HP Client Automation

Application Manager and

Application Self-service Manager

for Windows® operating systems

Software Version: 7.90

Installation and Configuration Guide

Document Release Date: May 2010

Software Release Date: May 2010

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Acknowledgements

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
  - The number before the period identifies the major release number.
  - The first number after the period identifies the minor release number.
  - The second number after the period represents the minor-minor release number.
- Document Release Date, which changes each time the document is updated.
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Table 1 belowlists the changes that were made to this document.

Table 1 Documentation changes

Chapter	Version	Changes
Title page	7.90	Updated product version number and release date for 7.90.
All	7.90	The username and password for the HPCA Administrator tools is changed to: username: **`ADMIN`** password: **`secret`**
Chapter 2	7.90	Page 33, HPCA Agent Installation Process, the file `HPCAE-MgmtApps75.msi` has been renamed to `HPCAE-MgmtApps.msi`.
Chapter 2	7.90	Page 58, RALF Installation on Windows Thin Clients, the file `HPCARalf75.msi` has been renamed to `HPCARalf.msi`
Chapter 5	7.90	Page 110, Server Roles, updated with the Patch Manager Gateway (P) role.
N/A	7.90	The Agent Lockdown Mode feature is introduced in this release

Chapter	Version	Changes
Appendix	7.90	Page 263, Agent Lockdown Mode is added.
Appendix	7.90	Page 267, HP Client Management Interface Alerts is added.
Title Page	7.80	Updated product version number and release date for 7.80.
N/A	5.10	The Application Manager and Application Self-service Manager guides were combined for this release.
N/A	5.10	The Administrator installation and Packaging and Publishing information were removed from the Application Manager and CM Application Self-service Manager guides and are now included in the *HP Client Automation Administrator Guide*.
N/A	5.10	Deleted the appendix *Naming Conventions*. The information in this appendix has been relocated to the *HP Client Automation Administrator Guide*.
N/A	5.10	Deleted the appendix *Adding Classes and Attributes to the CM Configuration Server Database*. The information in this appendix has been relocated to the *HP Client Automation Administrator Guide*.
All applicable	7.50	Deleted all references to the HPCA Portal user interface; administrative tasks are now performed in the Enterprise Manager user interface and CSDB Editor.
All applicable	7.50	Changed all directory paths. The default directory path for the HP Client Automation (HPCA)—formerly HP Configuration Management (CM)—agent products has been changed to: `Program Files\Hewlett-Packard\HPCA`
Chapter 1	5.10	The sections Proxy Server (formerly in the user-interface chapter) and Reporting Server (formerly in the directories-and-objects chapter) were relocated to the section *Infrastructure*, on page 25.
Chapter 1	7.50	Page 24, updated the list of PRIMARY File Domains.
Chapter 2	5.00	Page 32, System Requirements. is changed for this version.
Chapter 2	5.00	Page 33, *Agent Installation Process*, the file `Radia401.msi` has been renamed to `CM-MgmtApps50.msi`.
Chapter 2	7.50	Page 35, Table 3: added NVDINSTALLPBR to the list of possible command line arguments for installing the agent.
Chapter 2	5.00	Page 40, **Default_catalog**, **Default_catalog_only**, and **Root_catalog_name** are new attributes available in the

Chapter	Version	Changes
		`args.xml` file.
Chapter 2	5.10	The sections *Local AIP Support for the MSI Redirector* and *Using an Internet Proxy* were relocated from the user-interface chapter to the end of this chapter, *Installing the Agents*. The latter was renamed to Internet Proxies.
Chapter 2	7.20	Pages 32 and 47, inserted Notes regarding Windows Terminal Server agent.
Chapter 2	5.00	Page 33, *Agent Installation Process*, the file `CM-MgmtApps50.msi` has been renamed to `HPCAE-MgmtApps75.msi`.
Chapter 2	7.20	Page 56, new information about installing the HPCA agent to Thin Clients on Windows XPE and RALF Installation on Windows Thin Clients.
Chapter 2	7.50	Pages 54 and 47, added information about the HPCA agent sub-features.
Chapter 2	7.50	Page 47, Referencing the HPCA Agent Sub-features: revised information about the HPCA agent sub-features.
Chapter 2	7.50	Page 54, Using a Command Line to Remove HPCA Agents: revised information about the HPCA agent sub-features.
Chapter 2	7.50	Page 55, corrected the HPCA agent installation minimum free-space requirement.
Chapter 2	7.50	Page 61, Using a Command Line to Modify the HPCA Agent Installation: revised information about the HPCA agent sub-features.
Chapter 3	5.10	This chapter, *Agent Directories, Objects, and Logs*, was relocated from the chapter-8 position. Additional changes: the *Agent Logs* section that was in the user-interface chapter was consolidated with the “CM agent log” information that was at the end of this chapter; this chapter was renamed (formerly, “CM Agent Directories and Objects”) to include “Logs.”
Chapter 3	7.50	This chapter, *Agent Directories, Objects, and Logs*, was relocated from the chapter-3 position. Subsequent chapters were sequentially re-numbered accordingly.
Chapter 3	7.50	Page 77, Table 16, added information about the attribute LASTUSER.

