HP OpenView Inventory Manager Using Radia

for the Windows operating system

Software Version: 4.1

Installation and Configuration Guide

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Revisions

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

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

Chapter 1: Introduction

- Page 16, About the Inventory Manager: revised the text to include the role of the HP-OpenView Messaging Server Using Radia (Messaging Server). You can use the Messaging Server instead of the Inventory Manager Server to post discovered inventory data to an ODBC-compliant database.
- Page 17, Overview: added the following note regarding the role of the new Messaging Server: "As of Radia 4.1, the Messaging Server handles the actual delivery of the inspection results to the Radia Integration Server (or directly to the back-end Inventory Manager Database), which frees up Configuration Server resources. See the *Messaging Server Guide* for more information."

Chapter 2: Installing the Radia Clients

4.0 Page 31, About the Installation Process: The sample install.ini is now in the `win32\` directory and not the `win32\samples` directory.

4.0.1 Page 31, About the Installation Process: `Radia40.msi` has been renamed to Radia401.msi.

4.0 Page 35, [PROPERTIES] Section of INSTALL.INI: The following have been added to the properties section of the `install.ini` file: NVDSTARTWMICFGMGR, NVDRAMSHORTCUT, NVDRAMSTARTMENUSHORTCUT; NVDRAMCONNECT, NVDMAINTDIR, NVDNOTIFYINTERACT, NVDREDIRECTORINTERACT, NVDSCHEDULERINTERACT.

4.0.1 Page 36, [PROPERTIES] Section of INSTALL.INI: NVDINSTALLSVR has been added as a value of ADDLOCAL. This allows you to install the Radia Server Management Client. This change also affects Specifying the Radia Client Features to Install. Only install the clients for which you are licensed.

4.0 Page 52, Specifying the Radia Client Features to Install: The Radia Patch Manager and Radia OS Manager clients have been added to the Radia Client installation. Only install the clients for which you are licensed.

Chapter 4: Installing the Inventory Manager Server

- Page 109, Installing the Inventory Manager Server: added the following Note: The data posting and reporting functions of the RIM server running on Windows have been superseded by Radia Messaging Server v3.0 and Radia Reporting Server, respectively.
- Page 110, Installation: added a caution that the Messaging Server can be used instead of the Inventory Manager Server, and is the recommended configuration as of the Radia 4.1 release.
- Page 118, Configure the EDMPROF.DAT: added the following caution: "This step is *not* necessary if you are running the Configuration Server with the Messaging Server."
- Page 126, Table 12: corrected a typo - changed COMMIT_INTERNAL to COMMIT_INTERVAL.
- Page 126, Table 12: The default for N_workers is 2.

Chapter 5:
The AUDIT Domain

- Page 136, Table 16: AUDIT.FILE Class Instances: Added clarification that FILESCAN and FILTER classes are only for UNIX devices.

Chapter 6:
Software and Hardware Auditing

4.1 Page 154, Table 16: AUDIT.FILE Class Instances: ZMD5INFO row added. The ZMD5INFO attribute permits the collection of MD5 information for a file.

- Page 155, Table 17: Added a description for the RESOLVE attribute.

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1 Introduction

At the end of this chapter, you will:

- Understand the components of the Inventory Manager client.
- Understand the terminology associated with the Inventory Manager client.
- Be familiar with supported platforms.
- Be familiar with WBEM and the Radia client.
- Be familiar with the Radia Integration Server.
- Be familiar with related Radia Infrastructure components for processing Inventory client data, such as the Messaging Server, the Reporting Server, and the Management Portal.

About the Inventory Manager

The Inventory Manager client is a utility used to discover configuration information on remote computers. It enables centralized reporting and administration based upon the discovery results.

The Inventory Manager client is used with the Inventory Manager Server or the HP-OpenView Messaging Server Using Radia (Messaging Server) to maintain the discovery information within an ODBC-compliant (Open Database Connectivity) database.

The preferred method for viewing the reported data from the Inventory Manager is to use the HP-OpenView Reporting Server Using Radia (Reporting Server), discussed on page 18. The Radia Integration Server component of the Inventory Manager Server provides an alternate method of viewing the reports via a Web browser interface.

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

- For more information on using the Radia Messaging Server to post data using ODBC to your Inventory database, refer to the *Installation and Configuration Guide for the Messaging Server (Messaging Server Guide*, version 3.0. The Data Delivery Agents for CORE, INVENTORY and WBEM objects provide this capability.
- For more information on using the Radia Reporting Server for creating and obtaining reports, refer to the *Installation and Configuration Guide for the Reporting Server (Reporting Server Guide).*

Overview

Systems administrators use the System Explorer or the Management Portal 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 is performed on the Inventory Manager computer when a subscriber connects to and installs the auditing software with the Configuration Server as follows:

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

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

The Configuration Server can store these inspection results in the Radia Database PROFILE file and/or have the Messaging Server route them for posting to an SQL-compliant database using ODBC.

The Data Directory Agents of the Messaging Server v3.0 can post the inspection results directly to the ODBC database.

As of Radia 4.x, the Messaging Server handles the actual delivery of the inspection results directly to the Inventory Manager database, or, indirectly to the Radia Integration Server or another Messaging Server. Both of these options free up Configuration Server resources. Refer to the *Messaging Server Guide* for more information.

About the Reporting Server

As part of the Radia extended infrastructure for Radia 4.x Windows, the web-based Reporting Server allows you to query the combined data in existing Inventory Manager, Patch Manager, and Usage Manager databases and create detailed reports. In addition, you have the option of mounting an existing LDAP directory, which allows you to filter your data using your LDAP directory levels. The Radia Reporting environment is illustrated in the figure below.

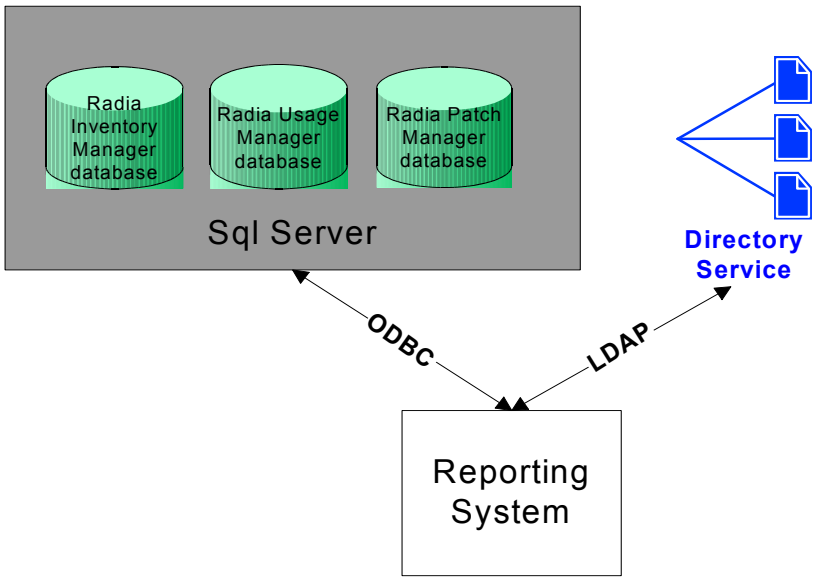


Figure 1: Radia Reporting Environment

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

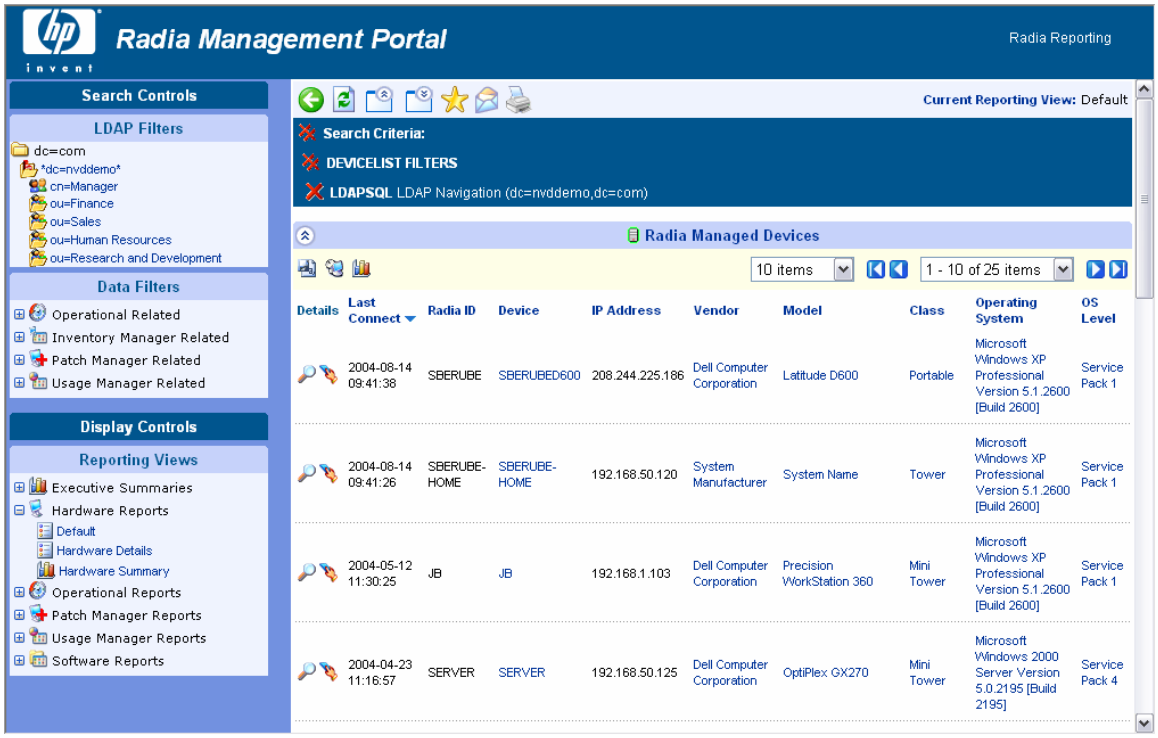


Figure 2: Reporting Server Web interface supports Inventory Manager auditing.

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

The *Reporting Server Guide* also explains how to use the Reporting Server interface to create, filter, and export reports, as well as browse reports for specific entries.

Inventory Manager Terminology

CIM (Common Information Model)

(noun) 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.

clean machine

(noun) a desktop computer on which the operating system has just been installed, and no further changes have been made.

client computer

(noun) the computer on the end user's desktop that has the Radia client software installed on it.

Management Portal

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

Messaging Server

The Messaging Server is the Radia Infrastructure component that provides a common routing and inter-server data delivery service, especially for report-bound data. When servicing a Configuration Server, the Messaging Server handles the delivery of Inventory, Patch, and Management Portal data collected from clients to the appropriate external location. Data Delivery Agents are used to post data directly to an SQL-compliant database using ODBC.

Radia client

(noun, capitalized) the Radia software component that is installed on the end user's desktop computer.

Radia Integration Server

The Inventory Manager client is used with the Radia Integration Server. The Radia Integration Server stores and maintains the discovery information to

be viewed within an ODBC (Open Database Connectivity) compliant database. The Radia Integration Server then provides the reports via a WEB-browser interface.

Reporting Server

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

Reporting Extensions for the Radia Integration Server

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

subscriber

(noun) the person (end user) who uses Radia-managed applications on a remote desktop computer (client computer).

Web-Based Enterprise Management (WEBM)

Web-Based Enterprise Management 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.

Windows Management Instrumentation (WMI)

Windows Management Instrumentation (WMI) is Microsoft's implementation of WBEM for Microsoft Windows platforms.

WMI Repository

WMI repository is a central storage area designed to hold managed information.

Radia Prerequisites

The Inventory Manager 4.1 requires the following Radia components:

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

  and/or

  - Software Manager
- Messaging Server 3.0 is highly recommended. See the *Messaging Server Guide* for more information on installing or migrating to the Messaging Server, and how the Messaging Server transfers data directly, or indirectly, to the Radia Inventory Database.

Necessary Skills

With Radia Products

This document assumes that the reader is familiar with the Radia Database, with administering Radia using the System Explorer and the Management Portal. Refer to the *System Explorer Guide* and the *Management Portal Guide* for more information.

With Web-Based Enterprise Management

This document assumes that the reader is familiar with Web-Based Enterprise Management (WBEM). Resources for familiarizing yourself with WBEM can be found at the following Web site: **http://www.dmtf.org/spec/wbem.html**.

With Microsoft Implementations of WBEM

This document also assumes that the reader is familiar with Windows Management Instrumentation (WMI). Information concerning WMI can be found at the following Web site: **http://msdn.microsoft.com/library/default.asp?url=/library/en-us/w98ddk/hh/w98ddk/wmi_wp_03se.asp**.

Inventory Manager Technology

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

Common Information Model (CIM)

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

- Defining **objects**, such as computer systems, devices, controllers, software, files, people, and so forth.
- 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).

Windows Management Instrumentation (WMI)

Windows Management Instrumentation (WMI) is the Microsoft implementation of the Web-Based Enterprise Management (WBEM) that supports the CIM model as well as Microsoft-specific extensions of CIM. To put it simply, it is a set of services designed to input data into a repository via WBEM providers.

The WMI repository is a central storage area designed to hold managed information. It is organized by a series of schemas that are loaded into namespaces. A namespace provides a container, or domain, for the instances of the classes in that schema.

WMI comes installed on Windows 2000 and Windows ME. For Windows 9X and Windows NT machines, the WMI core must be installed. This module can be downloaded from the Microsoft Web site at: **http://www.microsoft.com/downloads/details.aspx?FamilyID=afe41f46-e213-4cbf-9c5b-fbf236e0e875&DisplayLang=en**.

If you do not choose to download the core from the Microsoft Web site, the WMI installation program is available in the `\win32\WMI` sub-folder on the Radia Management Applications CD-ROM. If WMI does not exist on the client computer, the WMI installation program runs automatically.

For the purpose of this document, when we refer to WBEM, this includes WMI.

Radia and WBEM

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

WMI version 1.5 is available for download by licensed end users from the Microsoft download center at **http://www.microsoft.com/downloads/details.aspx?FamilyID=afe41f46-e213-4cbf-9c5b-fbf236e0e875&DisplayLang=en**. This download is for Windows 95, Windows 98, Windows 98 SE, and Windows NT4 SP4 or higher. Windows 2000 and Windows ME, WMI has been natively installed. The WMI installation program is available in the `\win32\WMI` folder on the Radia Management Applications CD-ROM. If WMI does not exist on the client computer, the WMI installation program runs automatically.

For client computers with WBEM (Web-Based Enterprise Management) installed, the Inventory Manager executes an HP-proprietary method (RIMWBEM) to query the WBEM namespace.

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

HP OpenView Inventory Manager using Radia for Windows leverages Microsoft's Windows Management Instrumentation (WMI) to collect hardware and software inventory data by using WMI queries. Some WMI queries can traverse the network contacting other servers in the enterprise to collect the requested information. This may result in large volumes of data being returned, and could have a significantly negative effect on network performance. An example of this would be querying all users on the network using the W32_UserAccount WMI class. Extreme caution must be taken to understand the scope of these queries to ensure unexpected results do not occur. While Inventory Manager provides an interface to WMI and its providers, it cannot control how these queries are satisfied. It is the customer's responsibility to safeguard against using WMI queries that span the network, if this behavior is not desired.

The Radia Integration Server

The Radia Integration Server is a Tool Command Language (Tcl) based Web server that resides where the Inventory Manager Server is installed. It builds and updates a structured query language (SQL) database of your choice via ODBC.

The ODBC driver for the database you choose *must* be installed prior to installing the Radia Integration Server. 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.

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

For *demonstration purposes only*, a sample Access 97 database with predefined queries is provided on the Inventory Manager. Use this sample to display the query results in a Web browser.

About this Guide

In addition to this chapter, this book contains the following information.

- **Installing the Radia clients**
  This chapter describes how to install the Radia Inventory Clients.
- **Installing the Administrator Workstation**
  This chapter describes how to install the Radia Administrative Workstation.
- **Installing the Inventory Manager Server**
  This chapter describes how to install and configure the Inventory Manager Server on a Windows platform.
- **The Audit Domain**
  This chapter discusses the Audit domain within the Configuration Server Database.
- **Software and Hardware Auditing**
  This chapter discusses the different types of auditing, how to configure a supplied audit service, and how to create your own audit service.
- **Configuring Timers for Audit Collection**
  This chapter discusses how to perform audits using a timer.
- **Viewing Inventory from the Radia Integration Server**
  This chapter discusses the topics related to viewing inventory from the Radia Integration Server page. (As of Radia 4x, the Reporting Server is the preferred method of viewing inventory data.)

Summary

- The Inventory Manager client is a utility used to discover hardware and software configuration on remote computers.
- The Inventory Manager Server can be used to store and maintain discovered information in an ODBC-compliant database.
- The collection and reporting of inventory information is performed on the Inventory Manager when a subscriber/user connects to the Configuration Server.
- The Messaging Server delivers the data collected from subscribers to an external Inventory Manager Server location, or, directly to a SQL-compliant database using the Data Delivery Agents and ODBC.
- The ODBC driver for the database you choose *must* be installed prior to installing the Inventory Manager Server.
- The Inventory Manager Server or the Messaging Server will automatically create the necessary tables in the database you choose.
- The Reporting Server offers a Web-based interface to the reportable data captured by the Radia Extended infrastructure product suite. It allows you to query the combined data in existing Inventory Manager, Patch Manager, and Usage Manager databases, create detailed reports, and filter data using your LDAP directory levels.
- It is suggested that the administrator be familiar with Radia products as well as Web-Based Enterprise Management, and Microsoft's implementations of WBEM.
- All information collected by WBEM is available to the Inventory Manager.
- The Inventory Manager queries the WBEM namespace (that is, the WBEM database) and sends the results back to the Configuration Server.
- RIMWBEM queries WBEM namespaces.
- RIMFSCAN directly inspects the software and/or the file system.

2 Installing the Radia Clients

At the end of this chapter, you will:

- Understand the system requirements for installing Radia clients.
- Know how to customize the installation process.
- Be able to modify the [PROPERTIES] section of the `INSTALL.INI` in order to customize the behavior of the installation process.
- Be able to modify the [ARGS] section of the `INSTALL.INI` in order to customize the behavior of the HP OpenView Software Manager Using Radia (Software Manager).
- Be able to modify the [OBJECTS] section of the `INSTALL.INI` in order to specify Radia objects to be created on the client computer.
- Know how to use the Installation Wizard.
- Know how to remove and repair Radia clients using the Installation Wizard and command lines.
- Know how to modify the installation of the Radia clients using the Installation Wizard and command lines.
- Know how to use pre-install script to customize MSI properties that affect installation.
- Know how to use a post-install script to run processes after installing Radia clients.

The Radia client installation program uses Microsoft Windows Installer. The program consists of one MSI package with six feature sets:

- HP OpenView Application Manager Using Radia (Application Manager)
- HP OpenView Software Manager Using Radia (Software Manager)
- HP OpenView Inventory Manager Using Radia (Inventory Manager)
- HP OpenView OS Manager Using Radia (OS Manager)
- HP OpenView Patch Manager Using Radia (Patch Manager)
- HP OpenView Server Management Using Radia (Server Management)

Install only the Radia clients for which you have licenses. If you do not have a license, the Radia client will not authenticate with the HP OpenView Configuration Server Using Radia (Configuration Server).

System Requirements

- Windows 95, 98, NT 4 with Service Pack 6a, 2000, Server 2003, or XP.

  The Software Manager 4.x client is not available for computers running Windows 95, as it requires Microsoft .NET runtime.

- Microsoft .NET runtime (required for Software Manager only).
  The .NET installation program is available in the `\DotNet` folder on the Radia client CD-ROM. If .NET does not exist on the client computer, the .NET installation program runs automatically. Microsoft .NET requires Microsoft Internet Explorer 5.01 or later.
- MS Windows Installer Version 2.0 or higher.
  The MSI 2.0 installation program is available in the `\MSI` folder on the Radia client CD-ROM. If Windows Installer does not exist, or if an earlier version is detected on the client computer, the MSI 2.0 installation program runs automatically.
- TCP/IP connection to a computer running the Configuration Server.
- WMI (required for the Inventory Manager only).
  The WMI installation program is available in the `\WMI` folder on the Radia client CD-ROM. If WMI does not exist on the client computer, the WMI installation program runs automatically.

- For Windows NT, 2000, Server 2003, or XP, you must have administrator rights to the computer to install the Radia clients.

About the Installation Process

Whether the Radia client installation program is distributed as an executable (`setup.exe`) or an Administrative Installation Point (AIP), the installation process is the same. You can customize many aspects of the installation including which Radia clients to install and to what directory the installation files should be copied. If you want to customize the installation process, you should be familiar with the following files.

- **setup.exe**
  `setup.exe` is stored in the `\win32` directory on the Radia client CD-ROM. It accepts any standard Windows Installer command line parameters and passes them to the Windows Installer service.

  You can also create an AIP for network installations.

  A Windows Installer Administrative Installation Point (AIP) is also known as an Administrative Control Point (ACP).

  To create the Windows Installer AIP in a specified target directory, type:

  ```
  SETUP.EXE /a TARGETDIR=drive:\targetdirectory /qb
  ```

  The target directory contains `RADIA401.MSI`, the installation folders, `setup.exe`, and any files (such as `INSTALL.INI` or Visual Basic scripts) stored in the same directory as `setup.exe`. Next, copy the `\DotNet` and `\MSI` folders into the target directory.

  If you do not have Windows Installer version 2.0 installed, setup.exe looks for the standard MSI installation programs (`INSTMSI.EXE` or `INSTMSIW.EXE`) in the current directory and in the MSI subdirectory. If found, the appropriate MSI installation will run before the Radia client installation.

- **RADIA401.MSI**
  `RADIA401.MSI` is the MSI database file, which contains the default configuration information for the installation. This file is stored in the `\win32` directory on the Radia client CD-ROM.
- **INSTALL.INI**
  Use `INSTALL.INI` to customize the installation or the Radia client

arguments file, or to create or set attributes for Radia objects. Settings in `INSTALL.INI` override the defaults stored in `RADIA401.MSI`.

A sample `INSTALL.INI` is available in the `\win32` directory on the Radia client CD-ROM.

- **args.xml**
  `args.xml` is the Software Manager arguments file created from information stored in the [ARGS] section of `INSTALL.INI`. This file, stored in IDMLIB on the client computer, controls the behavior of the Software Manager. The default directory for IDMLIB is *`SystemDrive`*`:\Program Files\Novadigm\Lib\`.

- **Pre-install scripts**
  (*Recommended for experienced users only*.)
  Use custom Visual Basic scripts to customize MSI properties that affect the installation. For an example of a simple script, see Using a Pre-Install Script on page 77.

- **Post-install scripts**
  (*Recommended for experienced users only*.)
  Use custom Visual Basic, REXX, or Tcl scripts to run processes such as the first Client Connect. For an example, see Using a Post-Install Script on page 79.

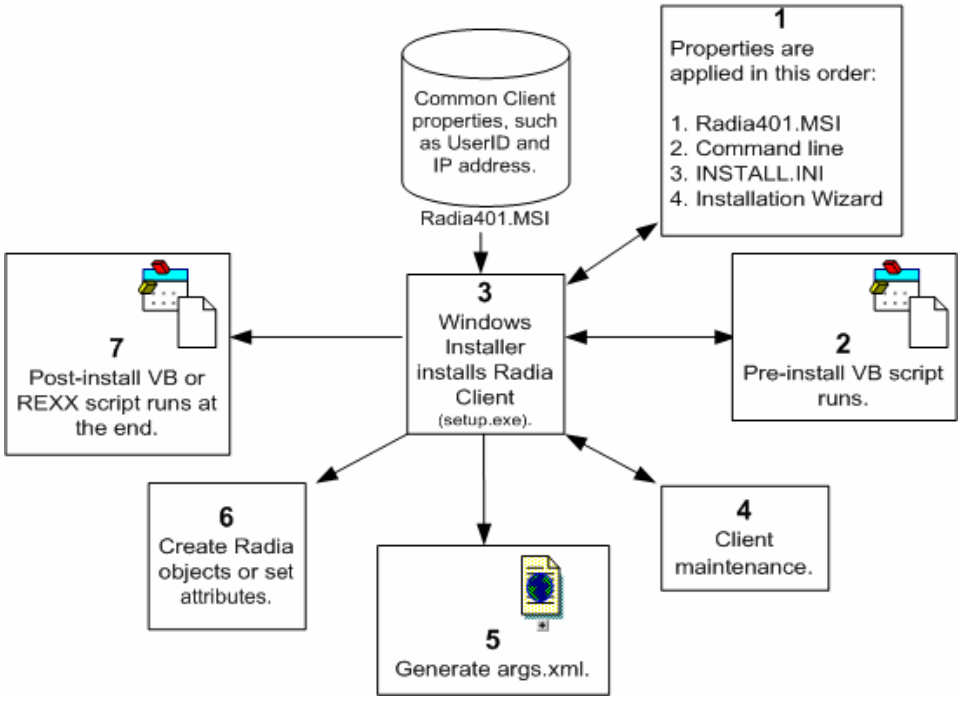


Figure 3: Radia client installation process.

Preparing INSTALL.INI

Create an installation file, `INSTALL.INI`. Use this file to:

- Customize the installation.
- Customize the Software Manager.
- Create or set attributes for Radia objects.

Below is a sample `INSTALL.INI`. A description of the three sections and the attributes in each of these sections follows.

A semi-colon (;) at the beginning of attributes, properties, and object names indicates that this item is commented out and will be ignored. If you want to specify a value for any of these items, delete the semi-colon (;) and then type the appropriate value.

The following is a sample `INSTALL.INI`.

```
[Properties]
;.MSI Property overrides (Novadigm properties have the "nvd" prefix)

;Uncomment and specify the installation directory to replace the default directory
;INSTALLDIR=

;Uncomment to prevent subscribers from using Add/Remove Programs in the Control Panel to remove
        the Radia Client
;ARPNOREMOVE=1

;Uncomment and specify the features that you want to install
;ADDLOCAL=NVDINSTALLRAM,NVDINSTALLRSM,NVDINSTALLRIM,NVDINSTALLROM,NVDINSTALLPATCH,
        NVDINSTALLRLAE,NVDINSTALLSVR

;Uncomment to show/hide panels in the installation wizard (defaults shown below)
;NVDENABLEUSER=Y
;NVDENABLEIP=Y
;NVDENABLEPROXY=N
;NVDENABLESHORTCUT=Y
;NVDSHORTCUT=Y
;NVDSTARTMENUICON=Y
;NVDSTARTWMICFGMGR=Y

;Uncomment and specify the location of maintenance files
;NVDMAINTDIR=

;Uncomment to allow notifies only from the local host.
;NVDLOCALNOTIFYONLY=Y

;Uncomment to start the System Tray automatically if RAM is selected during the client install
        process.
;NVDRADTRAYSTART=Y

;Uncomment to disable "Allow service to interact with desktop" flag for Radia Services
;NVDNOTIFYINTERACT=N
;NVDREDIRECTORINTERACT=N
;NVDSCHEDULERINTERACT=N

;Uncomment and specify the file names of pre- and post-install custom action scripts
;NVDPRECAPATH=
;NVDPOSTCAPATH=

[Args]
; Tags to be placed into the Radia Software Manager ARGS.XML file
; A value of _NONE_ removes the tag from the file
;
;askconfirm=
;channelname=software
;dataurl=
;enterprisemanagement=
;identification=$USER
;log=connect.log
```

```
;logsize=
;logonpanel=
;managerurl=
;providername=Radia
;redirect=
;resolutionmanager=
;resolutionport=
;sslmanager=
;sslport=
;startdir=
;uioption=

[Objects]
; Set Radia object attribute values
; A value of _NONE_ will set the attribute to blank
;
;ZMASTER_ZDSTSOCK=3464
;ZMASTER_ZIPADDR=xxx.xxx.xxx.xxx
;ZMASTER_ZNTFPORT=3465
;ZMASTER_ZNTFYSEC=Y
;ZMASTER_ZTIMEO=240
;ZMASTER_ZTRACE=N
;ZMASTER_ZTRACEL=_NONE_
;ZMASTER_ZUSERID=
;ZMASTER_ZVRFYUID=N
;
;PROXYINF_USEPROXY=
;PROXYINF_DISCOVER=
;PROXYINF_PROXADDR=
;
; Uncomment to enable Client Operations Profile (COP)
;RADSETUP_COP=Y
; Uncomment to disable collection of AD information
;RADSETUP_ADINFO=N
; Uncomment to disable collection of NT Group information
;RADSETUP_ZGRPINFO=N
```

[PROPERTIES] Section of INSTALL.INI

Use the [PROPERTIES] section to modify Windows Installer properties or HP-specific properties to customize the behavior of the installation program. The values that you set in this section override the default values stored in the `RADIA401.MSI` database file.

All properties such as INSTALLDIR must be typed in all uppercase.

Table 1: [PROPERTIES] Section of INSTALL.INI

Argument	**Description**	Default Value*
ADDLOCAL	Specify the features that you want to install on the local hard drive. You must be properly licensed to use these products. The features may be: • NVDINSTALLRAM = Application Manager • NVDINSTALLRSM = Software Manager • NVDINSTALLRIM = Inventory Manager • NVDINSTALLROM = OS Manager • NVDINSTALLPATCH = Patch Manager • NVDINSTALLSVR = • Server Management • NVDINSTALLRLAE = Radia Local AIP Extension Note: This must be installed to use the Local AIP support for the Radia MSI Redirectory feature. Refer to the *Installation and Configuration Guide for the HP-OpenView Application Manager* for more information.	N/A

Argument	Description	Default Value*
ARPNOREMOVE	Set ARPNOREMOVE to 1 to indicate that you want to disable the ability to remove the Radia client from the computer using Add/Remove Programs in the Control Panel. Note: Setting ARPNOREMOVE to 0 will *not* disable this option due to a Windows Installer issue. If you want to allow your subscribers to remove the Radia client from the computer using Add/Remove Programs in the Control Panel, place a semi-colon (;) in front of the ARPNOREMOVE argument in `INSTALL.INI`. • For Windows 2000 or XP, the **Remove** button is disabled. • For earlier operating systems, the Radia client will not be listed in Add/Remove Programs in the Control Panel.	Subscribers can remove the Radia client from the computer using Add/Remove Programs in the Control Panel.
INSTALLDIR	Specify the directory where you want to install the Radia client. This value will be overridden if a new directory is specified in the Destination Folder window in the Radia 4.x Client Installation Wizard.	*`SystemDrive`*`:\Program Files\Novadigm`

Argument	Description	Default Value*
NVDENABLEUSER	Indicate whether to show or hide the Set User window in the Installation Wizard. • Y – Show the window. • N – Hide the window. Note: If you hide the window, the **Create a Radia Software Manager icon on the desktop** check box will no longer be available to your subscribers. • D – Show the window, but disable the **User Name** field. The **Create a Radia Software Manager icon on the desktop** check box is still available.	Y
NVDENABLEIP	Indicate whether to show or hide the Configuration Server window in the Installation Wizard.	Y
NVDENABLEPROXY	Indicate whether to show or hide the Proxy Information window in the Installation Wizard. If you want to use a Proxy Server during the Radia Client Connect, show this window. The information entered in the Proxy Information window is stored, by default, in the PROXYINF object in the client computer's IDMLIB directory.	N

Argument	Description	Default Value*
NVDENABLESHORTCUT	Indicate whether to show the **Create a Radia Software Manager icon on the desktop** check box in the Set User window. Selecting this check box installs a desktop shortcut for the Software Manager on the subscriber's desktop. Reminder: This property does not apply to computers running Windows 95 because the Software Manager 4.x client is not available for computers running Windows 95, as it requires Microsoft's .NET runtime.	Y
NVDSHORTCUT	Indicate whether to install a desktop shortcut for the Software Manager on the subscriber's computer. Reminder: This property does not apply to computers running Windows 95 because the Software Manager 4.x client is not available for computers running Windows 95, as it requires Microsoft's .NET runtime.	Y

Argument	**Description**	Default Value*
NVDSTARTMENUICON	Indicate whether to install an icon in the Start Menu for the Software Manager on the subscriber's computer. Reminder: This property does not apply to computers running Windows 95 because the Software Manager 4.x client is not available for computers running Windows 95, as it requires Microsoft's .NET runtime.	Y
NVDSTARTWMICFGMGR	Indicates whether to install the shortcuts for WMI on Windows NT and 9x systems.	Y
NVDRAMSHORTCUT	Indicate whether to install a desktop shortcut for the Application Manager on the subscriber's computer.	N
NVDRAMSTARTMENUSHORTCUT	Indicate whether to install an icon in the Start Menu for the Application Manager on the subscriber's computer.	N
NVDRAMCONNECT	Specify a command line to run if an Application Manager shortcut is created on the desktop or the Start Menu.	Blank

Argument	**Description**	Default Value*
NVDMAINTDIR	Specify a directory that stores the Radia client maintenance files. Note: Type a value only if you want to store maintenance files in a directory other than the MAINT subdirectory in the folder containing setup.exe. If files exist in this directory that are newer than the installation files, they will be copied into the Radia client's IDMSYS directory.	MAINT subdirectory in the folder containing `setup.exe`
NVDLOCALNOTIFYONLY	If set to Y, the Client will allow Radia Notifies only from the local host.	N
NVDRADTRAYSTART	Set to Y to start the System Tray automatically, if the Application Manager is selected during the Client installation process.	N
NVDNOTIFYINTERACT	Set to Y to enable the Radia Notify Daemon to interact with the desktop.	N
NVDREDIRECTORINTERACT	Set to Y to enable the Radia MSI Redirector to interact with the desktop.	N
NVDSCHEDULERINTERACT	Set to Y to enable the Radia Scheduler to interact with the desktop.	N

Argument	Description	Default Value*
NVDPRECAPATH	Specify the fully qualified path and filename of a custom Visual Basic pre-install script. Note: New objects or properties must be defined in `INSTALL.INI`. You can use a pre-install script to override a value for the object or property, but if you attempt to specify a new object or property in the pre-install script, it will be ignored. For an example of a simple script, see Using a Pre-Install Script on page 77.	N/A
NVDPOSTCAPATH	Specify the fully qualified path and filename of a custom Visual Basic or REXX post-install script. For an example, see Using a Post-Install Script on page 79.	N/A

[ARGS] Section of INSTALL.INI

Use the [ARGS] section to control the behavior of the Software Manager. The information in this section is used to build the Software Manager arguments file, `args.xml`, which is stored in IDMLIB on the client computer. The default directory for IDMLIB is *`SystemDrive`*`:\Program Files\Novadigm\Lib\`.

Below is an example of `args.xml`.

```
<?xml version="1.0" ?>
<RADIA_ARGUMENTS>
<ARGUMENTS><CHANNELNAME>software</CHANNELNAME>
<IDENTIFICATION>jsmith</IDENTIFICATION>
<PROVIDERNAME>radia</PROVIDERNAME>
<RESOLUTIONMANAGER>10.10.10.1</RESOLUTIONMANAGER>
<LOG>connect.log</LOG>
```

```
<RESOLUTIONPORT>3464</RESOLUTIONPORT>
</ARGUMENTS>
</RADIA_ARGUMENTS>
```

The XML tags (arguments) described in this section are not case-sensitive when you type them in `INSTALL.INI`. However, the arguments will automatically be converted to all uppercase in `args.xml`.

If you are using the Application Manager, any of the parameters in the [ARGS] section can be added to the radskman command line.

Table 2: [ARGS] Section of INSTALL.INI

Argument	**Mandatory or Optional**	**Description**	Default Value
askconfirm	Optional	Controls the display of a confirmation message to your subscribers. For example, some instances in which a confirmation message may display are: • A reboot is required. • There is insufficient disk space during deployment. • A data download is interrupted.	Y
channelname	Mandatory	The domain in the Radia Database from which applications are retrieved.	SOFTWARE

Argument	Mandatory or Optional	Description	Default Value
enterprisemanagement	Optional	*For use with the Software Manager only.* Deploys mandatory applications from the Software Manager. Set Enterprisemanagement =auto to deploy mandatory applications. Remove the Enterprisemanagement tag if you do not want to deploy mandatory applications.	N/A
identification	Optional	Identifies the client to the Configuration Server by defining the value for the ZUSERID variable in the ZMASTER object. This value will be overridden if a different User Name is specified in the Set User window in the Radia 4.x Client Installation Wizard. If you do not want this value to be modified, set NVDENABLEUSER = N in the [PROPERTIES] section of INSTALL.INI. **$MACHINE** – The Radia user ID is the name of the subscriber's computer. **$USER** – The Radia user ID is the logon ID for the subscriber currently logged on. **CUSTOM** – literal custom specification.	$USER

Argument	Mandatory or Optional	Description	Default Value
log	Optional	Specifies the name of the log stored in IDMLOG. IDMLOG is specified in `NVD.INI`. `NVD.INI` is stored in *`SystemDrive`*`:\Program Files\Novadigm\LIB, by default`.	Connect.log
logsize	Optional	Specifies the size of the log file in bytes. When the logsize is reached, a backup file (`.BAK`) is created. By default, this file is connect.bak. If a backup file already exists, it will be overwritten.	1000000
logonpanel	Optional	Controls the display of the logon panel.	Y
managerurl	Optional	Specifies the address of the Configuration Server to be used for HTTP object transfer. The managerurl specification takes the form `http://`*`hostname`*`:`*`port`*`/`*`nvdurl`*.	N/A
providername	Mandatory	The name of the Configuration Server, which is set during the standard installation. This is used to name the folder below the STARTDIR on the client computer. See Startdir on page 48 for more information.	Radia

Argument	Mandatory or Optional	Description	Default Value
redirect	Optional	*Used for the Software Manager only.* Specifies an alternate start-up file (`filename.xml`), which can be accessed via a network path or URL. If the redirect tag is set in args.xml, the Software Manager uses the properties specified in the alternate file. For example, you might set redirect to point to a start-up file on the network that is shared by all users.	N/A
resolutionmanager	Mandatory	Identifies the IP address for the Configuration Server. You can also use the server name. This value will be overridden if a different IP address is specified in the Configuration Server window in the Radia 4.x Client Installation Wizard. If you do not want this value to be modified, set NVDENABLEIP = N in the [PROPERTIES] section of the `INSTALL.INI`.	N/A

Argument	Mandatory or Optional	Description	Default Value
resolutionport	Mandatory	Identifies the port for the Configuration Server. This value will be overridden if a different port is specified in the Configuration Server window in the Radia 4.x Client Installation Wizard. If you do not want this value to be modified, set NVDENABLEIP = N in the [PROPERTIES] section of the `INSTALL.INI`.	N/A
sslmanager	Optional	Specifies the address of the Configuration Server to be used for SSL communications. If you want self-maintenance to use SSL communications, concatenate ::SM to the end of the specified IP address or host name. For example, sslmanager=*hostname*::SM Warning: Use the ::SM switch with the following caveat in mind; the file (cacert.pem) that contains the CA root certificates cannot be maintained. If the corresponding CA root certificate for the certificate in use by the Radia Configuration Server should ever become expired, revoked, or corrupt, it will result in disabling SSL communications to the Configuration Server.	N/A

Argument	Mandatory or Optional	Description	Default Value
sslport	Optional	Specifies the TCP/IP port that the SSL manager is listening on. This is normally 443. The sslport specification takes the form *sslport=port*.	N/A
startdir	Optional	Specifies the starting IDMLIB directory (by default, *SystemDrive*:\Program Files\Novadigm\Lib\). **$MACHINE** – Uses the current computer name. **$USER** – Uses the subscriber who is logged on. **CUSTOM** – Literal custom specification. Type **startdir=***foldername*. If the folder name contains embedded spaces, enclose the entire name in double quotes. Note: You might want to do this to distribute a set of common applications to be shared by all subscribers of a multi-user computer.	$USER
uioption	Optional	Controls the display of the status window.	N

[OBJECTS] Section of INSTALL.INI

Use the [OBJECTS] section to specify Radia objects to be created on the client computer and to set their default values. The format is *clientobject_attbribute*. For example, if you wanted to set the IP address for your Configuration Server, set ZMASTER_ZIPADDR.

Table 3: [OBJECTS] Section of install.ini

Argument	Description	Default Value
ZMASTER_ZDSTSOCK	The port setting for the Configuration Server.	3464
ZMASTER_ZIPADDR	The IP address for the Configuration Server.	N/A
ZMASTER_ZNTFPORT	The port that the Radia client's notify daemon is 'listening' on.	3465
ZMASTER_ZNTFYSEC	This attribute allows a Notify operation to execute programs only from the IDMSYS directory. This is used for security during Notify operations.	Y
ZMASTER_ZTIMEO	Amount of time that the Radia client will wait for a response from the Configuration Server before the Radia client program is deactivated (timed out). Numeric value between 0 and 3200, in seconds.	240

Argument	Description	Default Value
ZMASTER_ZTRACE	Enables log to include communications buffer information; also generates unique logs for create methods. **Y** Turns on Communication and Client Method Tracing. **S** Turns on Communication summary information; Client Method Tracing is *not* enabled. **N** Communication Tracing and Client Method Tracing are disabled.	N
ZMASTER_ZTRACEL	Level of tracing generated in the Radia client log files. 0 to 999, where 0=minimal tracing, 40=acceptable for most activity, and 999=maximum.	040
ZMASTER_ZUSERID	The subscriber's user ID.	The name of the user currently logged on to the computer.
ZMASTER_ZVRFYUID	Verify the user ID sent by the Configuration Server's Notify command with the ZUSERID field found in the Radia client's ZMASTER object.	N
PROXYINF_USEPROXY	Indicates whether you use a proxy server to connect to the Configuration Server.	N
PROXYINF_DISCOVER	*For use with Microsoft Internet Explorer.* Set to the proxy address and port that your Web browser is using.	N
PROXYINF_PROXADDR	The IP address and port number of your proxy server.	xxx.xxx.xxx.xxx:1080
RADSETUP_COP	Set this to Y to enable Radia client Operations Profiles.	N

Installing the Radia 4.x Clients

Before installing the Radia clients, you must decide whether to initiate the installation from:

- a command line that initiates the installation from a Web page, FTP site, mapped drive, CD-ROM, or e-mail. See Initiating the Radia Client Installation from a Command Line below.
- a logon script. See Initiating the Radia Client Installation from a Logon Script on page 54.
- the Radia Management Portal. This is recommended for mass rollouts in a Windows NT, 2000, or XP environment. Refer to the *Installation and Configuration Guide for the HP OpenView Management Portal Using Radia (Management Portal Guide)* for more information.

