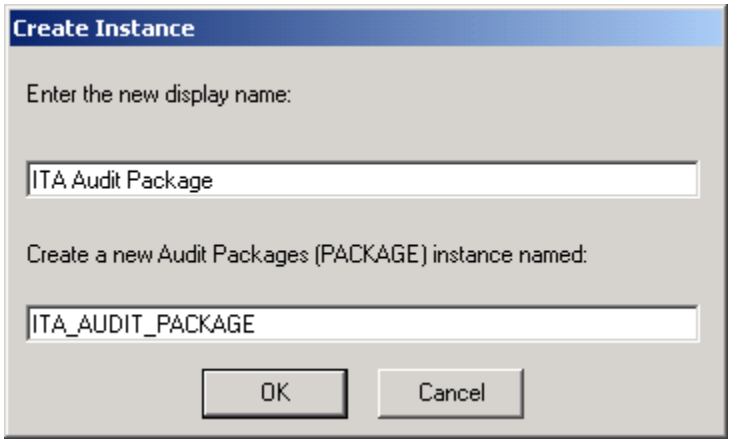

Figure 7.5 ~ Create Instance dialog box.

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 Radia 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.

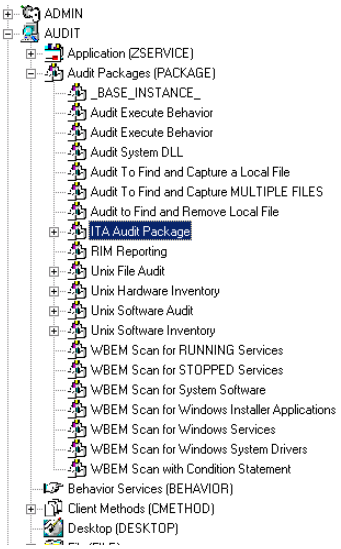

Figure 7.6 ~ AUDIT.PACKAGE.

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.

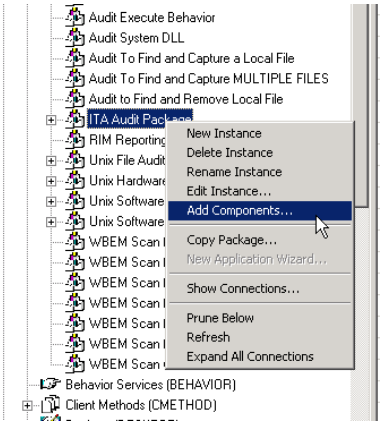

Figure 7.7 ~ Add Components option.

2. Select **Add Components** from the shortcut menu.
The **Add Components** dialog box opens.

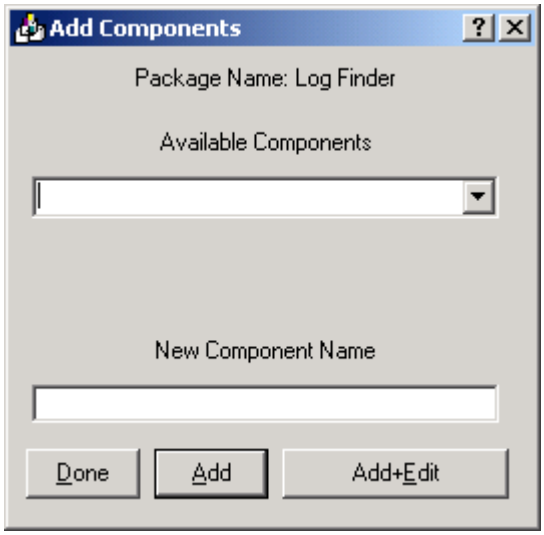

Figure 7.8 ~ Add Components dialog box.

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

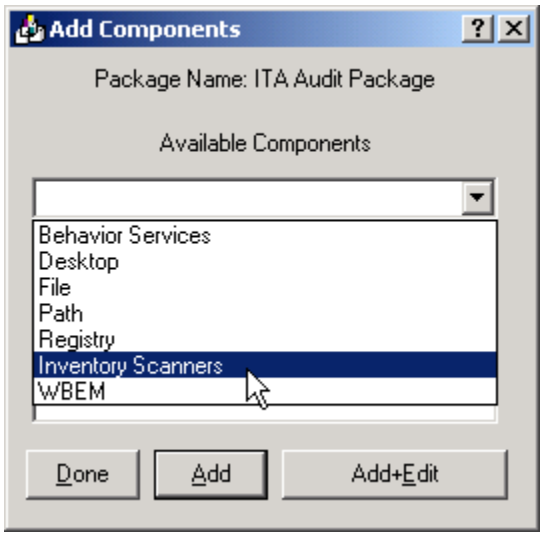

Figure 7.9 ~ Add Components – Available Components list.

4. From the list that opens, select **Inventory Scanners**.
5. In the **New Component Name** text box, type the name of the new component.

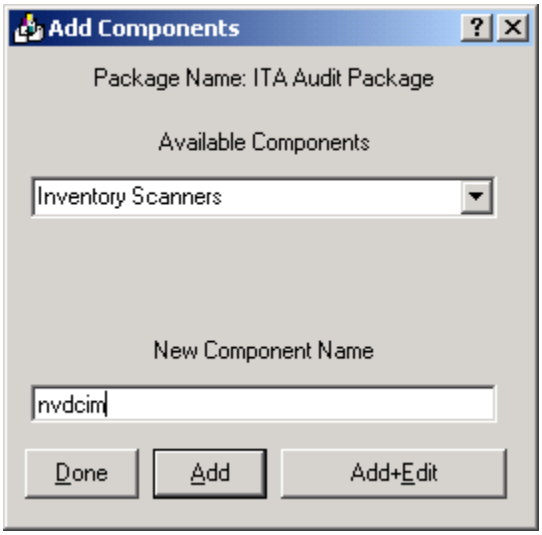

Figure 7.10 ~ Add Components dialog box.

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

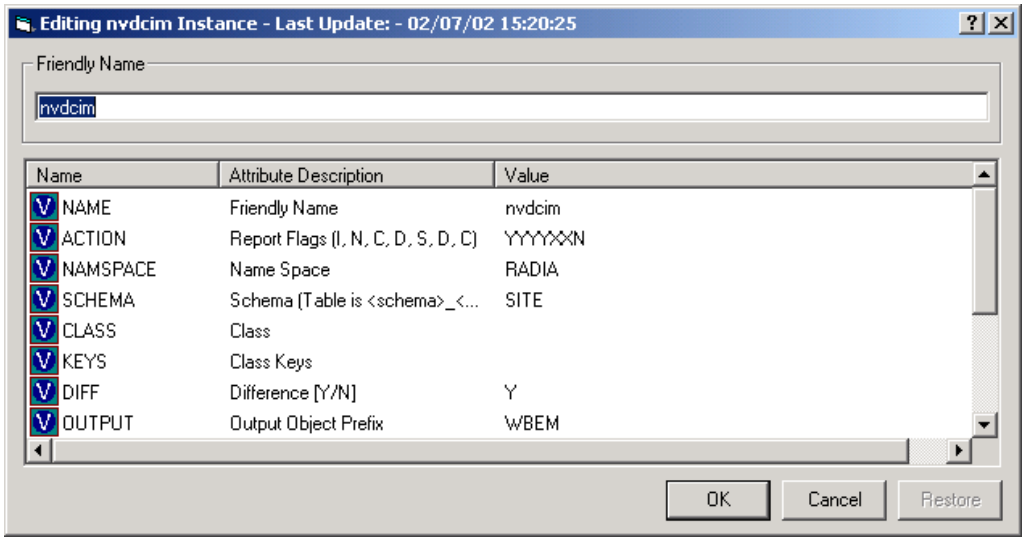

Figure 7.11 ~ Editing Instance dialog box.

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.