Chapter	Version	Changes
Chapter 3	7.50	Page 85, Table , inserted new attributes for SMINFO.
Chapter 3	7.50	Page 89, added information about Method Dispatching.
Chapter 5	7.20	Page 128, Table 31, inserted information about NETSPEED and FLUSHU—two new attributes of the SETTINGS Class.
Chapter 5	7.20	Page 133, inserted a note regarding a dynamic-scanning namespace restriction.
Chapter 5	7.50	Page 134, Notify Security (NTFYSEC) is a new section that details the notify-security feature of HPCA.
Chapter 5	7.50	Page 106, updated the list of CLIENT Domain Classes.
Chapter 5	7.50	Page 121, added information about the Alert Management (RADALERT) Class of the CLIENT Domain.
Chapter 5	7.50	Page 121, added information about the Connect Deferral Configuration (CDFCFG) Class of the CLIENT Domain.
Chapter 6	5.00	Page 170, ZBITARCH is a new attribute of the ZSERVICE Class.
Chapter 7	5.10	Page 173, the section, Configuring the Timer, was revised and updated to include expanded information on the *`limit time`* parameter and the impact of the ZSCHFREQ=RANDOM setting.
Chapter 7	5.10	Page 175, added a Note regarding concurrent CM agent connects from separate remote terminal sessions to the same machine.
Chapter 7	7.50	Page 182, added information about a new RADSKMAN setting, **cdf**, for the Connect Deferral feature.
Chapter 8	7.20	Page 237, added a section, Backup and Restore Capabilities.
Chapter 8	7.50	Page 240, added a section, User Actions for Mandatory Services.

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To register for an HP Passport ID, go to the following URL:

http://h20229.www2.hp.com/passport-registration.html

Contents

1 Introduction

At the end of this chapter, you will:

- Understand the components of HP Client Automation products.
- Be familiar with the structure of the HP Client Automation Configuration Server Database (CSDB).
- Be familiar with the structure of the HPCA agents:
  - HP Client Automation Application Manager (Application Manager) and
  - HP Client Automation Application Self-service Manager (Application Self-service Manager).
- Understand recommended deployment strategies.

About This Guide

This guide covers the suggested implementations for the HPCA agents: Application Manager and Application Self-service Manager.

HP recommends that HPCA administrators review this guide for a better understanding of the use and functionality of the HPCA agents.

This guide is arranged as follows.

- Chapter 2, Installing the HPCA Agent
  describes how to install the HPCA agents.
- Chapter 3, HPCA Agent Directories, Objects, and Logs
  shows where to find and how to examine the results of your HPCA implementation.
- *Chapter* 4, Implementing Entitlement Policy
  shows how to define users and groups, and how to connect them to the appropriate applications.
- Chapter 5, Configuring Client Operations Profiles
  explains how to configure HPCA agents to use the most appropriate Configuration Servers and Proxy Servers, provide for fail over capabilities, and configure HPCA agents.
- Chapter 6, Preparing Services
  describes services options such as restarting the HPCA agent computer and implementing applications that have machine- and user-specific components.
- Chapter 7, Deploying Services
  describes the deployment methods that are available in HPCA, as well as how to use a timer to deploy a service, and how to use the Notify function to update and remove applications and send e-mail messages to subscribers.
- Chapter 8, HPCA Application Self-service Manager User Interface
  explains how to use the Application Self-service Manager user interface.

Using this Guide with Core and Satellite Servers

If your environment uses Core and Satellite servers, first read the *Core and Satellite Servers Getting Started Guide* as the installation, configuration, and troubleshooting information in that guide may override the information in this guide.

HP Client Automation Solutions

Client Automation solutions automate the management of data on target devices in your enterprise. These solutions manage devices based on parameters that you configure.