After initiating the installation, the Radia Client 4.x Installation Wizard runs. This section describes some of the ways that you can initiate the Radia client installation, and then describes the standard Radia Client 4.x Installation Wizard.

Initiating the Radia Client Installation from a Command Line

Before performing an installation from a command line, you must determine:

- how you are going to make the Radia client installation program available to your subscribers. You can do this via a Web page, FTP site, mapped drive, CD-ROM, or e-mail.
- what Radia client features (Application Manager, Software Manager, and Inventory Manager) you want to install and pass any additional arguments to the command line.

Example

The following is an example of a command line that will install the Software Manager silently and create a detailed Windows Installer log.

```
SETUP.EXE ADDLOCAL=NVDINSTALLRSM /qn /L*v
C:\Novadigm\install.log
```

The arguments in this command line, and others, are described in Table 4 on page 52 and Table 5 on page 53.

Specifying the Radia Client Features to Install

To specify the features that you want to install, use the appropriate feature state argument, such as ADDLOCAL, and specify the features that you want to install.

Table 4: Radia Client Feature State Arguments

Specify the following arguments	To set the feature state
ADDLOCAL	Type a comma-delimited list of features that you want set to "Will be installed on local hard drive."
REMOVE	Type a comma-delimited list of features that you want set to "Entire feature will be unavailable." This only removes the features—not the entire product. Therefore, if you use the REMOVE property and type each of the feature names, the core product will still be stored on your computer. If you want to remove the entire product, type REMOVE=ALL.

When specifying features on the command line, reference the Radia client features as follows:

- NVDINSTALLRAM installs the Application Manager.
- NVDINSTALLRSM installs the Software Manager.
- NVDINSTALLRIM installs the Inventory Manager.
- NVDINSTALLROM installs the OS Manager.
- NVDINSTALLPATCH installs the Patch Manager.
- NVDINSTALLSVR installs Server Management

For example, if you want to install the Application Manager and the Software Manager to the computer, the command line might be:

```
SETUP.EXE ADDLOCAL= NVDINSTALLRAM,NVDINSTALLRSM
```

Additional Command Line Arguments

Some additional arguments that you can pass to the installation program on the command line are described Table 5 below.

Table 5: Command Line Arguments

Sample	Sample
`/qn`	Performs a silent installation. Note: A silent installation is one that takes place without a user interface. Throughout our literature, the terms "silent installation," "quiet installation," and "unattended installation" are all used to refer to the same process.
`/qb`	Displays the progress bar only during the installation.
`/L*v` *`drive`*`:\install.log`	Creates a detailed Windows Installer log. Note: Using this option may impact the performance of the installation.
`/a TARGETDIR=` *`drive`*`:\targetdirectory`	Creates a Windows Installer AIP in the specified target directory. Note: A Windows Installer Administrative Installation Point (AIP) is also known as an Administrative Control Point (ACP). The target directory contains `RADIA.MSI`, the installation folders, setup.exe, and any files (such as `INSTALL.INI` or Visual Basic scripts) stored in the same directory as setup.exe. Once you have created the AIP, you can run setup.exe and pass the appropriate command line parameters. This starts the Windows Installer and passes the specified parameters to it.
`NVDINIFILE=path\INIfilename`	If you want to rename the installation INI file, pass this parameter to the command line. Be sure to include the fully qualified path. By default, the installation program refers to `INSTALL.INI` located in the current directory.

If you initiate a Radia client installation with a command line that does not contain the silent installation arguments (`/qn`), the Radia client Installation

Wizard opens. See Using the Radia Client Installation Wizard on page 55 for more information.

Initiating the Radia Client Installation from a Logon Script

You can use a logon script on an NT, Windows 2000, Windows Server 2003, XP, or Netware client to automate installation of the Radia clients.

To install the Radia clients automatically on subscriber's NT 4.0, Windows 2000 Professional, or XP computer, subscribers *must* have administrator rights on their local computers, and a domain controller must authenticate each subscriber's logon.

The following is an example of code that can be added to your logon script that installs the Radia 4.x Clients. If the Radia clients are *not* already installed when the subscriber logs on to the server, this logon script runs the Radia 4.x Client installation program.

Here is a sample logon script:

```
:begin
@echo off
if exist C:\progra~1\Novadigm\LIB\zmaster.edm goto skipinst
   start setup.exe /qn
:skipinst
if exist C:\progra~1\Novadigm\lib\zmaster.edm goto skipinst
```

To determine if the Radia clients already exist, the script checks to see if the ZMASTER object (`ZMASTER.EDM`) exists in its default location on the local computer.

The ZMASTER object begins the resolution process and is the first object exchanged during the Client Connect process.

If ZMASTER.EDM *exists*, the script skips the installation. If `ZMASTER.EDM` *does not* exist, the Radia 4.x Client installation program launches.

```
start setup.exe /qn
```

This command line performs a silent installation of the Radia clients.

Modify this script to reflect your organization's needs.

If you initiate a Radia client installation using a command line that does not contain the silent installation arguments, the Radia Client Installation

Wizard opens. See Using the Radia Client Installation Wizard below for more information.

Using the Radia Client Installation Wizard

If you initiate a Radia Client installation without the arguments for a silent installation, the Radia Client Installation Wizard opens. The following steps describe the standard installation procedure. These steps may vary based on `INSTALL.INI` or any arguments passed when running the installation.

To install Radia Clients using the Installation Wizard

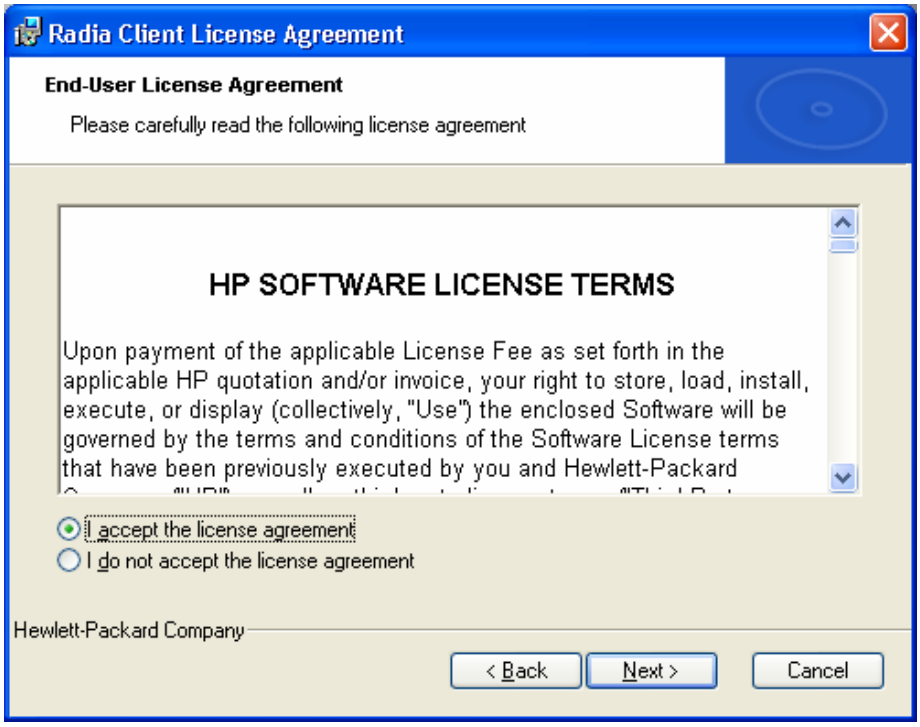
1 From the folder containing the Radia Client installation files, run `setup.exe`.

> You can initiate setup.exe from a command line, logon script, or from the Management Portal. Go to the beginning of this chapter for more information.

The Radia Client Installation Wizard opens.

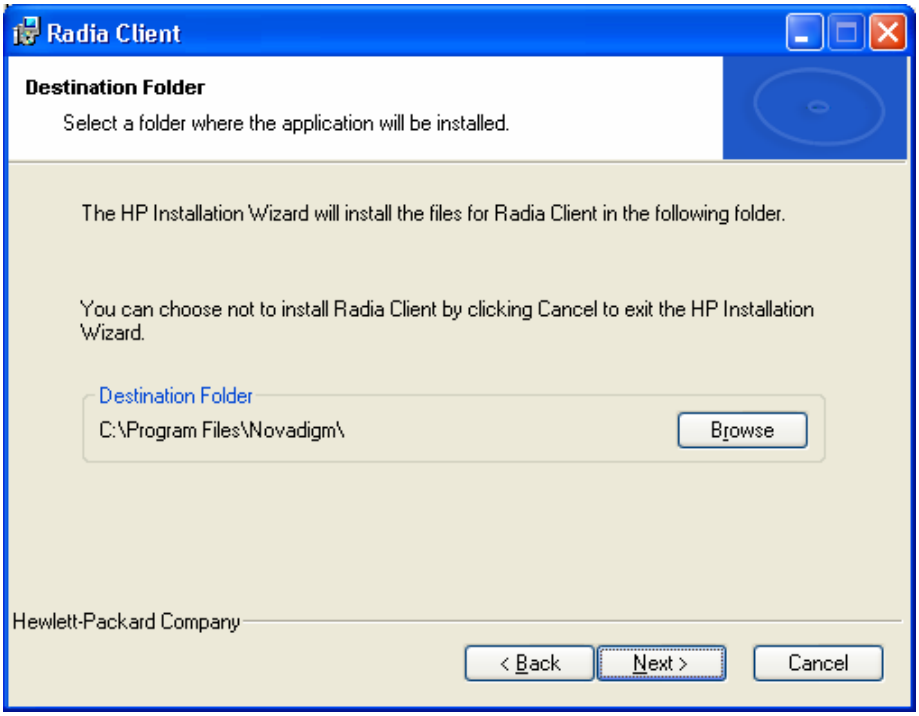
2 Click **Next**.

The License Agreement window opens.



3 After reading and accepting the license agreement, click **Next**.

The Destination Folder window opens. The default location for the Radia Clients is *SystemDrive*:\Program Files\Novadigm.

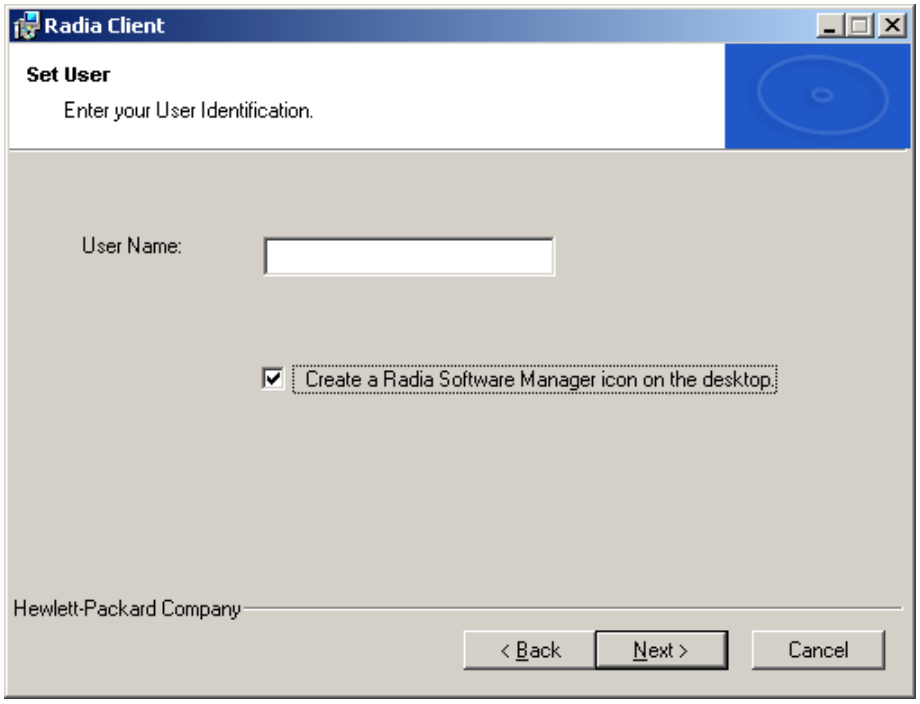


If you want to select a different destination for the Radia Client, click **Browse** and then navigate to the appropriate destination folder. This overrides the value set for INSTALLDIR in `INSTALL.INI`.

4 Click **OK** to continue.

5 Click **Next**.

The Set User window opens.



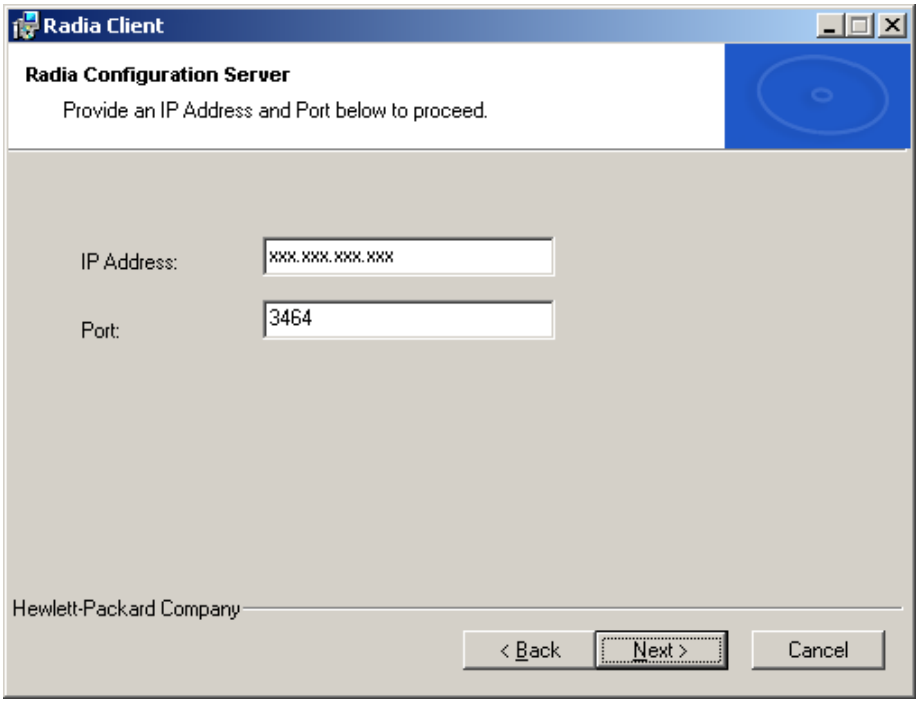
6 In the **User Name** text box, type the name of the subscriber for whom you are installing the Radia Clients. This overrides the value set for IDENTIFICATION in `INSTALL.INI`.

7 Select the **Create a Radia Software Manager icon on the desktop** check box if necessary.

> This check box is not available in Windows 98. By default NVDSHORTCUT=Y, which means a shortcut will appear on the subscriber's desktop. Use NVDSHORTCUT=N to hide the shortcut. See the description of NVDSHORTCUT in Table 1 on page 36.

8 Click **Next**.

The Radia Configuration Server window opens.

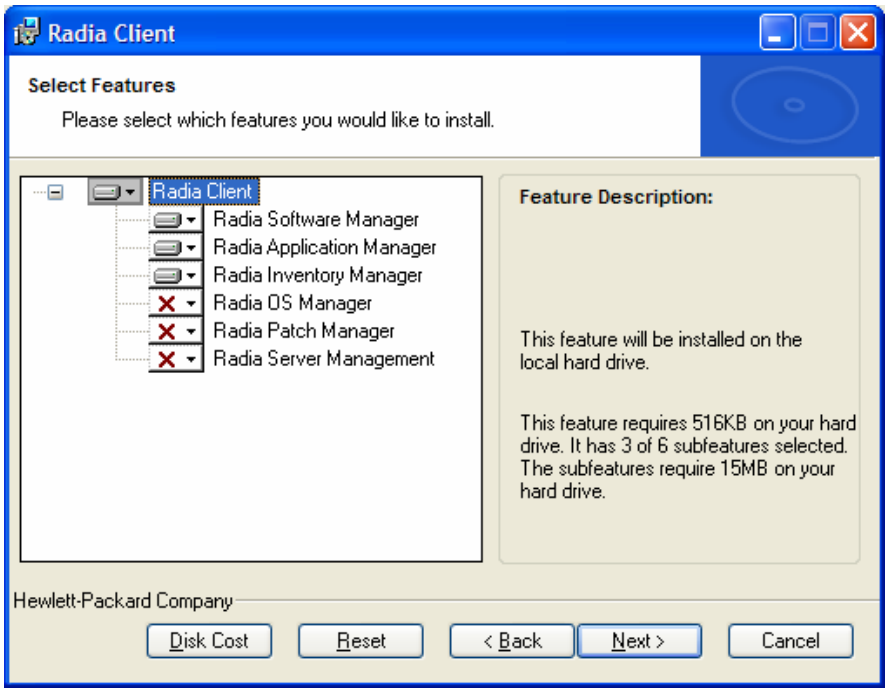


9 In the **IP Address** text box, type the IP address for the Radia Configuration Server. This overrides the value set for RESOLUTIONMANAGER in `INSTALL.INI`.

10 In the **Port** text box, type the port number. This overrides the value set for RESOLUTIONPORT in `INSTALL.INI`.

11 Click **Next**.

The Select Features window opens.

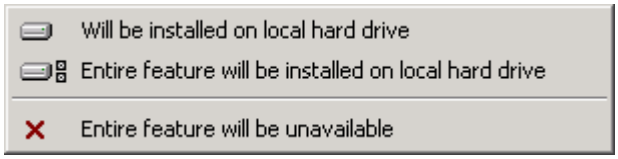


The Radia Software Manager Client is not available for computers running Windows 95. If you use this installation program, the Radia Software Manager will not be an option.

12 Click to select the features that you want to install.

Each time you click , a shortcut menu for that feature opens (see the next figure).

Only install the Radia Clients for which you are licensed.



13 From the shortcut menu, select an installation option. These options are described in Table 6 below.

Table 6: Feature Settings for Radia Clients

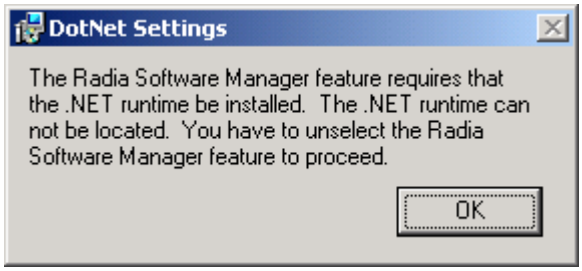
Option	Description
Will be installed on local hard drive	Installs the top-level feature on the local hard drive, but not any sub-features listed below.
Entire feature will be installed on local hard drive	Installs the entire feature, including any sub-features listed below. Note: In this installation program, selecting this option or the "Will be installed on local hard drive" option for the Software Manager, Application Manager, or Inventory Manager results in the same installation because these features do not contain sub-features. Example: If you selected this option for the Radia Client feature in the Select Features window, all of the Radia Clients would be installed on the local hard drive.
Entire feature will be unavailable	The feature will not be installed. If previously installed this feature will be removed.

If you want to set the same options for all of the features, you can click **Radia Client** and select the appropriate option to apply the setting to all features.

Click **Disk Cost** to see an overview of the disk space needed for the installation.

14 Click **Next**.

If .NET is not installed on the client computer and you have chosen to install the Radia Software Manager, .NET will be installed during the Radia Client installation. However, if you copied the installation program to your computer and did not include the `\DotNet` folder, the DotNet Settings message in the next figure opens.

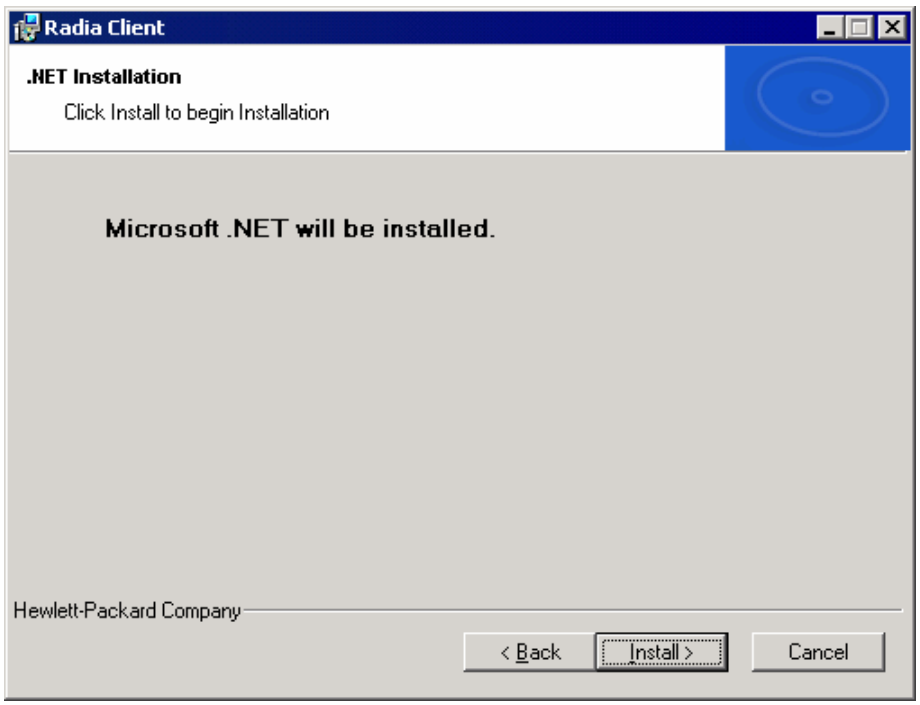


15 Click **OK**.

If you do not want to install the Software Manager, you can set this feature to be unavailable and then proceed. If you want to install the Software Manager, you must copy the `\DotNet` folder to your computer. Be sure to copy this folder to the same directory where setup.exe is stored. Then, run setup.exe again.

16 If necessary, click **Next** again.

If .NET is not already installed on the computer, the .NET Installation window opens.



17 Click **Next**.

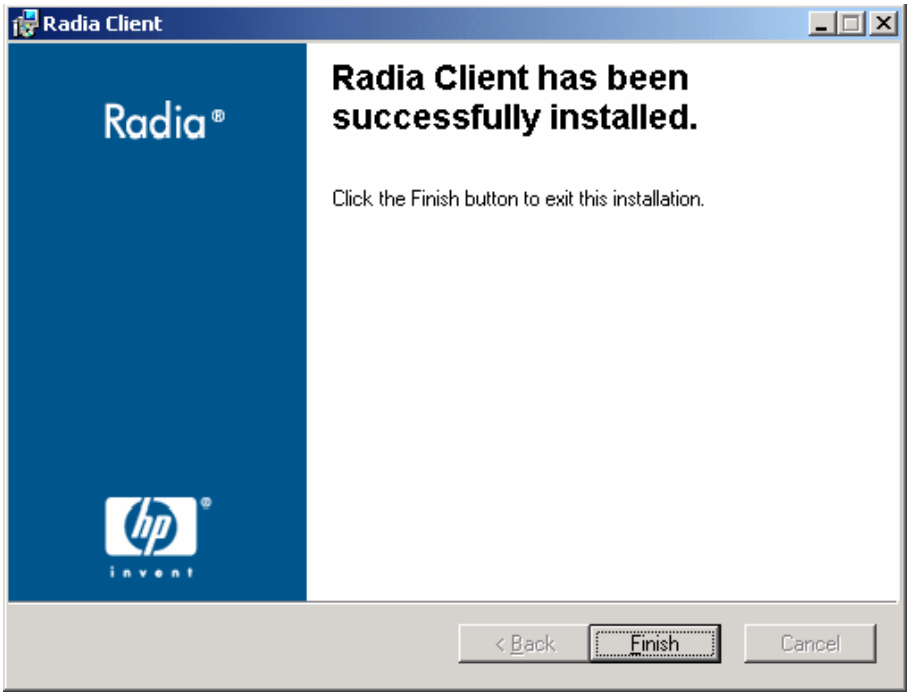
If you have installed .NET Beta, be sure to remove it before installing .NET.

The Ready to Install the Application window opens.

18 Click **Install** to begin the installation.

If necessary, the .NET Framework Setup wizard opens. Follow the prompts to install .NET on the client computer. After .NET is successfully installed, the Radia Client installation begins.

When the installation is done, the next window opens.



19 Click **Finish** to close the Installation Wizard.

Removing the Radia Clients

The Windows Installer installation program offers the ability to remove your Radia 4.x Clients. This section describes how to remove the Radia Client using the Installation Wizard and using a command line.

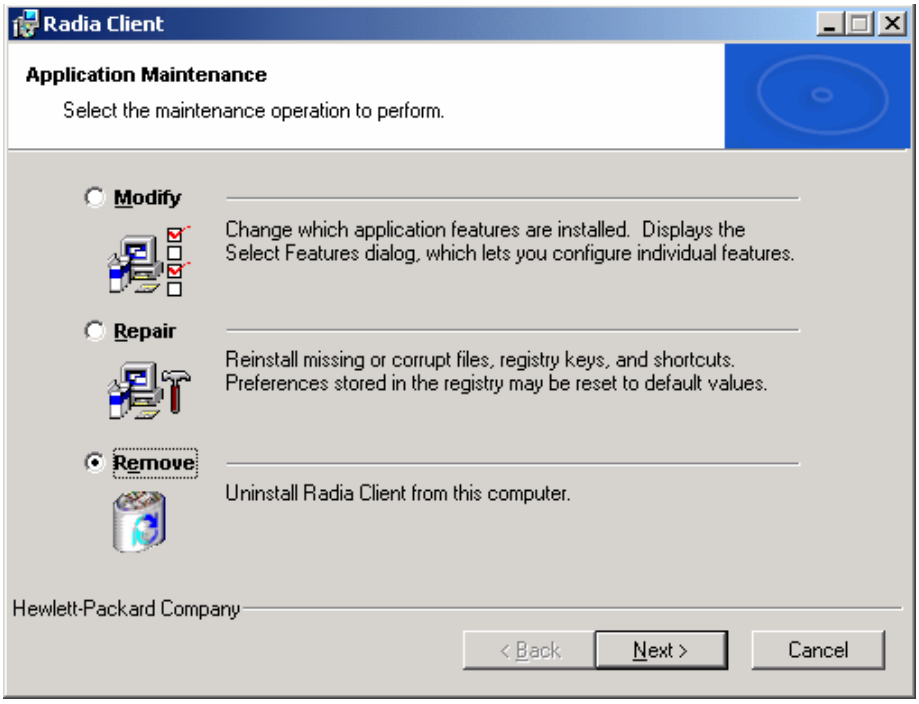
Using the Installation Wizard to Remove Radia Clients

This section describes how to remove the Radia Client using the Installation Wizard.

To remove specific features of the Radia Client, use the Modify option on the Application Maintenance window. This is discussed in Modifying the Radia Client Installation on page 72.

To remove Radia Clients using the Installation Wizard

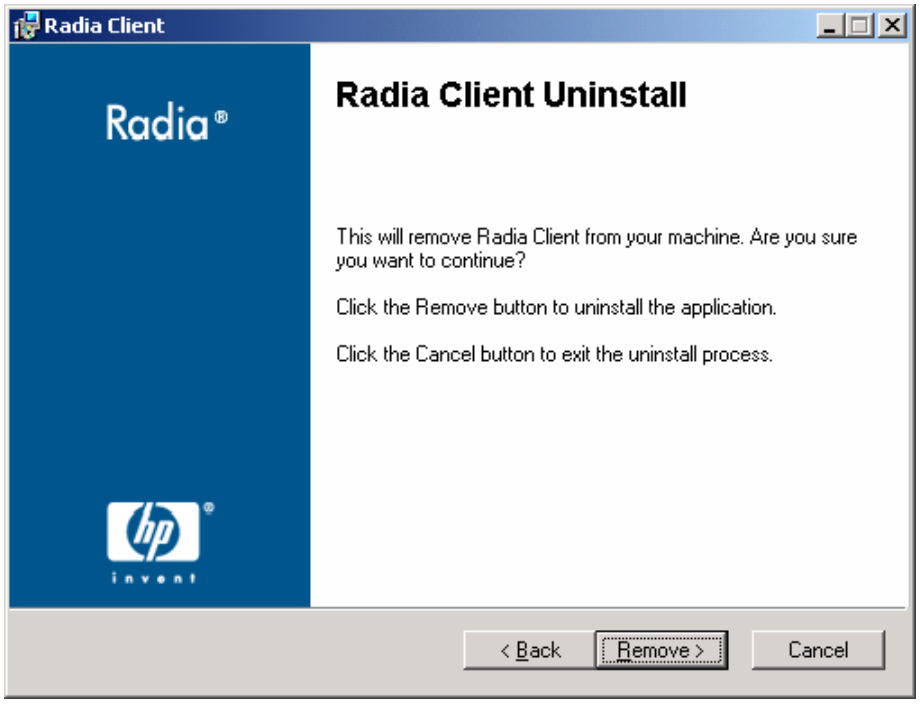
1 From the folder containing the Radia Client installation files, double-click `setup.exe`. The Application Maintenance window opens.



2 Select the **Remove** option.

3 Click **Next**.

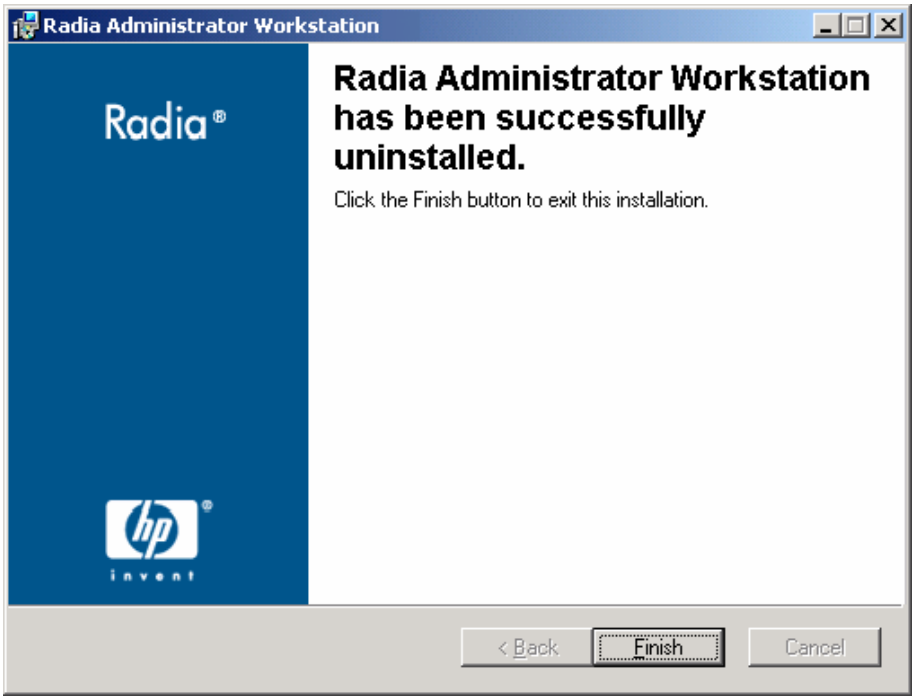
The Radia Client Uninstall window opens.



4 Click **Remove.**

The files for all Radia Clients are removed from the computer.

The Radia Client has been successfully uninstalled window opens.



5 Click **Finish**.

Using a Command Line to Remove Radia Clients

This section describes how to remove Radia Clients using a command line.

To remove Radia Clients using a command line

- From the folder containing the Radia Client installation files, type the following command line:

  ```
  SETUP.EXE REMOVE=ALL
  ```

  See Initiating the Radia Client Installation from a Command Line on page 51 for additional arguments.

  OR

  If you would like to remove a single Radia Client, type a comma-delimited list of the features that you want to remove on the command line.

Reference the features for the Radia 4.x Client installation as follows:

- Application Manager NVDINSTALLRAM
- Software Manager NVDINSTALLRSM
- Inventory Manager NVDINSTALLRIM
- OS Manager NVDINSTALLROM
- Patch Manager NVDINSTALLPATCH
- Server Management NVDINSTALLSVR

Example

If you want to silently remove the Software Manager and Application Manager, type:

```
SETUP.EXE REMOVE=NVDINSTALLRSM,NVDINSTALLRAM /qn
```

This only removes the features—not the entire product. Therefore, if you use the REMOVE argument and type each of the feature names, the core product will still be stored on your computer.

Repairing the Radia Clients

The Windows Installer installation program offers the ability to repair your Radia 4.x Clients. For example, if you have a missing Radia Client module, you can use this tool to repair the installation. This tool will not overwrite modules that exist on the client computer if they are newer than the ones provided with the installation.

This section describes how to repair Radia Clients using the Installation Wizard and using a command line.

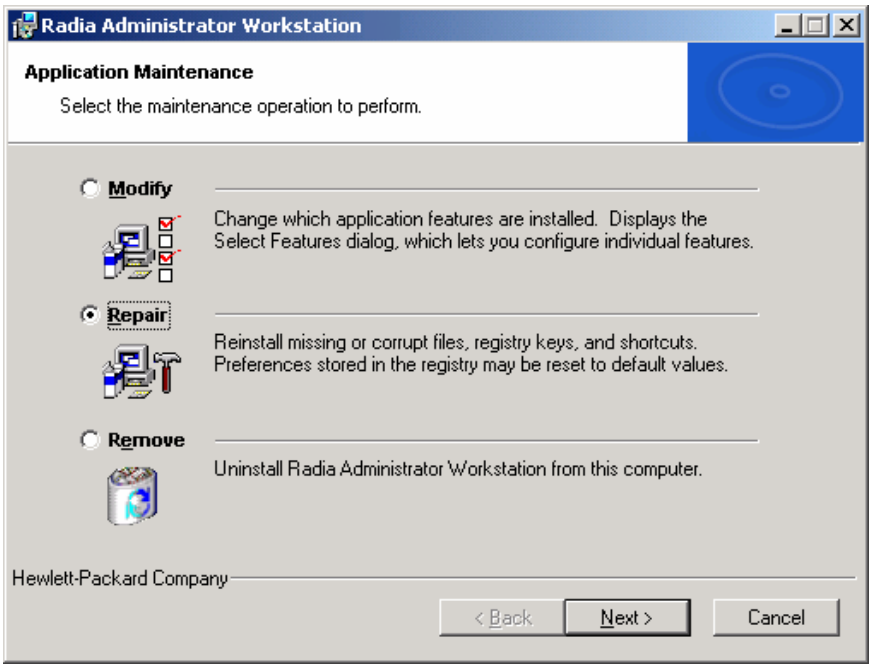
Using the Installation Wizard to Repair Radia Clients

This section describes how to repair Radia Clients using the Installation Wizard.

To repair Radia Clients using the Installation Wizard

1 From the folder containing the Radia Client installation files, double-click **setup.exe**.

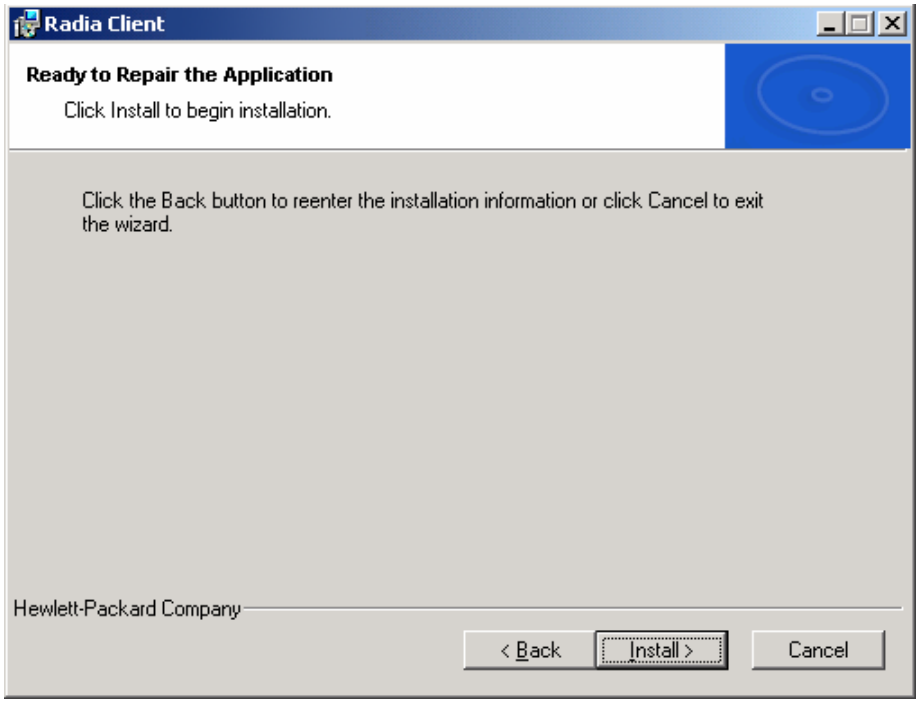
The Application Maintenance window opens.



2 Select the **Repair** option.

3 Click **Next**.

The Ready to Repair the Application window opens.



4 Click **Next**.

When the repair is done, the Radia Client has been successfully installed window opens.

5 Click **Finish**.

Using a Command Line to Repair Radia Clients

This section describes how to repair Radia Clients using a command line.

To repair Radia Clients using a command line

- From the folder containing the Radia Client installation files, type the following command line:

```
msiexec /f RADIA401.MSI
```

Additional parameters can be used with this command line. For more information, see your Windows Installer documentation.

Modifying the Radia Client Installation

The Windows Installer installation program offers the ability to modify your Radia 4.x Client installation by adding or removing individual features. This section describes how to modify the installation of Radia Clients using the Installation Wizard and using a command line.

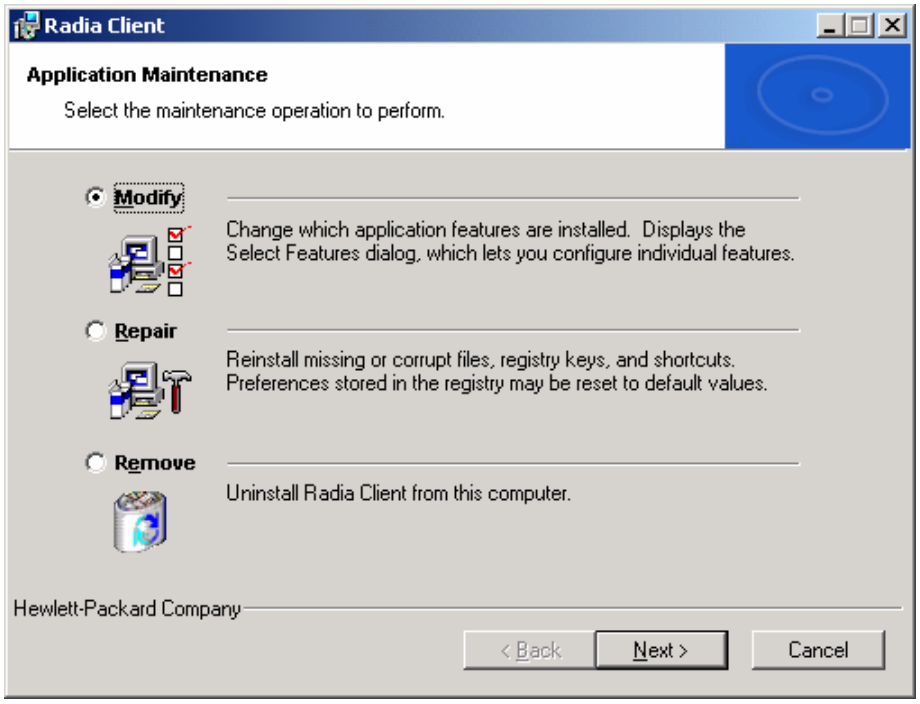
Using the Installation Wizard to Modify the Installation of Radia Clients

This section describes how to modify the installation of Radia Clients using the Installation Wizard.

To modify the installation of Radia Clients using the Installation Wizard

1 From the folder containing the Radia Client installation files, double-click **setup.exe**.

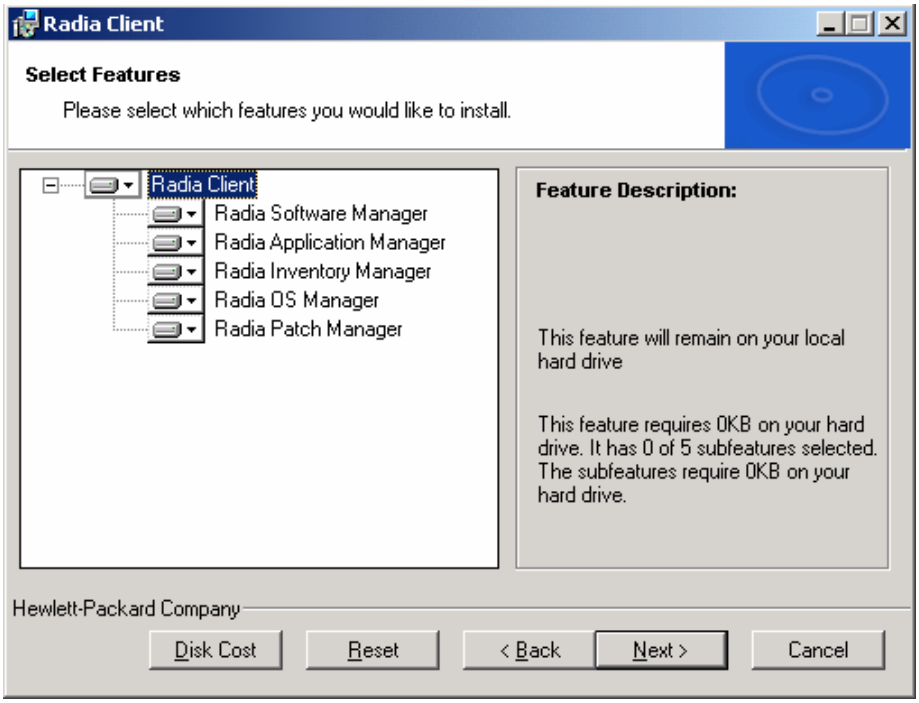
The Application Maintenance window opens.