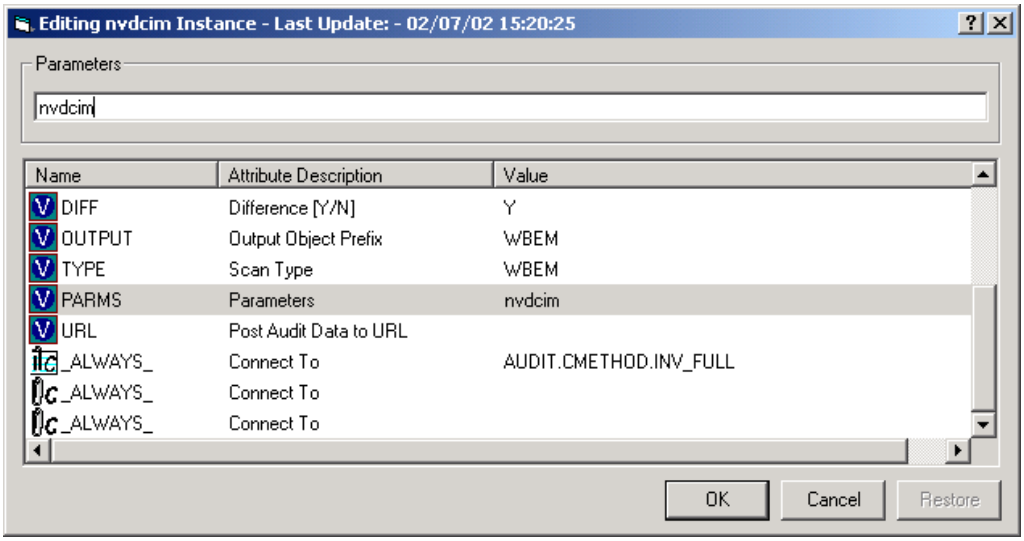

Figure 7.12 ~ PARMS attribute.

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.

> **Note**
>
> 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.

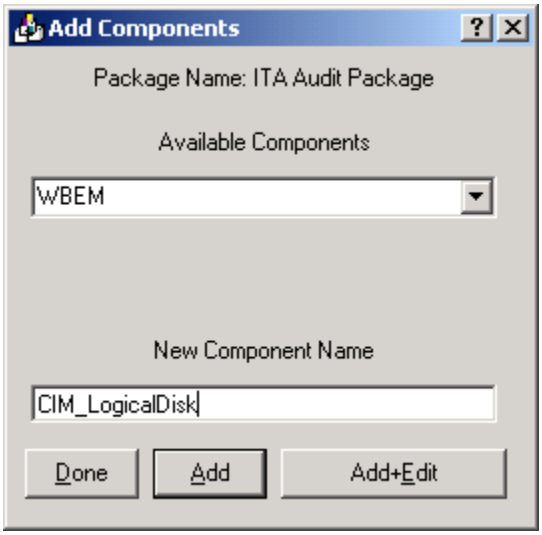

Figure 7.13 ~ Enter the new component name.

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

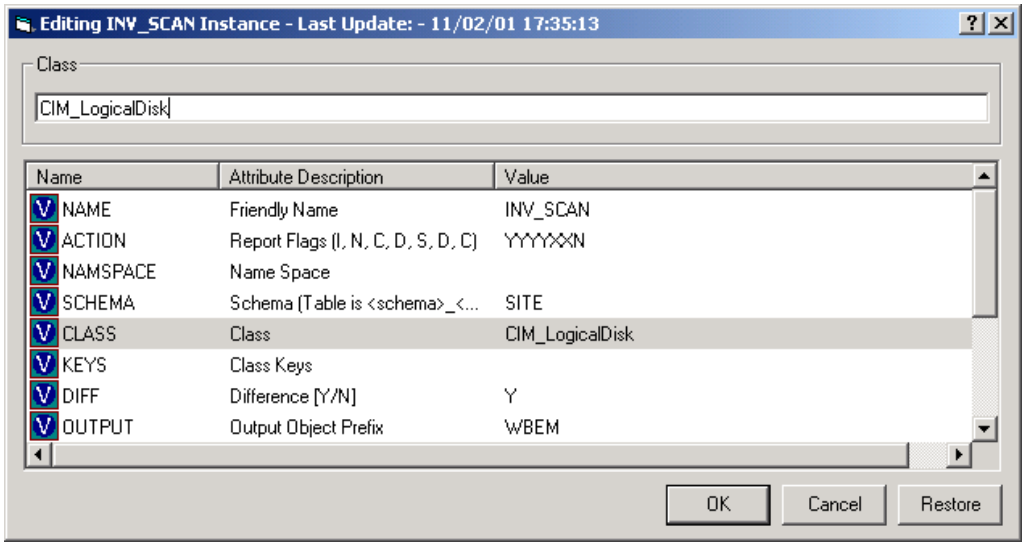

Figure 7.14 ~ Class instance.

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

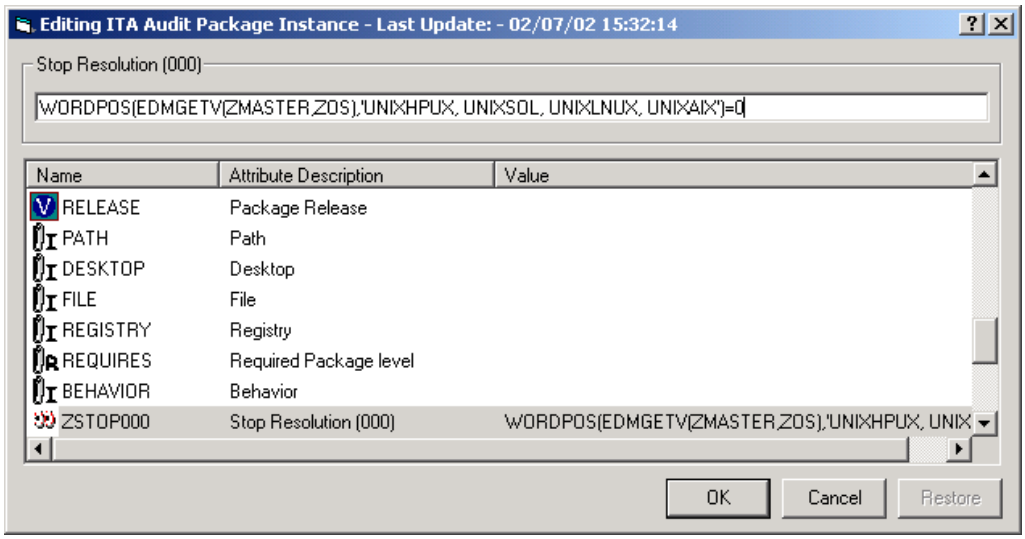

Figure 7.15 ~ Update the ZSTOP expression for correct UNIX platform.

4. Click **OK.**

To create a ZSERVICE instance

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

Note

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

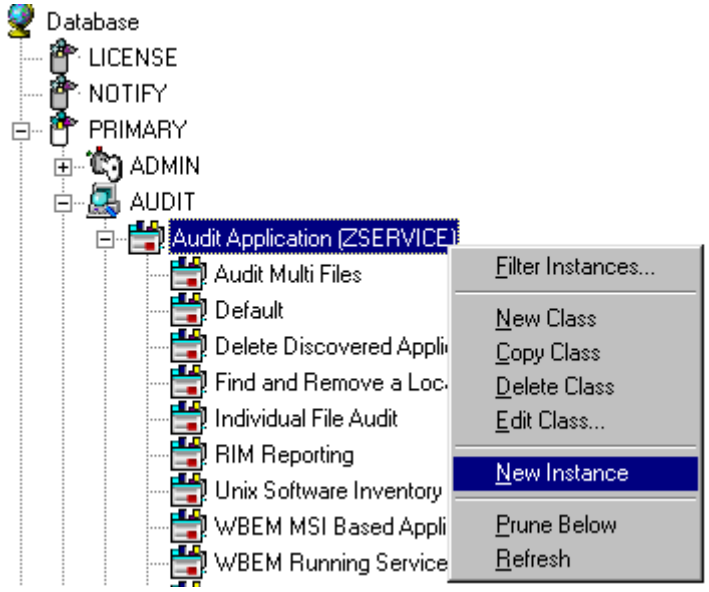

Figure 7.16 ~ New Instance option.

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

The **Create Instance** dialog box opens.

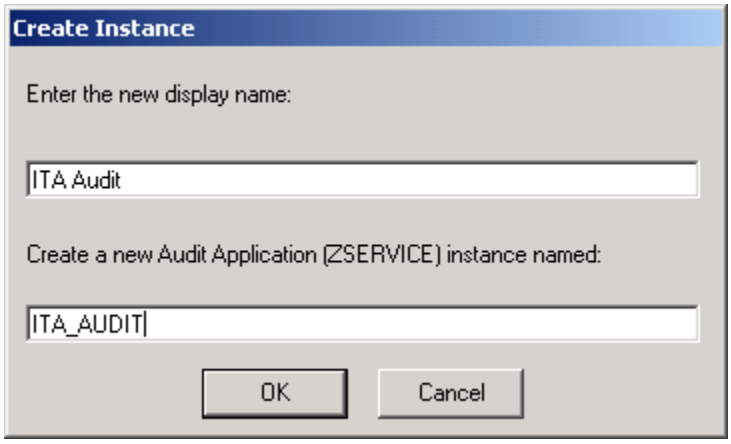

Figure 7.17 ~ Create Instance dialog box.