The following are some key characteristics of HPCA solutions:

- **Desired State Approach**
  You can configure and maintain the desired state of a device's operating system, applications, and configuration. If there is a difference between the device's desired state and the current state, the HP differencing technology determines the precise component-level changes that are required and sends only those changes to the managed device.
- **Policy based Management**
  You can define entitlements, which control the deployment of data to authorized users or target devices. For example, an IT administrator could implement a policy that permits access to only certain financial databases by a select workgroup within an organization's finance department. Subsequent changes to entitlements cause data to be installed, changed, or removed for affected users or devices.
- **Adaptive Client Automation**
  As the policies change, the current state is differenced and reconfigured to correspond to the desired state.
- **End-to-End Lifecycle Management**
  You can automate the policy-based management of data throughout the deployment lifecycle. With HPCA solutions you can:
  - Package applications
  - Analyze the impact of packages prior to deployment
  - Discover, collect, and report on hardware and software information

- Configure policy assignments to assign data to the appropriate device or user
- Distribute and install data across enterprise networks
- Repair data and configurations through the desired state process
- Deploy patches, service packs, hot fixes, and application updates
- Remove data from managed devices by changing entitlement policies

With the HPCA products, you can manage data and continuously configure devices.

Terminology

The following terms are used throughout this guide. HP recommends reviewing and becoming familiar with these in order to better understand the concepts that are presented herein.

Configuration Server

Used in conjunction with the Configuration Server Database, a server that stores, manages, and distributes application package information, and manages policy relationships and information about managed devices. This server is the only product that is mandatory in the HPCA environment; without it, the infrastructure will not function.

desired state

The condition of a device as defined by the configuration parameters that are set in the Configuration Server Database.

device

In this document, a device is a piece of hardware—such as a computer or ATM—that is either a managed device or a target device.

HPCA agent

The software—such as the Application Manager and Application Self-service Manager—that runs on a managed device and communicates with the Configuration Server.

HPCA agent connect

The process by which HPCA-managed devices communicate with the Configuration Server.

managed device

A computer, ATM, or other piece of hardware that is managed by HP Client Automation solutions.

package

(n) A unit of software or data that can be published to the CSDB.

(v) The grouping of data into a unit that can be published to the CSDB.

policy

A designation of the services to which a user, a target device, or a managed device is entitled.

resolution

The process by which the object attribute values on a managed device are replaced by those that are required in order for it to achieve its desired state.

service

A group of related packages, methods, or behaviors organized into manageable units.

target device

A workstation or server on which you want to install, replace, or update software.

user

In HPCA solutions, the identity of the device or subscriber being managed.

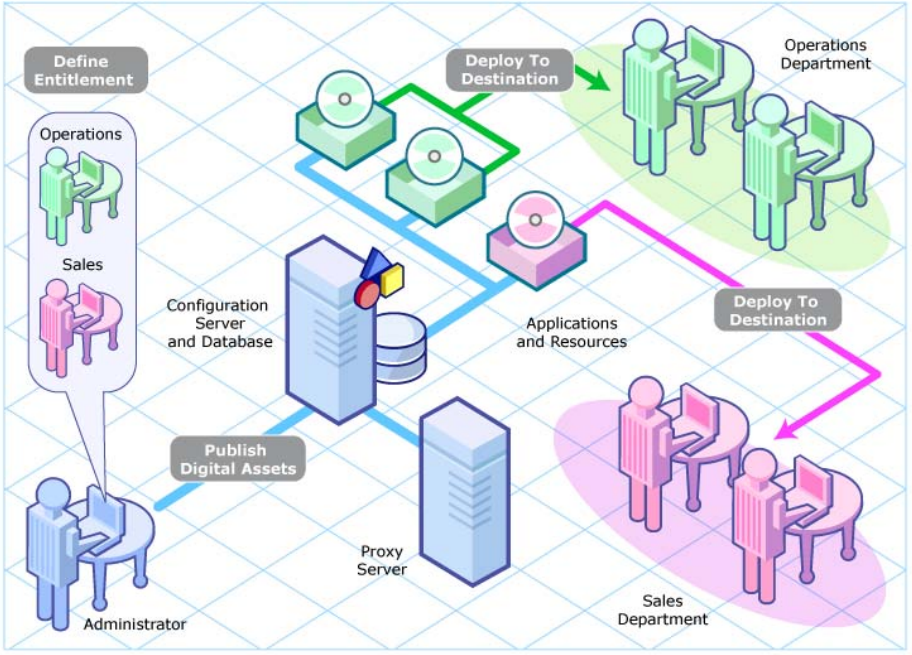
Desired State

Client Automation manages the distribution of assets based on a **desired state**. This records the identities and intended configurations of your managed devices. The desired state can be simple or complex.