2 Select the **Modify** option.

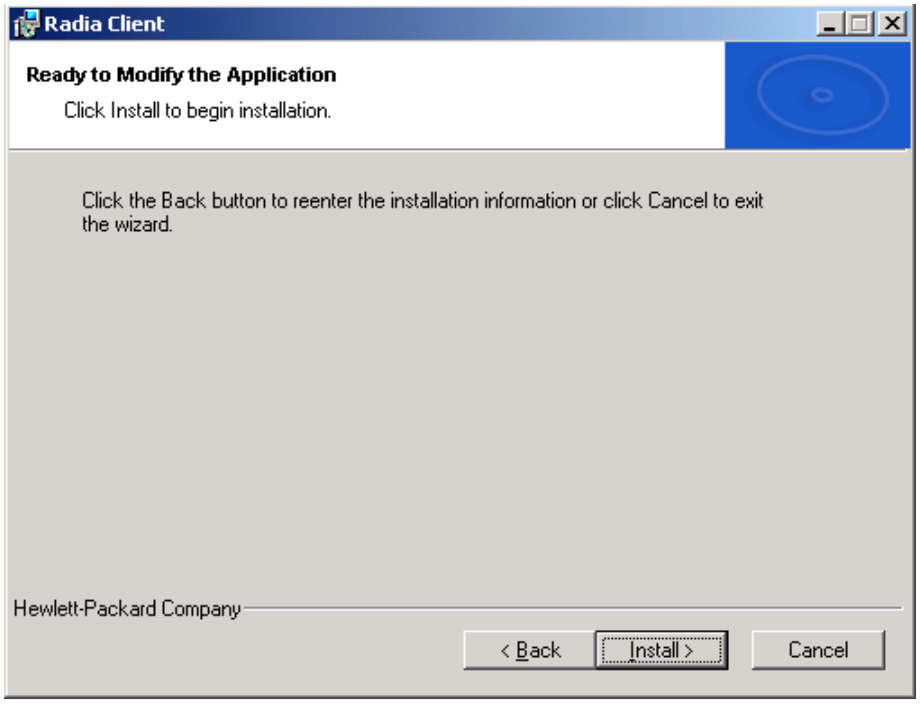
3 Click **Next**.

The Select Features window opens. See Using the Radia Client Installation Wizard on page 64 for information about how to use this window.



4 Click **Next**.

The Ready to Modify the Application window opens.



5 Click **Next**.

The Radia Client has been successfully installed window opens.

6 Click **Finish** to close the installation program.

Using a Command Line to Modify the Installation of Radia Clients

This section describes how to modify the installation of Radia Clients using a command line.

To modify the installation of Radia Clients using a command line

- From the folder containing the Radia Client installation files, type the following command line:

```
SETUP.EXE FeatureStateArgument=feature1,feature2
```

Table 7: Radia Client Feature State Arguments

Specify the following arguments	To set the feature state
ADDLOCAL	Type a comma-delimited list of features that you want set to "Will be installed on local hard drive."
REMOVE	Type a comma-delimited list of features that you want set to "Entire feature will be unavailable." This only removes the features—not the entire product. Therefore, if you use the REMOVE property and type each of the feature names, the core product will still be stored on your computer. If you want to remove the entire product, type REMOVE=ALL.

Reference the features for the Radia 4.x Client installation as follows:

- Application Manager NVDINSTALLRAM
- Software Manager NVDINSTALLRSM
- Inventory Manager NVDINSTALLRIM
- OS Manager NVDINSTALLROM
- Patch Manager NVDINSTALLPATCH
- Server Management NVDINSTALLSVR

Example

If you want to install the Software Manager, and to make the Inventory Manager and Application Manager unavailable, you would use the following command line:

```
SETUP.EXE ADDLOCAL=NVDINSTALLRSM
REMOVE=NVDINSTALLRIM,NVDINSTALLRAM
```

See Initiating the Radia Client Installation from a Command Line on page 51 for additional arguments.

Using a Pre-Install Script

Use Visual Basic scripts to customize MSI properties that affect the installation. The following is a very simple Visual Basic script, which is intended to be an example only.

Be sure to use the NVDPRECAPATH argument to specify the fully qualified path and filename of a custom Visual Basic pre-install script in `INSTALL.INI` or on the command line. See the description of NVDPRECAPATH in Table 1 on page 36.

Here is a sample pre-install script:

```
' The following sample demonstrates fetching an MSI property, then setting the
same property.
' The property values are displayed in message boxes for debugging purposes.
Option Explicit
msgbox Session.Property("ALLUSERS")
Session.Property("ALLUSERS") = "1"
msgbox Session.Property("ALLUSERS")
```

You can use a pre-install script to override the property settings of the arguments that control the behavior of the Software Manager, such as those in the [ARGS] section of `INSTALL.INI`, as well as the attribute values for Radia objects, such as those specified in the [OBJECTS] section of `INSTALL.INI`.

New objects or properties must be defined in `INSTALL.INI`:

You can use a pre-install script to override a value for the object or property, but if you attempt to specify a new object or property in the pre-install script, it will be ignored.

To override property settings or attributes for objects

Be sure to type the name of the property or the object and its attribute such as NVDOBJZMASTER_ZDSTSOCK in all uppercase.

- Use the prefix `NVDARG` to override property settings.

For example, if you want to override the value set for the identification property, which identifies the subscriber session to the Configuration Server, type:

```
Session.Property("NVDARGIDENTIFICATION")="jenns"
```

- Use the prefix `NVDOBJ` to override object attributes.

  For example, if you want to override the value set for the ZDSTSOCK attribute of the ZMASTER object, which is the port setting for the Configuration Server, type:

  ```
  Session.Property("NVDOBJZMASTER_ZDSTSOCK")="3462"
  ```

Using a Post-Install Script

Use custom Visual Basic, REXX, or Tcl scripts to run processes after installing Radia Clients. For example, your post-install script can initiate a connection to the Configuration Server in order to process mandatory applications.

Be sure to use the NVDPOSTCAPATH argument to specify the fully qualified path and filename of the custom Visual Basic or REXX post-install script in `INSTALL.INI` or on the command line. See the description of NVDPOSTCAPATH in Table 1 on page 36. For example, if you want to run a script called `redstart.rex`, uncomment and set `NVDPOSTCAPATH=C:\Progra~1\Novadigm\radstart.rex`.

Include the script in the `\maint` folder of the client install. It will automatically get copied into IDMSYS. A script example is shown below:

The following is a sample REXX from a post install script.

```
/** RADSTART.REX                                                          **/
/**                                                                       **/
/** DESCRIPTION:                                                          **/
/** Client Rexx will perform a Radia connection to an RCS defined in the **/
/** install.ini to process all mandatory applications.                    **/
/**                                                                       **/
/** AUTHOR:           HP                                                  **/
/** LANGUAGE:         REXX                                                **/
/**                                                                       **/
/***************************************************************************/
/* trace i */

fullcmd = 'HIDE radntfyc localhost wait radskman context=m,log=connect_initial.log'
call edmcmd fullcmd;
```

Summary

- The Radia Client installation program consists of one package with six feature sets: Application Manager, Inventory Manager, Software Manager, OS Manager, Patch Manager and Server Management.
- You can install the Radia Clients using a command line or using the Installation Wizard.
- Customize your installation to suit your enterprise.
- Create pre-install and post-install scripts to run processes before or after the clients are installed.

3 Installing the Administrator Workstation

At the end of this chapter, you will:

- Understand the system requirements for installing the Administrator Workstation.
- Be familiar with the installation files.
- Know how to install the Administrator Workstation using the Installation Wizard and command lines.
- Understand the feature settings of the Administrator Workstation.
- Know how to remove and repair the Administrator Workstation using the Installation Wizard and command lines.

The Administrator Workstation installation program uses the Microsoft MSI format for Windows Installer. The program consists of one MSI package with four feature sets— Packager, System Explorer, Client Explorer, and Screen Painter.

System Requirements

- Clean computer. (A **clean computer** is a computer with only the target subscriber's operating system installed.)
- Windows 98, NT 4.0, 2000, XP, or Server 2003.
- TCP/IP connection to the Configuration Server.
- Minimum resolution of 800 x 600.
- MS Windows Installer Version 2.0 or higher.
  The MSI 2.0 installation program is available in the `management_infrastructure\administrator_workstation\win32\msi` folder on the Radia Infrastructure CD-ROM. If Windows Installer does not exist, or if an earlier version is detected on the computer, the MSI 2.0 installation program runs automatically.
- For Windows NT, 2000, XP, or Server 2003, you must have administrator rights to the computer to install the Administrator Workstation.

About the Installation Files

setup.exe

`setup.exe` is stored on the Radia Infrastructure CD-ROM in the `management_infrastructure\administrator_workstation\win32\` folder. It accepts any command line parameters and passes them to Windows Installer.

You can also create a Windows Installer Administrative Installation Point (AIP) for network installations.

A Windows Installer Administrative Installation Point (AIP) is also known as an Administrative Control Point (ACP).

The AIP starts Windows Installer and passes any command line parameters to it. To create the Windows Installer Administrative Installation Point (AIP) in a specified target directory, type:

```
SETUP.EXE /a TARGETDIR=drive:\targetdirectory /qb
```

The target directory contains RADADMIN40.MSI, the installation folders, and setup.exe.

RADADMIN40.MSI

`RADADMIN40.MSI` is the MSI database file, which contains the default configuration information for the installation. This file is stored on the Radia Infrastructure CD-ROM in the `management_infrastructure \administrator_workstation\win32\` folder.

Installing the Administrator Workstation

This section describes how to install the Administrator Workstation using the Installation Wizard and using a command line.

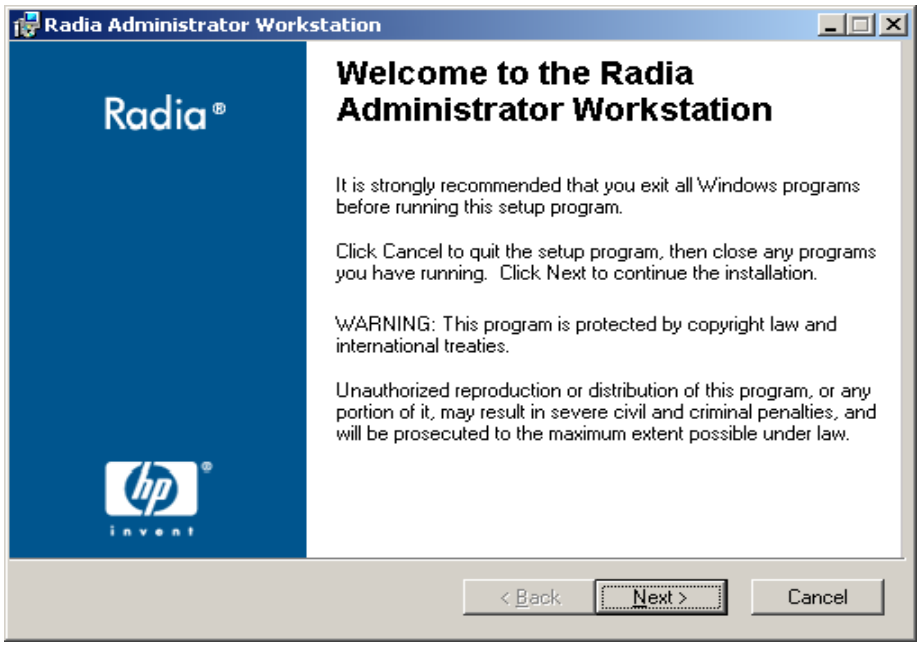
Using the Installation Wizard to Install the Administrator Workstation

This section describes how to install the Administrator Workstation for Windows using the Installation Wizard.

To install the Administrator Workstation using the Installation Wizard

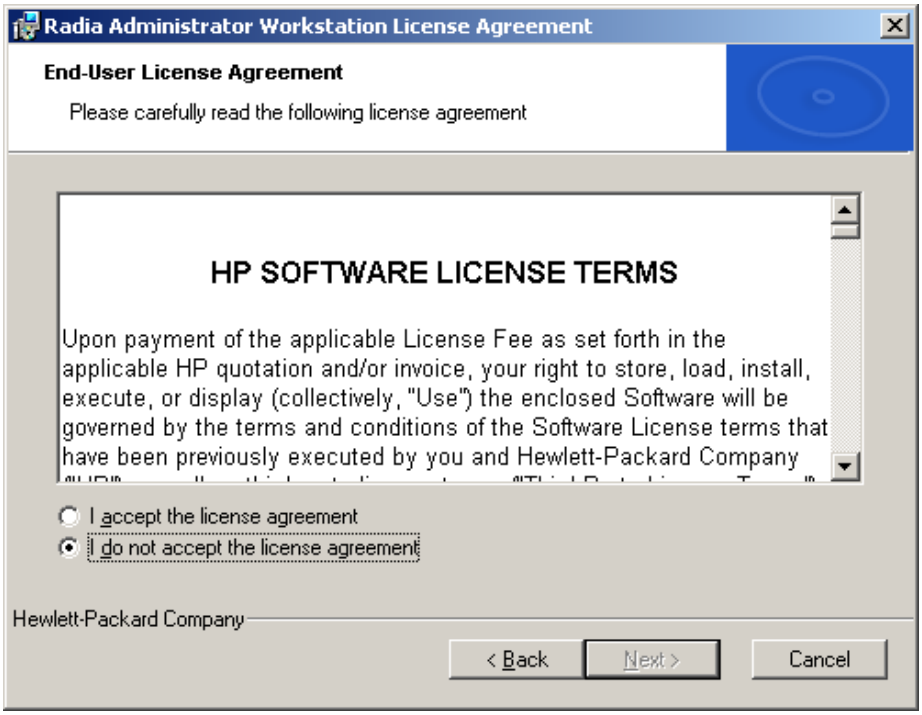
1 From the folder containing the Administrator Workstation installation files, run `setup.exe`.

The Administrator Workstation Installation Wizard opens.



2 Click **Next**.

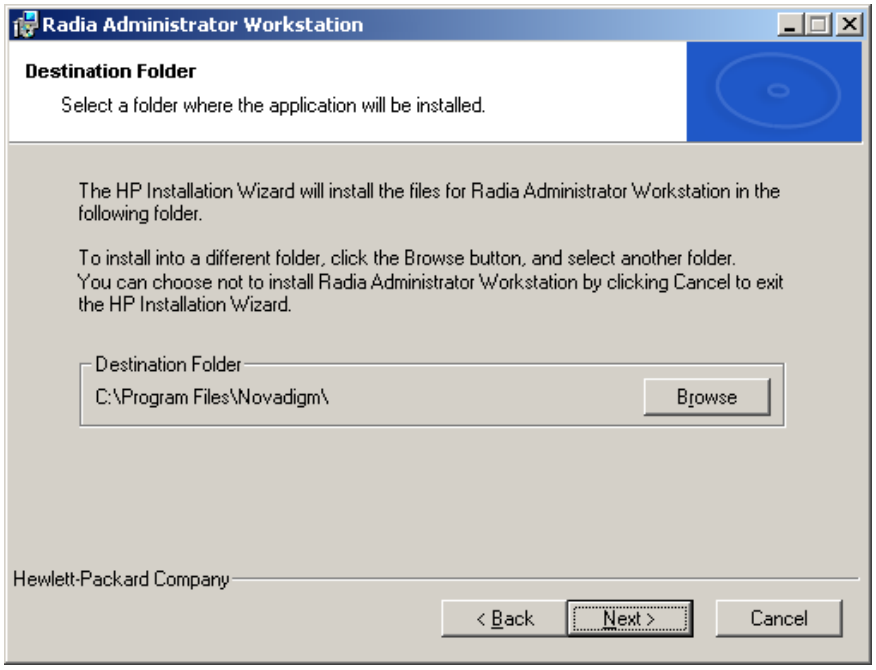
The License Agreement window opens.



3 After reading and accepting the license agreement, click **Next**.

If the Radia client is not installed on the computer, the Destination Folder window opens.

If the Radia client is already installed on the computer, this window will not open and the Administrator Workstation is installed in the same location as the Radia client.

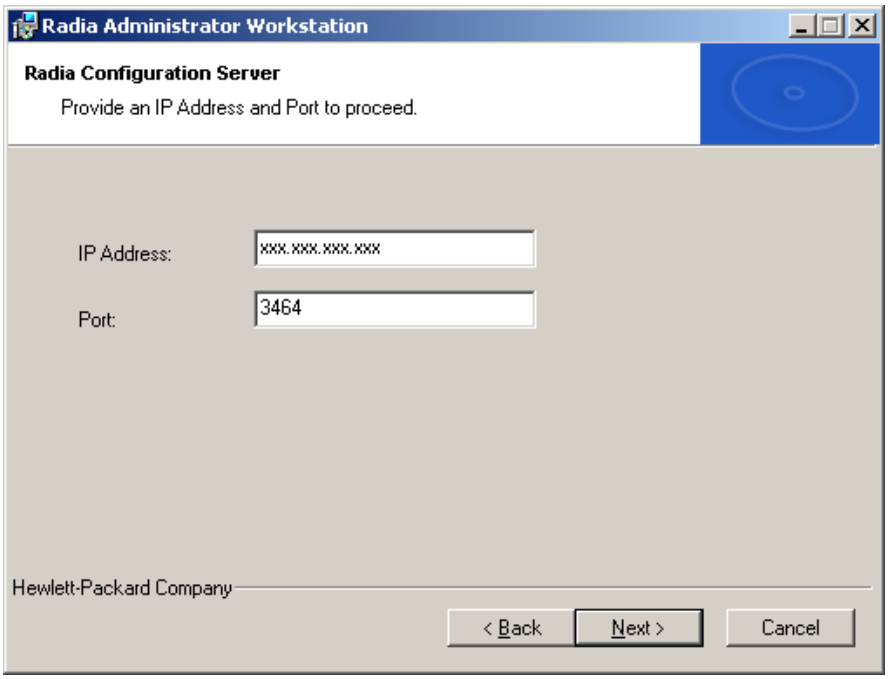


If you want to select a different destination for the Administrator Workstation, click **Browse**, and then navigate to the appropriate destination folder.

Click **OK** to continue.

4 Click **Next**.

The Configuration Server window opens.

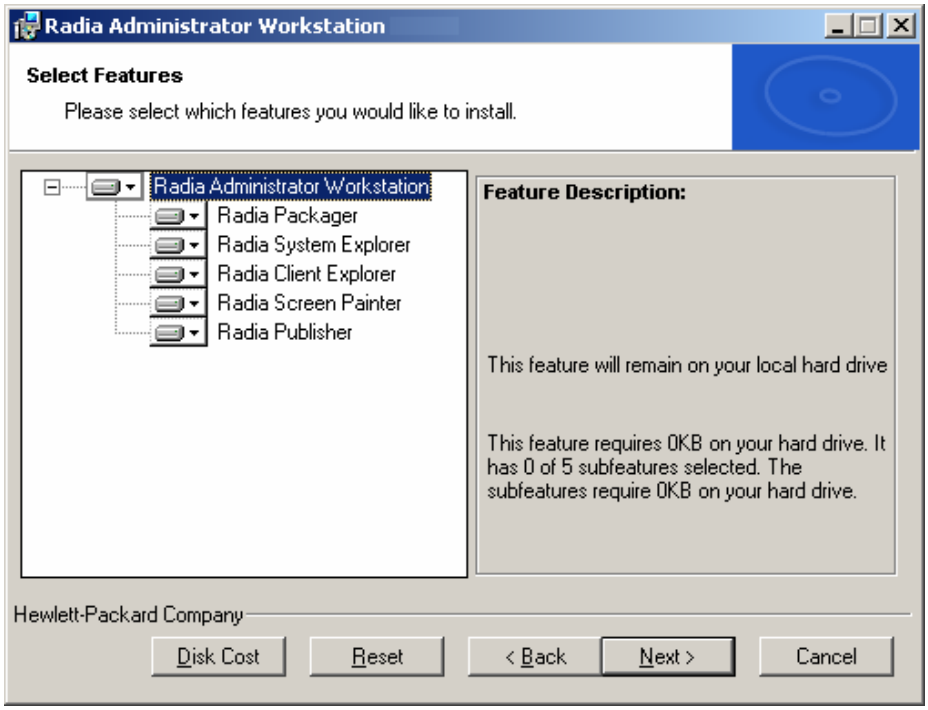


5 In the **IP Address** text box, type the IP address for the Configuration Server.

6 In the **Port** text box, type the port number (default is 3464).

7 Click **Next**.

The Select Features window opens.

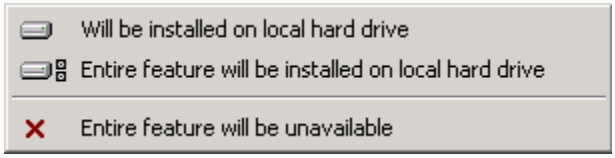


8 Click to select the features that you would like to install.

Tips!

- If you want to set the same options for all of the features, you can click next to **Administrator Workstation** and select the appropriate option to apply the setting to all features.
- Click **Disk Cost** to see an overview of the disk space needed for the installation.

Each time you click a shortcut menu for that feature opens.



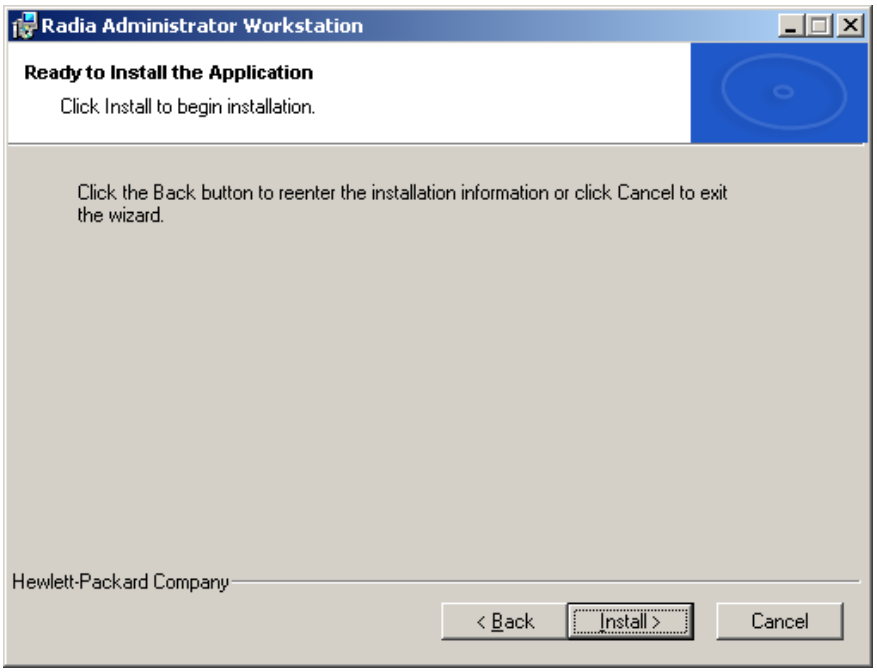
9 From the shortcut menu, select an installation option. These options are described in Table 8 on page 89.

Table 8: Feature Settings for the Administrator Workstation

Option	Description
Will be installed on local hard drive	Installs the top-level feature on the local hard drive, but not any sub-features listed below.
Entire feature will be installed on local hard drive	Installs the entire feature, including any sub-features listed below. Note: In this installation program, selecting this option or the "Will be installed on local hard drive" option for any of the features results in the same installation because these features do not contain sub-features.
Entire feature will be unavailable	The feature will not be installed. If previously installed, this feature will be removed.

10 Click **Next**.

The Ready to Install the Application window opens.



11 Click **Install** to begin the installation.

When the installation is done, the Administrator Workstation has been successfully installed window opens.

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

Using a Command Line to Install the Administrator Workstation

You can also use the command line to run the Administrator Workstation installation program For example, if you want to install only the Packager on a computer, the command line that you run from the directory containing the Administrator Workstation installation files might be:

```
SETUP.EXE ADDLOCAL=NVDINSTALLPACKAGER
```

Specifying the Features to Install

To specify the features that you want to install, use the appropriate feature state argument, such as ADDLOCAL, and specify the features that you want to install.

Table 9: Radia Administrator Workstation Feature State Arguments

Specify the following arguments	To set the feature state
ADDLOCAL	Type a comma-delimited list of features that you want set to "Will be installed on local hard drive."
ADDSOURCE	Type a comma-delimited list of features that you want set to "Will be installed to run from network."
ADVERTISE	Type a comma-delimited list of features that you want set to "Feature will be installed when required."
REMOVE	Type a comma-delimited list of features that you want set to "Entire feature will be unavailable." This only removes the features—not the entire product. Therefore, if you use the REMOVE property and type each of the feature names, the core product will still be stored on your computer. If you want to remove the entire product, type REMOVE=ALL.

When specifying features on the command line, reference the Administrator Workstation features as follows:

- NVDINSTALLPACKAGER Packager
- NVDINSTALLPUBLISHER Publisher
- NVDINSTALLSYSTEMEXPLORER System Explorer
- NVDINSTALLCLIENTEXPLORER Client Explorer
- NVDINSTALLSCREENPAINTER Screen Painter

For example, if you want to install the System Explorer and the Client Explorer to the computer, the command line might be:

```
SETUP.EXE ADDLOCAL=
NVDINSTALLSYSTEMEXPLORER,NVDINSTALLCLIENTEXPLORER
```

If you run the installation from a command line, be sure to pass the IP address for the Configuration Server to the installation. For example:

`SETUP.EXE NVDOBJZMASTER_ZIPADDR=10.10.10.1`

Additional Command Line Arguments

Some additional arguments that you can pass to the installation program on the command line are described in Table 10 below.

Table 10: Command Line Arguments

Argument	Description
`/qn`	Performs a silent installation.
`/qb`	Displays the progress bar only during the installation.
`/l*v` *`drive`*`:\install.log`	Creates a detailed Windows Installer log. Note: Using this option may impact the performance of the installation.
`/a TARGETDIR=` *`drive`*`:` `\targetdirectory`	Creates a Windows Installer AIP in the specified target directory. Note: A Windows Installer Administrative Installation Point (AIP) is also known as an Administrative Control Point (ACP). The target directory contains `RADADMIN40.MSI`, the installation folders, and setup.exe. Once you have created the AIP, you can run setup.exe and pass the appropriate command line parameters. This starts the Windows Installer and passes the specified parameters to it.

Removing the Administrator Workstation

The Windows Installer installation program offers the ability to remove the Radia Administrator. This section describes how to remove the Administrator Workstation using the Installation Wizard and using a command line.

Using the Installation Wizard to Remove the Administrator Workstation

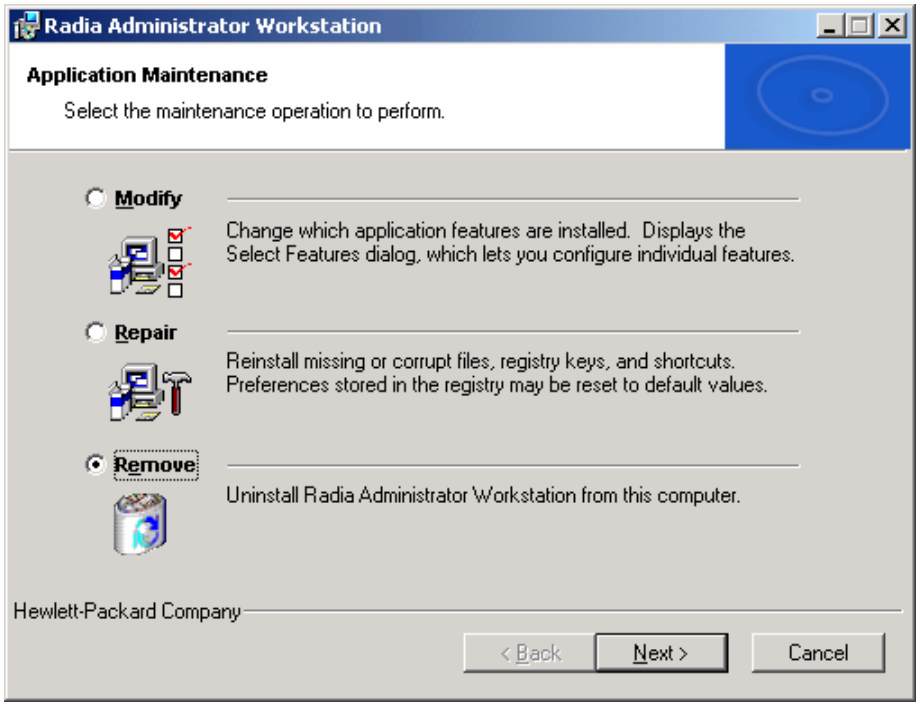
This section describes how to remove (uninstall) the Administrator Workstation using the Installation Wizard.

To remove specific features of the Administrator Workstation, use the Modify option on the Application Maintenance window. This is discussed in Modifying the Administrator Workstation Installation on page 102.

To remove the Administrator Workstation using the Installation Wizard

1 From the folder containing the Administrator Workstation installation files, double-click **setup.exe**.

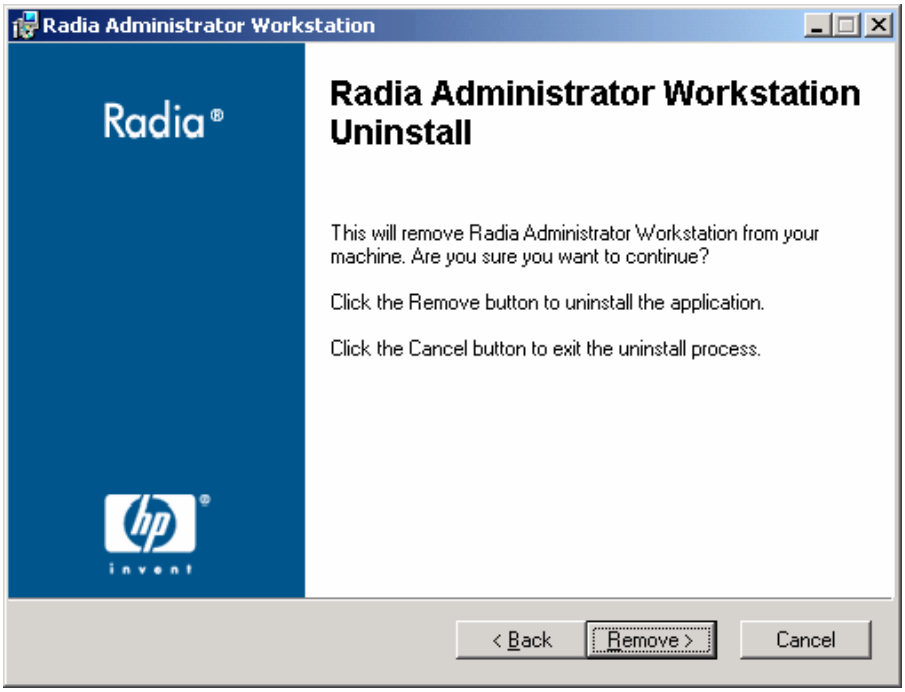
The Application Maintenance window opens.



2 Select the **Remove** option.

3 Click **Next**.

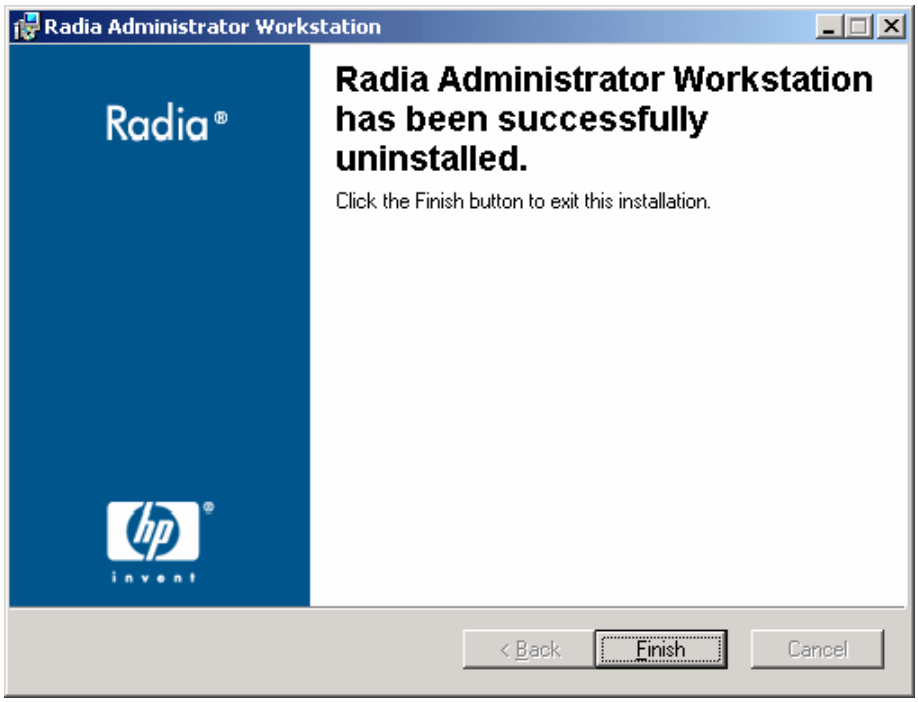
The Administrator Workstation Uninstall window opens.



4 Click **Next**.

The files for the Administrator Workstation are removed from the computer.

The Administrator Workstation has been successfully uninstalled window opens.



5 Click **Finish**.

Using a Command Line to Remove the Administrator Workstation

This section describes how to remove (uninstall) the Administrator Workstation using a command line.

To remove the Administrator Workstation using a command line

- From the folder containing the Administrator Workstation installation files, type the following command line:

```
SETUP.EXE REMOVE=ALL
```

or

If you would like to remove a single Administrator Workstation feature, type a comma-delimited list of the features that you want to remove on the command line.

Example

If you want to silently remove the System Explorer and Client Explorer, type:

```
SETUP.EXE REMOVE=NVDINSTALLSYSTEMEXPLORER,
NVDINSTALLCLIENTEXPLORER /qn
```

Reference the features for the Radia 4.x Administrator Workstations as follows:

- Packager NVDINSTALLPACKAGER
- Publisher NVDINSTALLPUBLISHER
- System Explorer NVDINSTALLSYSTEMEXPLORER
- Client Explorer NVDINSTALLCLIENTEXPLORER
- Screen Painter NVDINSTALLSCREENPAINTER

This only removes the features—not the entire product. Therefore, if you use the REMOVE property and type each of the feature names, the core product will still be stored on your computer.

Repairing the Administrator Workstation

The Windows Installer installation program offers the ability to repair the Administrator Workstation. For example, if you have a missing Administrator Workstation module, you can use this tool to repair the installation. This tool will not overwrite modules that exist on the computer if they are newer than the ones provided with the installation.

This section describes how to repair the Administrator Workstation using the Installation Wizard and using a command line.

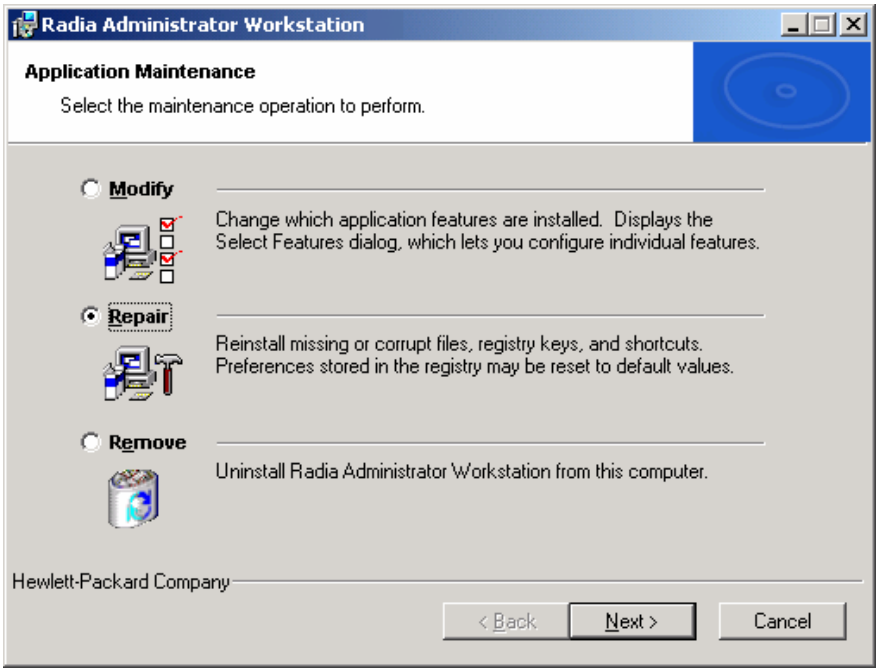
Using the Installation Wizard to Repair the Administrator Workstation

This section describes how to repair the Administrator Workstation using the Installation Wizard.

To repair the Administrator Workstation using the Installation Wizard

1 From the folder containing the Administrator Workstation installation files, double-click **setup.exe**.

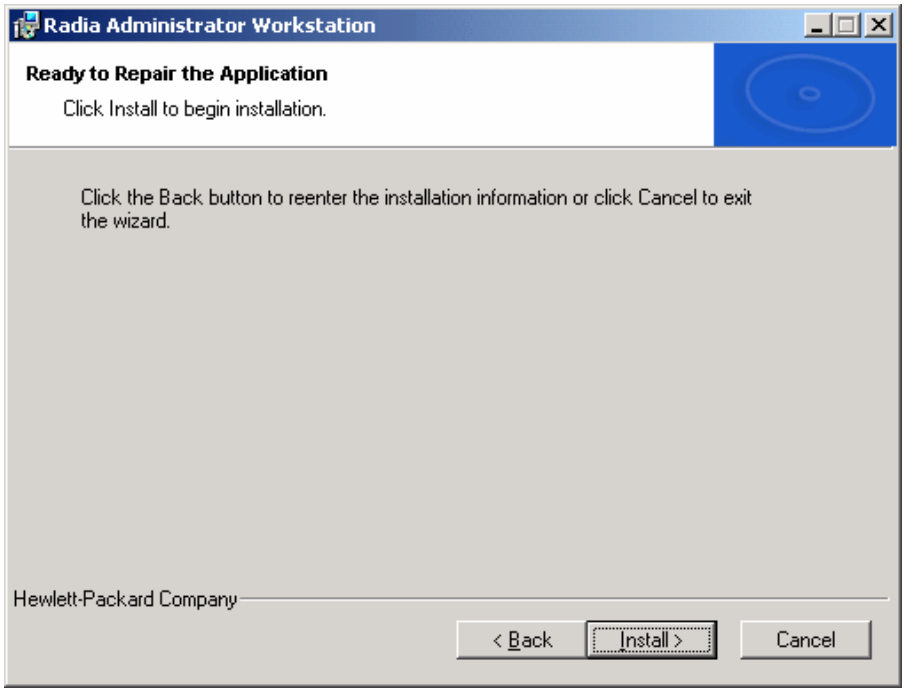
The Application Maintenance window opens.



2 Select the **Repair** option.

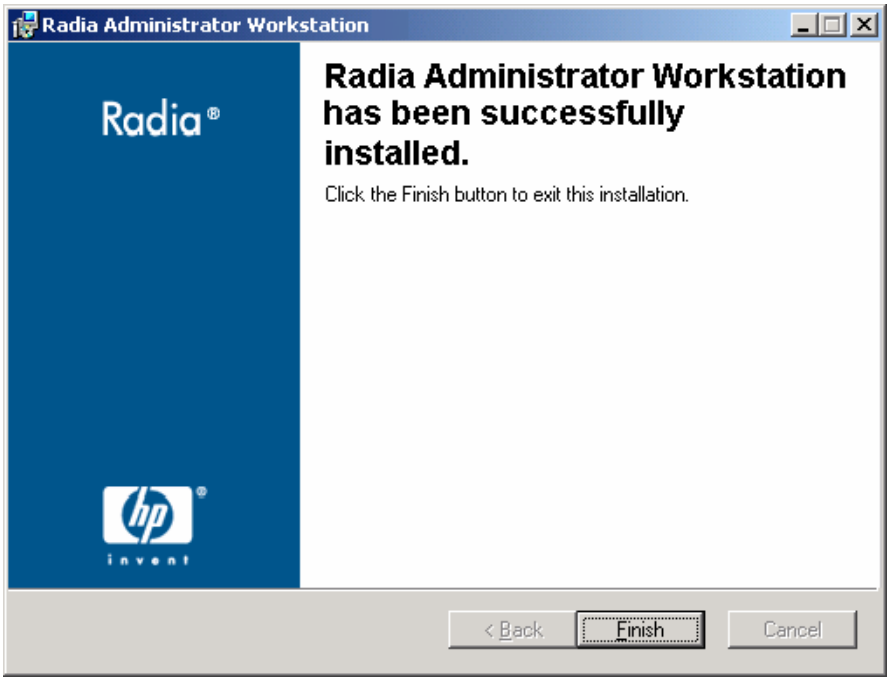
3 Click **Next**.

The Ready to Repair the Application window opens.



4 Click **Next**.

When the repair is done, the Administrator Workstation has been successfully installed window opens.



5 Click **Finish**.

Using a Command Line to Repair the Administrator Workstation

This section describes how to repair the Administrator Workstation using a command line.

To repair the Administrator Workstation using a command line

- From the folder containing the Administrator Workstation installation files, type the following command line:

```
msiexec /f radadmin40.msi
```

Additional parameters can be used with this command line. For more information, see your Windows Installer documentation.

Modifying the Administrator Workstation Installation

The Windows Installer installation program offers the ability to modify the Radia Administrator Workstation installation by adding or removing individual features. This section describes how to modify the installation of the Administrator Workstation using the Installation Wizard and using a command line.