4. Type a display name and an instance name.
5. Click **OK**. The ZSERVICE is added to the AUDIT.ZSERVICE class.

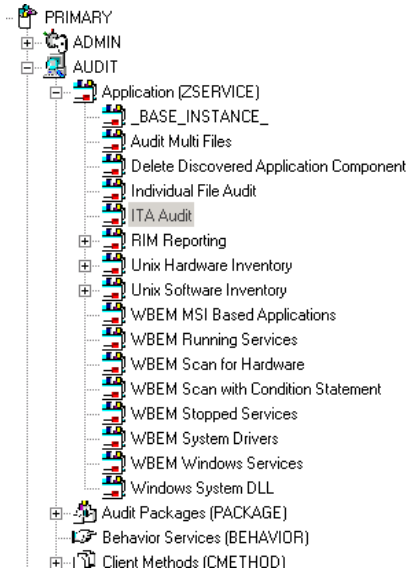

Figure 7.18 ~ ZSERVICE instance.

Use the Radia 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_.

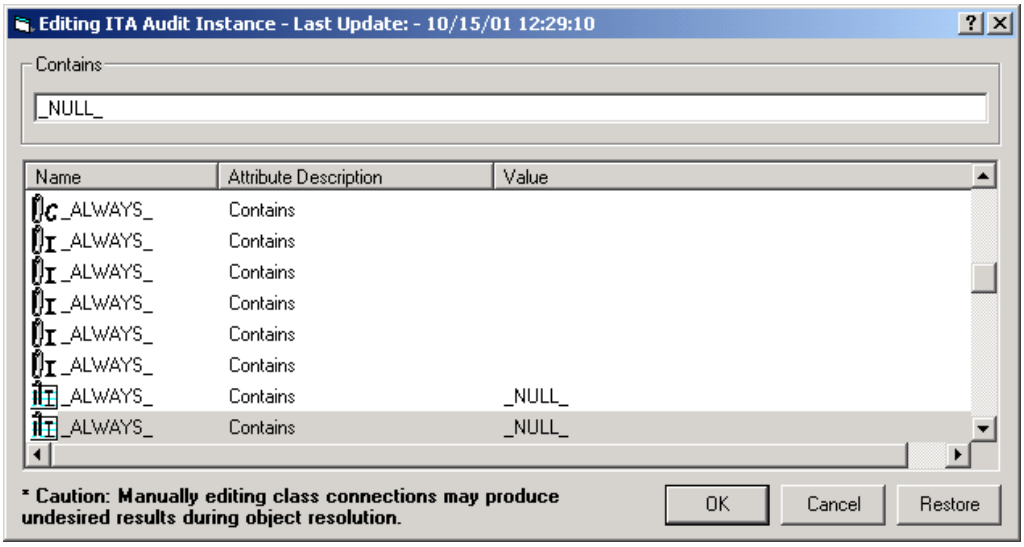

Figure 7.19 ~ Update Always connection.

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. From the **Start** menu, select **Programs, Radia Administrator, Radia System Explorer**. The **Radia System Explorer Security Information** dialog box opens.

> **Note**
>
> 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 **Radia 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.

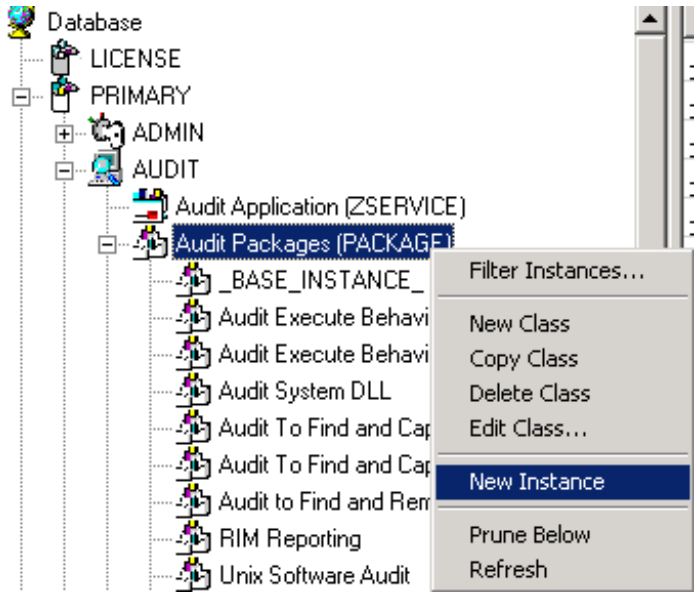

Figure 7.20 ~ New Instance option.

7. Select **New Instance** from the menu.
The **Create Instance** dialog box opens.

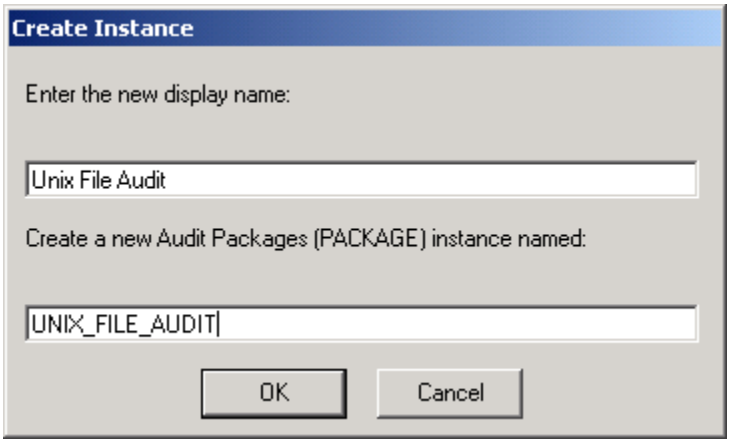

Figure 7.21 ~ Create Instance dialog box.

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 Radia 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.

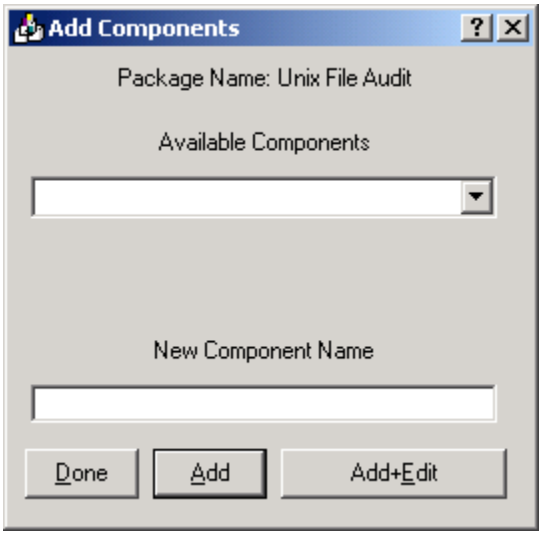

Figure 7.22 ~ Add Components dialog box.

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.

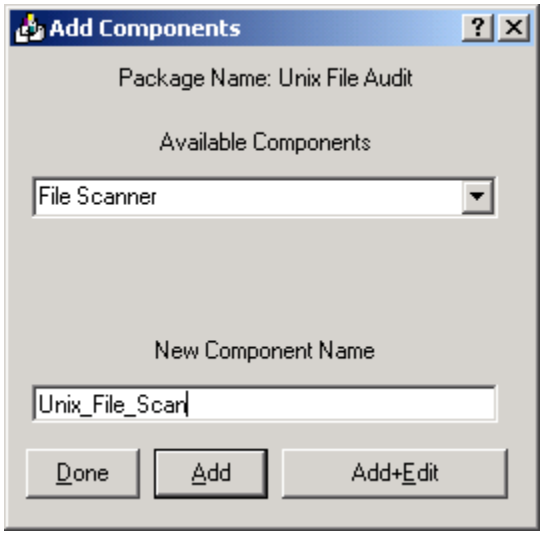

Figure 7.23 ~ Add components dialog box.