At a minimum, the desired state includes the following five elements.

- **Users**: The identity of the devices being managed. This can be either a computer name or a user name.
- **Applications**: The software that is being managed.
- **Application Resources:** The components that make up the applications.
- **Deployment Source**: The location in which the application components are stored so that they can be distributed to users. Examples of deployment sources are an HP Client Automation Proxy Server (Proxy Server) and an HP Client Automation Configuration Server (Configuration Server).
- **Deployment Destinations**: The location (such as desktop computers, servers, PDAs, and laptops) to which the application and its files will be distributed.

Figure 1 Elements in the desired state.



Use HPCA to manage all of these components. You will publish **packages** of digital assets, determine entitlement policy, and define how the packages will be deployed.

A package is a unit of distributable software or data.

The HPCA Configuration Server Database

The HP Client Automation Configuration Server Database (Configuration Server Database, CSDB), located on the HP Client Automation Configuration Server (Configuration Server), records your enterprise's desired state model. This model is made up of the data to be distributed, the policies that define the services to which users and devices are entitled, and security and access rules for administrators. Refer to the *HP Client Automation Configuration Server Database Reference Guide* (*CSDB Reference Guide*) for information on the structure and use of CSDB classes.

The CSDB is hierarchically structured as follows.

- **Files** are used to group similar domains. The PRIMARY File is used to define and maintain the desired state.
- **Domains** are logical file partitions used to group similar classes. For example, the POLICY Domain contains the classes needed to create users and groups.
- **Classes** are templates that contain the attributes that are needed in order to create an instance. A class represents a category of the desired state. For example, the USER Class of the POLICY Domain defines users of managed applications. It defines all of the attributes that are necessary in order to identify the managed device.
- **Instances** are occurrences of classes. The attributes of a class instance contain data that describes a specific entity of that class. For example, a USER Instance contains the information that is needed in order to identify a target device or user.
- **Attributes** are data elements of a class. The class contains the definition (such as the name, data type, description, and length) for each attribute belonging to the class. Each class instance that is created from the class contains a value for each of the attributes that are defined in the class. For example, the NAME Attribute of a USER Class contains the name of the user.

Default Files and Domains

When you install the Configuration Server, LICENSE and PRIMARY are the only two files available. As you use Client Automation, the CSDB will change because some of the management infrastructure products add other domains. For example, Patch Manager adds the PATCHMGR Domain, and Application Usage Manager adds the USAGE Domain.

- The LICENSE File is read-only and is used for Configuration Server processing. This file is for HP use only, and should not be modified.
- The PRIMARY File is where you will find most of the information pertaining to software management. Its default domains are described in this section.
  - Use the ADMIN Domain to define administrative rights and rules for connecting classes.
  - Use the APPMGMT Domain to work with HPCA Application Management Profiles (AMPs). For more information, refer to the *HP Client Automation Application Management Profiles User Guide* (*HPCA AMPs Guide*).
  - Use the AUDIT Domain to configure tasks that will inventory assets on your devices.
  - Use the CLIENT Domain to configure Client Operations Profiles (COPs). This includes defining which Configuration Servers and Proxy Server the managed device can use. For more information, see Chapter 5, Configuring Client Operations Profiles.
  - Use the PATCH Domain . This domain is specific to the byte-level differencing feature of the HPCA Application Manager.
  - Use the POLICY Domain to create users and groups, and to assign users to groups. See Chapter 4, Implementing Entitlement Policy.
  - Use the PRDMAINT Domain to store packages for self-maintenance. The HPCA agent software uses this domain to heal and update itself.
  - The SOFTWARE Domain contains information about the software that is being managed and the methods that are used to deploy the software. See Chapter 6, Preparing Services.
  - The SYSTEM Domain contains administrative and process control definitions.

As you begin to use Client Automation, the PROFILE File appears after the first device has registered with the Configuration Server. This file contains information that is collected from managed devices. This information is used

to connect to devices in order to deploy data that is being managed by HPCA, and to see the configuration of the managed device. The PROFILE File is discussed in Chapter 3, HPCA Agent Directories, Objects, and Logs.