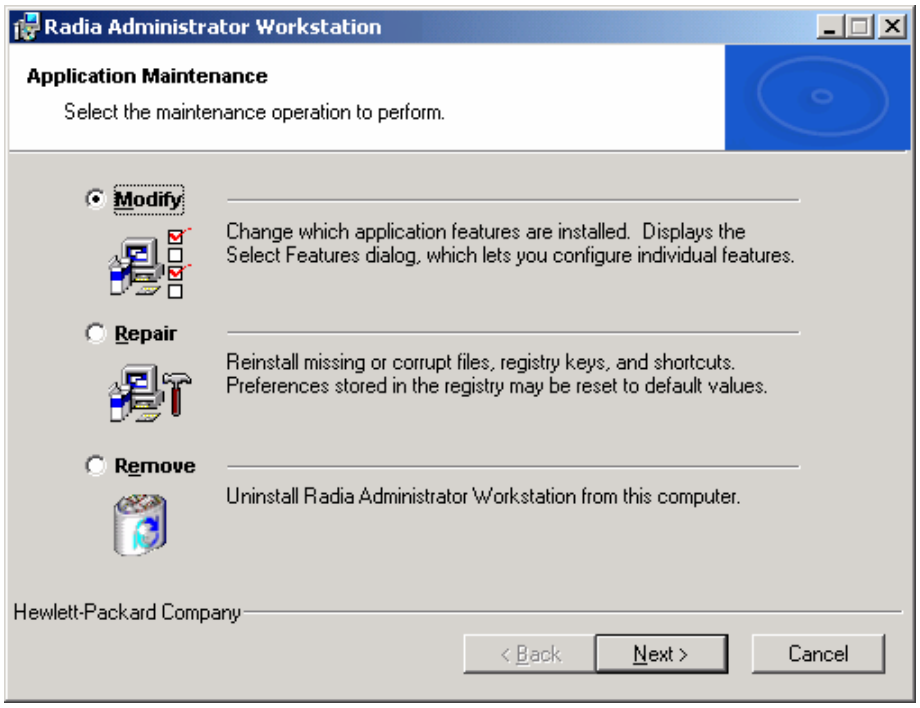
Using the Installation Wizard to Modify the Administrator Workstation

This section describes how to modify the installation of the Administrator Workstation using the Installation Wizard.

To modify the Administrator Workstation installation using the Installation Wizard

1 From the folder containing the Administrator Workstation installation files, double-click **setup.exe**.

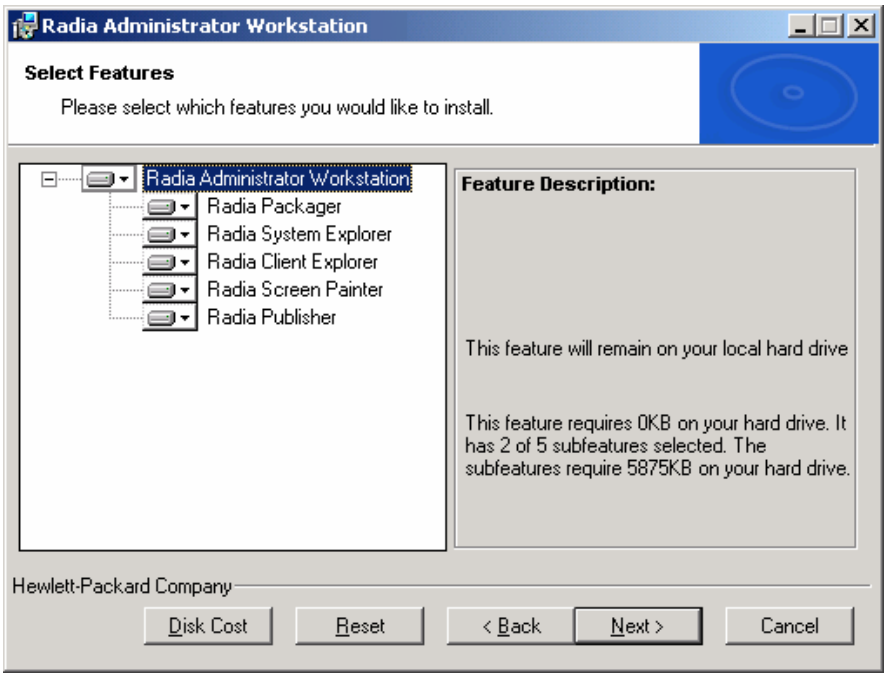
The Application Maintenance window opens.



2 Select the **Modify** option.

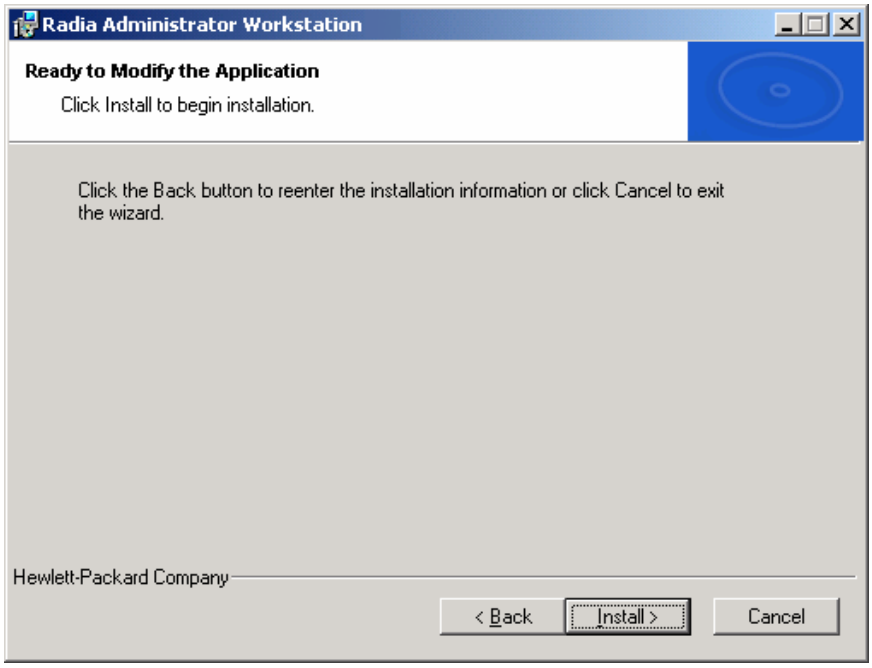
3 Click **Next**.

The Select Features window opens. See Installing the Administrator Workstation on page 84 for information about how to use this window.



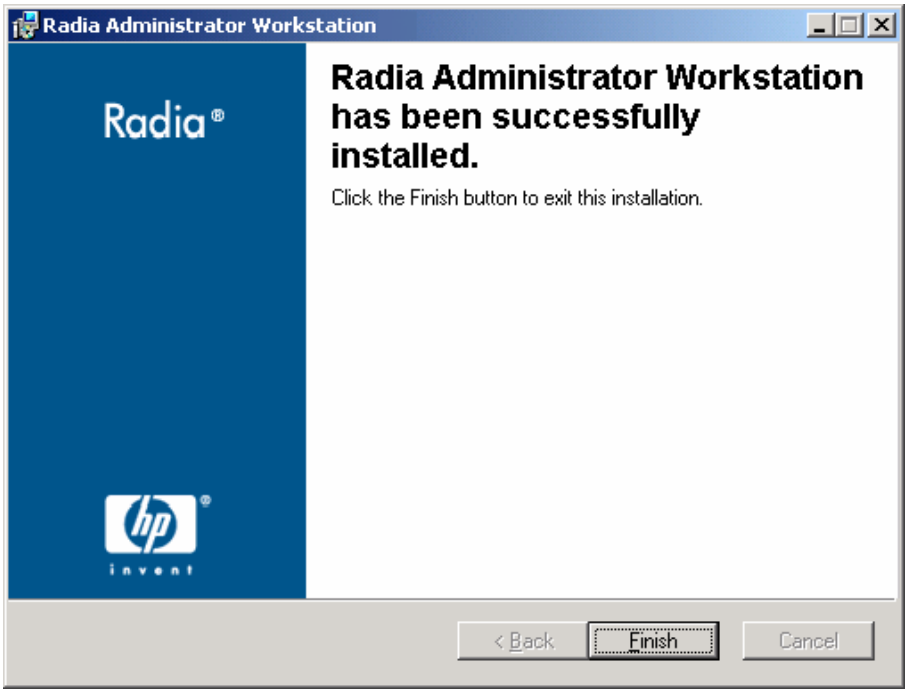
4 Click **Next**.

The Ready to Modify the Application window opens.



5 Click **Next**.

The Administrator Workstation has been successfully installed window opens.



6 Click **Finish** to close the installation program.

Using a Command Line to Modify the Administrator Workstation Installation

To modify the Administrator Workstation installation using a command line

- From the folder containing the Administrator Workstation installation files, type the following command line:

```
SETUP.EXE FeatureStateArgument=feature1,feature2
```

See Table 9 on page 91 for more information.

Example

If you want to install the Packager to the local hard drive, and to make the System Explorer and Client Explorer unavailable, use the following command line:

```
SETUP.EXE ADDLOCAL=NVDINSTALLPACKAGER
REMOVE=NVDINSTALLSYSTEMEXPLORER,NVDINSTALLCLIENTEXPLORER
```

See Additional Command Line Arguments on page 92 for additional arguments.

Summary

- The Administrator Workstation consists of one MSI package with five feature sets: Client Explorer, Packager, Publisher, Screen Painter, and System Explorer.
- Install the Administrator Workstation on a clean computer.
- You can install the Administrator Workstation using a command line or using the Installation Wizard.

4 Installing the Inventory Manager Server

At the end of this chapter, you will:

- Understand the installation media.
- Have installed the Inventory Manager Server.
- Have installed the Radia Sample Reporting Database (optional).

  or

- Have installed your own reporting database.

The data posting and reporting functions of the RIM server running on Windows have been superseded by Radia Messaging Server v3.0 and Radia Reporting Server, respectively.

For more information on using the Radia Messaging Server to post data using ODBC to your Inventory database, refer to the *Installation and Configuration Guide for the HP-OpenView Messaging Server Using Radia*, version 3.0. The Data Delivery Agents for CORE, INVENTORY and WBEM objects provide this capability.

For more information on using the Radia Reporting Server for creating and obtaining reports, refer to the *Installation and Configuration Guide for the HP-OpenView Reporting Server using Radia.*

Installation Media

The Inventory Manager Server is one of the Extended Infrastructure products provided on the Radia Infrastructure CD.

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.

Installation

The installation CD-ROM contains an installation process that will install the Inventory Manager.

The data posting and reporting functions of the RIM server running on Windows have been superseded by Radia Messaging Server v3.0 and Radia Reporting Server, respectively. It may not be necessary to install a Radia Inventory Server in your environment. Refer to the Messaging Server Guide and Reporting Server Guides for more information.

There are a few important points to remember prior to installing the Inventory Manager.

- If a current installation of the Radia Integration Server (httpd.tkd) exists on the drive where you are installing the Radia Inventory Server, the product is automatically installed to the existing Radia Integration Server location. The Radia Integration Server is a foundation component of various Radia products.
- If you *have not* already installed a Radia product with your current license to the selected directory, you *must* install the license file, `license.nvd`, during the Inventory Manager installation.

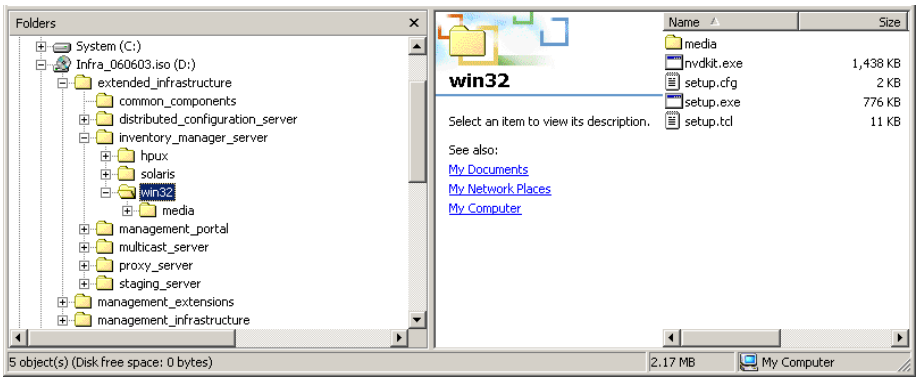
- If your current Radia license exists in the selected installation directory from a previous install, you will not need to install the `license.nvd` file.

  If you are currently running Radia as a service, you must stop the service prior to this installation.

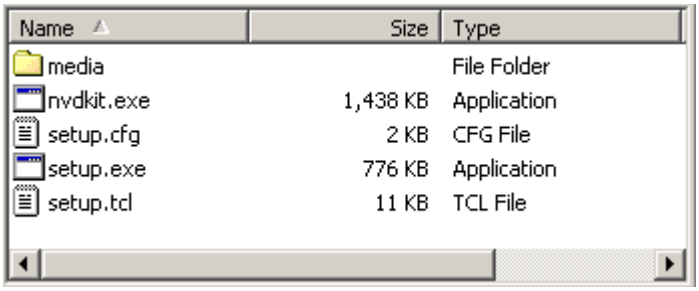
  Close all other applications prior to beginning installation of the Inventory Manager.

To install the Inventory Manager

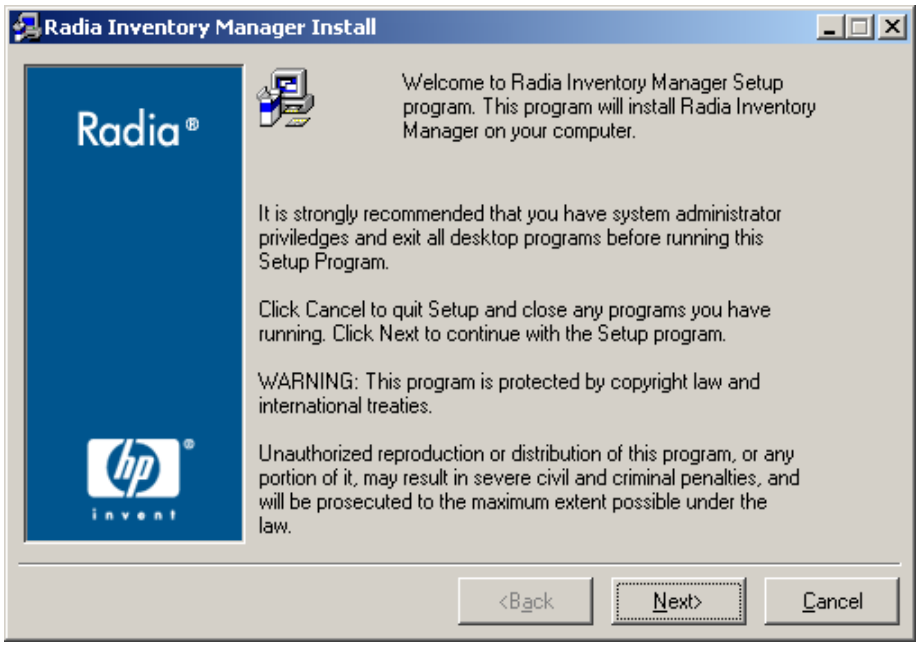
1. Insert the installation CD-ROM for the Inventory Manager into the CD-ROM drive.
2. Using the Windows Explorer, select and open your CD-ROM drive.
3. Open the `extended_infrastructure` folder.
4. Expand the `inventory_manager_server` folder.
5. Expand the `win32` folder.



6. Double-click **setup.exe** (in the list view).

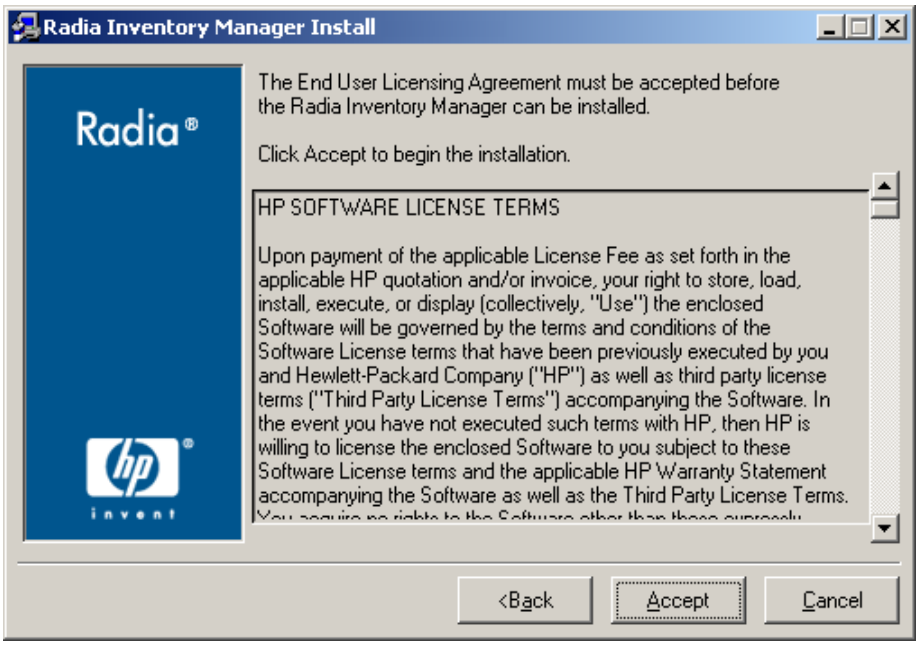


The Welcome window opens.



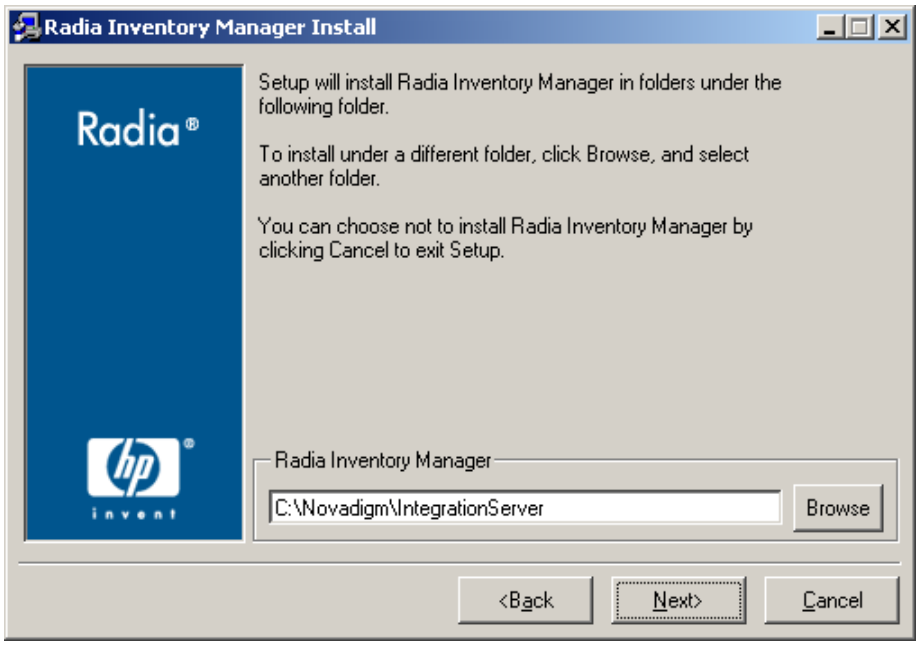
7 Click **Next** to proceed.

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



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

If this is the first installation of a Radia product containing the foundation Radia Integration Server component, the Inventory Manager Location window opens.

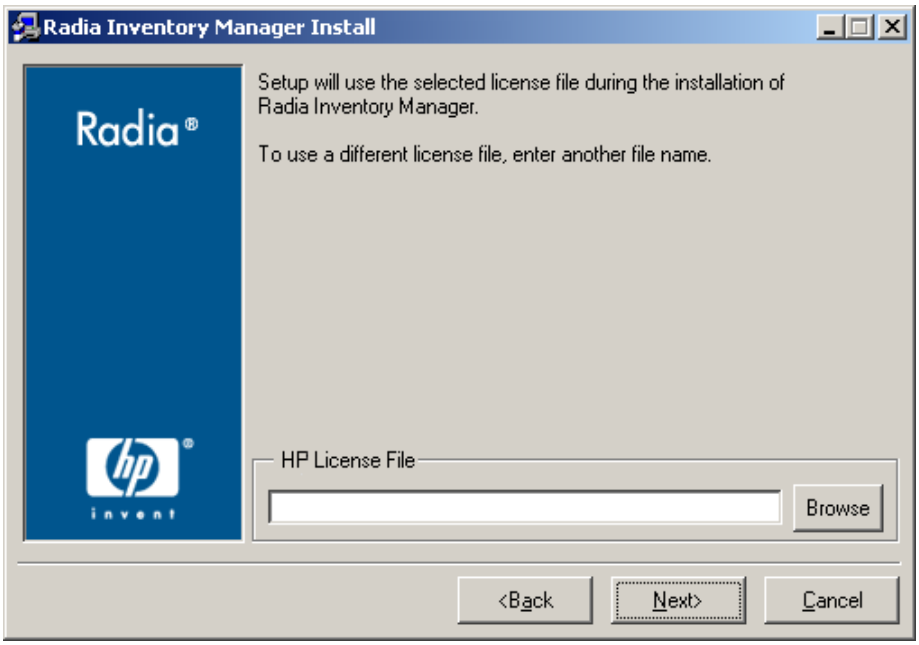


In this window, you are prompted to enter or accept the location for the files that will install the Inventory Manager, and the foundation Radia Integration Server component.

The window to select an install folder is bypassed when an existing Radia Integration Server component exists on the target directory. In this case, the Inventory Manager is installed automatically to the location of the existing Radia Integration Server.

9 After selecting the installation location, click **Next**.

The Select Location of License File window opens.

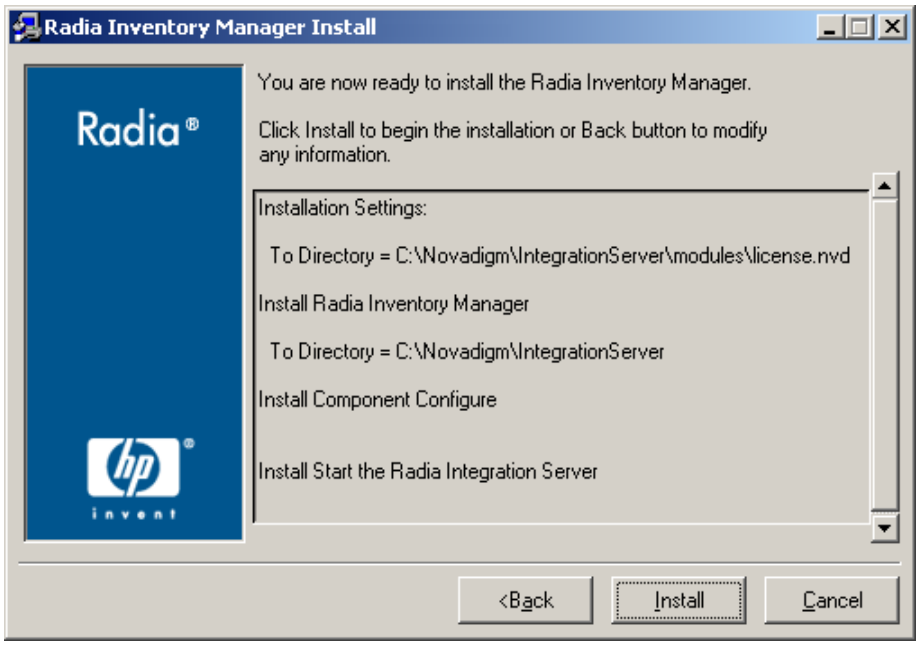


In this window, you are asked to enter the location of your License File. Use the **Browse** button to identify the location of your `LICENSE.NVD` file.

The License File window is bypassed when a valid Radia license exists on the target machine due to a previous Radia product install.

10 After locating your license file, click **Next**.

The Installation Settings window opens.



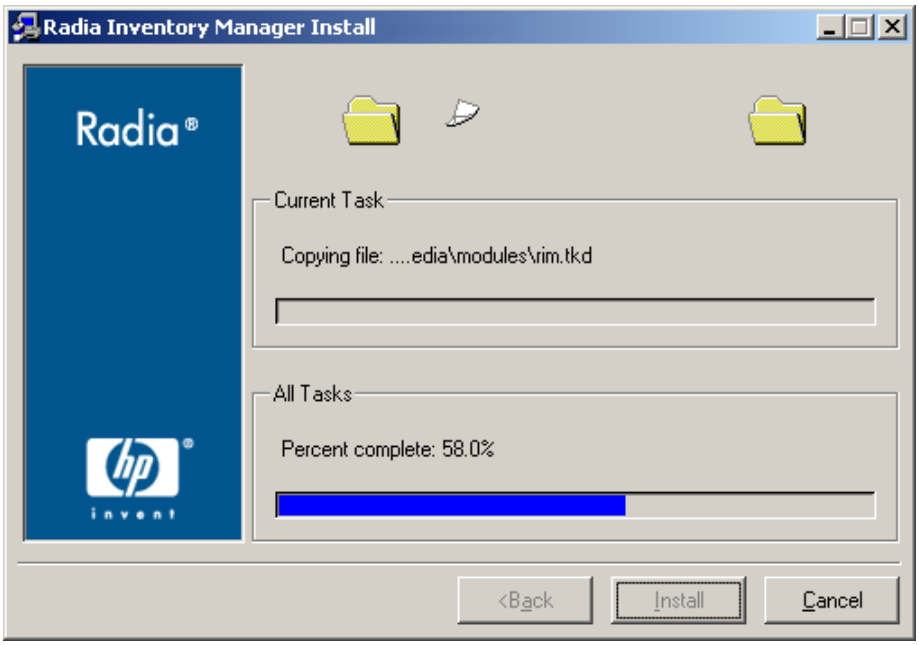
This window contains all the information that you specified during the Inventory Manager installation process. This is your final opportunity to review and modify the settings you have indicated.

The Install Inventory Manager summary window may appear slightly different if you have not entered the license file location.

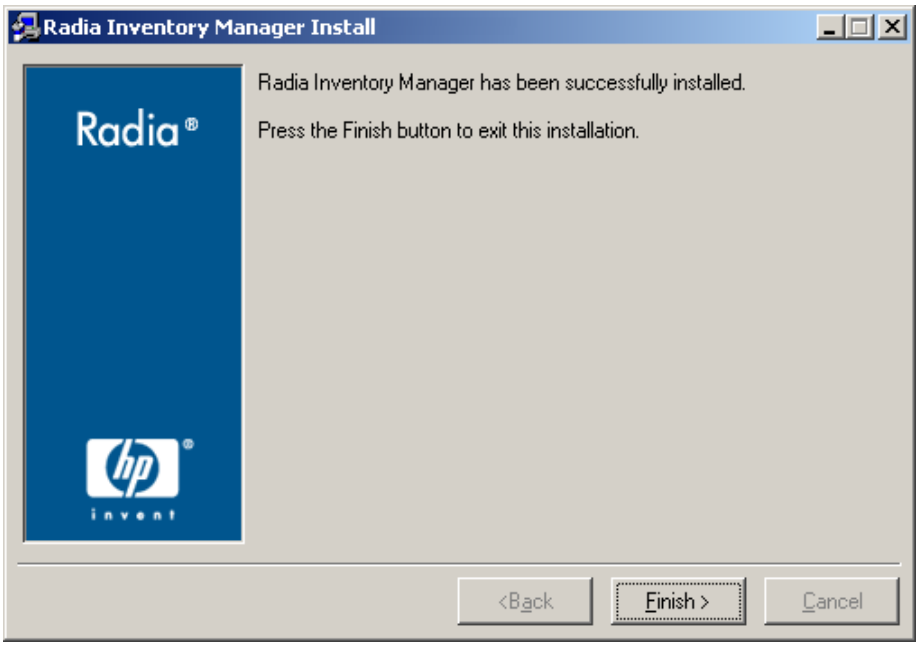
If you discover any errors, or want to modify any of your entries, click **Back**. After making your changes, click **Next** to review your installation changes in the Installation Settings window.

11 Click **Install** to begin the installation.

The next figure shows the installation in progress.



Upon completion of the installation, the Finish window opens.



12 Click **Finish** to exit the installation program.

The Radia Integration Server will be started automatically.

Configuring the Configuration Server

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

Configure the EDMPROF.DAT

This step is *not* necessary if you are running the Configuration Server with the Messaging Server.

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

If the Radia Integration Server is running on a computer other than the one running the Configuration Server, you must edit the [MGR_RIM] section of the `EDMPROF.DAT` file to direct the HOST and PORT 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:

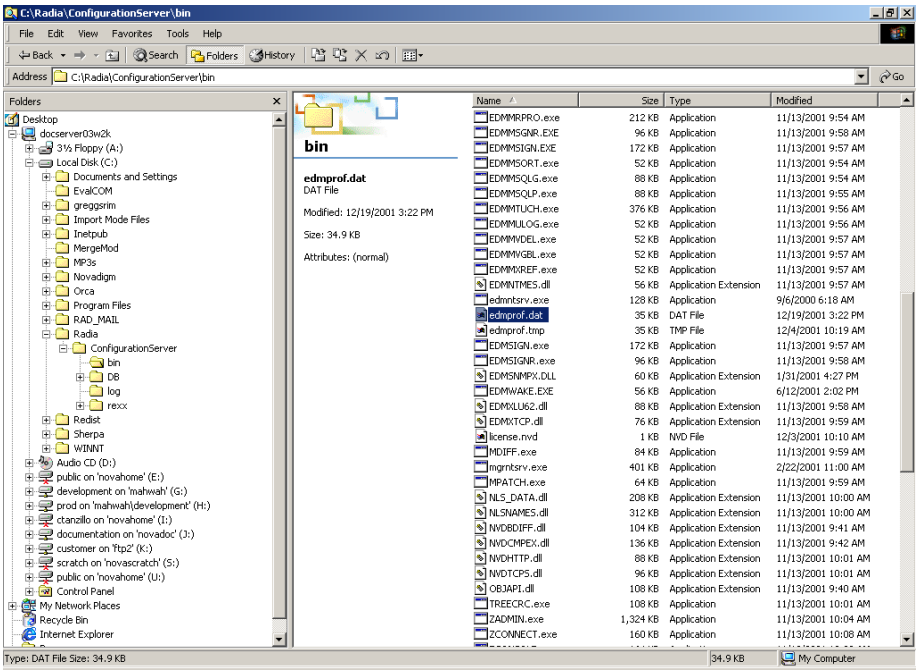
```
HTTP_HOST = localhost
HTTP_PORT = 3466
```

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

To edit the EDMPROF.DAT file

1 Using your Windows Explorer, navigate to the bin file of your Configuration Server.

2 Expand the bin file and locate the `edmprof.dat` file.



3 Using the text editor of your choice, open the `edmprof.dat` file.

4 Locate the [MGR_RIM] section.

```
[MGR_RIM]
HTTP_HOST = localhost
HTTP_PORT = 3466
*------__-------------------------------------------------------*
* Manager Management Portal Section                             *
*  HTTP_HOST = Host name of Management Portal (RMP)             *
*   Multiple hosts may be specified (space or comma separated)
for fail over *
*  HTTP_PORT = IP Port number of RMP                             *
*    NO restart required                                         *
*-------------------------------------------------------------*
```

5 Enter the location of the HTTP_HOST. This can be either local host or the IP address of the host machine.

```
[MGR_RIM]
HTTP_HOST = 111.111.111.111
HTTP_PORT = 3466
```

In the example above, 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.

6 When you have completed editing the `edmprof.dat` file, save your changes and exit the text editor.

Limiting Access to Inventory Manager Web-Pages

Use the following information *only* if you would like to restrict access to a specific Radia Integration Server URL. For additional information on this topic, refer to the Engineering Technotes for Radia available on the HP OpenView support web site.

In some situations, it may be desirable for a Radia administrator to want to restrict access to specific Inventory Manager Web pages. To restrict access to a specific Radia Integration Server URL, edit the `httpd.rc` file. This file is located in the `etc` folder at the root of the Radia Integration Server directory.

For example, if you would like to restrict access to a specific Radia Integration Server URL such as `/rim` (this is the top URL for the Inventory Manager), add the following line to the `Examples of Setting URL Security` section of the `httpd.rc` file:

```
SetAccess /rim "" NTLM/Group Administrators
```

This particular command restricts access of the Inventory Manager to members of the Administrators group on the local machine.

The `httpd.rc` file that is shipped with the Radia Integration Server has additional examples built into it.

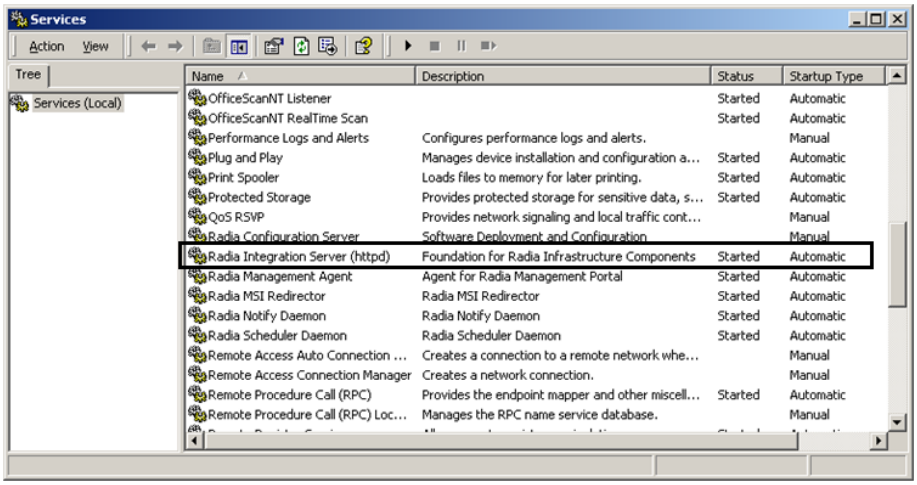
Installing the Sample Reporting Database (optional)

After installing the Inventory Manager, you may choose to install the sample reporting database. The sample database provided is Microsoft's Access

database. Other ODBC databases supported for production are SQL, Oracle, and Sybase.

To install the sample database (through the Management Portal)

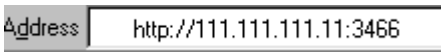
1 In Services, ensure that the Radia Integration Server is started.



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

http://*IP Address* **or** *Hostname*:*Port*

- The *IP Address* is the IP 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 default port number is 3466.

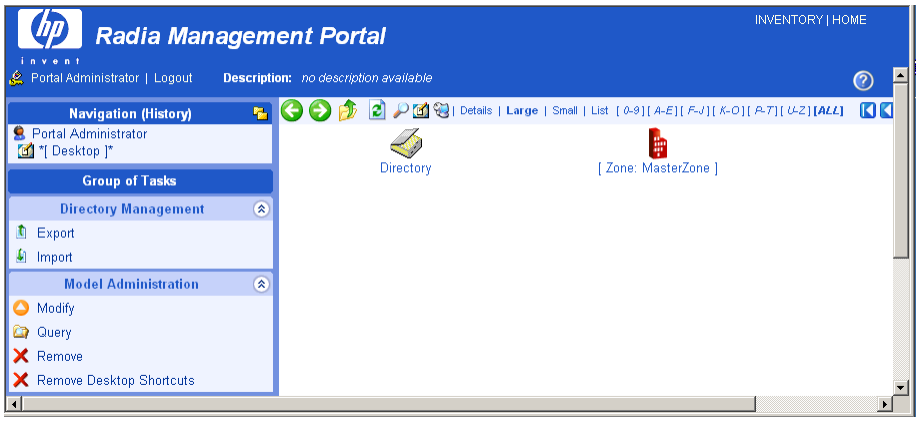


The Logon screen opens.

3 Enter the **User Name** and **Password** and click **Login**.

As shipped from HP, the User Name is **admin** and the Password is **secret**. This may have been changed. It may be necessary to obtain your own User Name and Password from your Radia administrator.

If your Inventory Manager will be running from the Management Portal, the following screen opens:

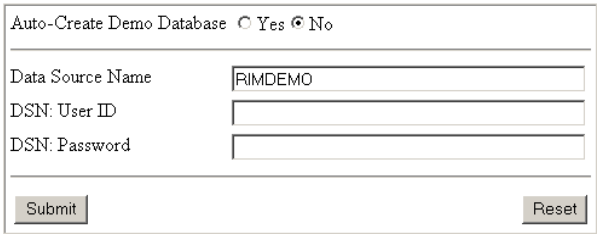


4 In the upper right corner, click **INVENTORY**.

It is possible that the Inventory Manager is not running from the same location as the Management Portal. If this is the case, then the home page of the Radia Integration Server is displayed. See To install the sample database on page 124 for information on how to complete the installation of the sample database.

The next window opens.

Radia Inventory Manager Setup/Configuration



The Inventory Manager Setup/Configuration window opens upon the first connection to the Reporting section.

5 Use Table 11 on page 123 to complete the configuration information for the Inventory Manager Setup/Configuration.

Table 11: Inventory Manager Setup/Configuration

Item	Description
Auto-Create Demo Database	Select **Yes** to create the reporting database sample.
Data Source Name	This is a unique name used to create a data connection to a database using open ODBC. The data source name 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, leave this entry. 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 Integration Server will create a Microsoft Access 97 DSN named RIMDEMO automatically.

As received from HP, the Sample data source does not require a user ID or a password

6 Select **Yes** for the **Auto-Create Demo Database** option to create the demo database, and then click **Submit**.

An alert message is displayed indicating a successful installation.

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

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

7 Click on the **INVENTORY** button to exit setup.

To install the sample database (non-Management Portal installation)

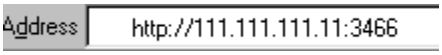
1. In Services, ensure that the Radia Integration Server is started.
2. Start your Web browser and type the address and port number of the Radia Integration Server into the address field:

   `http://<IP Address or Hostname>:<Port>`

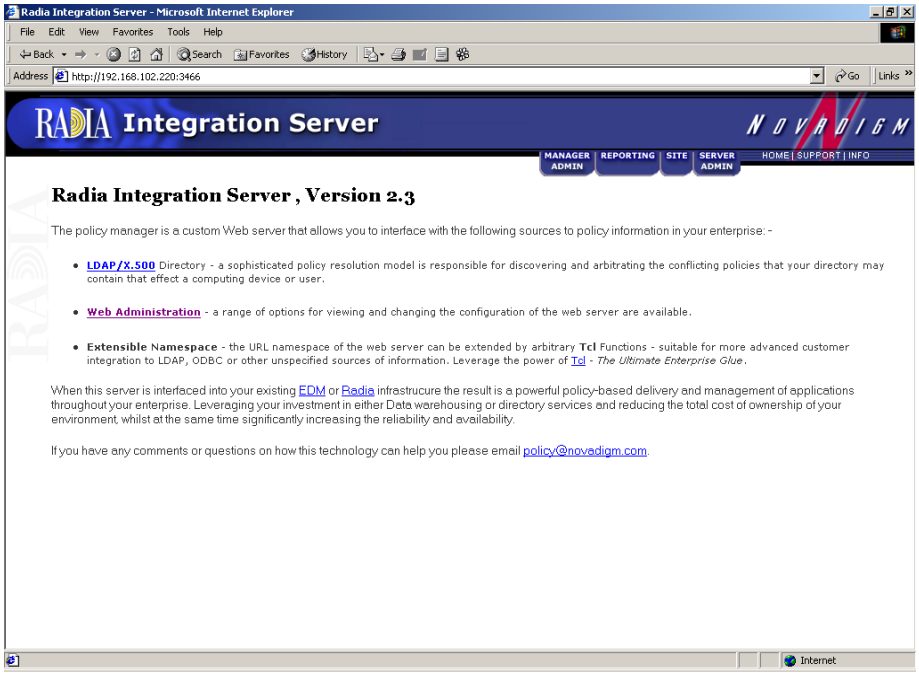
   — The *IP Address* is the IP address of the computer running the Radia Integration Server.

   — 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.

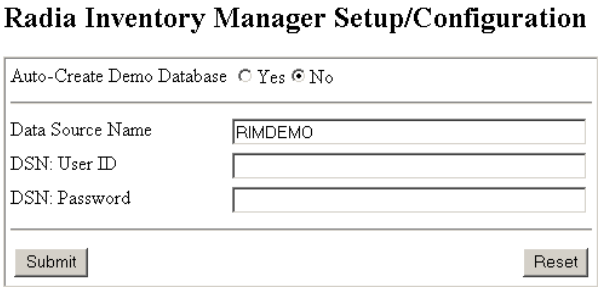
   

   The Radia Integration Server home page opens.

3. Click the **Reporting** tab.

   The Inventory Manager Setup/Configuration window opens.



The Inventory Manager Setup/Configuration page opens upon the first connection to the Reporting section.

Use Table 11 on page 123 to complete the configuration information for the Inventory Manager Setup/Configuration.

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

As received from HP, the sample data source does not require a User ID or a Password.

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

An alert message is displayed indicating a successful installation.

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

Radia Integration Server Configuration File: rim.cfg

The Inventory Manager configuration file, `rim.cfg`, contains parameters you can use to adjust specific Inventory Manager settings. The configuration file is located in the Radia Integration Server `/etc` directory. Some parameters may vary depending on your configuration.

```
# $Header: /cvs/nvd/rim/default.rc,v 1.11 2003/04/09 16:16:28 lfu Exp $
# Copyright (c) 1997-2000 Novadigm Inc. All Rights Reserved.
#
# RIM Module (Inventory Manager)
#
# This section provides the core configuration for the
# RIM Sub-system. Please take care when hand-editing this.
```

```
#
rim::init {
    BUILD               403
    COMMIT_INTERVAL     5000
    DB_AUTOCREATE       0
    DL_DATEFMT          {%m/%d/%Y %I:%M:%S %p}
    DSN                 RIMDEMO
    DSN_ATTEMPTS        3
    DSN_DATEFMT         {%Y-%m-%d %H:%M:%S}
    DSN_DELAY           10
    DSN_PASSWD          {{DES}:0}
    DSN_PING            60
    DSN_USER            ""
    HOME                C:/Novadigm/IntegrationServer/modules/rim.tkd
    LABEL               Reports
    MAXROWS             500000
    MODULE              RIM
    N_WORKERS           2
    QUERY_VISIBLE       0
    ROWS_PER_PAGE       10
    STATUS_INTERVAL     600
    STATUS_RESET        {12:00 am}
    TITLE               {Radia Inventory Module}
    URL                 /rim
    VERSION             4.0
    WBEM_AUTOCREATE     0
    WBEM_AUTOLOAD       0
    WORKER_RETRY        3
    WORKER_TIMEOUT      180}
#
# END OF CONFIG
#
```

Table 12: rim.cfg Parameters

Parameter	Default Value	Description
BUILD	N/A	Build number of `rim.tkd`, the Inventory Manager module.
COMMIT_INTERVAL	5000	Number of transactions successfully processed to the backend database between each commit of the temporary queue used to hold all incoming data (`odbc_queue.mk`). Not usually modified.