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

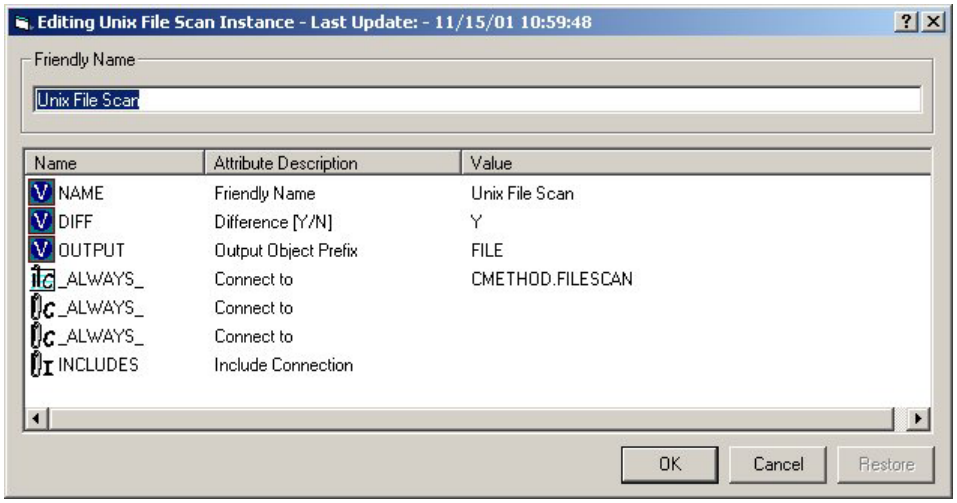

Figure 7.24 ~ Editing Unix File Scan instance dialog box.

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**.

Figure 7.25 ~ New component – File Scanner Filters.

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

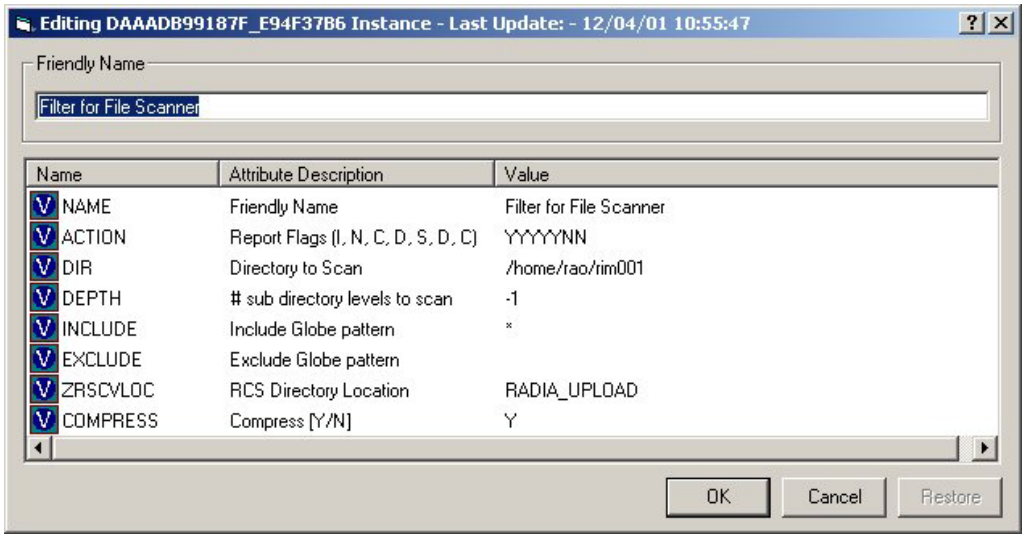

Figure 7.26 ~ Editing Instance – File Scanner Filters.

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 149 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 Radia Inventory Manager (RIM). 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.

> **Note**
>
> 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. See the *Radia 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 166.

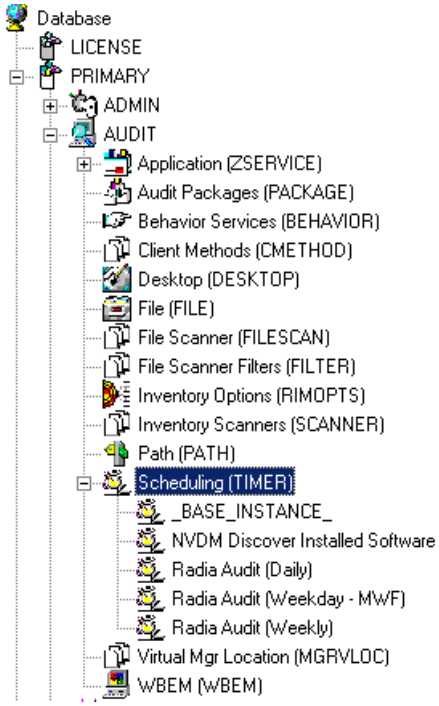

Figure 8.1 ~ AUDIT Scheduling (TIMER) class.

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 Radia Configuration Server to deploy or maintain a service.

Table 8.1 below explains the Scheduling (TIMER) class attributes:

Table 8.1 ~ Scheduling (TIMER) Class

Attribute	Description
ZOBJPRI	Sets the priority for deployment of the ZTIMEQ object. The ZTIMEQ object is deployed relative to the other elements being deployed during the Client Connect. The 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.

Table 8.1 ~ Scheduling (TIMER) Class

Attribute	Description
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 the 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 4am (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 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.

Table 8.1 ~ Scheduling (TIMER) Class

Attribute	Description
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.
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 Radia 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 Radia 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 Radia System Explorer to create a Scheduling (TIMER) instance in the AUDIT domain.

Note

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 *Radia Application Manager Guide*.

Note

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

To create a new timer in the AUDIT domain

1. From the **Start** menu, select **Programs**, **Radia Administrator Workstation**, **Radia System Explorer**. The **Radia System Explorer Security Information** dialog box opens.

Note

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 **Radia System Explorer** window opens.

3. Double-click **PRIMARY**.
4. Double-click **AUDIT**.
5. Right-click **Scheduling (TIMER)**.
   A shortcut menu opens.

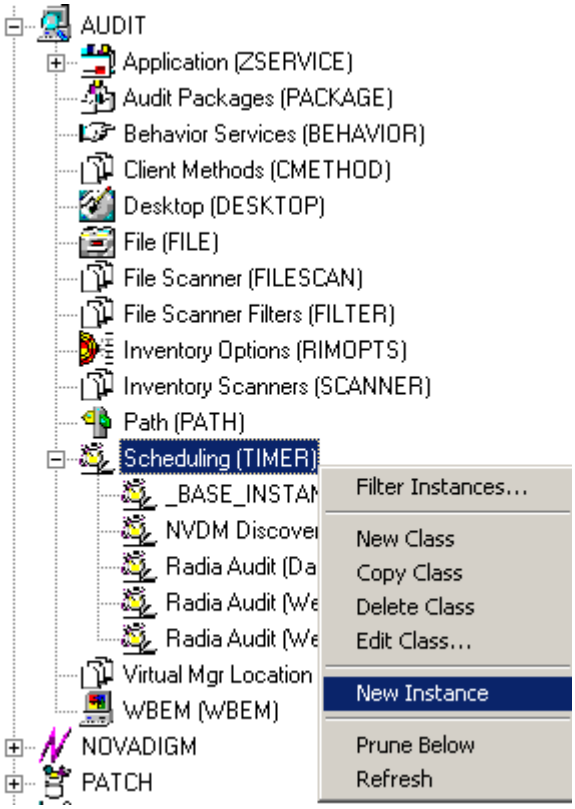

Figure 8.2 ~ Timer shortcut menu.

6. Select **New Instance**.
   The **Create Instance** dialog box opens.

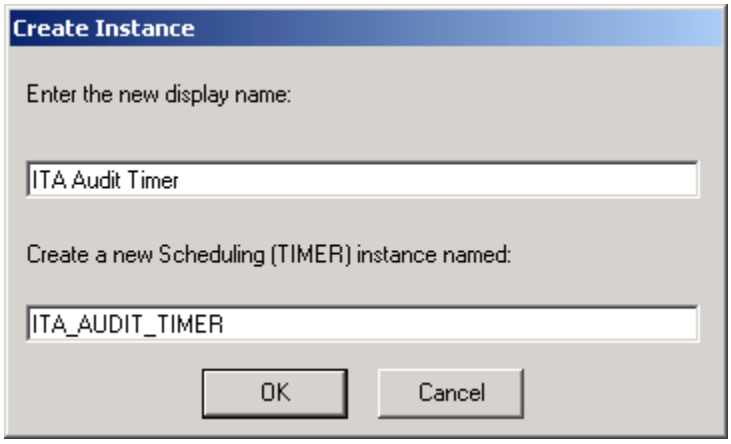

Figure 8.3 ~ Create Instance dialog box.