The NOTIFY File contains information about attempts by the Notify function to update, remove, and send e-mail messages to subscribers. This file appears after the first attempted Notify.

HPCA Infrastructure

Use the HPCA infrastructure components to manage your enterprise's computing environment. Depending on its configuration, your infrastructure might be enhanced by any combination of these components. The HPCA components can be divided into four categories.

- management applications
- management infrastructure
- extended infrastructure
- management extensions

Some of the basic HPCA infrastructure components are described in this section. For more information on all of the HPCA products, refer to the *HP Client Automation Configuration Server, Portal, and Enterprise Manager Getting Started Guide* (*Getting Started Guide*) on the HP support web site.

Configuration Server

The Configuration Server is part of the HPCA *management infrastructure*, and resides on a single server or across a network of servers. Applications and information about the subscribers and HPCA agent computers are stored in the CSDB. The Configuration Server distributes packages based on policies established by the HPCA administrator. Refer to the *HP Client Automation Configuration Server User Guide* (*Configuration Server Guide*) for more information.

Portal

The Portal stores information about the target devices in your environment in its zone-based Directory Service, and provides the web-services to make

these directory objects available for HPCA jobs and management functions. The Portal is part of the HPCA *extended infrastructure*. Refer to the *HP Client Automation Portal Guide* (*Portal Guide*) for more information.

Proxy Server

The HP Client Automation Proxy Server (Proxy Server) performs a "support" role for the Configuration Server by handling a portion of the work that is required for deploying applications to HPCA agents.

The software that is to be distributed to HPCA agents is copied to and stored on the Proxy Server, which is situated closer on the network to the HPCA agents. The Proxy Server then provides the software to those HPCA agents that are associated with it, and that are not required to obtain their software from the Configuration Server.

The Proxy Server is part of the HPCA *extended infrastructure*. For more information, refer to the *HP Client Automation Proxy Server Installation and Configuration Guide* (*Proxy Server Guide*).

Reporting Server

As part of the HPCA *extended infrastructure*, the web-based Reporting Server allows you to query the data in several CSDBs 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 Reporting Server interface provides a way to use HPCA SQL data for reporting and environment assessment. Refer to the *HP Configuration Management Reporting Server Installation and Configuration Guide* (*Reporting Server Guide*) for additional information.

HPCA Administrator

HPCA comes with the HPCA Administrator, a set of tools that you use to carry out software management functions. This is part of the HPCA *management infrastructure*. For additional information about each tool, refer to the *HP Client Automation Administrator User Guide* (*Administrator Guide*). HPCA Administrator tools include:

- **HPCA Administrator Packager**: Use the Admin Packager to create groups of components, called packages, and promote them to the Configuration Server.
- **HPCA Administrator Configuration Server Database Editor**: Use the Admin CSDB Editor to view and manipulate the Configuration Server Database (CSDB).
- **HPCA Administrator Agent Explorer**: Use the Admin Agent Explorer to view and to manipulate HPCA objects on HPCA agent devices.
- **HPCA Administrator Screen Painter:** Use the Admin Screen Painter to create custom dialog boxes.
- **HPCA Administrator Publisher:** Use the Admin Publisher to publish Windows Installer files.

HPCA Agent

The HPCA agent gets installed on end-user computers and allows an HPCA administrator to:

- Automate deployment
- Update, repair, and delete applications
- Inspect hardware and software
- Ensure security of the data

The HPCA agent has several sub-features that perform a variety of functions. Table 2 lists and describes the HPCA agent's sub-features.

Table 2 HPCA agent sub-features

Sub-feature	Description
Application Manager	Use this sub-feature to distribute mandatory applications throughout the enterprise. This sub-feature is described in this guide.
Application Self-service Manager	With this sub-feature, subscribers can install, remove, and update optional applications that are available to them in a service list. This sub-feature is described in this guide.
Inventory Manager	This sub-feature allows you to collect hardware information and send it to the Inventory Manager for collection and