Parameter	Default Value	Description
DB_AUTOCREATE	0	Controls the loading of the demo database: 1 – Will automatically load the sample database. 0 – Will not automatically load the sample database.
DL_DATEFMT	(%m/%d/%Y %I:%M:%S %p)	Date format displayed on the Radia Integration Server web pages.
DSN	RIMDEMO	Data Source Name (DSN).
DSN_ATTEMPTS	3	Number of attempts to connect to the Inventory Manager database DSN.
DSN_DATEFMT	{%Y-%m-%d %H:%M:%S}	Date format for the storage of the date string in the Inventory Manager database.
DSN_DELAY	10	Delay in seconds between attempts to connect to the RIM DSN.
DSN_PASSWD	N/A	DSN password.
DSN_PING	60	Delay in seconds between pinging the database connection to verify the DSN is available.
DSN_USER	N/A	User name used to connect to the DSN.
HOME	C:/Novadigm/IntegrationServer/modules/rim.tkd	Home directory for the Inventory Manager module, `rim.tkd`.
LABEL	Reports	Label for this module.
MAXROWS	500000	*Do not modify.* Maximum number of rows to retrieve from the RIM database to display.
MODULE	RIM	*Do not modify.* Name of this module.

Parameter	Default Value	Description
N_WORKERS	2	Number of open ODBC connections.
QUERY_VISIBLE	0	Specify 0 or 1 to determine whether the UNIX Query function is to be displayed. 1 – UNIX Query hyperlink is visible. Set to 1 if tables in the database have been populated with UNIX clients. 0 – UNIX Query hyperlink is not visible.
ROWS_PER_PAGE	10	Number of rows displayed on each Radia Integration Server query result page.
STATUS_INTERVAL	600	Time interval (seconds) used to display the status message.
STATUS_RESET	{12:00 am}	Time status is rolled over.
URL	/rim	*Do not modify*. Url of this module.
VERSION	4.0	Version.
WBEM_AUTOCREATE	0	The switch to enable the creation of a new sql file and table in the database when a new object class is received. 1 – Will create a new SQL file and table entry for a new object class. 0 – Does not create a file or table entry for a new object class. Note: If WBEM_AUTOCREATE is set to 1, set WBEM_AUTOLOAD to 0.

Parameter	Default Value	Description
WBEM_AUTOLOAD	0	Controls the WBEM Autoload 1 - Will load WBEM audit objects on demand. 0 - Audit objects are loaded at startup. Note: If WBEM_AUTOLOAD is set to 1, set WBEM_AUTOCREATE to 0.
WORKER_RETRY	3	Number of times to retry before a message is discarded.
WORKER_TIMEOUT	180	Wait time (seconds) before an ODBC connection is dropped.

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

Changing the DSN

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

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

Inventory Manager Enhancements

Previous versions of the Inventory Manager supported only one ODBC connection to the Radia Integration Server. With only one open connection, the inventory collection process could, in some cases, be slow. Running multiple sessions of the Radia Integration Server was one way to increase production and remedy this problem. With Radia version 3.0 and higher, the Inventory Manager 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 2. Along with this parameter, other parameters are available in `rim.cfg` to maximize performance. See Table 12 on page 126, for further explanations.

Deploying the Inventory Manager Client Modules to Radia client

There are two ways to deploy the client modules to end users.

- Deploy the modules using the Management Portal. Refer to the *Management Portal Guide* for information.
- Deploy the modules by using the Radia client installation. See Installing the Radia Clients on page 29.

Summary

- The installation CD-ROM contains a single installation process that will install the Inventory Manager Server. The foundation Radia Integration Service is installed automatically.
- The Inventory Manager Server is generally installed on a separate computer from the Configuration Server.
- Determine ahead of time the best method of installation for your enterprise.
- The Inventory Manager is installed to the IntegrationServer (RIS) subdirectory of the target location. The default is: *SystemDrive:*\Novadigm\IntegrationServer.
- We recommend installing the Messaging Server on the Configuration Server to offload the work of forwarding inventory and other client-collected data to the Inventory Manager Server.
- If you accept the default of Auto Create, the Radia Integration Server will automatically create a Microsoft Access 97 DSN named RIMDEMO.
- We also recommend installing the Reporting Server for viewing the inventory reports.

5 The AUDIT Domain

At the end of this chapter, you will:

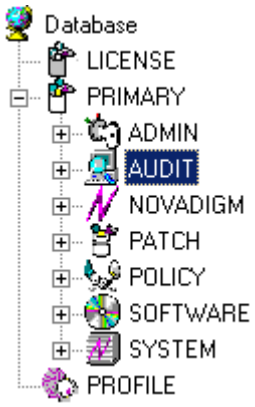
- Understand the AUDIT domain in the Radia Database.
- Understand the Inventory Manager database.

This manual is provided to assist you with installing and using the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

The AUDIT Domain in the Configuration Server Database

The AUDIT domain is located in the PRIMARY file of the Radia Database. The AUDIT domain contains the classes required to:

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



AUDIT Domain Defined

The AUDIT domain is structured very much like the SOFTWARE domain. The next figure shows its tree structure in the System Explorer.

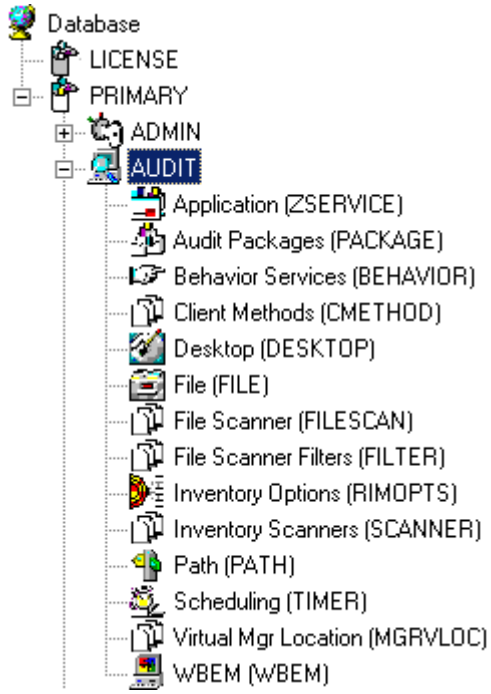


Table 13 below describes the classes in the AUDIT domain.

Table 13: AUDIT Domain

Class	Description
Application (ZSERVICE)	These are sample services distributed with the Inventory Manager. The AUDIT.ZSERVICE instance is connected to a policy instance. A policy instance can be an instance of the Users, Departments, or Workgroups class. It can also be a customer-defined class within the POLICY domain. Each of the sample ZSERVICE classes is connected to the PACKAGE instances.

Class	Description
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 DLLs.
File Scanner (FILESCAN)	For UNIX devices only, 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)	For UNIX devices only, 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 that control an inventory management task. For additional information, see RIMOPTS Class on page 137.
Inventory Scanners (SCANNER)	This persistent component class is used to configure an inventory scan. Create instances of the SCANNER class by adding Inventory Scanners components to an audit package.

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

RIMOPTS Class

The RIMOPTS class is also known as the Inventory Options Class. This class contains the attributes that control an inventory management task. Table 14 on page 138 describes these attributes.

Table 14: RIMOPTS Class

Attribute	Usage
COLLECT	Audit Collection Type by selecting **Diff** or **Full** • Select **Diff** to report the difference between the previous information collected for the service and the information collected during the current client audit. This is the default setting. Note: The first or initial scan of the DIFF setting will be a FULL scan as defined below. All subsequent scans will then be differenced unless the administrator changes the setting to FULL. • Select **Full** to report the information collected for the service during the current Client Connect process without differencing against the previous collection for that service.
RUNEXEC	This string indicates what actions the Inventory Manager will take upon connection: • Select **I** to invoke collection of information when the service is installed • Select **U** to invoke collection of information when the service is updated. • Select **V** to invoke collection of information when the service is verified. The default settings are **I** and **U**.
ZSVCTYPE	Contains code that is used internally by the Inventory Manager client. In all cases, this value should remain **I**.
NAME	Contains the friendly name of the instance. It is the name displayed for the instance in the tree view of the System Explorer.

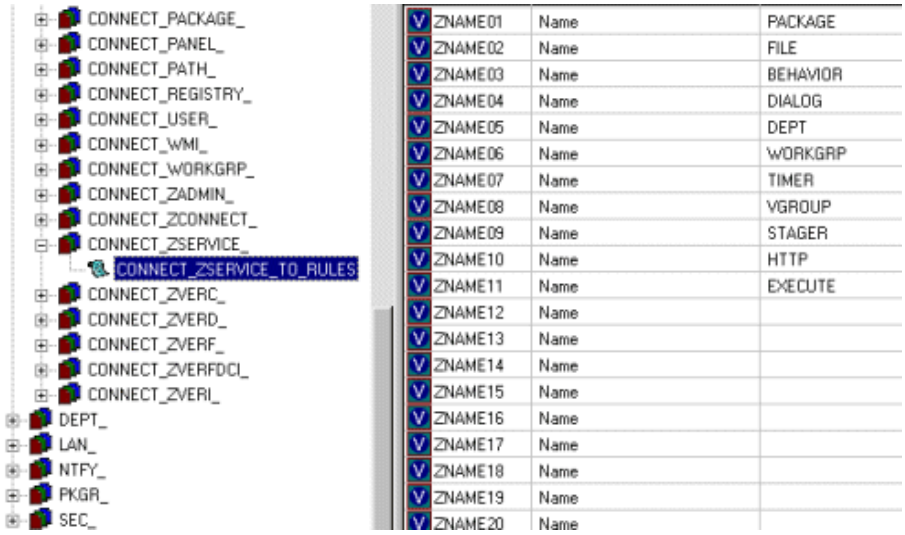
To apply an option expressed in the RIMOPTS instance to the inventory management task, the RIMOPTS instance must contain a connection to an audit service.

Prior to beginning any tasks using the Inventory Manager, you must enable the drag-and-drop feature for the newly created RIMOPTS class instances. For additional information about editing instances, refer to the *System Explorer Guide, Chapter 3: Radia Database Overview*.

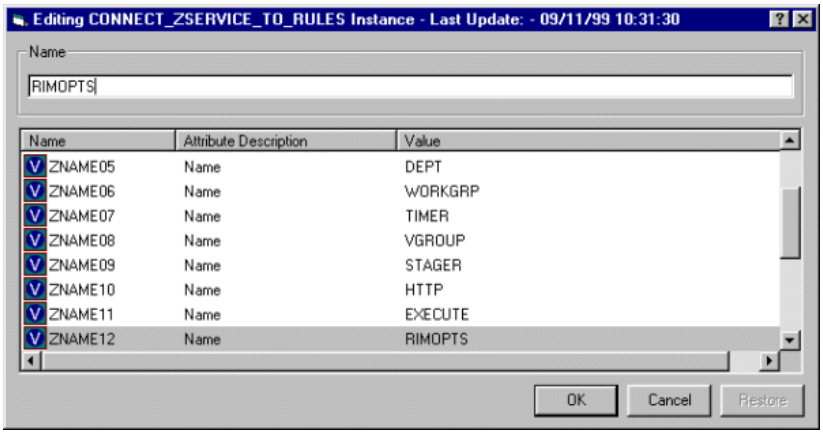
To enable drag-and-drop connections for RIMOPTS class instances

1 Open the System Explorer and go to **PRIMARY → ADMIN → Name Lists (32) (ZLIST32) → CONNECT_ → CONNECT_ZSERVICE_**

2 Double-click on **CONNECT_ZSERVICE_TO_RULES**.



3 The Editing Instance dialog box opens.



4 Set the value of the **ZNAME n** attribute to **RIMOPTS**.

The drag-and-drop feature is now available for all attributes in RIMOPTS.

REGISTRY Class

The Registry class uses WMI to obtain a Registry scan of a Windows machine. Most of the attributes are copied from the existing WBEM class of the AUDIT domain, with descriptions adjusted for registry-specific needs. For example, the PROPERTY and CNDITION attributes define the current Registry hive and subkey to scan, respectively. Three new Registry-specific attributes have been added to the class. They include:

- **RPTCLASS** – The Report Class Name in RIM.
- **FORMAT** – The Output format- requires REGISTRY (do not change).
- **DEPTH** – Defines the levels below the current subkey to scan.

Table 15 below summarizes the attributes and values for the Registry class instances. Attributes in bold are new to this class (not in the WBEM class).

Table 15: Registry Class Instance Attributes

Attribute	Description	Default Value	Valid Values
ACTION	Report Flags (I, N, C, D, S, D, C)	YYYYXXN	Y, X, or N for each flag.
NAMSPACE	Name Space	root\default	root\default – Do not change.
CLASS	WBEM Class	StdRegProv	StdRegProv – Do not change.
RPTCLASS	Report Class Name	Registry	A valid table name. If blank “StdRegProv” will be used.
PROPERTY	Registry hive.	HKEY_LOCAL_MACHINE	Any Windows registry hive: HKEY_CLASSES_ROOT HKEY_CURRENT_USER HKEY_LOCAL_MACHINE HKEY_USERS HKEY_CURRENT_CONFIG HKEY_DYN_DATA
CNDITION	Registry subkey	SOFTWARE\Microsoft\Internet Explorer	Any Windows registry subkey.

Attribute	Description	Default Value	Valid Values
FORMAT	Output format.	REGISTRY	REGISTRY – Do not change.
DEPTH	Starting at the registry subkey named in the CNDITION attribute, depth specifies the number of descendent key levels to include in the scan.	0	0, -1, or *n* • Set to **0** to only scan current subkey. • Set to **-1** to scan all subkey levels. • Set from **1** through *n* to scan the current subkey and the specified number of subkey levels deep.
OUTPUT	Output Object Name	WBEMAUDT	WBEMAUDT
TYPE	Scan Type (WBEM)	WBEM	WBEM – Do not change.
NAME	Friendly Name	Default	Friendly name for this instance displayed in the System Explorer.

Implementing Registry Scans

Use the following high-level procedures to create and run scans of the Windows Registry using the REGISTRY class in the AUDIT domain.

1. Create an AUDIT.REGISTRY scan instance and modify the attributes, as necessary. The PROPERTY, CNDITION and DEPTH attributes define the hive, registry subkey and depth of the scan, respectively.
2. Attach the registry scan instance to an audit service package.
3. Entitle the audit service for the registry scan to the appropriate machines or users.
4. The registry scan service is deployed during the first connection to an entitled client. Upon the next connection, the registry scan inventory is collected and passed to the Inventory Manager server.
5. View the Registry Scan report from Inventory Manager.

Updating the Radia Database for Windows Registry Scans

To be able to scan the Registry of Windows machines using WMI, HP includes the Registry class in the AUDIT domain of the Radia Database. If your existing database does not include the Registry class, see the following import procedure to add the class to your database.

The import deck is available as enhancement fix: ER3201044, available from HP OpenView Technical Support.

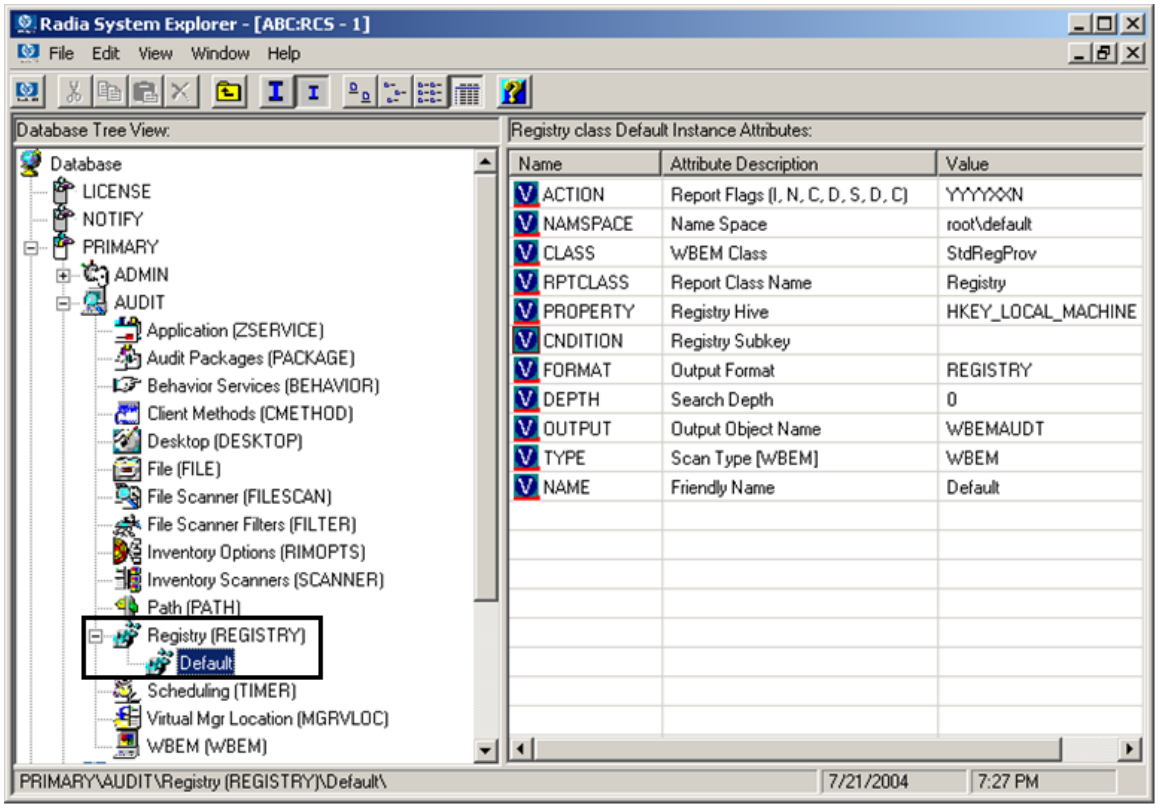


Figure 4: REGISTRY class added to the AUDIT domain.

To install the Radia Database update for the AUDIT Registry class

Do not use this procedure to add a class already on your Radia Database.

1. Stop the Configuration Server.
2. From the downloaded installation media, go to the `db_import` directory. This folder contains the import deck for the new class to be added to the Radia Database.

   AUDIT.Registry (REGISTRY) `REGISTRY.XPC`
3. Copy the `REGISTRY.XPC file` into the Configuration Server's bin subdirectory.

   The default location of the bin directory is: *`System Drive`*`:\Novadigm\ConfigurationServer\bin`.
4. Open a command prompt and navigate to the Configuration Server's bin directory.
5. Execute the following command from the bin directory to import the AUDIT.REGISTRY class to your database.

   Do not import classes already on your database.

   `ZEDMAMS VERB=IMPORT_CLASS,FILE=REGISTRY.XPC,PREVIEW=NO`

   A return code of 0 indicates that there were no errors reported during the import, and the updates are applied to the database. If there were errors, you can type **`zedmams.log`** to open and view that log.
6. Restart the Configuration Server.

The Registry class is newly available in the AUDIT domain, as shown in Figure 4 on page 142.

Sample Inventory Database Tables

As previously discussed, when you install the Inventory Manager Server, you have the option of installing the sample reporting database. HP provides a Microsoft Access '97 Database, RIMDEMO, to sample the features of the Inventory Manager. If installed, the information obtained by auditing client computers is stored here. An 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 DSN supplied.

The sample reporting database contains the tables shown in Figure 5 on page 145.

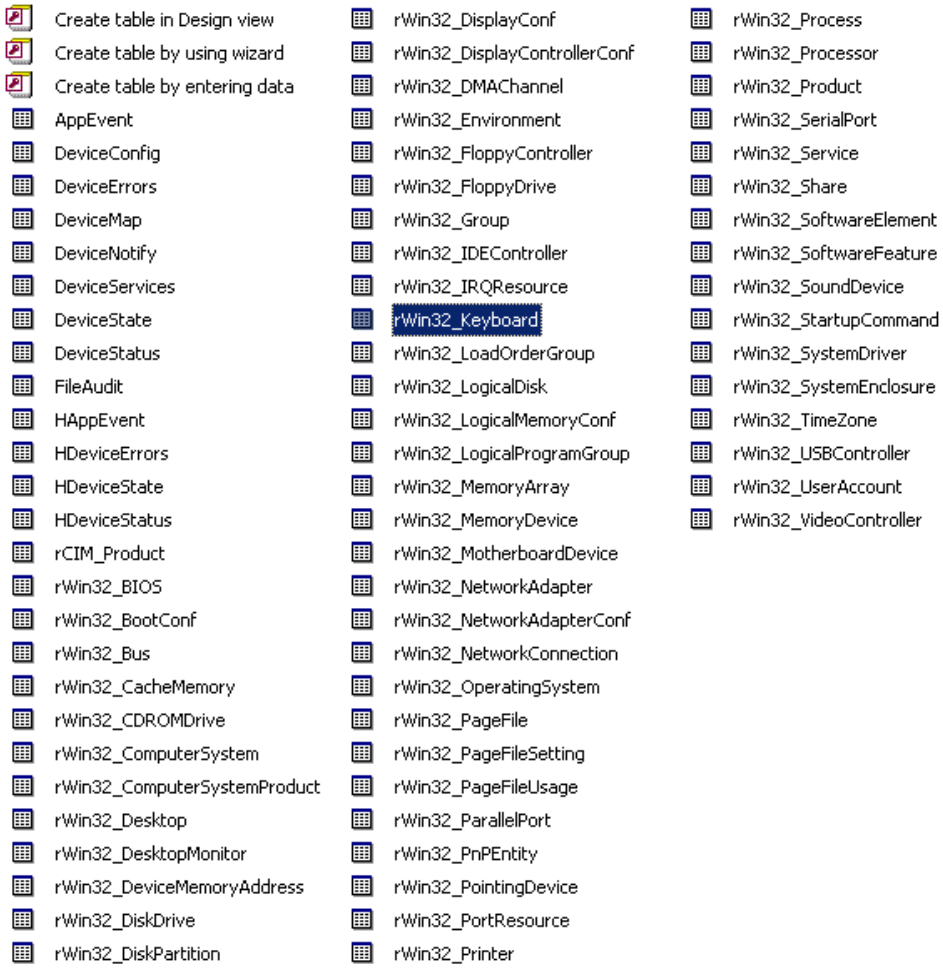


Figure 5: Sample Inventory Database – Tables.

The table names denote the origin of the data that they contain. For example, the **rWin_LogicalMemoryConf** table will be populated with data from the Win32_LogicalMemoryConfiguration WBEM class.

Tables that begin with rWin32_ are populated with the data from WBEM queries. Tables that do not start with rWin32_ are populated with data from non-WEBM sources.

The recommended product for viewing Radia Inventory is the Reporting Server. Refer to the *Reporting Server Guide* for more information.

Alternatively, you can view Radia Inventory tables through the Radia Integration Server, with or without the Management Portal. See Viewing Inventory from the Radia Integration Server starting on page 225 for more information.

Summary

- The AUDIT domain contains the classes required to configure the tasks needed to collect the inventory information and to manage the client computer's assets.
- The RIMOPTS class is also known as the Inventory Options class. This class contains the attributes that control an inventory management task.
- Prior to beginning any tasks using the Inventory Manager, you must enable the drag-and-drop functionality for the newly created RIMOPTS class instances.
- If installed, use the Reporting Server for viewing the information obtained by auditing client computers. Alternatively, inventory reports can also be viewed from the Radia Integration Server, with or without the Management Portal.

6 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 is provided to assist you with installing and implementing the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Auditing Types

When configuring your audits, it is beneficial for the administrator to understand exactly what types of things can be audited and what the expected results from an audit will be.

The Inventory Manager allows for three types of audits:

- File auditing
- WBEM auditing
- Hardware auditing

File Auditing

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

See What Happened during the Scan on page 178 for additional information on the RIMFSCAN and the RIMDIFF methods.

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

Table 16: AUDIT.FILE Class Instances

Attribute	Description and Examples
SCANFOR	Indicate a fully qualified path and file name to search for. Wildcards are permitted. *SystemDrive*:\WinNt**.dll
ACTION	The RIMDIFF method performs actions on the files discovered on the user's computer during the Client Connect.

Attribute	Description and Examples
	• **Y** configures RIMDIFF to perform the action. • **N** configures RIMDIFF to not perform the action. The first four flags determine *when* to report that the files were found: Report on: Initial, New, Changed, Deleted • **Initial** means that the file was found during the first scan of the client computer. • **New** means that the file was found during the current scan. The file was not present during the previous scan. • **Changed** means that the file was present during the previous scan and is different from the file found during the current scan. • **Deleted** means that the file was found during the previous scan. The file is not present for the current scan. The last three flags control the *actions to take* on the files detected during the current scan. Action to take on discovery: Send, Delete, Custom • **Send** means to send the files to the Configuration Server and store them in the location indicated by the ZRSCVLOC attribute (see ZRSCVLOC in this table). • **Delete** means to delete the files from the user's computer. • **Custom** means to execute the method indicated in the CUSTOM attribute. YYYYNYN – Report whenever encountered and delete the files. NNYYNNN – Report when changed or deleted and take no action. NYYNYYN – Report when the files are new or changed. Then send and delete the files.
OUTPUT	Output object name.

Attribute	Description and Examples
TYPE	Scan different file locations. Available scans are Behavior Services, Desktop, File, Path, Registry, and WBEM. File.
GROUP	Optional way to identify a set of scan results. This maybe useful for querying and reporting on the audited files from the database where audit results can be stored. Games, MPEGs.
ZVERINFO	Collect extended information. • Set the value to **1** to collect additional information for a file. • Set the value to **0** to not collect additional information. In order for this data to be collected, the associated attribute must exist in the AUDIT.FILE class template. You can limit the scan to only those files that have some particular values in their extended information. You do so by supplying a value (either 1 or 0) for any of the associated attributes in an AUDIT.FILE instance. This causes the scan to be filtered. Only those files whose extended information data element contains the value you specify in its associated attribute will be scanned. Extended file information consists of one ore more of the following data elements. The associated attribute name for the data element is in parentheses: • (VENDOR) – The seller of the file/product • (PRODUCT) – The name of the item for which the file is a part. • (PRODVERS) – The version of the product which the file is a part. • (ORGNAME) – The name of the organization. • (INTERNAL) – The internal data element encoded in the file. • (VERSION) – The version of the file. • (LANGUAGE) – The language of the file.
ZRSCSTYP	Server file type. This can be either Binary or Text. The administrator does not set this.

Attribute	Description and Examples
ZRSCMFIL	Manager directory location.
ZRSCVLOC	The location on the Configuration Server where the files are stored because of the Send Action (see ACTION in this table). This variable needs to be configured when sending a file back to the Configuration Server. The variable should contain the name of the MGRVLOC instance that will be used to resolve the location to store the uploaded file. *SystemDrive*:\Data\&(ZOBJPID)\&(name)
ZRSCMMEM	PDS member name. This field is optional.
PRODUCT	The product name. See ZVERINFO on page 152 for more detail.
PRODVERS	The product version. See ZVERINFO on page 152 for more detail.
ORGNAME	The organization name. See ZVERINFO on page 152 for more detail.
INTERNAL	The internal data element encoded in the file. See ZVERINFO on page 152 for more detail.
VERSION	The version of the file. See ZVERINFO on page 152 for more detail.
LANGUAGE	The language of the file. See ZVERINFO on page 152 for more detail.
VENDOR	The product vendor. See ZVERINFO on page 152 for more detail.
ZRSCCRC	Resource CRC.

Attribute	Description and Examples
ZCRCINFO	Collect file CRC. [Y/N] Default is **N**. • Set the value to **Y** to collect CRC information for a file. • Set the value to **N** to not collect CRC information. • If blank, defaults to **N**. Caution: Collecting file CRC information can dramatically extend the time it takes to collect information on the target machine.
ZMD5INFO	Collect file MD5 information. [Y/N] MD5 information is a 32-character value that can be used to uniquely identify a file based on its content. Default is **N**. • Set the value to **Y** to collect MD5 information for a file. • Set the value to **N** to not collect MD5 information. • If blank, defaults to **N**. Caution: Collecting MD5 information can dramatically extend the time it takes to collect information on the target machine.
ZRSCOBJN	Persistent object name.
ZRSCPADM	Administrator ID.
ZRSCSRC	Resource Source, i.e., Publisher.
ZINIT	Not applicable at this time.
NAME	Not applicable at this time.
LOCATION	Not applicable at this time.

Use the Client Explorer to view the FILEAUDT object results as shown in Figure 6 on page 155.

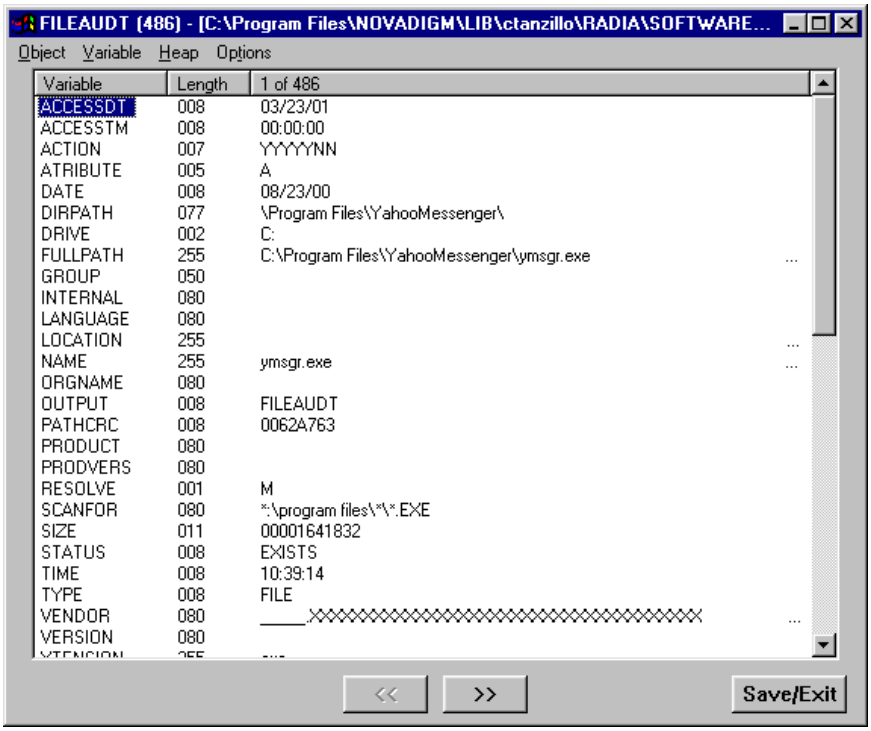


Figure 6: FILEAUDT object.

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

Table 17: FILEAUDT Object

Attribute	Description
ACCESSDT	The date of the most recent access of this file.
ACCESSTM	The time of the most recent access of this file.

Attribute	Description
ATRIBUTE	A string listing the attributes of the file: R = Read only A = Archive S = System H = Hidden C = Compressed
DATE	The date of the most recent modification to this file.
DIRPATH	The directory path of the file.
DRIVE	The system drive location of the file.
FULLPATH	Fully qualified path and file name of the file.
PATHCRC	A unique number that indicates the CRC path used for differencing.
RESOLVE	The value of M indicates that the Configuration Server resolves each heap of the FILEAUDT object individually. This value cannot be modified.
SIZE	File size in bytes.
STATUS	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 file system of the client computer 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.
TIME	The time of the most recent modification to this file.

Attribute	Description
XTENSION	The file extension. This is useful for sorting and querying back-end database tables that store the data found in this object.

WBEM Auditing

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

HP OpenView Inventory Manager using Radia for Windows leverages Microsoft's Windows Management Instrumentation (WMI) to collect hardware and software inventory data by using WMI queries. Some WMI queries can traverse the network contacting other servers in the enterprise to collect the requested information. This may result in large volumes of data being returned, and could have a significantly negative effect on network performance. An example of this would be querying all users on the network using the W32_UserAccount WMI class. Extreme caution must be taken to understand the scope of these queries to ensure unexpected results do not occur. While Inventory Manager provides an interface to WMI and its providers, it cannot control how these queries are satisfied. It is the customer’s responsibility to safeguard against using WMI queries that span the network, if this behavior is not desired.

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

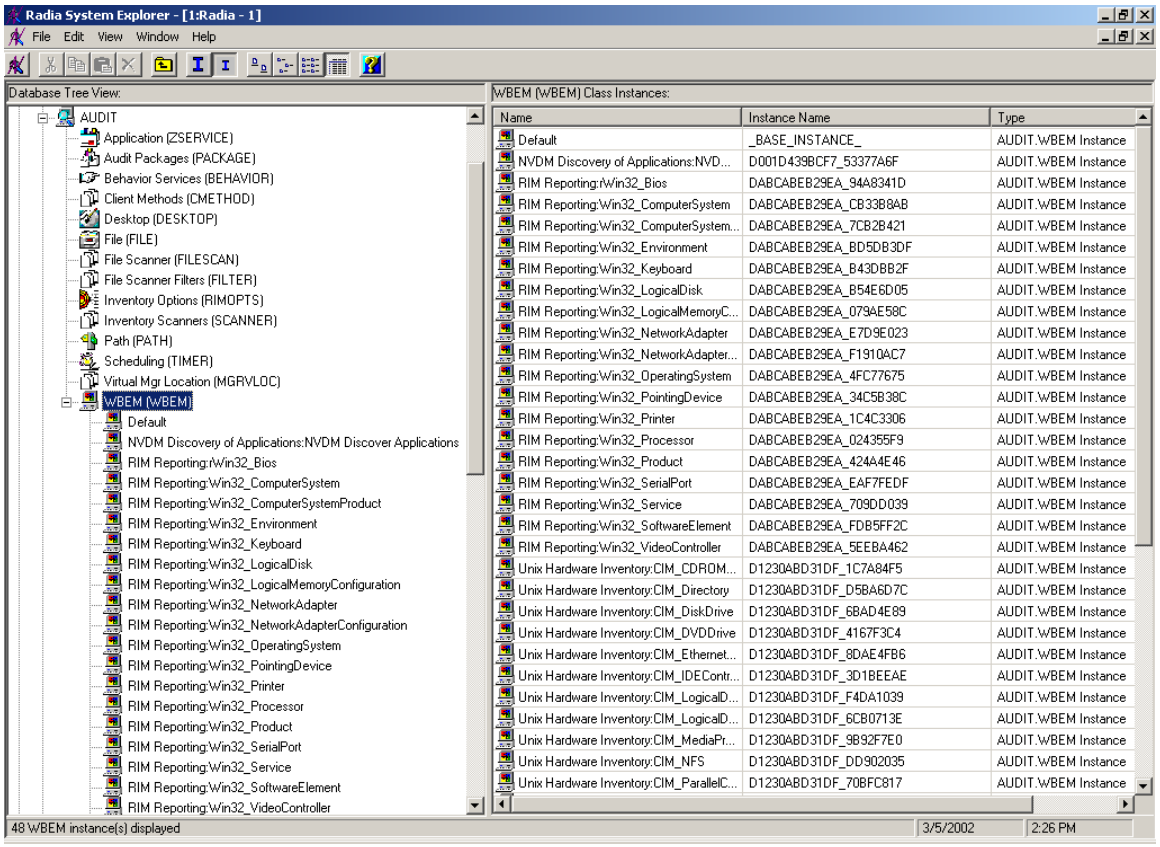


Figure 7: AUDIT.WBEM class instances.

Table 18 below describes the attributes of the AUDIT.WBEM instance.

Table 18: AUDIT.WBEM Instance

Attribute Name	Description
ACTION	The RIMDIFF method performs actions on the WBEM namespaces (s) instances discovered on the user's computer during the Client Connect. • Y configures RIMDIFF to perform the reporting action. • N configures RIMDIFF to not perform the reporting action.

Attribute Name	Description
	The first four flags determine *when* to report that the WBEM namespace instance was found: Report on: Initial, New, Changed, Deleted, Scan, Delete, Custom • **Initial** means that the file was found during the first scan of the client computer. • **New** means that the file was found during the current scan. The file was not present during the previous scan. • **Changed** means that the file was present during the previous scan and is different from the file found during the current scan. • **Deleted** means that the file was found during the previous scan. The file is not present for the current scan. • **Scan** means that the file was found during the current scan. • **Delete** means that the file was found during the previous scan. The file is not present for the current scan. • **Custom** means that the file was found during a custom scan. The last three flags are not applicable to WBEM audits.
NAMESPACE	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 Configuration Server.

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

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

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

In addition to the attributes described in Table 18 on page 158, the WBEM object also contains the following:

Table 19: WBEM Object Attributes in the Client

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 Configuration Server.
ZOBJRSIZ	The resource size maintained by the Configuration Server.

Attribute	Description
ZOBJTIME	The latest time under the current node.
ZRSCSRC	The name of the program promoted the resource.

WBEM Objects and the Configuration Server

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

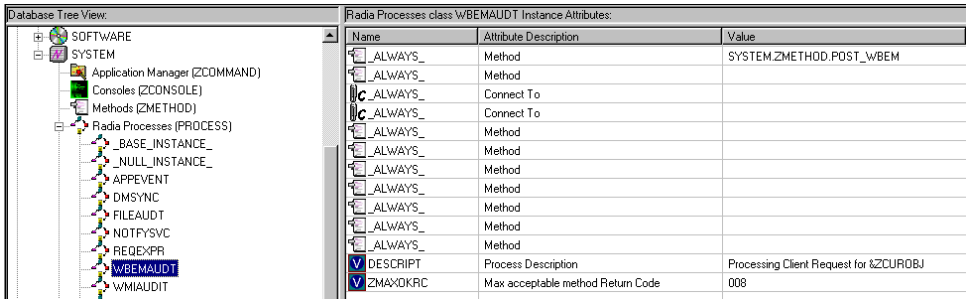


Figure 8: SYSTEM.PROCESS.WBEMAUDT instance.

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

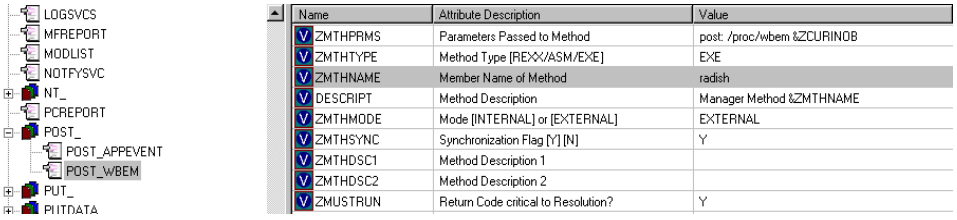


Figure 9: SYSTEM.ZMETHOD.POST_WBEM instance.

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

- Compressing and encoding the information in the WBEMAUDT object and sending it to RIS for processing.
- 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.dat. As shipped from HP, this instance assumes that the Radia Integration Server is running on the same computer as the Configuration Server. By default, the RADISH.EXE method will issue the POST to: **http://localhost:3466**.

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

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

Hardware Auditing

Each time a client connects to the Configuration Server, information about the Radia client'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 as follows:

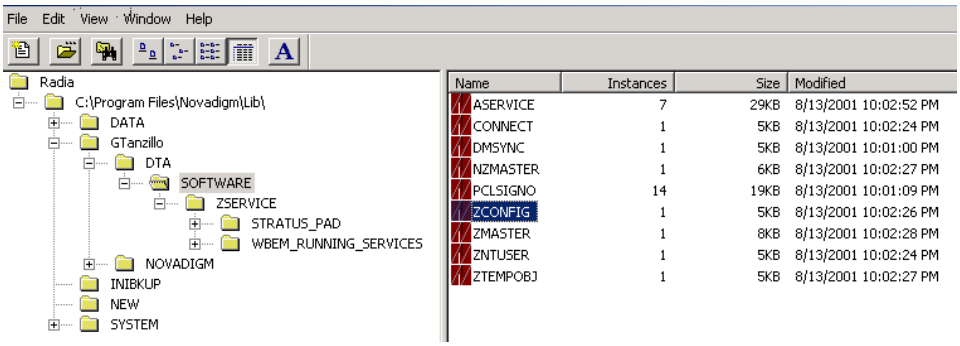


Figure 10: ZCONFIG object.

A separate ZCONFIG object is calculated and stored for each service installed or updated during the Client Connect. To force the transfer of the hardware information, the ZCONFIG attribute *must* be set to Y in the POLICY.USER class.

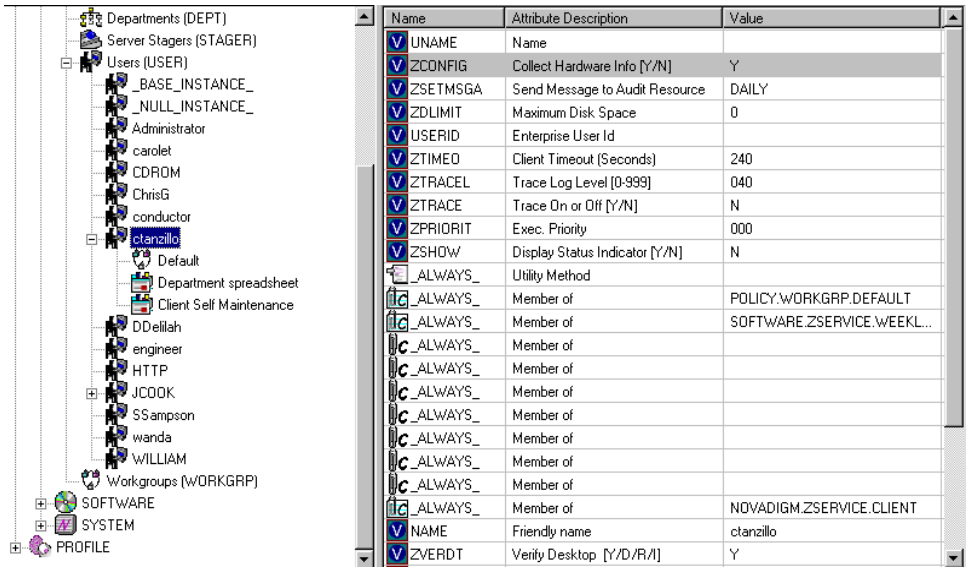


Figure 11: POLICY.USER Class – ZCONFIG attribute.