7. Type a name for the new timer instance.

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

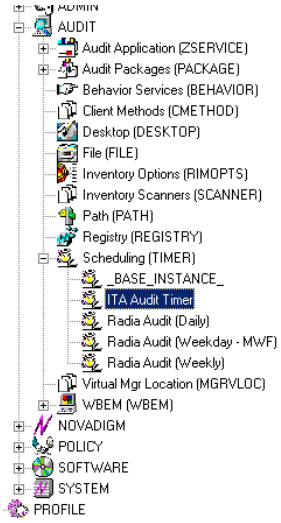

Figure 8.4 ~ ITA Audit timer.

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.

Note

See the *Deploying Applications* chapter in the *Radia 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 Table 8.2 on page 170 to help you determine the appropriate syntax.

Table 8.2 ~ Syntax of ZSCHDEF Variables

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

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.

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

Specifying ZRSCCMDL

Use the **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)
```

Note

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 Radia Configuration Server. Use this attribute when there is a possibility that the client will not be able to connect with the Radia 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 Radia Configuration Server.
- If ZNOPING = **N**, the Scheduler service will ping the Radia Configuration Server.
  - If the Radia 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 Radia Configuration Server again.
  - If the Radia 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 Radia 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 Radia Configuration Server.

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

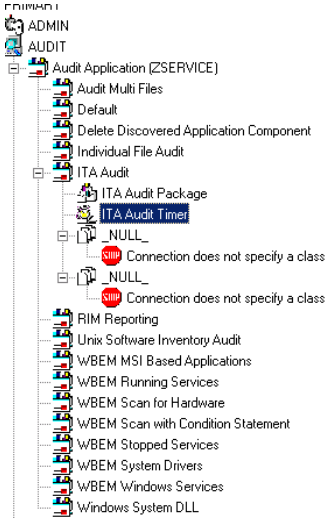

Figure 8.5 ~ Audit Timer instance connected to service.

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

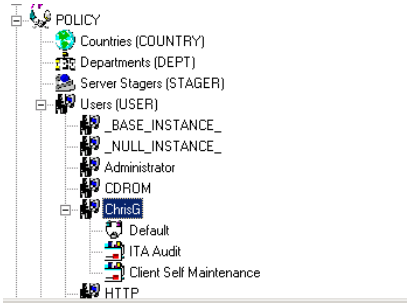

Figure 8.6 ~ Service attached to a user.

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 the **ZSCHDEF** to indicate when the timer should expire.
- Use the **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 Radia 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 88).
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.

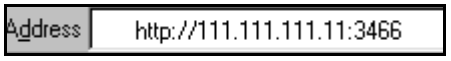

Figure 9.1 ~ Enter the IP address and port number into the address bar of your Web browser.

The home page of the Radia Integration Server opens.

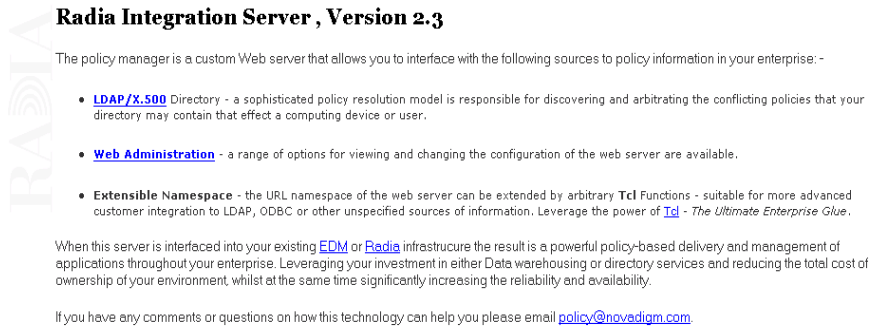

Figure 9.2 ~ Radia Integration Server home page.

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 Radia Inventory Manager, the Radia Policy Adapter, and the Radia Policy Manager (also known as the Push Manager).

Note

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 9.1 ~ 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 Radia Configuration Server.