Sub-feature	Description
	reporting. For more information, refer to the *HP Configuration Management Inventory Manager Guide* (*Inventory Manager Guide*) for details.
Local AIP Extension	For information on this sub-feature, see Local AIP Support for the MSI Redirector, starting on page 65.
OS Manager	This sub-feature controls the provisioning of operating systems. For more information, refer to the *HP Client Automation OS Manager Guide* (*OS Manager Guide*).
Patch Manager	This sub-feature analyzes and manages security patches. For more information, refer to the *HP Client Automation Patch Manager Guide* (*HPCA Patch Manager Guide*).
Personality Backup and Restore Utility	This sub-feature contains a user interface that allows you to back up and restore user files and settings for applications and operating systems on individual managed devices. For more information, see *HP Client Automation OS Manager System Administrator User Guide*.
PlusHP	This sub-feature contains support specific to HP hardware devices. When enabled, it installs HP System Software Manager (HP SSM) and HP Client Management Interface (HP CMI) components on the target device. It provides Self Monitoring, Analysis, and Reporting Technology (SMART) Drive Alert Monitoring and HP Hardware Alert Monitoring based on HP CMI. HP CMI is used to monitor and gather hardware related alerts and events for reporting. This includes events such as overheating of the processor, fan stall, any hardware related changes, and so on. For information on the HP CMI alerts, see HP Client Management Interface Alerts on page 267.
Agent Lockdown Mode	This sub-feature prevents non-privileged users from tampering with critical system-level content or breaching confidentiality by viewing content they should not have access to.

If you install the Application Self-service Manager and Application Manager, you can decide whether an application is mandatory or optional, and specify who controls the installation of the application. By adding the Inventory Manager, you can also discover the hardware and software configurations of HPCA agent computers.

Using Agent Lockdown Mode

The HPCA agent has a machine (SYSTEM) mode and user mode. The machine mode is controlled by the administrator and has elevated privileges, whereas the user mode managed by end user runs with potentially limited privileges. Typically, an administrator deploys all the standard applications to a device using the machine mode. A user who logs into the system might deploy optional software that has been entitled to him/her by the site administrator.

To install applications on a system, the install process must run with elevated privileges. Since the end user can decide which entitled applications to deploy, the SYSTEM side needs to be available to the user and the site administrator. The HPCA agent uses an object model retrieved from the Configuration Server and stored on the target device to manage software on the systems. These objects are accessed using SYSTEM or end user privileges.

Implementations that choose not to secure their HPCA managed devices folders may be exposed to a variety of issues, including:

- Local Tampering of Data Store: The user can influence the machine mode to do unauthorized operations by tampering with the objects stored in IDMROOT. The Agent Lockdown Mode segregates the user and machine data stores so that each is only accessible in its authorized processing context. This independently secures the SYSTEM and USER objects.
- Secure Environment Trust Issues: The Agent Lockdown Mode HPCA agent only trusts IP addresses that are specified in secured locations (for example, SAP object) and cannot be modified by a non-privileged user. Once a Client Operations Profile (COP) connect has run, there is a secure list of servers that the HPCA agent is allowed to contact.

Administrators may have a variety of reasons for choosing not to deploy security lockdown restrictions on end users:

- Users may all be machine administrators
- Users may all be trusted users. Another means of security may be employed

2 Installing the HPCA Agent

At the end of this chapter, you will:

- Understand the system requirements for installing the HPCA agent.
- Know how to customize the installation process.
- Be able to modify the [Properties] section of the `Install.ini` file in order to customize the behavior of the installation process.
- Be able to modify the [Args] section of the `Install.ini` file in order to customize the behavior of the HP Client Automation Application Self-service Manager (Application Self-service Manager).
- Be able to modify the [Objects] section of the `Install.ini` file in order to specify HPCA objects to be created on the HPCA agent computer.
- Be able to use [SecurityFolders] section of the `Install.ini` file in order to provide SYSTEM and USER level access to contents on HPCA agent computer.
- Know how to use the Installation Wizard.
- Know how to remove and repair HPCA agents using the Installation Wizard and command lines.
- Know how to modify the installation of the HPCA agents using the Installation Wizard and command lines.
- Know how to use a pre-install script to customize MSI properties that affect installation.
- Know how to use a post-install script to run processes after installing HPCA agents.

If your environment uses Core and Satellite servers, first read the *Core and Satellite Servers Getting Started Guide* as the installation, configuration, and troubleshooting information in that guide might supersede the information in this guide.

HPCA Agent Installation

The HPCA agent installation program uses Microsoft Windows Installer. The installation consists of one MSI package that installs the HPCA agent sub-features that are listed in Table 2, on page 27.

Install only the HPCA agent sub-features for which you are licensed. If you do not have a license, the HPCA agent will not authenticate with the Configuration Server.

The Windows Terminal Server agent component of HPCA was formerly a selectable feature—as part of the *Server Management Agent*—during this installation program. The Server Management Agent has been retired, and the Windows Terminal Server agent component has been incorporated into the Application Manager agent installation.