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

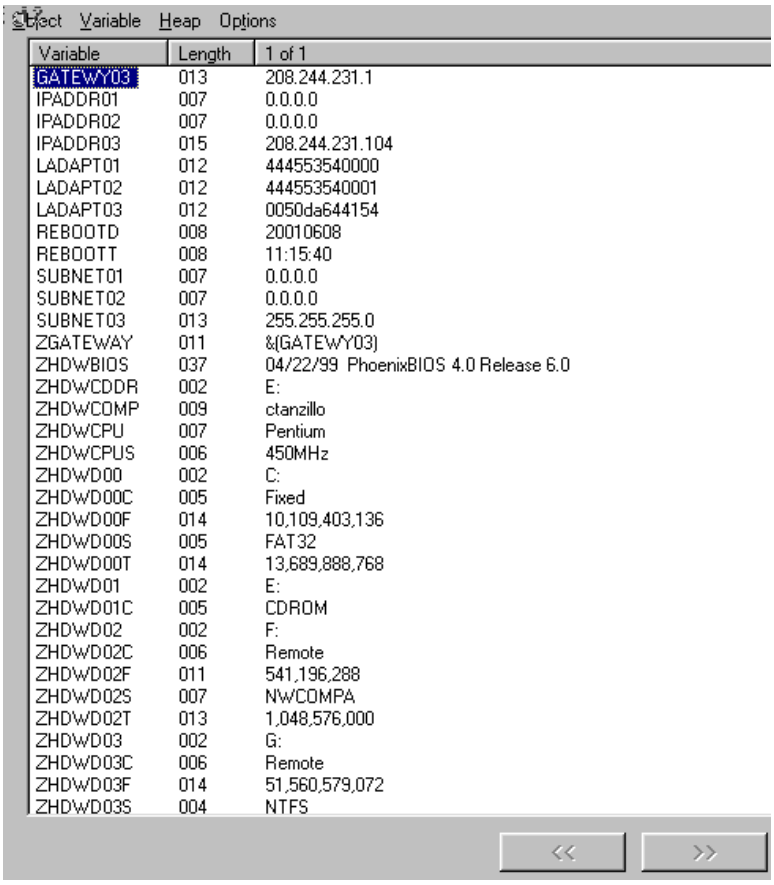


Figure 12: ZCONFIG object.

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 attributes that are stored in the ZCONFIG object.

Table 20: ZCONFIG Object

Attribute	Description
GATEWAY	Router for your subnet.
HALCOMP	Company of HAL.DLL
HALDATE	Date and time of HAL.DLL
HALFNAME	Original name of HAL.DLL
HALFVER	Internal version of HAL.DLL
HALINAME	Name of HAL.DLL
HALLANG	Language of HAL.DLL
HALPNAME	Product name of HAL.DLL
HALPVER	Product version of HAL.DLL
HALSIZE	Size of HAL.DLL
IPADDR##	IP address of network adapter (there can be multiple addresses).
LADAPT##	Network card (there can be multiple network cards).
REBOOTD	Last re-boot date.
REBOOTT	Last re-boot time.
SUBNET##	Subnet mask.
ZGATEWAY	Looks at GATEWAY attribute.
ZHDWBIOS	BIOS type.
ZHDWCDDR	Radia client's CD-ROM drive letter.
ZHDWCOMP	Computer name.
ZHDWCPU	Current CPU type.
ZHDWFPU	Current FPU type.
ZHDWIPAD	The IP address of the computer.
ZHDWKYBD	Keyboard type.
ZHDWLANA	LAN adapter.
ZHDWLANG	Language setting.
ZHDWMEM	Total physical memory (RAM).

Attribute	Description
ZHDWMEMF	Total free memory (RAM).
ZHDWMOUS	Mouse type.
ZHDWNET#	Network card information (can be multiple cards).
ZHDWNNET	Number of network cards.
ZHDWOS	Computer's operating system and version.
ZHDWOSCL	Operation system classification (Workstation or Server)
ZHDWOSDB	Operating system's build number.
ZHDWOSOG	Organization.
ZHDWOSOW	Owner.
ZHDWOSSR	Windows 9x Sub-Version Number (i.e., A, B, C)
ZHDWPA##	Printer information.
ZHDWPPAR	Number of parallel ports.
ZHDWPPRN	Number of printers available.
ZHDWPSER	Number of serial ports.
ZHDWVIDO	Video type.
ZHDWVMSI	MSI Version
ZHDWVRES	Video resolution.
ZHDWXPAG	Page size.
ZHWCPU01	CPU type.
ZHWFPU01	FPU type.
ZMODEM	Modem present? Y or N
ZOBJDATE	The date of the Client Connect for this particular service.
ZOBJNAME	HARDWARE_SCAN (hard coded).
ZOBJTIME	The time of the Client Connect.
ZSUBNET	The subnet mask.
ZUSERID	The name of the user who connected.

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

Summary

- The Inventory Manager allows for file auditing, WBEM auditing, and hardware auditing.
- The RIMFSCAN and the RIMDIFF methods on the client computer perform the actual file auditing operations by specifying what files to look for.
- The FILEAUDT object contains one heap for each file discovered during the scan for the audit service.
- The RIMWBEM method constructs a query from the information contained in an instance of the AUDIT.WBEM class.
- Each time a client connects to the Configuration Server, information about the subscriber's hardware configuration is stored in the ZCONFIG object.
- To force the transfer of the hardware information, the ZCONFIG attribute *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.

7 Successful Auditing

At the end of this chapter, you will:

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

This manual is provided to assist you with installing and implementing the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Sample Auditing

To illustrate the concepts of inventory information collection, the Inventory Manager installation contains a set of representative audit service examples. These samples are located in the PRIMARY.AUDIT.Audit Application (ZSERVICE) class as follows:

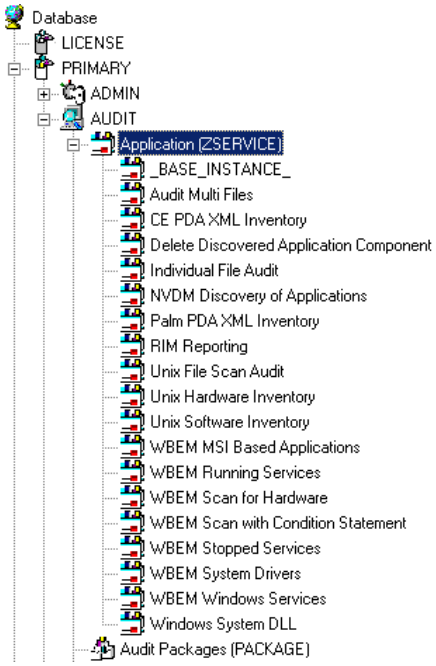


Figure 13: Sample Auditing services.

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

The sample audit services are described in the following table:

Table 21: 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 Multi Files	Audit to find and Capture Multiple Files	This service scans for a file name or pattern and reports that information back to the administrator.
CE PDA XML Inventory	CE PDA XML Inventory	This service scans for and reports back information on installed Windows CE PDA devices. Will only report back if a device is found.
Delete Discovered Application Component	Audit to Find and Remove Local File	This service looks for a specific file on the user's computer. If it is found, it will be deleted.
Individual File Audit	Audit to Find and Capture Local File	This service performs an NVDM scan of the user's computer for a specified file of an instance of the AUDIT.FILE classes.
NVDM Discovery of Applications	NVDM Discovery of Applications	Used to discover software applications that are installed on a client machine.
Palm PDA XML Inventory	Palm PDA XML Inventory	This service scans for and reports back information on installed Palm PDA devices. Will only report back if a device is found.

Service	Connected to Audit Package (PACKAGE)	Description
RIM Reporting	RIM Reporting	This service performs a scan of a systems Win32 devices such as: Bios, Computer System, environment, keyboard, logical disk, logical memory configuration, network adapter, operating system, pointing device, printer, processor product, serial port, service, software element, and video controller. Note: This is a very large scan and may take several minutes to complete.
Unix File Scan Audit	UNIX File Scan Audit	This service performs a NVDM scan of the user's computer for a specified file of an instance of the AUDIT.FILE classes on UNIX platforms.
Unix Hardware Inventory	Unix Hardware Inventory	This service scans for and reports on a user's hardware on UNIX computers.
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	This service performs a WBEM scan of the user's computer for components registered in the WMI database that have been installed by Microsoft Windows Installer.

Service	Connected to Audit Package (PACKAGE)	Description
WBEM Running Services	WBEM Scan for Running Services	This service scans the user's computer for system services that are running at the time of the scan.
WBEM Scan for Hardware	WBEM Scan for System Software	This service scans for and reports on a user's hardware.
WBEM Scan with Condition Statement	WBEM Scan with Condition Statement	This service performs scans based on a conditional statement set in the CONDITION attribute.
WBEM Stopped Services	WBEM Scan for STOPPED Services	This service scans the user's computer for system services that are stopped at the time of the scan.
WBEM System Drivers	WBEM Scan for Windows System Drivers	This service scans the user's computer for Win 32 system drivers.
WBEM Windows Services	WBEM Scan for Windows Services	This service scans for and reports on Windows Services.
Windows System DLL	Audit System DLL	This service scans for system DLLs and reports on them.

Configuring a Sample Audit

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

For documentation purposes, we will configure the sample audit service Audit Multi Files. The file type we will be auditing is indicated in the

SCANFOR attribute within the instance. This instance directs the Inventory Manager client to scan for any `*:\program files\*\*.exe` files on the client computer. The ACTION attribute indicates that the discovery of the file will be reported and sent to the Configuration Server for storage.

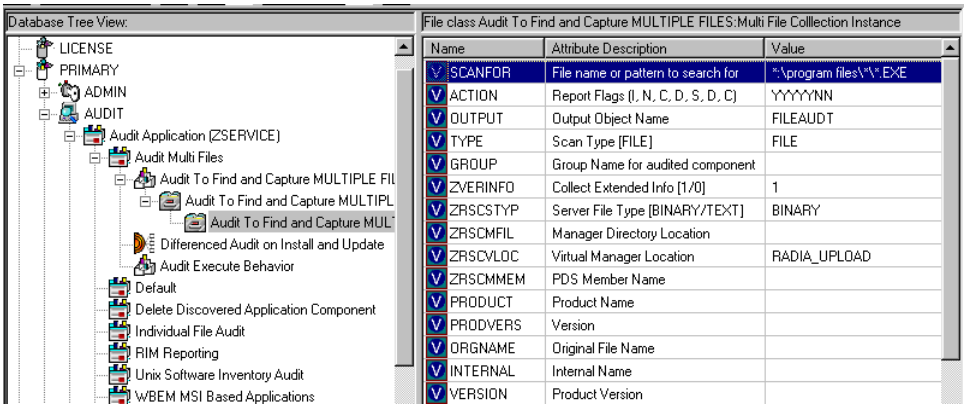
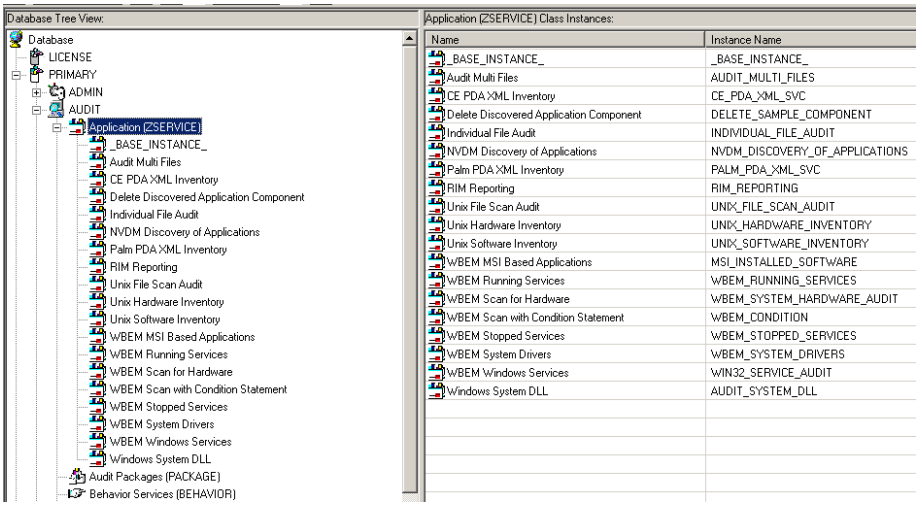


Figure 14: SCANFOR attribute of the Audit Multi Files instance.

To configure a sample Audit package

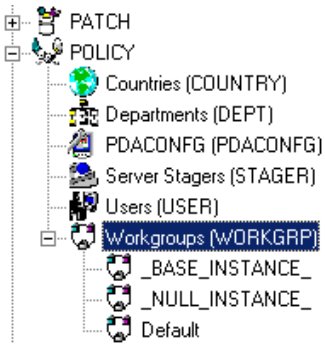
1. If you have not already done so, start the System Explorer.
2. Navigate to and expand the PRIMARY.AUDIT domain.
3. Double-click on Application (ZSERVICE) to expand the class.



4 Scroll to and expand the POLICY domain.

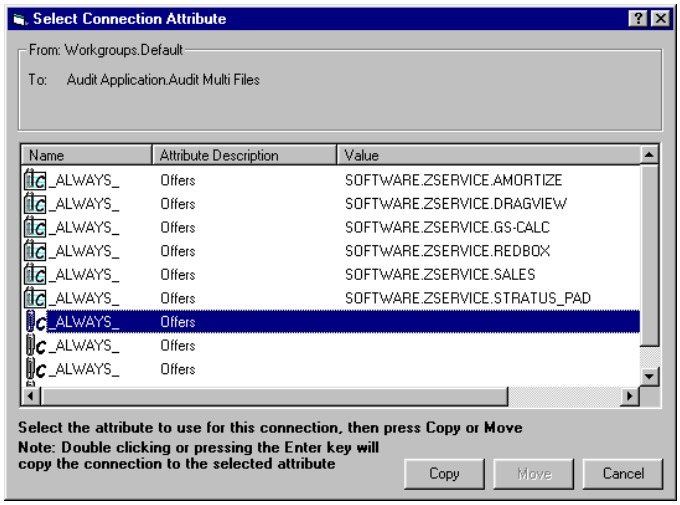
For our example, we would like all users that are members of the Workgroup class to select this audit package from their Software Manager.

5 Expand the POLICY.WORKGROUPS class.



6 Select the **Audit Multi Files** package from the **ZSERVICE** class and drag it to the POLICY.WORKGROUPS class and drop it on the **Default** instance.

The Select Connections Attribute window opens.

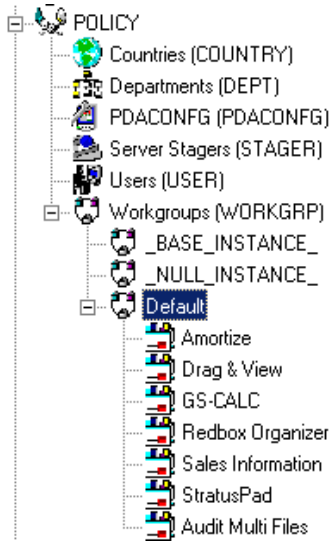


7 Click **Copy** to add this package.

The Confirm Connection dialog box opens.

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

The Audit Multi Files package is added to WORKGRP class.



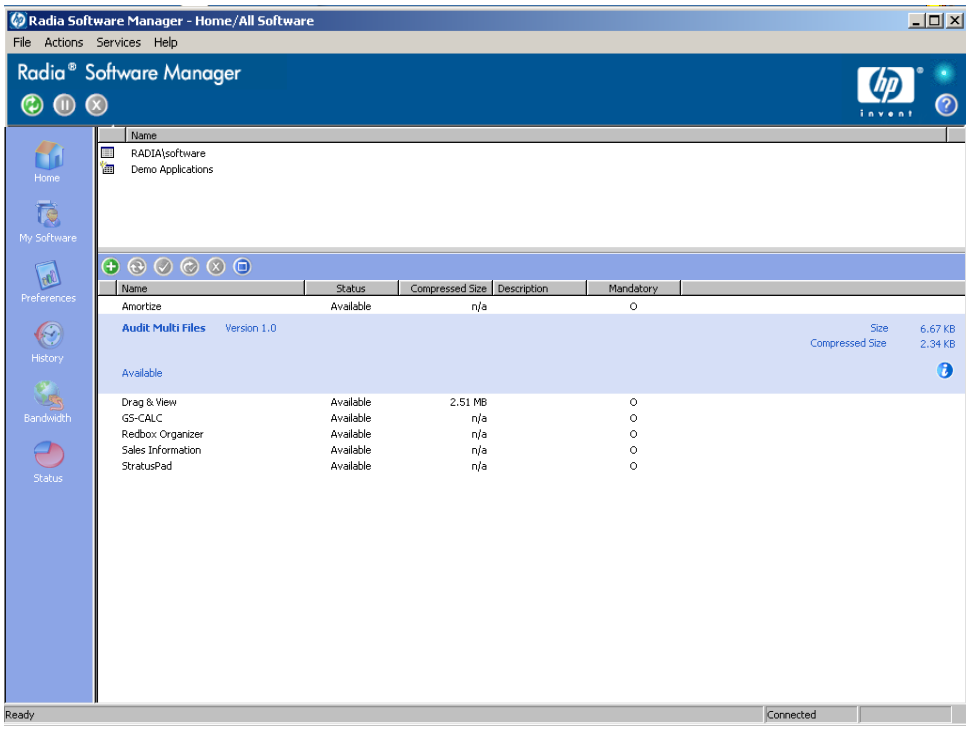
The collection of inventory information occurs on the Inventory Manager client computer when a user connects to the Configuration Server as follows:

- Through the Software Manager Client Connect when the user visits a Radia Web page.

  or

- Through the Application Manager client when the user double-clicks the Radia Connect icon on his desktop, or is scheduled or notified to connect.

A Software Manager client would see the following when connecting:



When the subscriber selects and installs the Audit Multi Files package from his Software Manager, there are really two connections. The first connection downloads the Audit service. The second connection sends the audit results back to the Configuration Server. The audit-related scans are done between the two connections.

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 Client Explorer to locate the ZSERVICE for the **Audit Multi Files** package in the LIB directory.

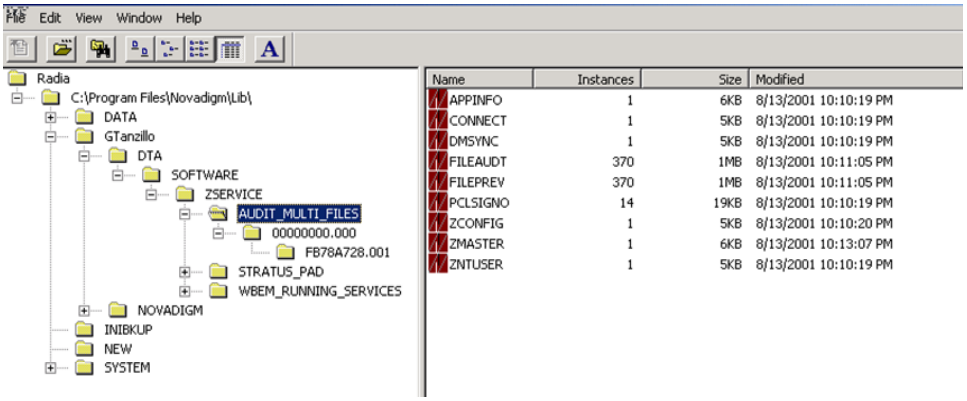


Figure 15: AUDIT_MULTI_FILES in the LIB directory.

Within the ZSERVICE, note the two objects, **FILEAUDT** and **FILEPREV**. These objects are created and stored in the ZSERVICE of the LIB directory whenever an audit package is installed. The FILEAUDT object contains one heap for each file discovered during the auditing scan. It also contains the attributes from the AUDIT.FILE instance that controlled the scan.

The AUDIT.FILE class instances in an audit package control the auditing for files on the client computer. The RIMFSCAN and the RIMDIFF methods on the client computer perform the actual file auditing operations by specifying what files to look for.

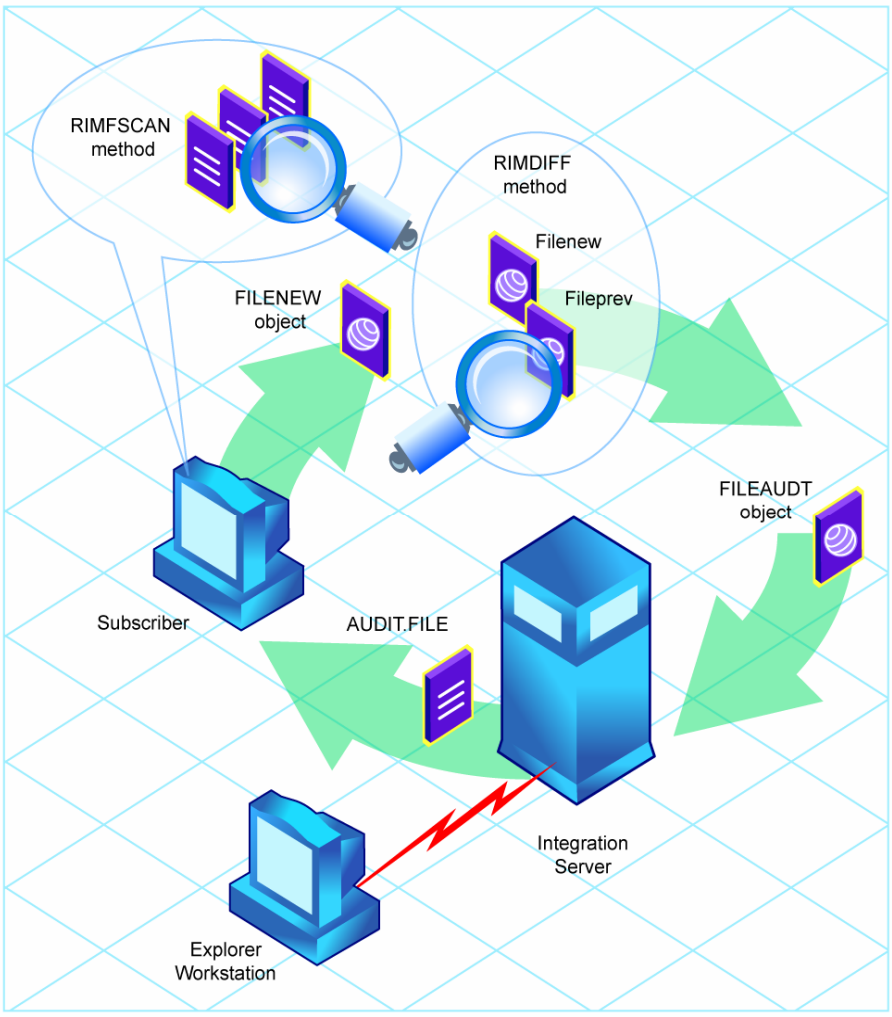


Figure 16: Auditing with the RIMFSCAN and RIMDIFF methods.

- The RIMFSCAN method scans the client's file system based on the values in the AUDIT.FILE class instance in the audit package. It constructs an object called FILENEW. The FILENEW object contains one heap per file discovered during the current scan.
- The RIMDIFF method compares scan results from the current scan (the scan done during the current Client Connect stored in the FILENEW

object) with scan results from a previous scan (the scan done during a previous Client Connect process stored in the FILEPREV object). It will construct the FILEAUDT object that is then sent to the Configuration Server. The RIMDIFF method then deletes the FILEPREV object and will rename the FILENEW object to FILEPREV.

For our particular example, there were 486 instances for both the FILEAUDT and the FILEPREV object located on the Radia client's computer.

Summary

- To illustrate the concepts of inventory information collection, the Inventory Manager installation contains a set of representative audit service examples.
- The best way to develop your own audit services is to study the samples that were installed with the Inventory Manager.
- Inventory information is collected on the Inventory Manager client computer when a user connects to the Configuration Server.
- The first connection downloads the audit service. The second connection sends the audit results back to the Configuration Server. The audit-related scans are done between the two connections.
- The RIMFSCAN method scans the client's computer file system based upon the values contained in the AUDIT.FILE class instance in the audit package. It constructs an object called FILENEW.
- The RIMDIFF method compares the scan results from the current scan (the scan done during the current Client Connect process stored in the FILENEW object) with the scan results from a previous scan (the scan done during a previous Client Connect process stored in the FILEPREV object). It constructs the FILEAUDT object that is then sent to the Configuration Server.

8 Creating Audit Packages

At the end of this chapter, you will:

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

This manual is provided to assist you with installing and implementing the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

Audit Packages or PACKAGE Class

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

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

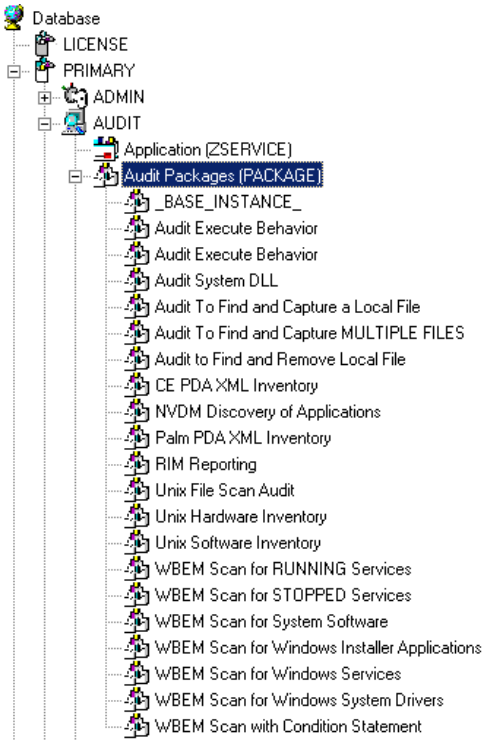


Figure 17: Audit Package (PACKAGE) class.

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 Individual File Audit instance.

Figure 18: Individual File Audit instance.

In the example, the **Individual File Audit** ZSERVICE instance "owns" the **Audit to Find and Capture a Local File** instance. The fact that a package instance owns a component class instance means that all of the instances are managed as a package unit. If the package instance is deleted, all of its owned class instances are automatically deleted as well.

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

The audit service instance must also contain a connection to an instance of the RIMOPTS class. Connecting an instance of the RIMOPTS class to an audit service instance causes the expressed behavior to be performed. Specified behaviors are listed in the following table.

Table 22: Inventory Options (RIMOPTS) Class

Instance	Description
Default	Contains the base instance attributes for the RIMOPTS class. • Collect attribute is set to Diff. • Runexec attribute is set to IU. • ZSVCTYPE attribute is set to I.

Instance	Description
Differenced Audit on Install and Update	When connected to an audit service will difference the audited information on installation and when the audited target is updated. • Collect attribute is set to Diff. • Runexec attribute is set to IU. • ZSVCTYPE attribute is set to I.
Differenced Audit on Install, Verify, and Update	When connected to an audit service, will difference the audited information in initial installation, on subsequent connects, and when updated. • Collect attribute is set to Diff. • Runexec attribute is set to IVU. • ZSVCTYPE attribute is set to I.
Full Audit on Install and Update	When connected to an audit service, will difference the audited information on installation and update. • Collect attribute is set to Full. • Runexec attribute is set to IU. • ZSVCTYPE attribute is set to I.
Full Audit on Install, Verify and Update	When connected to an audit service, will • Collect attribute is set to Full. • Runexec attribute is set to IVU. • ZSVCTYPE attribute is set to I.

See Chapter 5, The AUDIT Domain for additional information about RIMOPTS attributes.

Finally, a connection to an auditing behavior is needed.

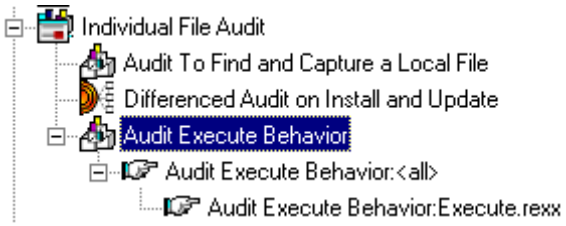


Figure 19: Connection to an Audit Behavior.

The audit behavior owned by the Individual File Audit ZSERVICE is connected to the Behavior Services (BEHAVIOR) class within the AUDIT domain.

The BEHAVIOR class in the AUDIT domain remains unchanged from the BEHAVIOR class within the SOFTWARE domain. Refer to the *Radia Database Reference Guide, Chapter 8: The SOFTWARE Domain* for the description of the attributes found within this class.

Using System Explorer to Create/Maintain Audit Services

By using the System Explorer, we will walk through the construction of a file audit. An instance of the AUDIT domain's Audit Package (PACKAGE) class contains information about the inventory information to collect, and what action to take with that collected information.

Prior to beginning the creations 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? (See Configuring Timers for Audit Collection starting on page 201 for information concerning timers.)

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

If you are creating a WBEM Audit Package, be aware that HP OpenView Inventory Manager using Radia for Windows leverages Microsoft's Windows Management Instrumentation (WMI) to collect hardware and software inventory data by using WMI queries. Some WMI queries can traverse the network contacting other servers in the enterprise to collect the requested information. This may result in large volumes of data being returned, and could have a significantly negative effect on network performance. An example of this would be querying all users on the network using the W32_UserAccount WMI class. Extreme caution must be taken to understand the scope of these queries to ensure unexpected results do not occur. While Inventory Manager provides an interface to WMI and its providers, it cannot control how these queries are satisfied. It is the customer's responsibility to safeguard against using WMI queries that span the network, if this behavior is not desired.

To create a new Audit package

1 Go to **Start → Programs → Radia Administrator Workstation → Radia System Explorer**. The System Explorer Security Information dialog box opens.

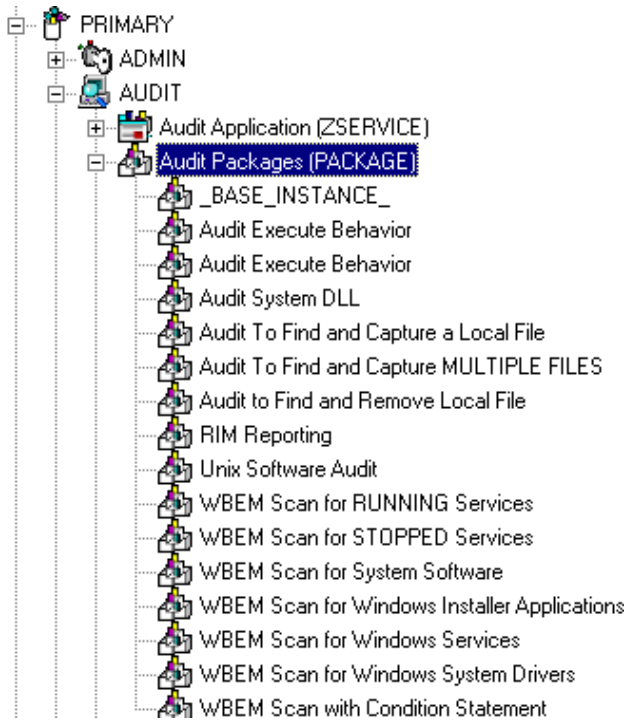
The User ID, as shipped from HP, is **RAD_MAST**. No password is necessary. This may have been changed during installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

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

3 Double-click **PRIMARY**.

4 Expand the **AUDIT** domain.

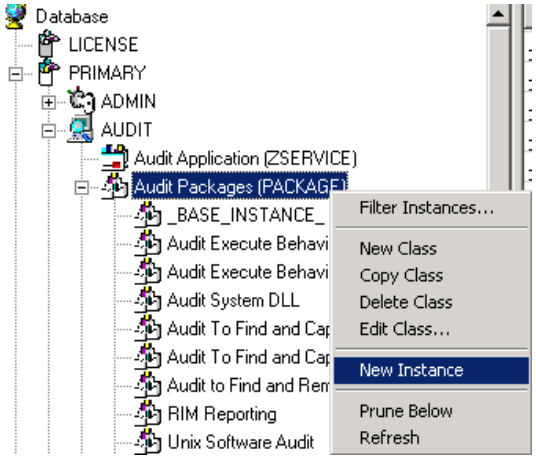
5 Double-click on **Audit Packages (PACKAGE)** class.



As an example, we will create a new auditing package called Log Finder. This package will scan a user's computer for .log files, capture them, and return the results to the administrator.

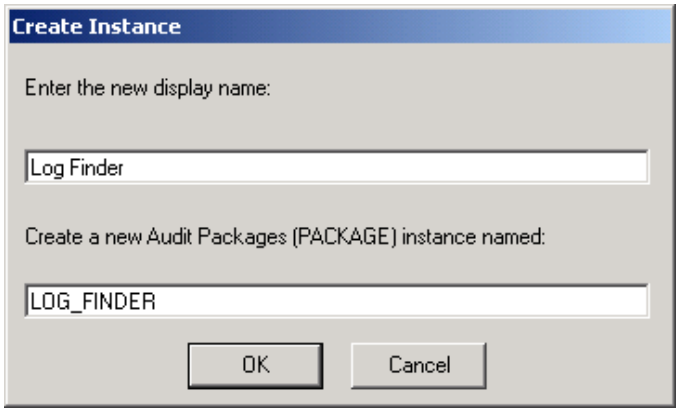
6 Right-click on the **Audit Packages (PACKAGE)** class.

A shortcut menu opens.



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

The Create Instance dialog box opens.

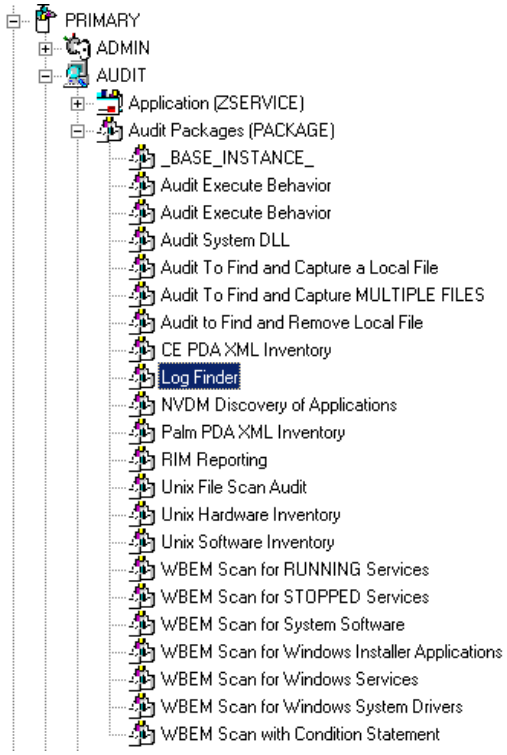


8 Enter a new display name for the package instance. This friendly name will appear in the tree view.

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

10 Click **OK** to continue.

The new Log Finder package is added to the AUDIT.PACKAGE class.

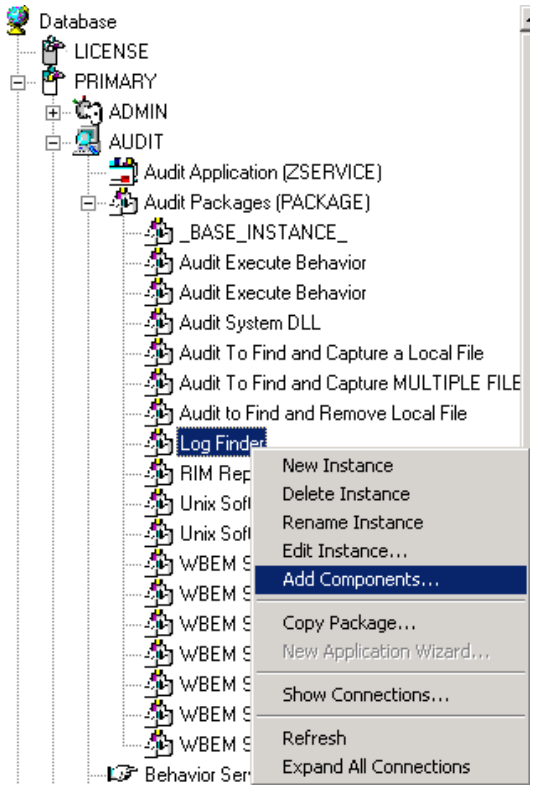


Once the Log Finder package is created, you will need to add its components.

To add a component to an Audit package

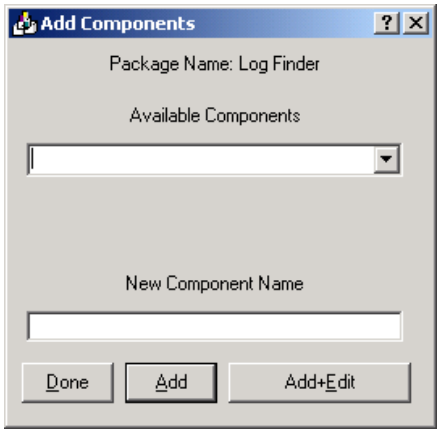
1 Right-click on the Log Finder package.

2 A shortcut menu opens.

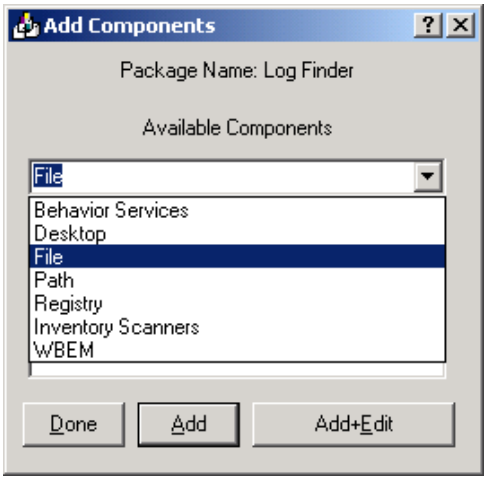


3 Select **Add Component** from the shortcut menu.

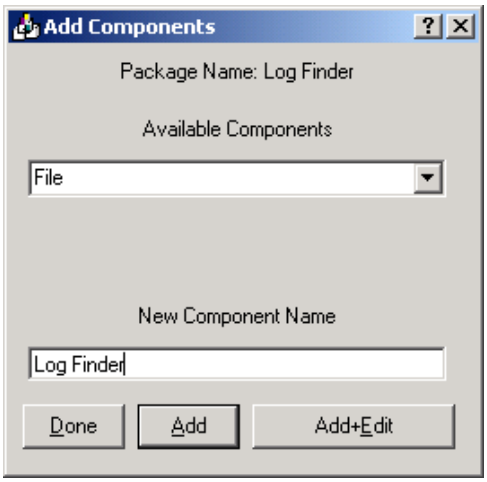
The Add Components dialog box opens.



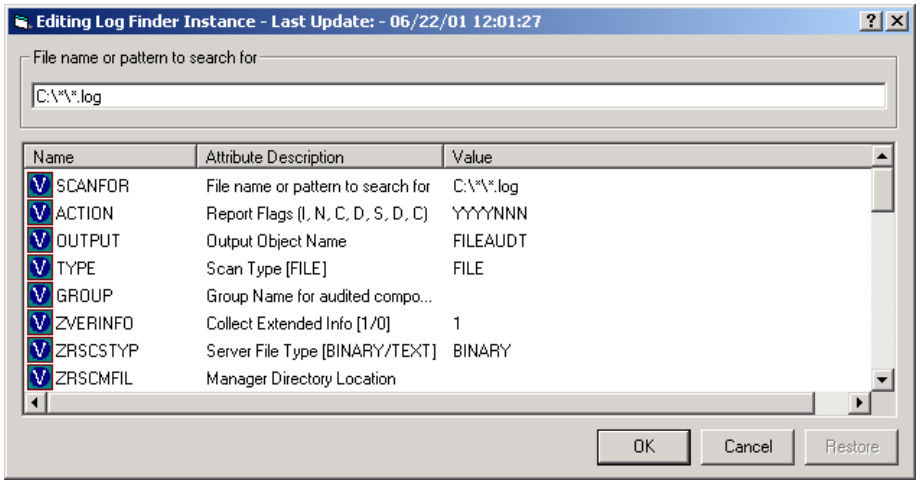
4 Click on the **Available Components** drop-down arrow, and select **File**.



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



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



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

> Use the AUDIT.FILE class instances to help you decide which instances you may want to edit.

For our example, we changed the SCANFOR attribute to `C:\*\*.log`.

Continue to edit, line-by-line, as necessary.

7 Click **OK** when you are done with your edit.

8 Click **Yes** to save your changes.

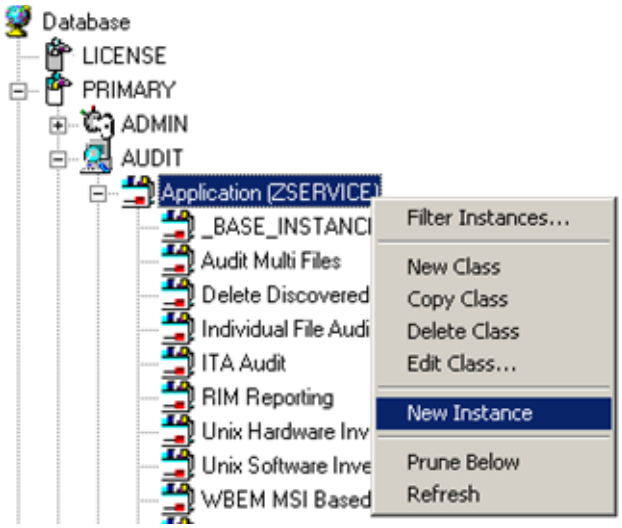
Next, you will need to create a ZSERVICE instance to contain the Log Finder package.