REPORTING	Click this tab to go to Web-based reports that show the information collected through the Radia Inventory Manager. This area is specific to and is the primary focal point for the Radia 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.

Note

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.

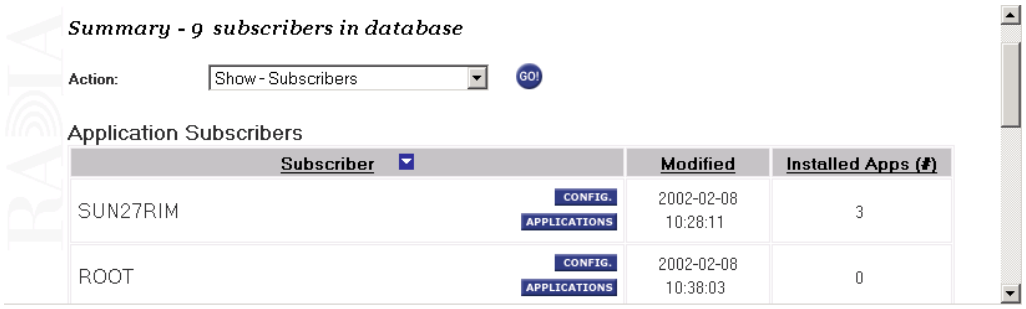

Figure 9.3 ~ Accessing the REPORTING tab.

At the top of the page (see Figure 9.4 below), 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:

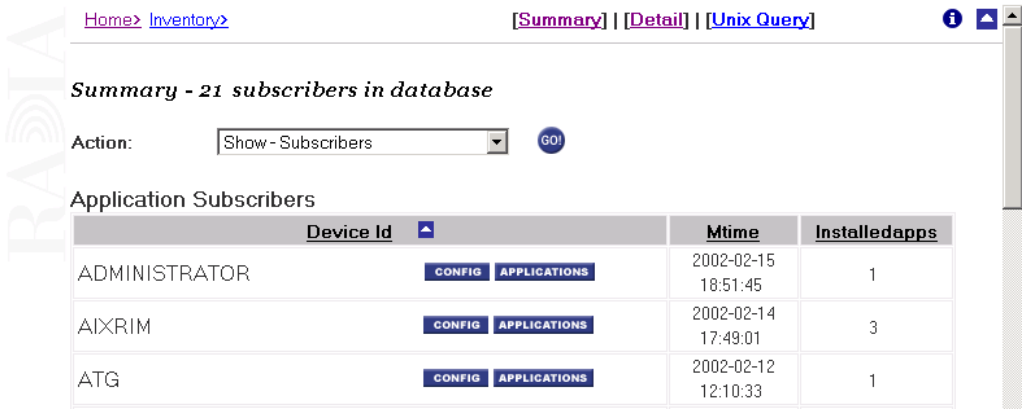

Figure 9.4 ~ REPORTING tab – Summary.

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

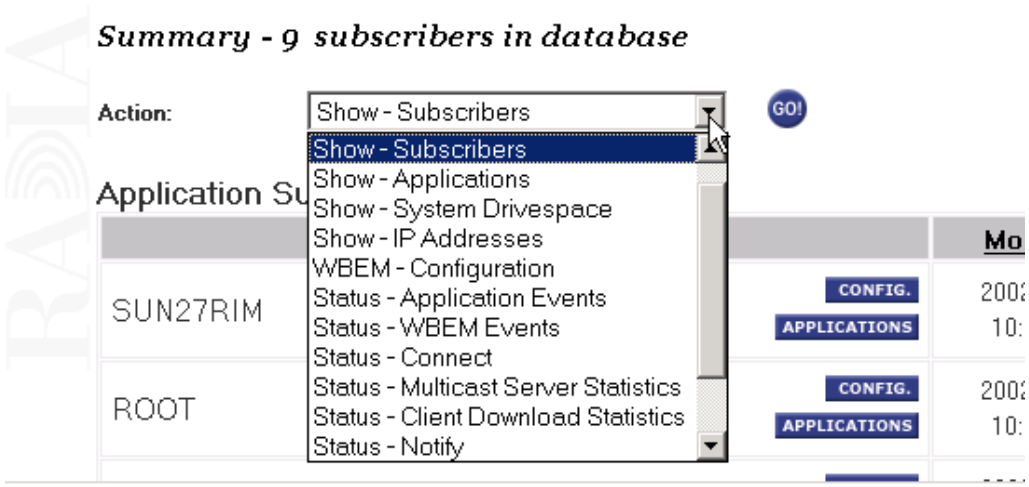

Figure 9.5 ~ Summary link – Action drop-down menu.

The following table indicates the information that can be accessed from the **Action** drop-down menu:

Table 9.2 ~ REPORTING Tab – Actions Drop-Down Selections

Action	Reporting Available
Show - Subscribers	Lists all the subscribers that have connected to the Radia 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.
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.

Table 9.2 ~ REPORTING Tab – Actions Drop-Down Selections

Action	Reporting Available
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 A.4 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, Radia 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 A.4 on page 210.
Status - Notify	This report is not applicable for the Radia Inventory Manager.
Errors - Connect	Summary of error information for all subscribers.
Errors - Notify	This report is not applicable for the Radia Inventory Manager.
Admin - Configuration	Lists current configuration setting of the Radia 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:

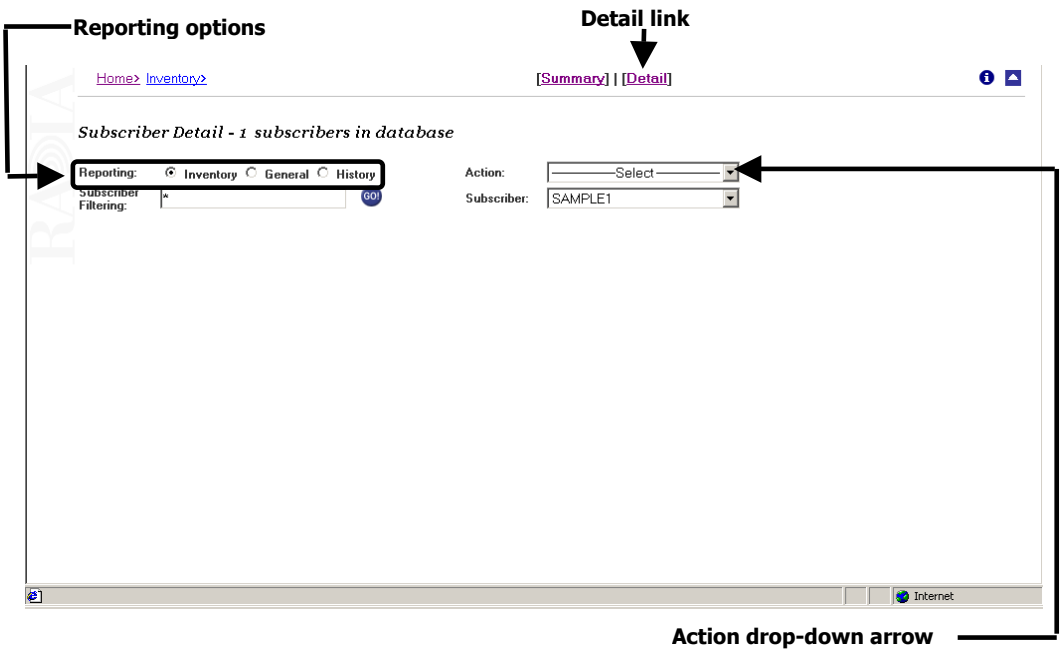

Figure 9.6 ~ REPORTING Tab – Detail Report.

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 9.4 on page 191 indicates the information that can be accessed from the Action drop-down menu for each of the Reporting options.

Table 9.3 ~ Reporting Tab – Detail Reporting – Type

Type	Reporting Available
Inventory Reporting	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
General Reporting	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

Table 9.3 ~ Reporting Tab – Detail Reporting – Type	
Type	**Reporting Available**
History Reporting	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.

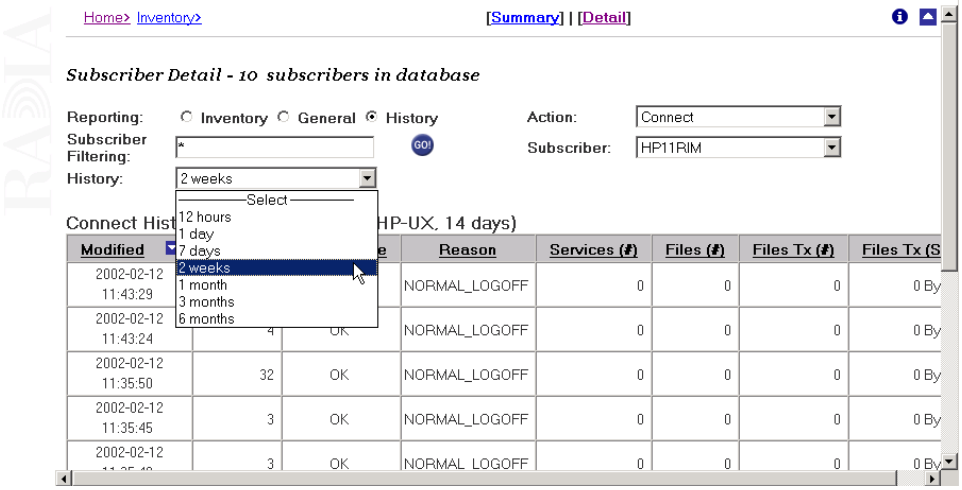

Figure 9.7 ~ History Reporting drop-down menu.

Detailed Reporting - Subscriber

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

Note

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:

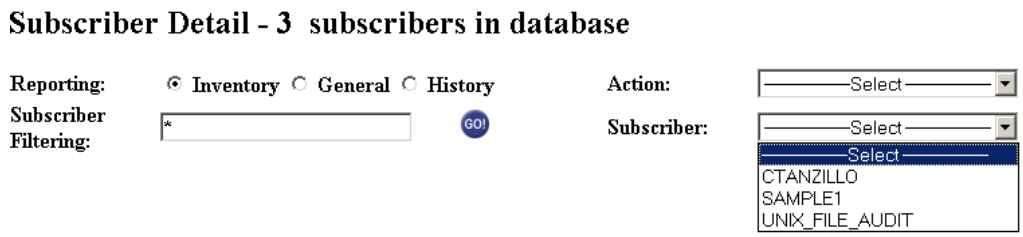

Figure 9.8 ~ Details – Subscriber drop-down menu.

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: Radia Management Portal Users