HPCA administrators who want to use HPCA to deploy applications to Windows Terminal Servers should consult the *HP Configuration Management Windows Terminal Server and Citrix Support Guide*, which is available in the HPCA library at **http://h20230.www2.hp.com/selfsolve/manuals**.

System Requirements

- 30 MB free disk space.
- MS Windows Installer, version 2.0 or later.
- Microsoft .NET runtime version 1.1 or higher (required for Application Self-service Manager only). The .NET installation program is available in the `\dotnet` folder on the HPCA agent media. If .NET does not exist on the HPCA agent computer, the .NET installation program runs automatically. Microsoft .NET requires Microsoft Internet Explorer, version 5.01 or later.
- TCP/IP connection to a computer running the Configuration Server.
- Windows NTFS-based file system with Access Control Lists (ACLs) support.

- For Windows 2000, Windows Server 2003, Windows XP, and Windows Vista, you must have administrator rights to the computer to install the HPCA agents.

Platform Support

For information about the platforms that are supported in this release, see the accompanying release notes.

HPCA Agent Installation Process

Before you perform the remove, repair, or modify operations for a HPCA agent installer, revert the ACL settings that you have applied on the HPCA agent directories.

Whether the HPCA agent installation program is distributed as an executable (`setup.exe`) or a Windows Installer **Administrative Installation Point** (**AIP**), the installation process is the same. You can customize many aspects of the installation including which HPCA agents to install and to which 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**: Stored in the `media\client\default\win32` directory on the HPCA agent media, 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.

  An Administrative Installation Point 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 `HPCAE-MgmtApps.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.

- **HPCAE-MgmtApps.msi**: This MSI database file is stored in the `\win32` directory on the HPCA agent media and contains the default configuration information for the installation.
- **Install.ini**: Use `Install.ini` to customize the installation or the HPCA agent arguments file, or to create or set attributes for HPCA objects. Settings in `Install.ini` override the defaults stored in `HPCAE-MgmtApps.msi`.

  A sample `Install.ini` is available in the `\win32` directory on the HPCA agent media.
- **args.xml**: The Application Self-service Manager arguments file created from information stored in the [ARGS] section of `Install.ini`. This file, stored in `IDMLIB` on the HPCA agent computer, controls the behavior of the Application Self-service Manager. The default directory for `IDMLIB` is `C:\Program Files\Hewlett-Packard\HPCA\Agent\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 62.
- **Post-install scripts**: (*Recommended for experienced users only*.) Use custom Visual Basic, REXX, or Tcl scripts to run processes such as the first HPCA agent connect. For an example, see Using a Post-Install Script on page 64.

  In HPCA, REXX is an interpreted language that provides a simple way to customize various aspects of HPCA processing.

  For more information on using REXX in an HPCA environment, refer to the *HP Configuration Management Application Manager and Configuration Server REXX Programming Guide* (*REXX Programming Guide*).

Preparing Install.ini

Create an installation file, `Install.ini`. Use this file to:

- Customize the installation.
- Customize the HPCA agents.
- Create or set attributes for HPCA objects.
- Control folder access for users.

Descriptions of the four `Install.ini` file sections (**Properties**, **Args**, **Objects,** and **Security Folders**) are in the sections that follow.

When you modify the `Install.ini` file sections, note that all the `Install.ini` files located in the below folders are to be modified.

```
C:\Program Files\Hewlett-
Packard\HPCA\Media\client\default\win32
C:\Program Files\Hewlett-
Packard\HPCA\ManagementPortal\media\default\win32
```

[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 `HPCAE-MgmtApps.msi` database file.

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

Table 3 [Properties] Section of Install.ini

Argument	Description
ADDLOCAL	Specify the HPCA agent sub-features that you want to install on the local hard drive. There is no default for this argument. The acceptable way of referencing the sub-features is documented in Referencing the HPCA Agent Sub-features on page 47.
ARPNOREMOVE	Set to **`1`** to disable the ability to remove the HPCA agent from the computer using Add/Remove Programs in the Control Panel. • For Windows 2000 and later operating systems, the **Remove** button is disabled. • For earlier operating systems, the HPCA agent will not be listed in Add/Remove Programs in the Control Panel. Note: Setting to **`0`** will not disable this option due to a Windows Installer issue. If you want to allow your subscribers to remove the HPCA agent from the computer using Add/Remove Programs, place a semi-colon (**;**) in front of the ARPNOREMOVE argument in `Install.ini`.