To create a ZSERVICE instance

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

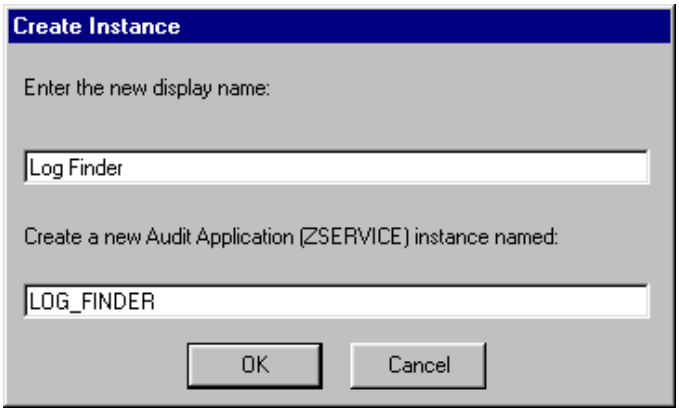
1 In the System Explorer, expand the AUDIT.ZSERVICE class in the tree view.

2 Right-click **Audit Application (ZSERVICE)** and a shortcut menu opens.



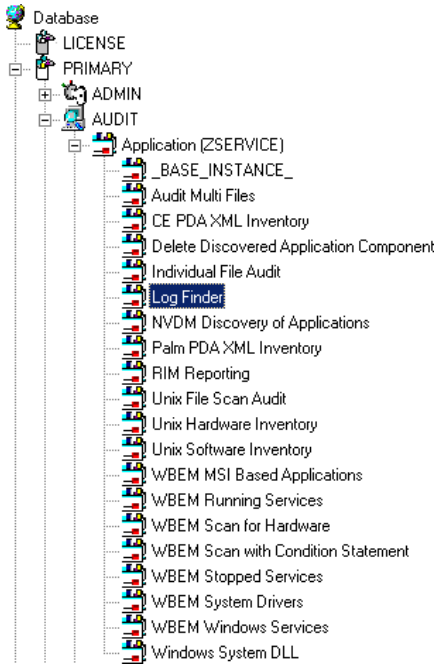
3 Select **New Instance** from the shortcut menu.

The Create Instance dialog box opens.

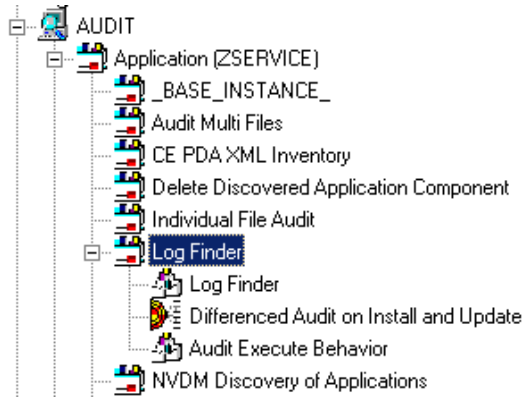


4 Type a display and an instance name.

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



6 Use the System Explorer to connect the Log Finder package to the Log Finder service.



Once the connection to the ZSERVICE has been completed, various optional steps can be taken.

You might want to ask yourself the following questions:

- Will the service appear in the Software Manager? Should the ZSVCNAME be changed? Should I enter additional information that may appear in the Software Manager?
- Will this be a mandatory or optional service?
- Will the service have a certain length of time to be active?
- Do I want to confirm if the service is installed or not?

The answers to these questions can help you decide how to customize the service.

For our example, we wanted to change the service name from Unknown to Log Finder. We also wanted to make this service available to users in the Software Manager, so we have changed the ZSVCMO attribute from mandatory to mandatory *and* optional. We would like the Configuration Server to report back and store any .log files that are found. Therefore, we will change the ZRSCMFIL attribute to capture and store this information on the Configuration Server's directory.

Application class Log Finder Instance Attributes:

Name	Attribute Description	Value
ZSTOP000	Expression Resolution Method	
ZSTOP001	Expression Resolution Method - 001	
ZSTOP002	Expression Resolution Method - 002	
ZSTOP999	Stop Unless Radia Connect	
ZSVCNAME	Service Name/Description	Log Finder
ZSVCTTYP	Application Target Type [A/S]	
ZSVCMO	Mandatory or Optional Service [M/O]	MO
ZSVCCSTA	Service Status on Client (999)	999
ZSVCPRI	Service Create Ordering [01-99]	
ALWAYS	Contains	AUDIT.PACKAGE.LOG_FINDER
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	
ALWAYS	Contains	AUDIT.RIMOPTS.DIFF_INSTALL_UPD...
ALWAYS	Contains	AUDIT.PACKAGE.AUDIT_EXECUTE_B...
ALWAYS	Utility Resolution Method	
ZCREATE	Service Installation Method	
ZINIT	Service Initialization Method	
ZDELETE	Service Delete Method	
ZUPDATE	Service Update Method	
ZVERIFY	Service Verify Method	
ZREPAIR	Service Repair Method	
ZAVIS	Available,Verified,Installed,Sync F	YXNX
PUBDATE	Published Date of Service	
VERDATE	Verfied Date of Service	
UPGDATE	When Application was Upgraded on De	
UPDDATE	Upgrade Date (Programmatic)	
INSTDATE	Installed Date	
DELDATE	Delete Date	
AUTHOR	Author Name	
DESCRIPT	Application Description	

Figure 20: Log Finder ZSERVICE attributes.

Use the System Explorer to connect and deploy the Log Finder audit service.

In this particular example, the user sees the new audit service in his Software Manager.

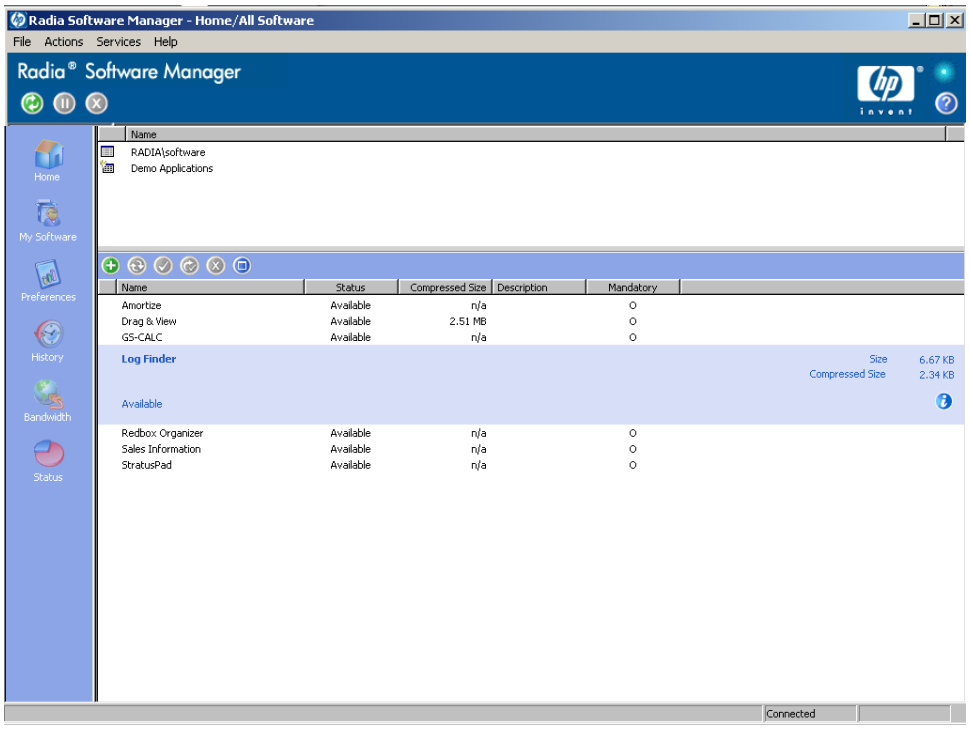


Figure 21: Log Finder as it appears in the Software Manager.

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, system 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 in the Audit domain. You need to either copy an existing instance or create a new one.

9 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 is provided to assist you with installing and implementing the Inventory Manager. Choose the appropriate strategies suited for your enterprise needs.

The Scheduling (TIMER) Class

The Scheduling (TIMER) class enables the Radia administrator to set a timer on the client computer that 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 pre-determined schedule.

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

Housed within the AUDIT.Scheduling (TIMER) class are 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.
- **Discover Installed Software Timer**
  executes a ZSERVICE weekly between 8:30 am and 10:30 pm. Use this particular timer in conjunction with the ZSERVICE Discovery of Applications that audits the ADD/REMOVE PROGRAM part of the OS.

These sample packages can be copied and modified, changing the time parameters to suit your needs. Refer to the *System Explorer Guide* for information on copying an instance. Or, you can create a new timer instance by following the instructions in Creating a Timer Instance beginning on page 207.

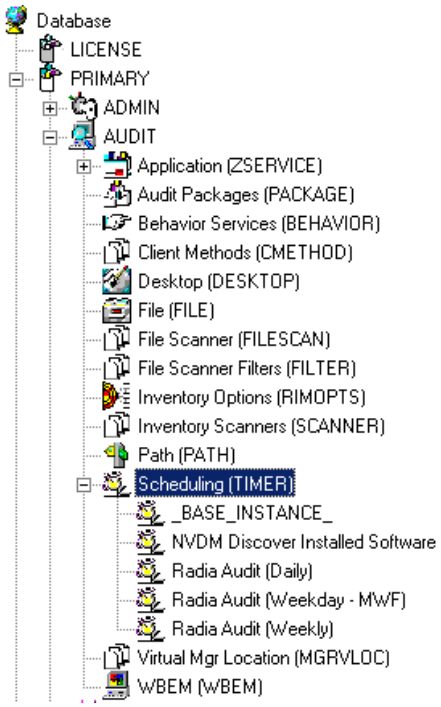


Figure 22: AUDIT Scheduling (TIMER) class.

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

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

The following table contains descriptions of the Scheduling (TIMER) class attributes:

Table 23: 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.
ZSTOP	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	Specifies the timer owner. We recommend you leave the default configuration of USER.
ZSCHDEF	Indicates when the timer expires. The syntax varies depending on the frequency of expiration that can be DAILY, HOURLY, INTERVAL, NUMDAY, WEEKDAY, and WEEKLY.
ZSCHTYPE	*Used only when ZSCHFREQ = PERIODIC*. Set ZSCHTYPE to DEFERRED to indicate that the first time an event is attempted to be launched, it will be deferred until the *next* scheduled time, no matter when the timer instance is evaluated. This was designed to handle the case of a daily 4 A.M. (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

Attribute	Description
	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.
ZSVCOID	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	Friendly name for this instance.
APPSVC	Application.
REQUEST	Application request.

Attribute	Description
DOMAIN	Server's domain name.
IPADDR	Server's IP address/name.
SOCKET	Server's socket number.
MGRNAME	Server's name.
ZCREATE	Scheduler CREATE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZVERIFY	Scheduler VERIFY method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZUPDATE	Scheduler UPDATE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
ZDELETE	Scheduler DELETE method that runs on the client computer. This value is inherited from the base instance and should not be changed.
RUNSYNC	Sets the value of Yes or No for the synchronous timer execution. The default value is Yes.

Attribute	Description
ZNOPING	Controls the automatic sensing of a network connection between the client computer and the Configuration Server. An expired time will continually evaluate whether communications with the Configuration Server can be established. When communications are established, the command line associated with the time is executed. After executing the command line, the Scheduler service resumes normal evaluation of whether the timer has expired again. Use this attribute when there is a possibility that the client will not be able to connect with the Configuration Server. This attribute is especially useful for mobile users. Note: In order to use this attribute, you must add it to the TIMER class template.
PINGDLAY	Sets the amount of time between pings in milliseconds. The default setting is 2000 milliseconds.
PINGCNT	Sets the number of ping attempts to be made by the Configuration Server. The default setting is 3.

This section describes 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?

Creating a Timer Instance

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

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

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

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

To create a new timer in the AUDIT domain

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

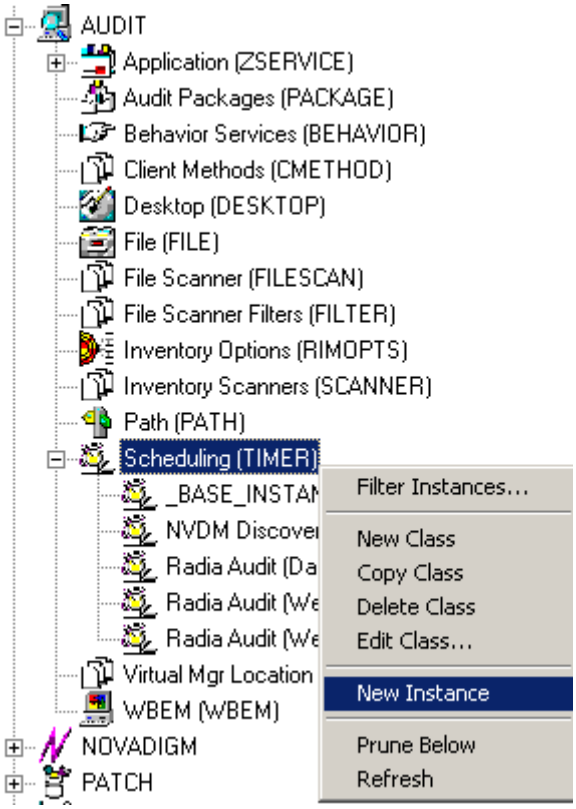
The User ID, as shipped from HP, is **RAD_MAST**. No password is necessary. This may have been changed during installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

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

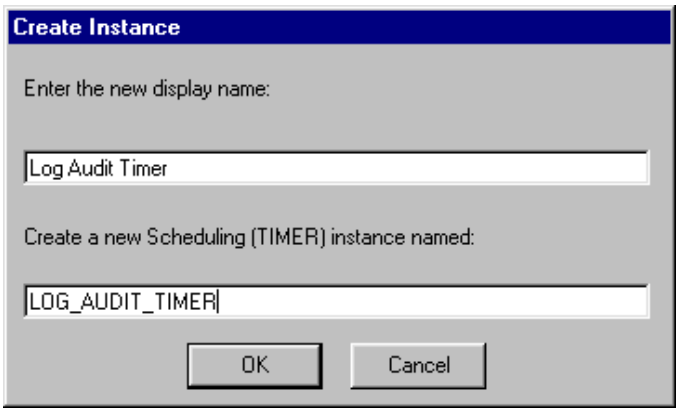
3 Double-click **PRIMARY**.

4 Double-click **AUDIT**.

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

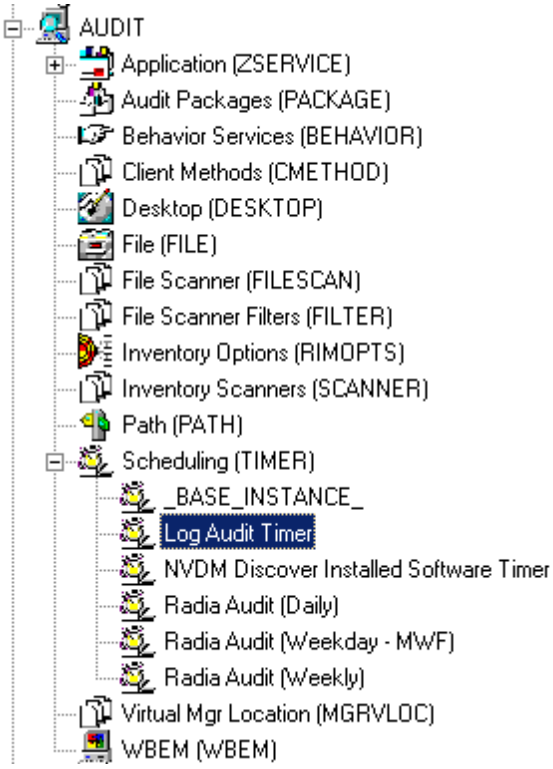


6 Select **New Instance**. The Create Instance dialog box opens.



7 Type a name for the new timer instance, such as Log Audit Timer.

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



Specifying Timer Settings

Whether you have copied an existing timer or you have created a new Timer instance, you need to review and/or customize your timer settings. Refer to the *Application Manager Guide* and the *Software Manager Guide* for more information on how to specify the client timer settings.

Specifying ZSCHDEF

Use the ZSCHDEF attribute to define the time interval and date and time to execute the command line. The syntax varies depending upon the interval

chosen. When configuring ZSCHDEF, the attribute is set in the following form depending on the interval.

```
DAILY(<DATE>,<TIME>[,<LIMIT>])
HOURLY(<DATE>,<TIME>[,<LIMIT>])
WEEKLY(<DATE>,<TIME>[,<LIMIT>])
WEEKDAY(<DAY of Week>,<TIME>[,<LIMIT>])
NUMDAYS(<DATE>,<TIME>[,<LIMIT>],<Number of Days>)
INTERVAL(<DATE>,<TIME>[,<LIMIT>],<Number of Seconds>)
```

In the case of `NUMDAYS` and `Interval`, the Optional parameter `<LIMIT>` is between mandatory parameters. If the optional parameter is omitted the place must be held with a double comma. Example:

```
NUMDAYS: NUMDAYS(20000803,08:00:00,12:00:00,14)
NUMDAYS: NUMDAYS(20000803,08:00:00,,14)
```

- 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:

  `YYYYMMDD`

- 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 values for `time` and `limit_time` are optional. They are 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 23 on page 204 to help you determine the appropriate syntax.

Table 24: Syntax of ZSCHDEF Attributes

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 seven days at 1:00 am.
WEEKDAY	WEEKDAY(Name of Weekday*,01:00:00)	Every *Name of Weekday** 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 system's 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 attribute immediately if the date and time indicated in the ZSCHDEF attribute 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 uid=&(ZMASTER.ZUSERID),startdir=&(ZMASTER.LOCALUID),
mname=&(ZMASTER.ZMGRNAME),dname=&(ZMASTER.ZDOMNAME),sname=&(ZSERV
ICE.ZOBJNAME)
```

Execution causes Radia to launch the AUDIT service behavior, (`EXECUTE.REXX`) attached to the AUDIT service.

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

Specifying ZNOPING, PINGDLAY, and PINGCNT

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

Refer to the *Software Manager Guide* for more information about the ZNOPING attribute.

- If the ZNOPING attribute is not in the ZTIMEQ object, or if ZNOPING is not equal to N, the Scheduler service does not ping the Configuration Server.
- If ZNOPING = N, the Scheduler service will ping the Configuration Server.
  - If the Configuration Server is pinged successfully, the command in the ZRSCCMDL attribute is executed. The PENDING attribute in the client's ZTIMEQ object is then set to N. This indicates that the Scheduler service does not need to ping the Configuration Server again.

— Set ZNOPING to **W** if you are specifying an end limit in the ZCHDEF attribute. The Scheduler pings the Configuration Server before executing the command. If the Configuration Server is unavailable, the ZPENDING flag is set to "W". If the ZSCHEDEF has a limit time, then when that time passes, the ZPENDING flag is set to N, and the Scheduler will not attempt to execute the command until its next scheduled time.

— If the Configuration Server is not pinged successfully, the timer is not processed any further. The ZPENDING attribute value remains set to Y. The next time the Scheduler service expires, it should ping the Configuration Server again.

If ZNOPING is set to N, also use the PINGDLAY and PINGCNT attributes to further specify the timing and number of pings between the client computer and the Configuration Server.

- If ZNOPING is set to N, PINGDLAY specifies the time in milliseconds between pings. The default is 2000.
- If ZNOPING is set to N, PINGCNT specifies number of ping attempts. The default is 3 attempts.

Connecting the Timer to a Service

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

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

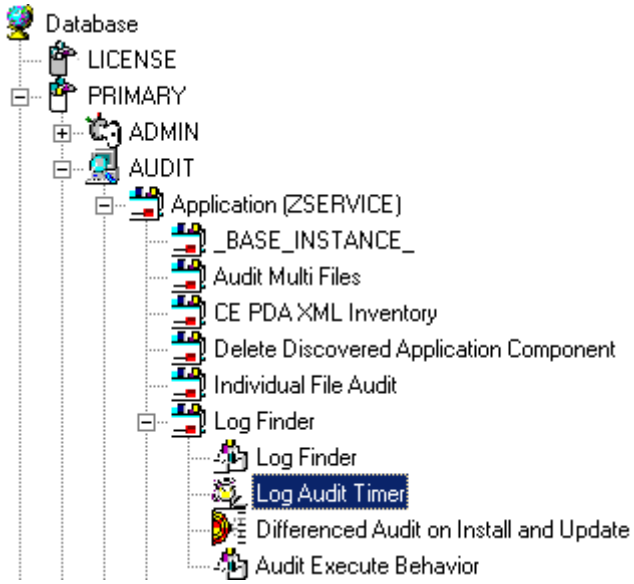


Figure 23: Log Audit Timer instance connected to the Log Finder service.

Then connect the AUDIT.ZSERVICE.Log Finder to a user or group of users in the POLICY domain.

Figure 24: Log Finder attached to a user.

Audit Execution Configuration

By default, when an Audit service is installed on an end user's computer, it executes immediately and reports to the Configuration Server. This can be time consuming, especially if the audit service type is WBEM, File Scan, or an MSI request. The audit service definition may also be installed at a time when an audit scan is not desirable. For example, when an end user visits the Software Manager and mandatory applications are processed as defined in the embed tag enterprisemanagement=auto.

The easiest way to approach this issue is to manipulate how and when the audit actually executes. This can be accomplished by:

- Customizing the Inventory Options (RIMOPTS) attribute.

  and

- Updating the embed tags in the html file for the Software Manager.

The following describes the steps necessary to customize RIMOPTS and update the embed tag to prevent audit execution during mandatory application processing.

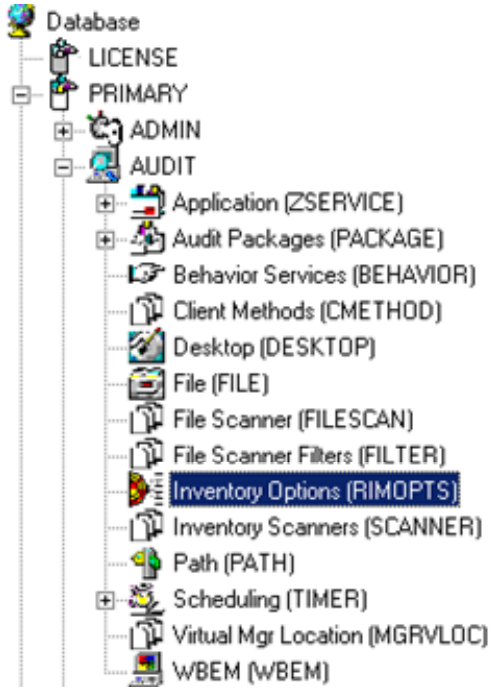
To customize the RIMOPTS instance

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

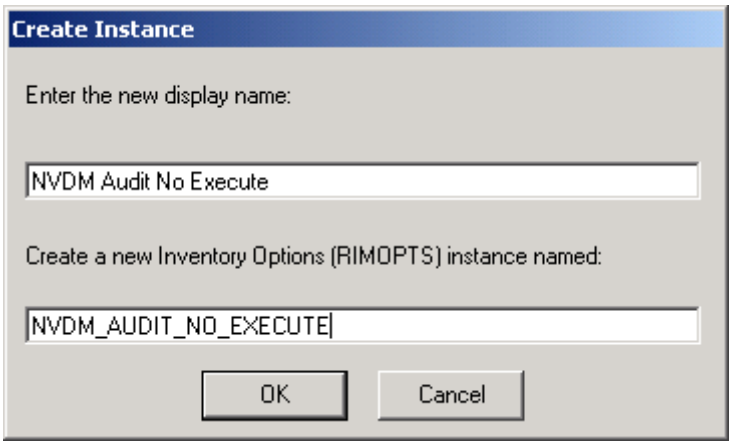
The User ID, as shipped from HP, is **RAD_MAST**. No password is necessary. This may have been changed during installation. Check with your Radia security administrator to obtain your own User ID and Password, if necessary.

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

3 Expand the **PRIMARY** file and the **AUDIT** domain.

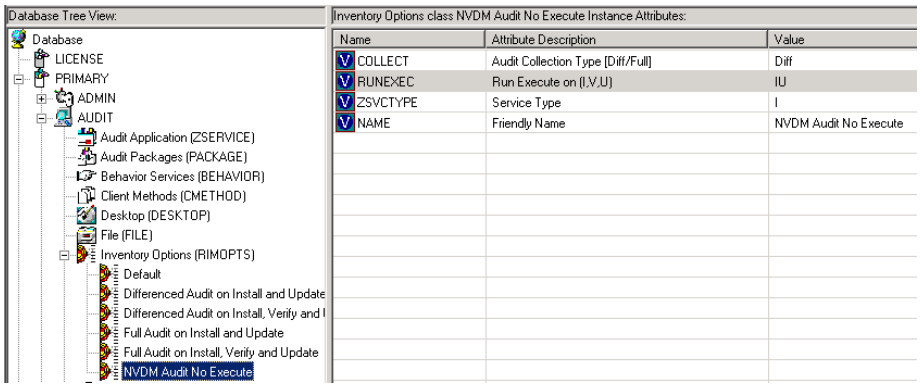


4 Create a new instance in the **Inventory Options (RIMOPTS)** class called NVDM_AUDIT_NO_EXECUTE, and click **OK**.

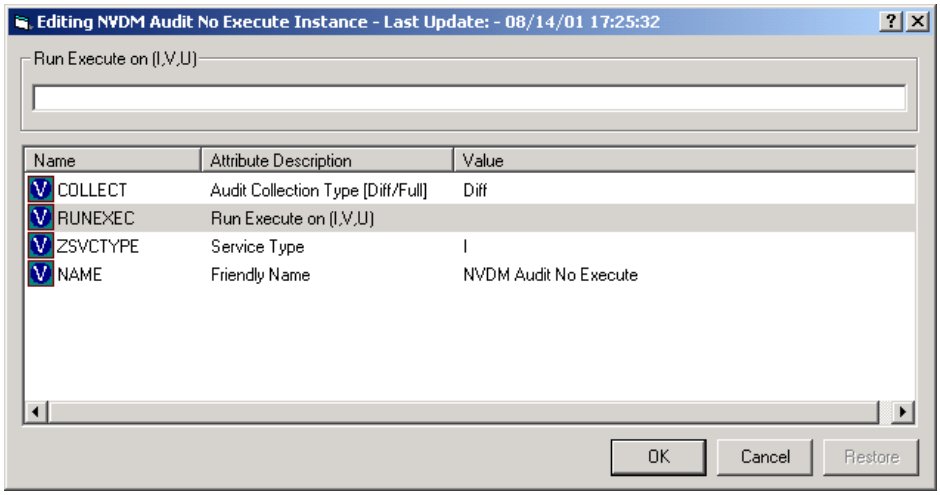


Next, you will need to edit the **NVDM Audit No Execute** instance.

5 Expand the **Inventory Options (RIMOPTS)** class and double-click the **NVDM Audit No Execute** instance.



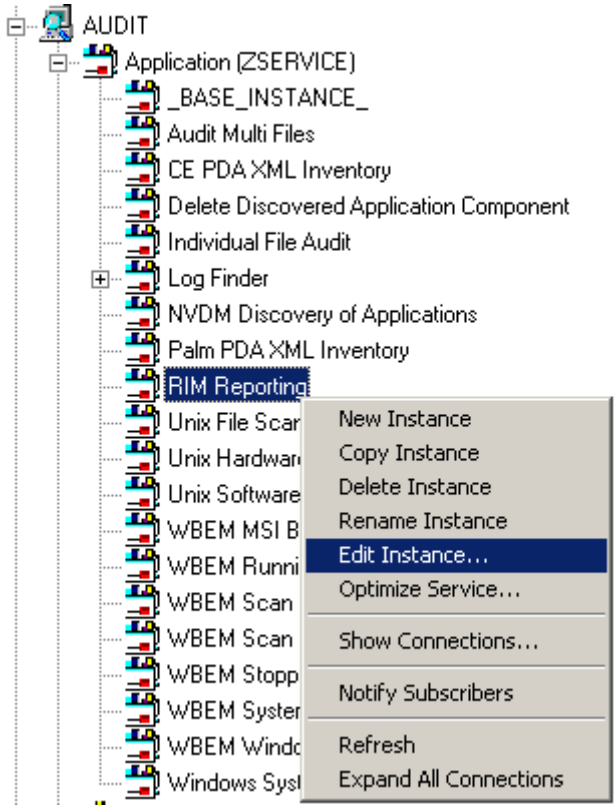
6 Double-click the **RUNEXEC** attribute in the list view to edit it. Remove any attribute information. This will ensure that the audit service will not run during the installation, verification, or update function.



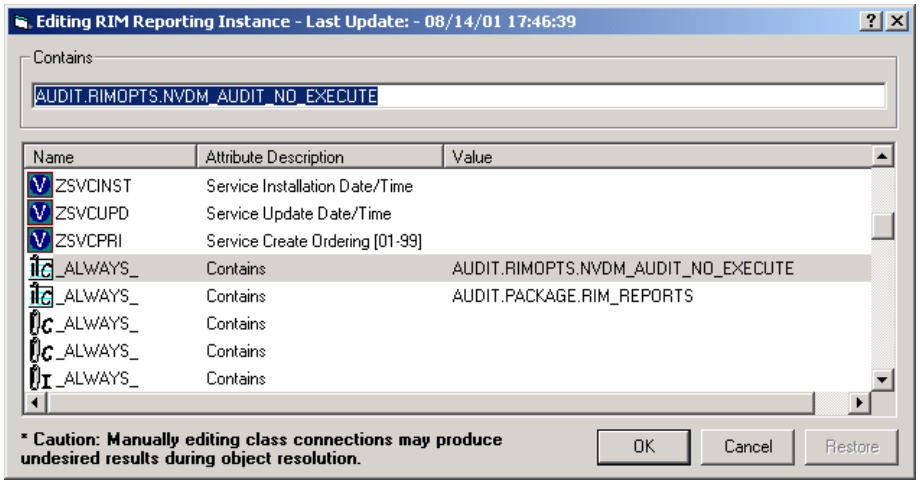
Next, determine which AUDIT service you will be adding the new RIMOPTS service to. For example, select the RIM_REPORTING service.

7 Right-click on **RIM_REPORTING** Service in the AUDIT class.

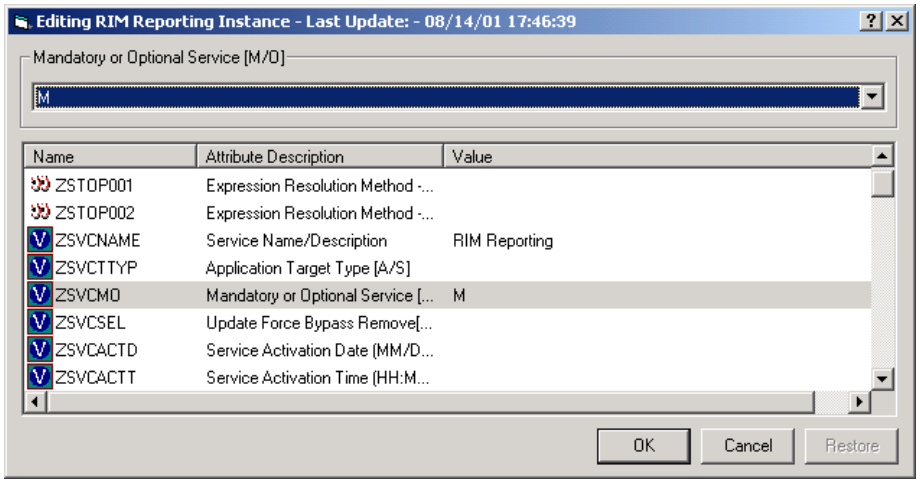
8 Select **Edit Instance**.



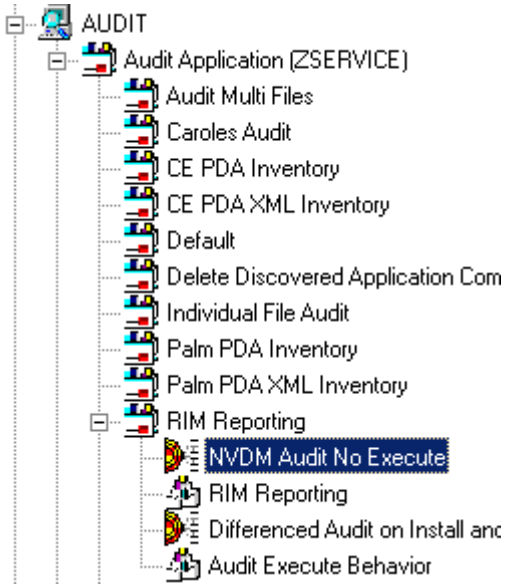
9 Locate the **_ALWAYS_ Contains** attribute with the value of `AUDIT.RIMOPTS.DIFF_INSTALL_UPDATE` and change it to a value of **`AUDIT.RIMOPTS.NVDM_NO_EXECUTE`**.



10 Next, to define the audit service as Mandatory, locate the **ZSVCMO** field and set it to M. This will cause the initial TIMER definition associated with the audit service to be created on the client.



The NVDM Audit No Execute instance is now connected to the RIM Reporting service.



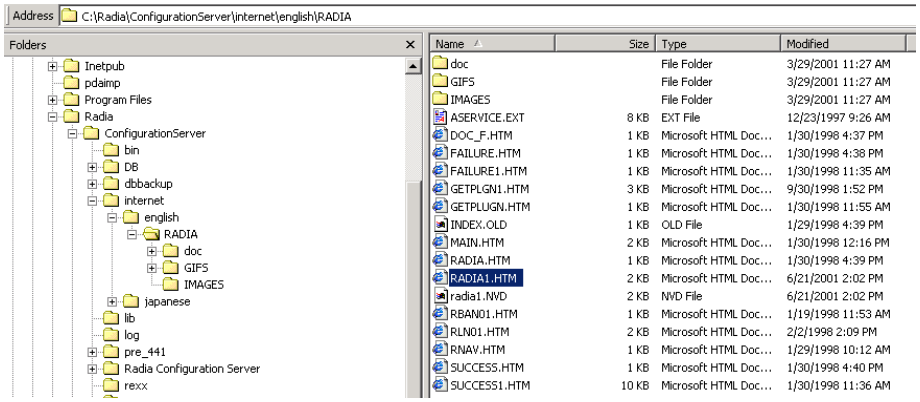
Software Manager Users

If enterprise users use the Software Manager to install applications, by default, all mandatory Audit Services will execute when enterprise-management is performed. This is the case when the embed tag enterprisemanagement is set to AUTO or if the end user visiting the Software Manager selects the **Enterprise Management** button from the Software Manager.

The following steps prevent mandatory Audit services from executing during Enterprise Management processing.

To prevent Mandatory Audit Services from executing in the Software Manager

1 Use the Windows Explorer to navigate to the html page that serves up the Software Manager.



2 Using an ASCII editor, open the html page. By default, this is the `radia1.htm` file located on your Web server.

3 Add the following line:

```
execonupdt=0
```

This is illustrated in the following figure.

Figure 25: Adding the EXECONUPDT=0 to the RADIA1.HTM

4 Save and exit the `radia1.htm` file.

When the client visits the Software Manager and the **Enterprise Management** button is selected, the following occurs:

— radskman will *not* execute the `EXECUTE.REXX` associated with mandatory services.

— The previously configured RIMOPTS will prevent the audit service from executing except when launched via a scheduled (TIMER) event.

Summary

- The Scheduling (TIMER) class enables the Radia administrator to set a timer on the client computer. The timer will cause one or more audit services to be processed whenever the time 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.

10 Viewing Inventory from the Radia Integration Server

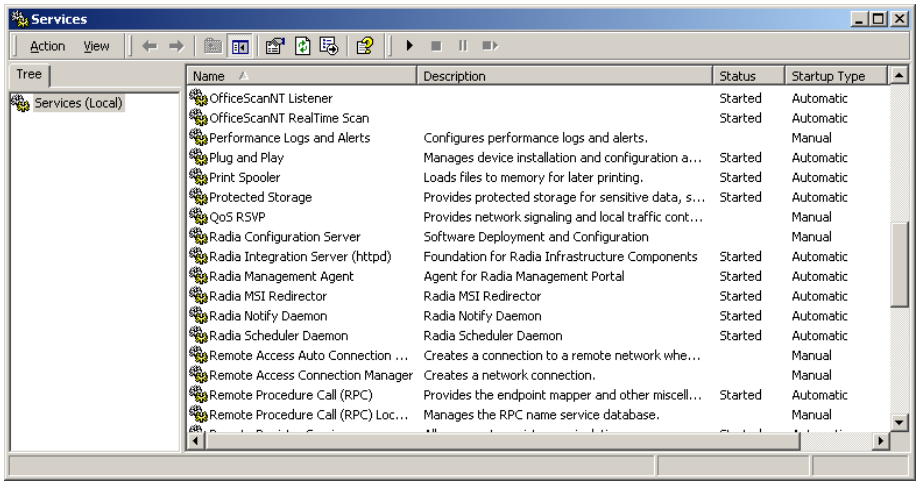
At the end of this chapter, you will:

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

Accessing the Radia Integration Server

To access the Radia Integration Server (via the Management Portal)

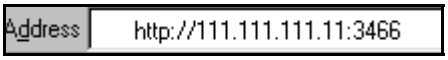
1 In **Services**, ensure that the Radia Integration Server (httpd) is started.



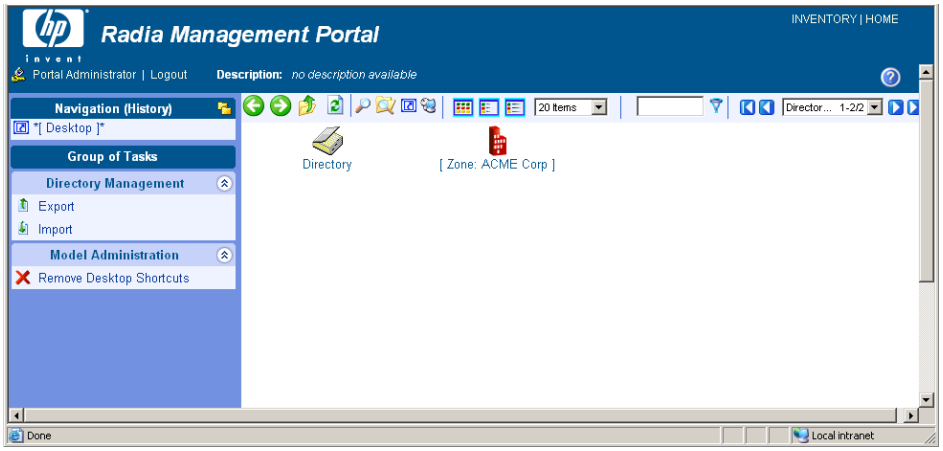
2 Start your Web browser and type the address and port number of the Radia Integration Server into the text box in the following format:

`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.



If your Inventory Manager is running from the Management Portal, the web page shown below opens.

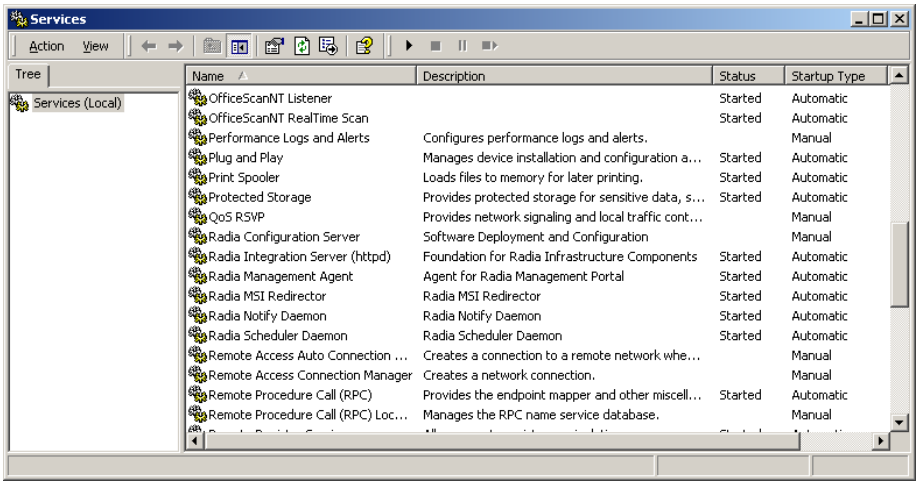


3 In the upper right corner, click **INVENTORY**.

If the Inventory Manager is not running from the same location as the Management Portal, the home page opens with the Radia Integration Server banner. See To access the Radia Integration Server (non-Management Portal) below for information on how to access the Radia Integration Server if you are not using the Management Portal.

To access the Radia Integration Server (non-Management Portal)

1 In **Services**, ensure that the Radia Integration Server is started.



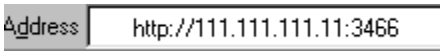
2 Start your Web browser and type the IP address and port number of the Radia Integration Server into the text box in the following format:

`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.



The home page of the Radia Integration Server opens.

Maneuvering in the Radia Integration Server: Non-Management Portal Users

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

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

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

Table 25: Radia Integration Server – Tabs and Links

Tab/Link	Information
MANAGER ADMIN	Clicking on the **MANAGER ADMIN** tab allows the administrator to view and navigate through the Radia Database. Note: In order to use this feature, the Radia Integration Server must be installed to the same computer as the Configuration Server.
REPORTING	Clicking on the **REPORTING** tab takes you to the Web-based reports that show the information collected through the Inventory Manager. This area is specific to and is the primary focal point for the Inventory Manager.
SITE	Clicking on the **SITE** tab takes you to a place where custom HTML can be stored. This area is specific to the Radia Integration Server.
Server Admin	Click on the **SERVER ADMIN** tab to change the settings of the Web-server itself. This area is specific to the Radia Integration Server.
HOME	Clicking on the **HOME** link will return you to the Radia Integration Server home page.
SUPPORT	Clicking on the **SUPPORT** link opens another web browser pointing at the HP Home Page. From here, you can access Support, Technical Publications, as well as our corporate information. Alternatively, go directly to the HP OpenView web site.
INFO	Clicking on the **INFO** link will bring you to more Radia Integration Server documentation.

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

Reporting

Click on the **REPORTING** tab to access the queries page.

Figure 26: Accessing the REPORTING tab.

At the top of the page, select:

- **Summary**
  which will show information about *all* subscribers or Radia clients.

  or

- **Detail**
  which will show in-depth information about a *single* subscriber or Radia client.

Summary Information

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

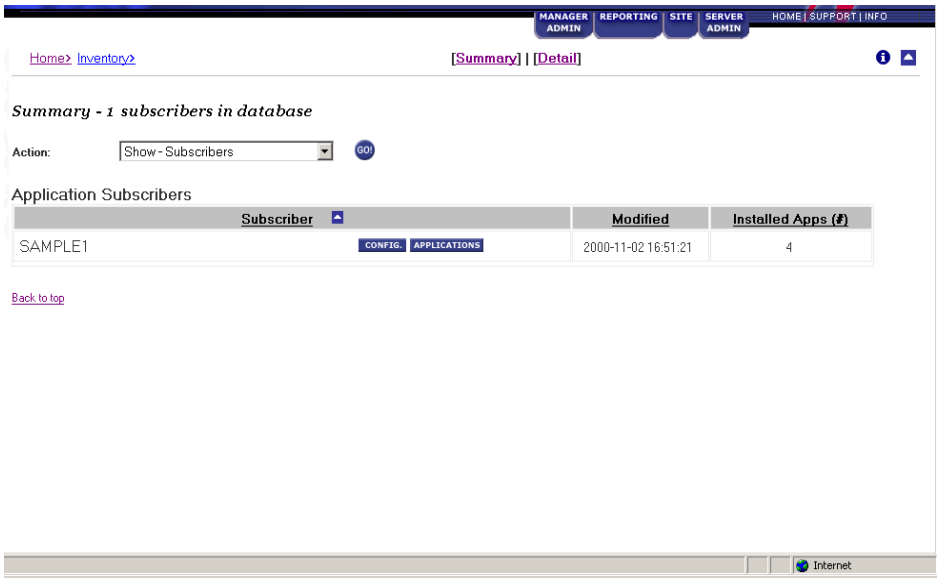


Figure 27: Reporting tab – Summary.

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

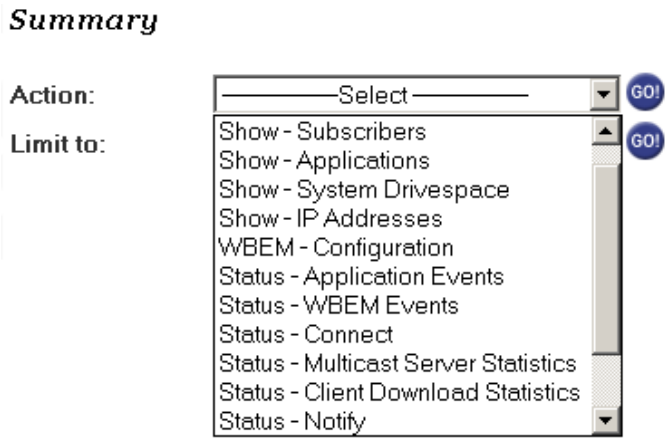


Figure 28: Summary tab – Action drop-down menu.

Table 26 below indicates the information that can be accessed from the **Action** drop-down menu.

Table 26: Reporting Tab – Actions Drop-down Selections

Action	Reporting Available
Show - Subscribers	Lists all of the Radia clients that have connected to the Configuration Server; the most recent date and time the subscriber connected, and the number of applications that a subscriber has installed. Use this in conjunction with the **Limit To** drop-down menu to control the number of subscribers/clients to be viewed. You can access the subscribers/clients system configurations and application information.
Show - Applications	Lists the applications available to Radia clients. It also shows how many users have subscribed to a particular application.
Show - System Drivespace	List the end users' system drive space. Includes the drive indicator (such as C: drive), the drive size in megabytes, the systems free drive space in megabytes, and the free drive space expressed in a percentage.
Show - IP Addresses	Lists the IP address and MAC (Machine) addresses for each subscriber.
WBEM - Configuration	A summary of configuration information for all Radia clients.
Status - Application Events	Will show the last event (install, uninstall, verify, repair, etc.) for all Radia clients and all applications.
Status - WBEM Events	Not applicable at this time.
Status - Connect	Shows statistics concerning the last connect for all Radia clients.

Action	Reporting Available
Status - Multicast Server 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 Proxy Server, Stager, Configuration Server, or 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 31 on page 253.
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 Proxy Server, Stager, Configuration Server, or 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 31 on page 253.
Status - Notify	This report is not applicable for the Inventory Manager.
Errors – Connect	Summary of error information for all Radia clients.
Errors – Notify	This report is not applicable for the Inventory Manager.
Admin - Configuration	Lists current configuration setting of the Inventory Manager module.

For most of the Summary Reports, it is possible to obtain more detailed reports by clicking on buttons and hyperlinks embedded within the reporting tables. For more information on Detail Reports, see Detail Information beginning on page 234.

Detail Information

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

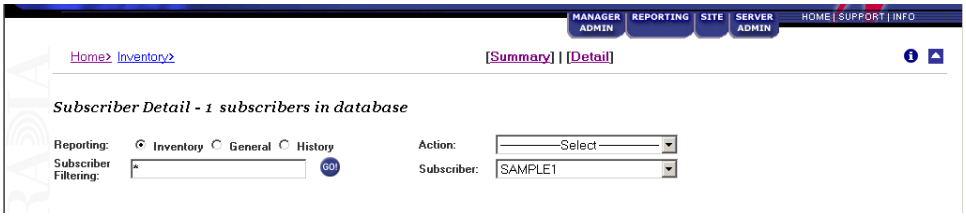


Figure 29: Reporting tab – Detail Report.

Use the buttons and drop-down menus to configure what you would like to see reported. The type of Report you select directly impacts the Action you can take. For example, if you would like to see the General Reporting items, select **General Reporting** option. Then click on the **Action** drop-down arrow to see what Action items are available to you.

Table 27 on page 235 indicates the information that can be accessed from each of the drop-down menus.

Table 27: Reporting Tab – Detail Reporting – Type

Type	Action Available
Inventory Reporting	Allows you to select the following Actions: • **WBEM Applications** For WBEM audited applications. • **WBEM Features** Displays the software features for a particular subscriber. • **WBEM Elements** Displays the software elements for a particular subscriber. • **Configuration - Summary** Displays OS configuration, hardware, disk drive information, environment, and Windows services. • **Applications** For managed and audited applications. • **Installed Applications** Displays the information for the audited files, installed applications and applications that have been added or removed. • **Audited Files** Displays audited files information such as name, version, status, etc. • **PDA Devices** Displays any found PDA devices for a particular subscriber. • **WBEM PDA Config** Displays the configuration and any installed products for a subscribers PDA device.

Type	Action Available
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.
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.

Subscriber

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

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

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

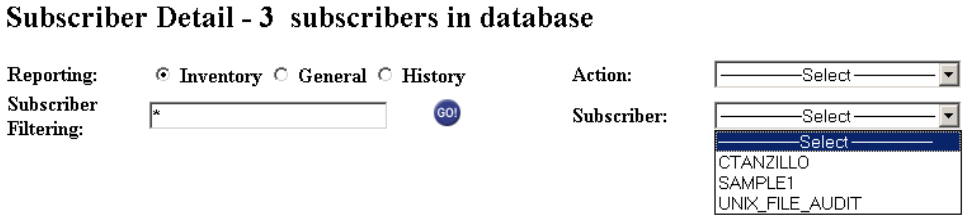


Figure 30: Details – Subscriber drop-down menu.

To select a Subscriber, simply hold your cursor over the list item 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, you would type *TEST* in the **Subscriber Filtering** text box.

Maneuvering in the Radia Integration Server: Management Portal Users

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

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

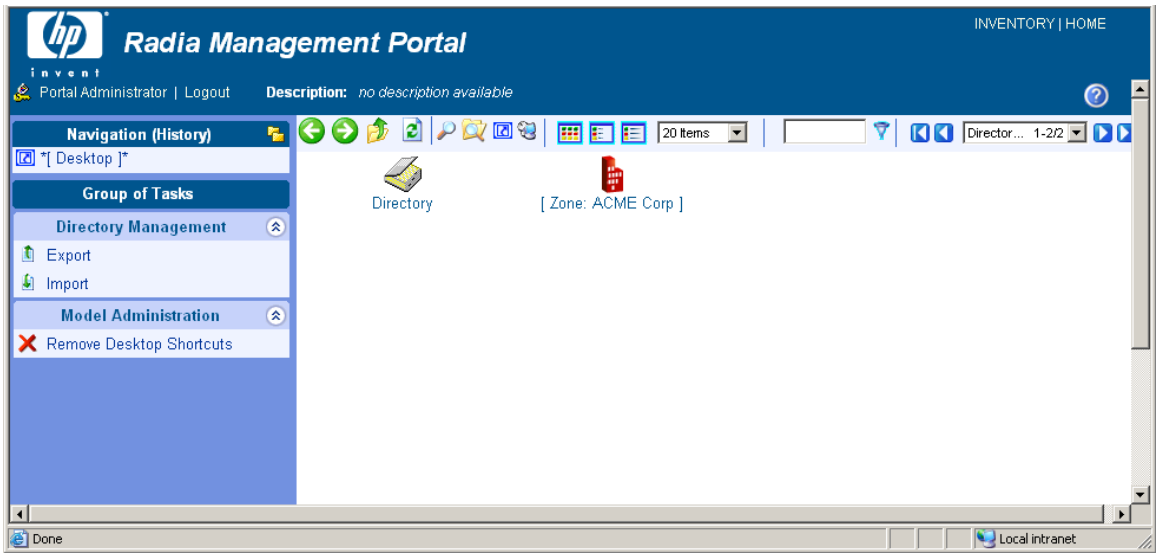


Figure 31: The home page of the Management Portal.

For specific information about the features of the Management Portal, refer to the *Installation and Configuration Guide of the HP-OpenView Management Portal Using Radia*.

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

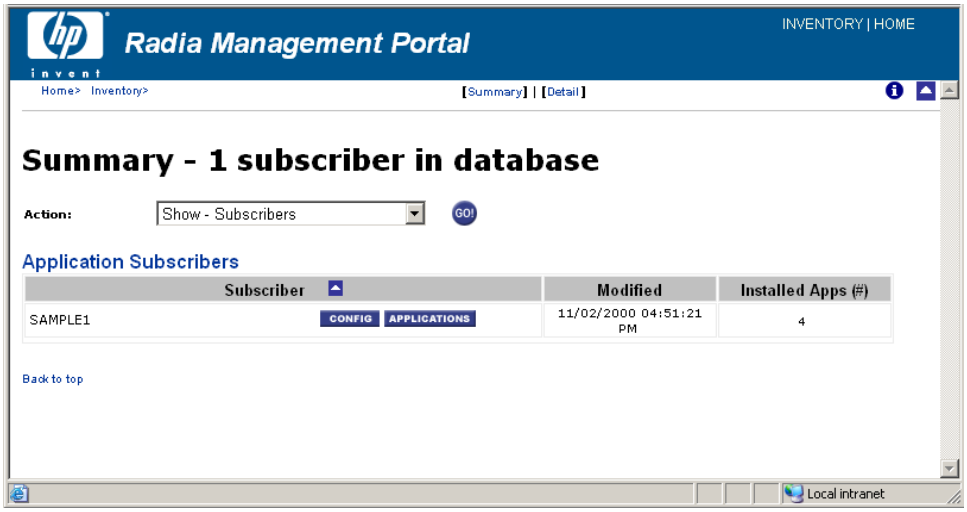


Figure 32: Radia Inventory Server homepage viewed from the Management Portal.

Administrator Hints and Tips

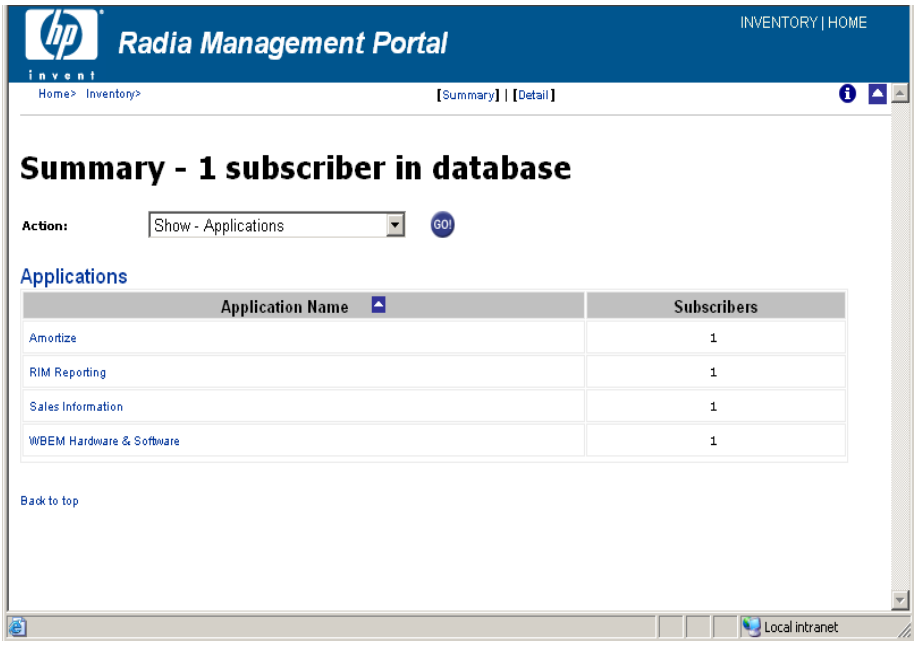
When viewing reports, you are able to navigate through the information collected by clicking on hyperlinks embedded within any table. These links can be in a table header or in the actual body of a particular report.

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. Access the Radia Integration Server via the Management Portal or the Radia Integration Server home page.
2. Click the **Reporting** tab.
3. Click the **Summary** link.
4. From the **Action** drop-down menu, select **Show – Applications**.

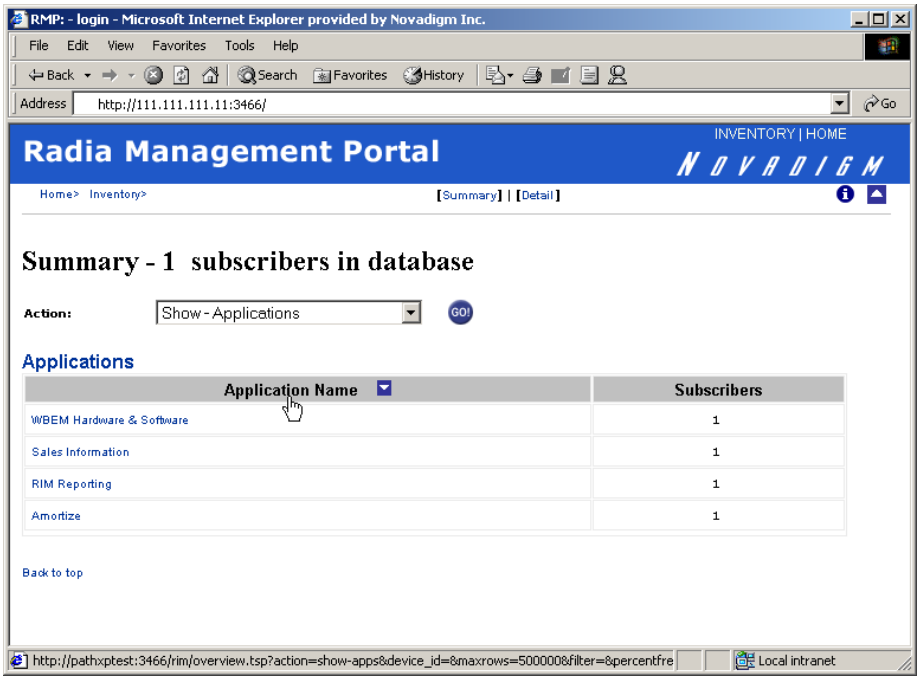
   When the screen refreshes, the **Applications** table is displayed.



This table shows all the applications that are available to all subscribers. There is a variety of actions and information that can now be accessed.

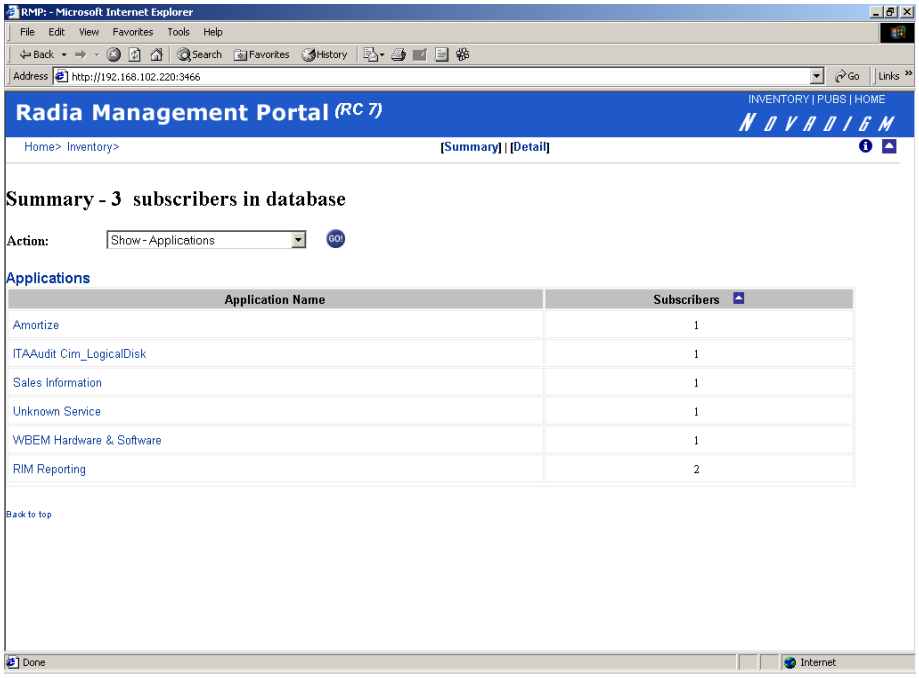
5 To sort a column:

— Click on the **Applications** column heading to list the applications in reverse alphabetical order.



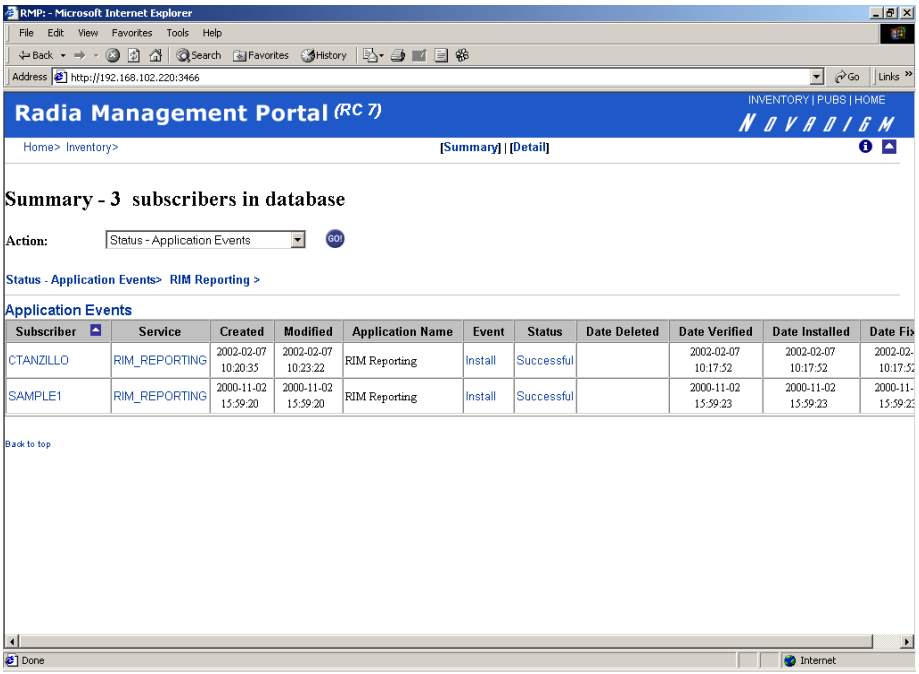
indicates the column heading that the table is currently sorted by and designates whether the table is sorted in ascending order or descending order .

— Click on the **Subscribers** column heading to sort the list in ascending order.



6 Sorting within a row:

— Click on any of the **Applications** to view the Radia clients for that particular application.

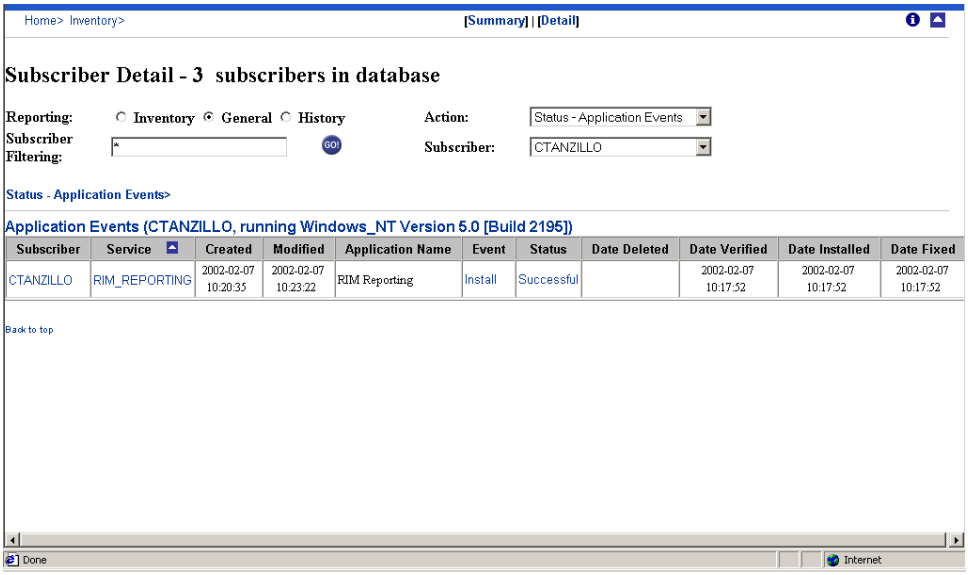


CTANZILLO and SAMPLE1 are the only two Radia clients for the Amortize application.

From here, it is possible to access even more information. Just as on the Applications page, clicking on any of the column headers will result in a sort process. Click on any of the hyperlinks within the rows to provide additional information for that item.

7 Click on the subscriber, CTANZILLO.

The Application Events for CTANZILLO opens.



This report displays all of the applications CTANZILLO has downloaded.

Notice that since we 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, application, and so forth, simply by clicking on the embedded hyperlinks.

Table 28 on page 245 shows the results of clicking on specific links.

Table 28: Summary Links – All Actions

Action	Embedded Links
Show — Subscribers	• Click **Config** to show a detailed report for a specific user such as O/S configuration, hardware, disk drive information, environment, and Windows services. • Click **Application** to show a detailed report for a specific user including managed and audited applications.
Show — Applications	• Click a specific application to show **Status Application Events** for that particular application. • Click on a specific subscriber to view detailed **Application Events** for that particular subscriber.
WBEM — Configuration	• Click on a Subscriber to obtain a detailed report for that user such as O/S configuration, 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 on a Subscriber to obtain a detailed report of application events for that particular subscriber. • Click on either **Install** or **Uninstall** in the **Event** column to filter. • Click on either **Successful** or **Unsuccessful** to filter in the **Status** column.
Status – Connect	• Click on a subscriber to obtain detailed reports on a specific user's connect status and any errors encountered.
Status – Notify	• Notify Status for use with Push Manager.

Action	Embedded Links
Errors – Connect	• Click on a subscriber to display detailed information concerning a specific user's connect and error information.
Errors – Notify	• Used by the Push Manager.
Admin — Configuration	• There are no embedded hyperlinks for this report.

Table 29: Detail – Inventory Reporting

Action	Embedded Links
Applications	Managed Applications • Click on a subscriber to see a detailed report of all of the applications for that particular subscriber. • Click on 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 30: Detail – General Reporting

Action	Embedded links
Show — Config	• No embedded links.

Action	Embedded links
Status — Application Events	• Click on **Subscriber** to display the detailed history of this particular application. • Click on a service to display the summarized report for a particular application event. • Click on either **Install** or **Uninstall** in the **Event** column to filter. • Click on either **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 Audited Files Using the Radia Integration Server

In this section, the Audit Multi Files example illustrated in Configuring a Sample Audit on page 179 is used to examine how the collected information is presented within some of the Radia Integration Server reports.

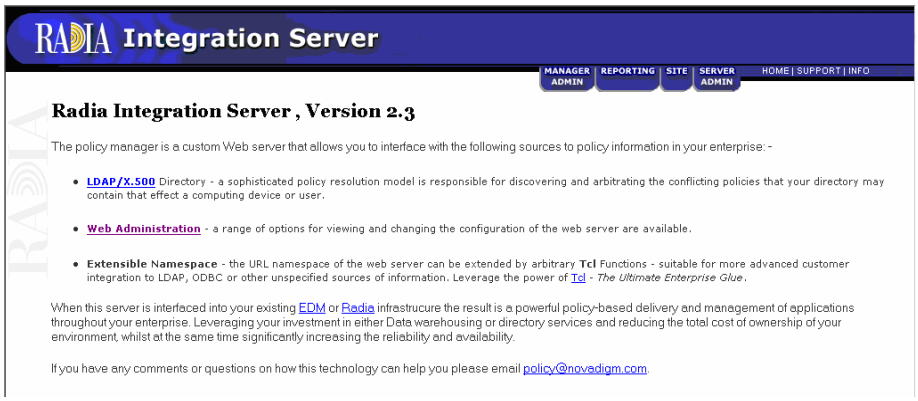
Summary Reporting Examples

To view a sample Summary report

1 In Services, ensure that the Radia Integration Server is started.

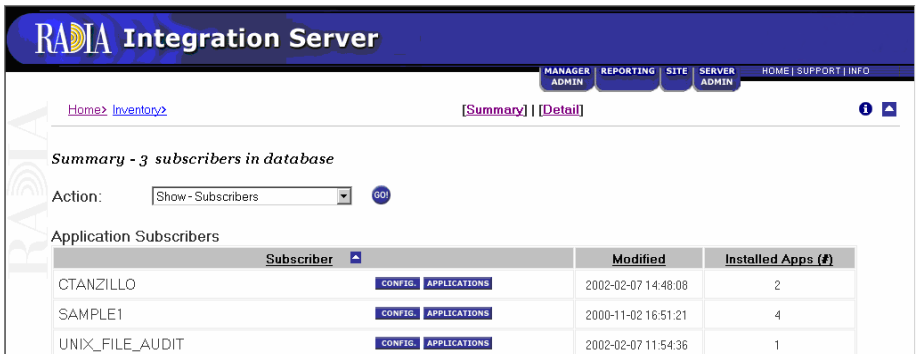
2 Start your Web browser and type the address and port number of the Radia Integration Server into the address field: **http://I/P Address or hostname>:<Port>.**

The home page of the Radia Integration Server is displayed.



3 Click the **REPORTING** tab.

The Summary page opens.

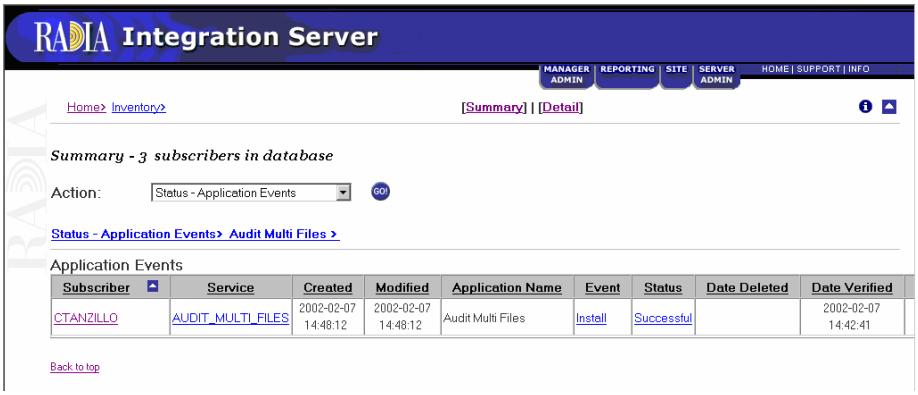


4 On the **Action** drop-down menu, select **Show Applications**.

Here you can see the Radia clients that have selected to download Audit Multi Files.

5 In the **Application Name** column, click on **Audit Multi Files**.

The Status - Application Events page opens.



Here you can see the Radia clients that have selected the Audit Multi Files.

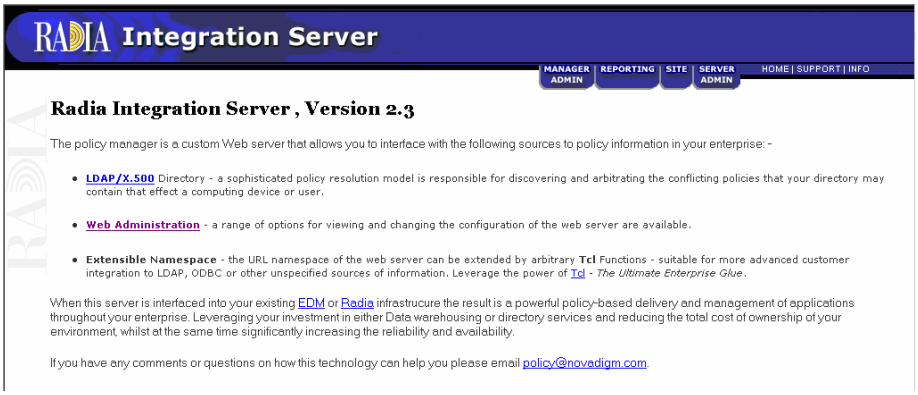
To see more detailed reporting for specific users, see the next section, Detail Reporting Example below.

Detail Reporting Example

To view a sample Detail report

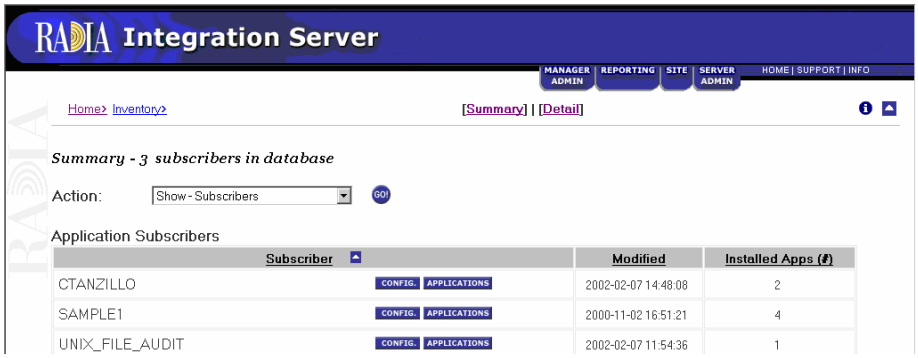
1 In Services, ensure that the Radia Integration Server is started.

2 Navigate to the Radia Integration Server's home page.



3 Click the **REPORTING** tab.

The Subscriber Detail page opens.



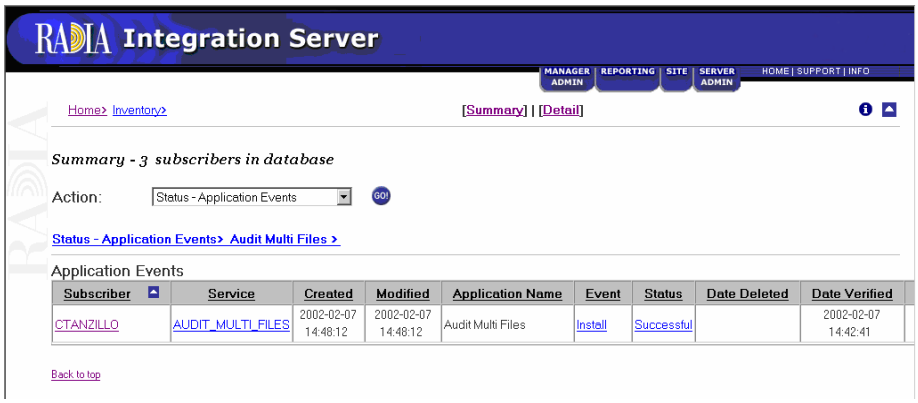
4 Click on the **Detail** link.

5 From the **REPORTING** options (**Inventory**, **General**, and **History**), select what type of reporting you would like to view. For our example, select Inventory Reporting.

6 From the **Action** drop-down menu, select the Action. For our example, select **Audited Files**.

7 From the **Subscriber** drop-down menu, select **CTANZILLO**.

You are presented with all of the audited `.exe` files for the user CTANZILLO.



You can continue to view the audited 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.

A Detail and Summary Reporting Tables

Table 31: Inventory Reporting – Detailed Reports

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
Applications	Managed Applications	device_id/Subscriber	AppEvent
		service_id/Service	
		ctime/Created	
		mtime/Modified	
		app_name/Application Name	
		event/Event	
		del_time/Date Deleted	
		ver_time/Date Verified	
		inst_time/Date Installed	
		fix_time/Date Fixed	
	Audited Applications	Cim-show-apps.tsp	
	Installed Applications	Installed-apps.tsp	
	Add/Remove Applications	Installed-uninstalled-apps.tsp	
WBEM Applications	Installed Products	wName/Tag	rCIM_Product
		wVendor/Vendor	
		wVersion/Version	
		wIdentifyingNumber/Software Spec	
		wCaption/Caption	
	Installed Filesets /	wPartComponent/Fileset	rCIM_SoftwareFeatureElements
	Packages	wName/Tab	rCIM_SoftwareElement
		wVersion/Version	
		wSoftwareElementID/SoftwareSpec	
		wTargetOperatingSystem/TargetOS	
		wManufacturer/Vendor	
		wCaption/Caption	
		wInstallDate/Install Date	
	Audited Applications	wCaption/Application Name	rNVD_Product
		mtime/Modified	
		CIM_Product.wDescription/type	
		wName/Name	
		wVendor/Vendor	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		wVersion/Version	
		wInstallState/Installed	
		wInstallDate/Date Installed	
Audited Files	Audited Files	name/Name	FileAudit
		version/Version	
		status/Status	
		vendor/Vendor	
		product/Product	
		prodvers/Product Version	
		scanfor/Scanned	
		file_date/File Date	
		file_size/File Size	
		mtime/Modified	
		file_type/File Type	
		path/Path	
Configuration Summary for Windows	O/S Configuration	mtime/Modified	rWin32_OperatingSystem
		_wOS/OS	
		wRegisteredUser/Registered User	
		wOrganization/Organization	
		wSerialNumber/S/N	
		wSystemDirectory/Sys Dir	
		WtotalPageFileSpace/PageFileSize (mb)	
	Hardware	manufacturerr/Manufacturer	rWin32_ComputerSystemProduct
		_model/Model	RWin32_systemEnclosure
		_wSNTag/S/N	RWin32_Processor
		wManufacturer,wCurrentClockSpeed/Processor	RWin32_LogicalMemoryConf
		wTotalPhysicalMemory/Physical Memory (MB)	rWin32_Computer System
		wSystemType/System	rWin32_Bios
		_wBios / Bios	
		_wKybd/keyboard	RWimd32_Keyboard
		_wMouse/Mouse	rWin32_PointingDevice
		_wVideo/Video/Video	rWin32_VideoController
		_wDriverName/Printer	rWin32_Printer
		_WSerialPort/Serial Ports	rWin32_SerialPort
		_wParallelPort/Parallel Ports	rWin32_ParallelPort
	Network Adapter information	Wbem-show-network.tsp	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
	Disk Drive Information	Wbem-show-drives.tsp	
	Environment	Wbem-show-environment.tsp	
	Windows Services	Wbem-show-services.tsp	
	Device Configuration	Ctime/Created	Device Config
		Mtime/modified	
		Os/OS	
		Os_level/ OS Level	
		Sysdrv/Sys Drive	
		Sysdrv_total/ Sys Drive Size (MB)	
		Sysdrv_free/Sys Drive Free (MB)	
	Software (CLIENT and	Person/Person	Device Config
		Organization/Organization	
		Language/Language	
		Protocol/Protocol	
		Timeout/Timeout	
		Trace/Trace	
		Edmsys/Sys Dir	
		Edmlib/Lib Dir	
		Edmlog/Log Dir	
	Hardware	Ipaddr/ IP Address	Device Config
		Macaddr/ MAC Address	
		Bios/ Bios	
		Cpu/CPU	
		Memory/Mem (MB)	
		Keyboard/Keyboard	
		Mouse/Mouse	
		Video/Video	
		N_serial/Serial(#)	
		N_Parallel/Parallel (#)	
		N_PRINTER/printer (#)	
WBEM Features	Audited Features	wProductName/Product Name	RWind32_SoftwareFeature
		mtime/Modified	
		WInstallDate/Date Installed	
		wVendor/Vendor	
		wVersion/Version	
Installed Applications	Audited Files	Show-fileaudit.tsp	
	Installed Applications	WFileDescription / Application Name	RNVD_Installed_Apps
		Mtime / Modified	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
		WPath / Path	
		WoriginalFileName / Executable	
		WFileVersion / Executable Version	
		WcompanyName ? Vendor	
		WProductName / Product Name	
		WProducttVersion / Version	
	Add/Remove Applications	Installed-uninstall-apps.tsp	
WBEM Elements	Audited Elements	mtime/Modified	rWin32_SoftwareElement
		wName/Name	
		wVersion/Version	
		wInstallDate/Date Installed	
		wManufacturer/Manufacturer	
		wPath/Path	
PDA Devices	PDA Devices	mtime/Modified	rNVD_PDASystem
		wName/Name	
		wDescription/Type	
		wStatus/Status	
WBEM PDA Config	Configuration	Mtime/Modified	rCIM_OperatingSystem
		wCaption, wVersion / OS	
		wFreePhysicalMemory/Free Physical Memory (MB)	
		wTotalVirtualMemorySize/Total Virtual Memory (MB)	
		wFreeVirtualMemorySize/Free Virtual Memory (MB)	
	PDA Installed Products	Show-pda-inst-prod.tsp	RCIM_OperatingStystem
wbem-show-environment.tsp	Environment	mtime / Modified	rWin32_Environment
		wUserName / Account	
		WSystemVariable / System Variable	
		wName / Name	
		wAttributeValue / Value	
wbem-show-services.tsp	Window Services	mtime / Modified	rWin32_Services
		wDisplayName / Services	
		wState / Status	
		wStartMode / Startup	
		wName / Name	
		wStartName / Logon	
		wDesktopInteract / Interact with Desktop	
		wPathName / Path	

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
Wbem-show-network.tsp	Network Adapter Information	Mtime / Modified	RWin32_NetworkAdapterConf
		Wdescription / Type	
		WIPAddress / IP Address	
		WMACAddress / MAC Address	
Wbem-show-drives.tsp	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	
		WvolumneSerialNumber / Serial Number	
Installed-uninstall-apps.tsp	Add/Remove Applications	WDisplayName / Application Name	RNVD_Installed_Uninstall
		Mtime / Modified	
		WUninstallString / Uninstall String	
Show-pda-inst-prod.tsp	PDA Installed Products	Mtime / Modified	Rnvd_Product
		Wdescription/ Type	
		WStatus / Status	
		WVersion / Version	

Table 32: 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	
		sysdrv/Sys Drive	
		sysdrv_total/Sys Drive Size (MB)	
		sysdrv_free/Sys Drive Free (MB)	
	Software	person/Person	
		organization/Organization	
		language/Language	
		protocol/Protocol	
		timeout/Timeout	
		trace/Trace	
		edmsys/Sys Dir	
		edmlib/Lib Dir	
		edmlog/Log Dir	
	Hardware	ipaddr/IP Address	
		macaddr/MAC Address	
		bios/Bios	
		cpu/CPU	
		memory/Mem (MB)	
		keyboard/Keyboard	
		mouse/Mouse	
		video/Video	
		n_serial/Serial (#)	
		n_parallel/Parallel (#)	
		n_printer/Printer (#)	
Status - Application Events	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	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		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	
		object/Object	
		component/Component	
Status - Services	Service State	mtime/Modified	DeviceServices
		serviceid/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)	

Action	Displayed Table Title	Columns Queried/Display Name	Tables Queried
		nfy_retry2/Retry2 (#)	
		nfy_retry2/Retry2 (#)	
		nfy_timeout2/Timeout2 (s)	
Status - Summary	Connect Status	mtime/Modified	DeviceState
		mrc/Return Code	
		duration/Duration	
		svc_count/Services (#)	
		rsrc_count/Files (#)	
		reason/Reason	
	Client State	mtime/Modified	
		state/State	
		svc_count/Services (#)	
		rsrc_count/Files (#)	
		rsrc_error/File Err	
		ver_error/Vers Err	
		reason/Reason	
	Service State	Status-services.tsp	
Status - Detailed	Connect Status	*same as* Status Connect *entries*	
	Client State	Mtime / Modified	
		State / State	
		Svc_count / Services (#)	
		Rsrc_count / Files (#)	
		Rsrc_error / File Err	
		Ver_error / Vers Err	
		Reason / Reason	
	Service State	Status-services.tsp	
	Errors	*same as* Status Connect *entries*	

Table 33: 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 34: 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	
		status/Status	
		del_time/Date Deleted	
		ver_time/Date Verified	

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

Table 35: Inventory Reporting – Multicast Detail Reporting

Action	Displayed Table Title	Columns Queried /Display Name	Tables Queried
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	
		wNpktsRcv	
		wServiceID/Service	
		wSourceID	
		wSourceType/Source Type	
		wStartTime/Transmit Start	

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