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

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

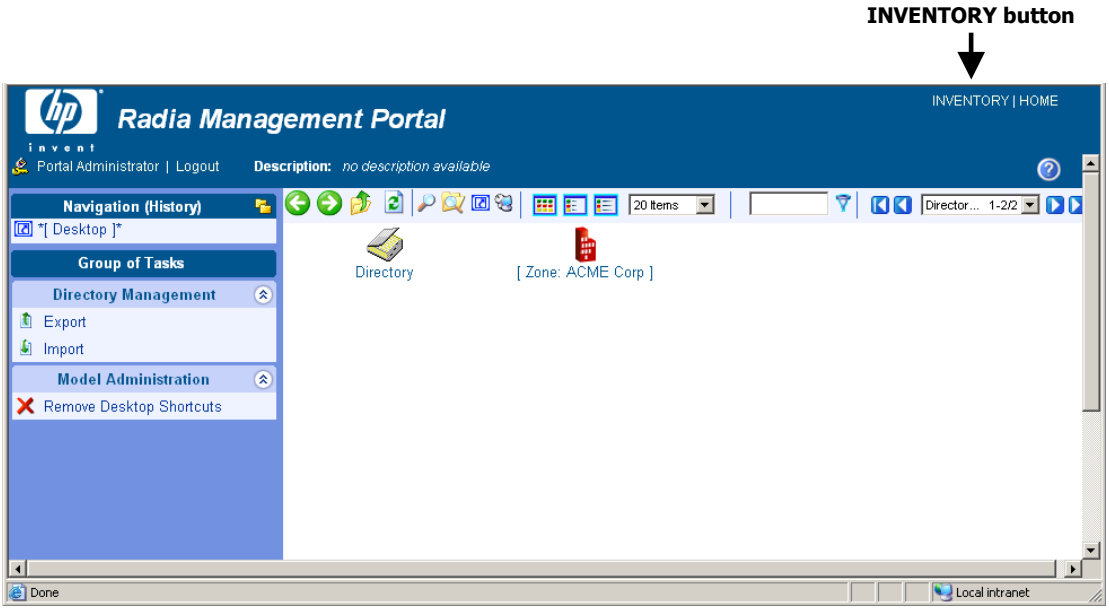

Figure 9.9 ~ The home page of the Radia Management Portal.

For specific information about the features of the Radia Management Portal, see the *Radia 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.

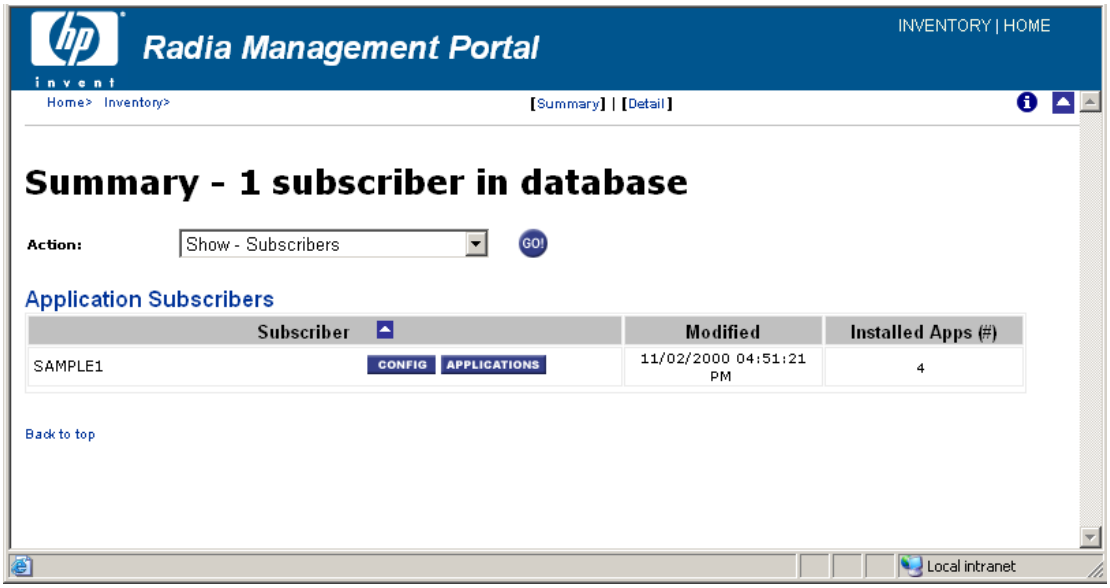

Figure 9.10 ~ The Radia Inventory Server homepage viewed from within the Radia Management Portal.

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 (see Figure 9.11 on page 188).

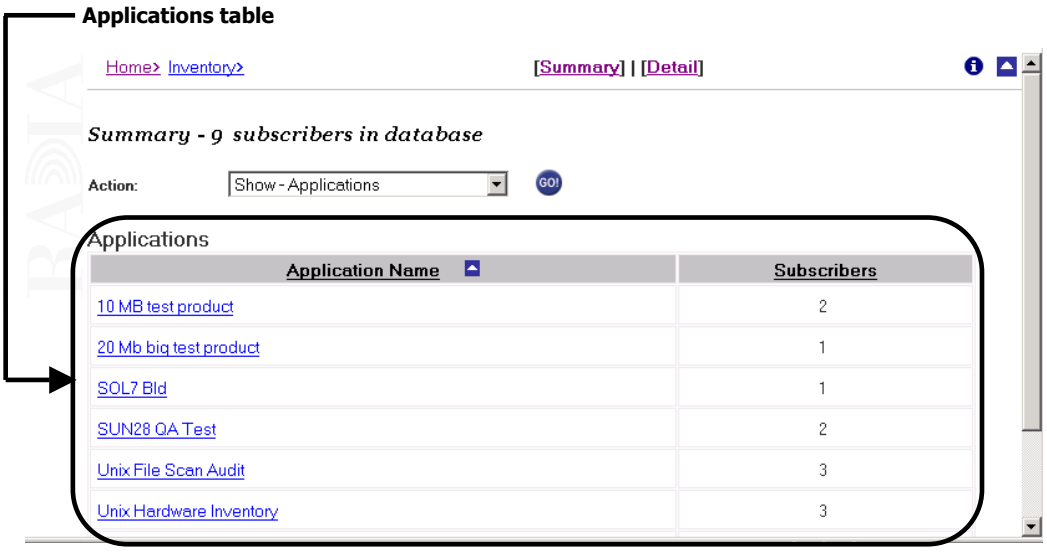

Figure 9.11 ~ Summary Reporting – Applications Table.

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.

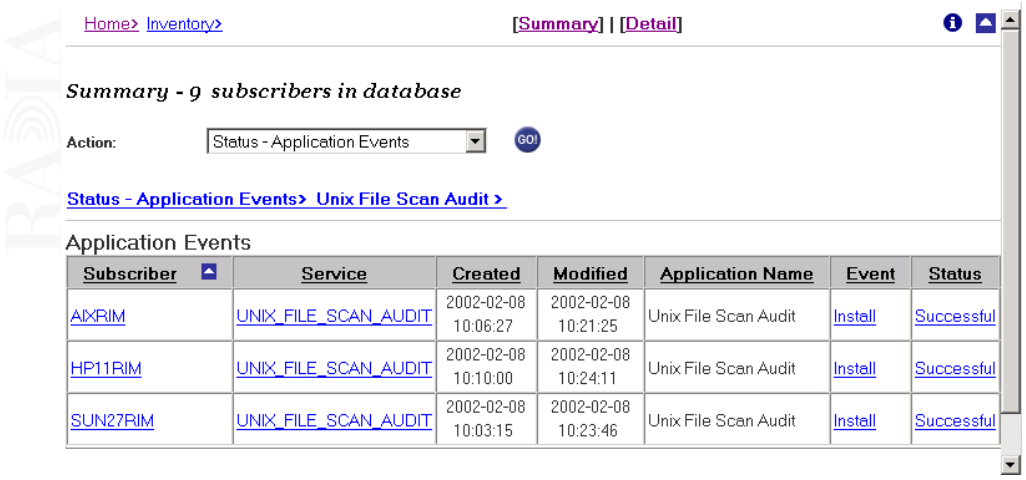

Figure 9.12 ~ Application subscribers.

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.

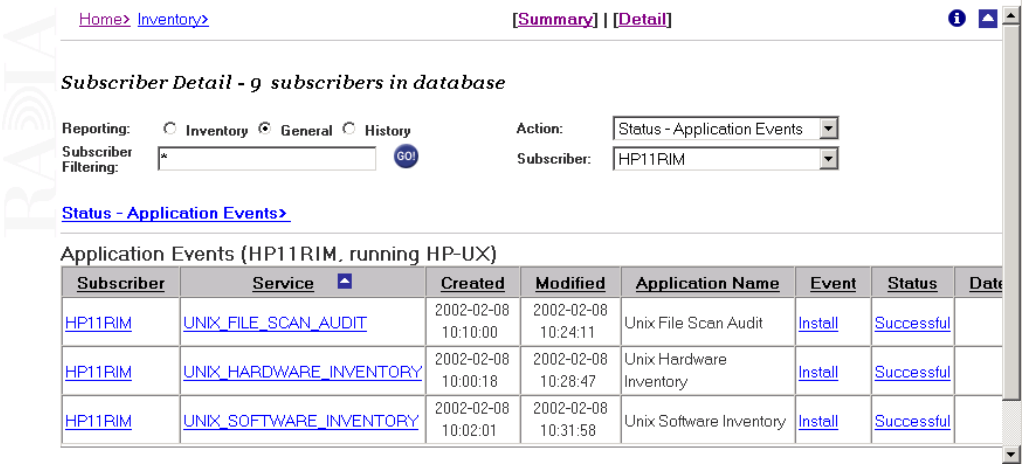

Figure 9.13 ~Subscriber Application Events page.

Note

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.

The following table shows the results of clicking on specific links.

Table 9.4 ~ 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.
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 9.5 ~ 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 9.6 ~ 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.

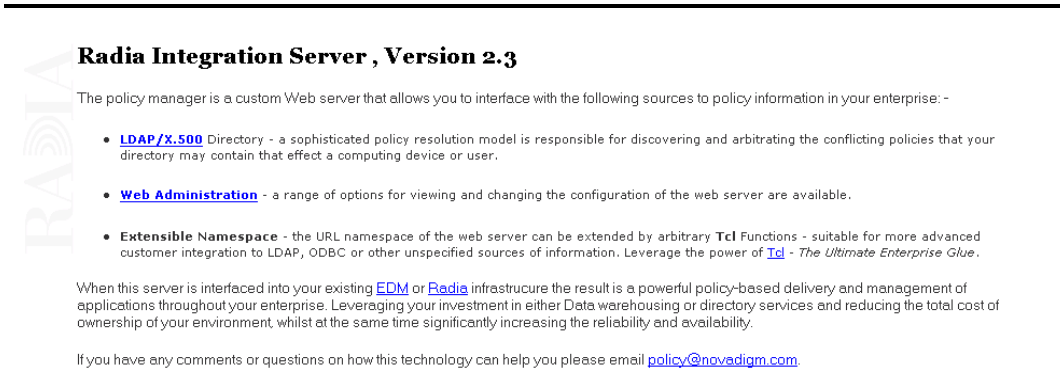

Figure 9.14 ~ Radia Integration Server home page.

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

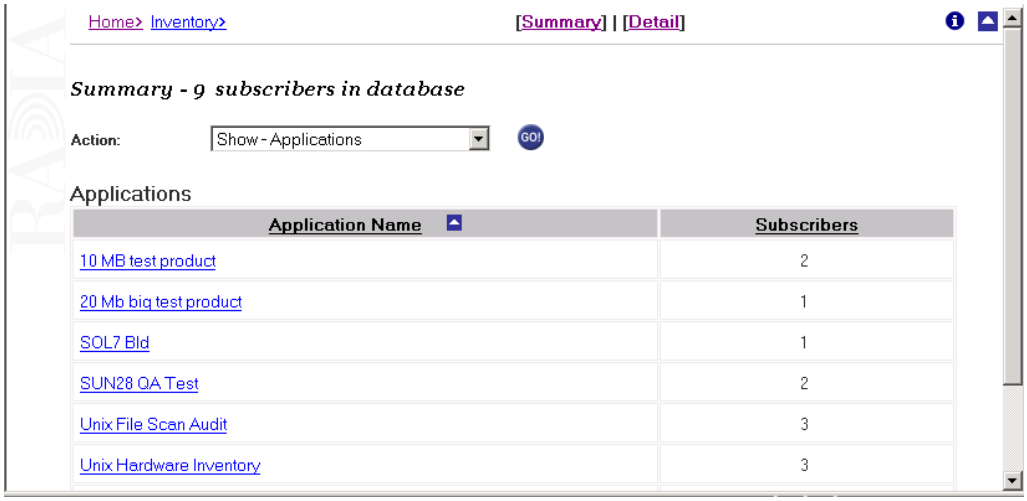

Figure 9.15 ~ Show Applications.

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

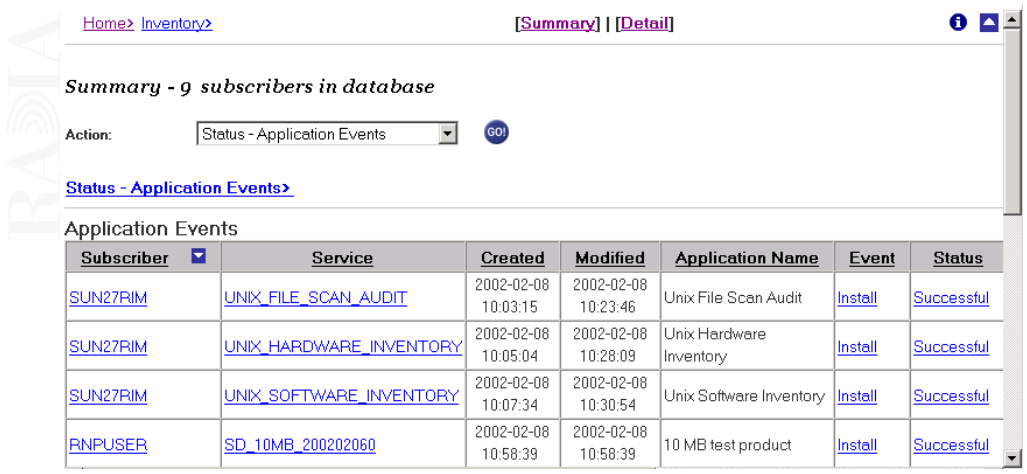

Figure 9.16 ~ Application Events for Unix Software.

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:

Figure 9.17 ~ Detail Reporting.

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.

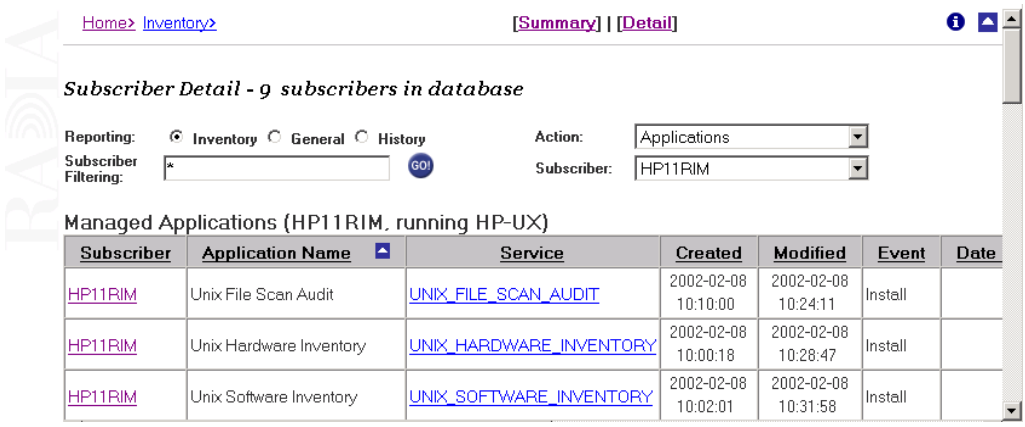

Figure 9.18 ~ Completed Subscriber Detail.

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.

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.

Radia Inventory Manager Detail and Summary Reporting Tables

Table A.1 ~ Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
Configuration - Summary	CDROM Drive	wName / Name	rCIM_DVDROMDrive
		wOtherIdentifyingInfo / Hardware Path	
		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	
		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	

Table A.1 ~ Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wAccess / LV Permission	
		wAvailability / LV Status	
		wCaption / Caption	
		wDescription / Description	
	Logical Volumes	wName / LV Name	
		wBlockSize / VG PE Size (MB)	
		wNumberOfBlocks / Current LE	
	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)	
		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	

Table A.1 ~ Inventory Reporting – Detailed Reports			
Action	**Displayed Table Title**	**Columns Queried /Display Name**	**Tables Queried**
		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	
	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	

Table A.1 ~ Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
	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	
		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	
		wNumberOfProcesses / Number Of Active Processes	
		wMaxNumberOfProcesses / Max Number Of Processes	
		wMaxProcessesPerUser / Max Processes Per User	
		wTotalVisibleMemorySize / Total Physical	

Table A.1 ~ Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		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)	
	User Accounts	wName / Account Name	
		wUserUID / Account ID	
		wPrimaryGroup / Account's Primary Group	
	Network Adapter Information	mtime / Modified	rWin32_NetworkAdapterConf
		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

Table A.1 ~ Inventory Reporting – Detailed Reports			
Action	**Displayed Table Title**	**Columns Queried /Display Name**	**Tables Queried**
		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	
		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 A.2 ~ 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	
		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	
		reason / Reason	
		module / Module	

Table A.2 ~ General Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		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)	
		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	

Table A.2 ~ General Reporting – Detailed Reports

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

Table A.3 ~ 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 (#)	
		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 A.4 ~ Summary Reporting

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
Show - Subscribers	Application Subscribers	device_id/subscriber	DeviceStatus
		mtime/Modified	AppEvent
		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	
		mtime/Modified	
		app_name/Application Name	
		event/Event	
		event/Event	
		status/Status	
		del_time/Date Deleted	

Table A.4 ~ Summary Reporting

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		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
		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	
		wNpktsDrp	

Table A.4 ~ Summary Reporting

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