Argument	Description
INSTALLDIR	Specify the directory in which to install the HPCA agent. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent`. This value will be overridden if a new directory is specified in the Destination Folder window in the HPCA Agent Installation Wizard.
NVDENABLEUSER	Indicate whether to show or hide the Set User window in the Installation Wizard. • Specify **`Y`** (the default) to show the window. • Specify **`N`** to hide the window. • Specify **`D`** to show the window, but disable the User Name field. The **Create HPCA Application Self-service Manager icon on the desktop** check box is still available. Note: If you hide the window, the **Create HPCA Application Self-service Manager icon on the desktop** check box will no longer be available to your subscribers.
NVDENABLEIP	Indicate whether to show or hide the Configuration Server window in the Installation Wizard. The default is **Y**.
NVDENABLE PROXY	Indicate whether to show or hide the Proxy Information window in the Installation Wizard. The default is **N**. If you want to use a Proxy Server during the HPCA agent connect, show this window. The information that is specified in the Proxy Information window is stored, by default, in the PROXYINF object in the HPCA agent computer's `IDMLIB` directory.
NVDENABLE SHORTCUT	Indicate whether to show the **Create HPCA Application Self-service Manager icon on the desktop** check box in the Set User window. The default is **Y**. Selecting this check box installs a shortcut on the subscriber's desktop for the Application Self-service Manager.
NVDSHORTCUT	Indicate whether to install a desktop shortcut for the Application Self-service Manager on the subscriber's computer. The default is **Y**.
NVDSTART MENUICON	Indicate whether to install an icon in the **Start** Menu for the Application Self-service Manager on the subscriber's computer. The default is **Y**.

Argument	Description
NVDSTARTWMI CFGMGR	Indicates whether to install the shortcuts for WMI. The default is **Y**.
NVDRAMSHORT CUT	Indicate whether to install a desktop shortcut for the Application Manager on the subscriber's computer. The default is **N**.
NVDRAMSTART MENUSHORTCUT	Indicate whether to install an icon in the **Start** Menu for the Application Manager on the subscriber's computer. The default is **N**.
NVDRAMCONNECT	Specify a command line to run if a Application Manager shortcut is created on the desktop or the **Start** Menu. There is no default for this argument.
NVDMAINTDIR	Specify a directory in which to store the HPCA agent maintenance files. The default is the `MAINT` sub-directory of the folder that contains `setup.exe`. Note: Specify a value only if you want to store maintenance files in a directory other than the default. If files in this directory are more recent than the installation files, they will be copied into the HPCA agent's `IDMSYS` directory.
NVDLOCAL NOTIFYONLY	If set to **Y**, the HPCA agent will allow HPCA Notifies from the local host only. The default is **N**.
NVDRADTRAY START	Set to **Y** to start the HPCA System Tray automatically if the Application Manager is selected during the HPCA agent installation process. The default is **N**.
NVDNOTIFY INTERACT	Set to **Y** to enable the HPCA Notify Daemon to interact with the desktop. The default is **N**.
NVDREDIRECT ORINTERACT	Set to **Y** to enable the MSI Redirector to interact with the desktop. The default is **N**.
NVDSCHEDULER INTERACT	Set to **Y** to enable the HPCA Scheduler to interact with the desktop. The default is **N**.

Argument	Description
NVDPRECAPATH	Specify the fully qualified path and filename of a custom Visual Basic pre-install script. There is no default for this argument. 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 62.
NVDPOSTCAPATH	Specify the fully qualified path and filename of a custom Visual Basic or REXX post-install script. There is no default for this argument. For an example, see Using a Post-Install Script on page 64.
LOCKDOWN	Specify **`Y`** to install the HPCA agent in Agent Lockdown Mode. Specify **`N`**, the Agent Lockdown Mode is not enabled (default).
LOCKDOWNSCRIPT	The sample `setacls.bat` file is used to add directory permissions which isolate USER from SYSTEM content. You can customize this sample file.Ensure that the customized file is in the same directory as `Install.ini` and `setup.exe`.

Manually add the below Lockdown properties to the `Install.ini` file to install HPCA agent in Agent Lockdown mode.

```
[Properties]
LOCKDOWN=Y
LOCKDOWNSCRIPT=<Customized script>
```

Entitlement Settings for Agent Lockdown Mode

In general, the HPCA Administrators would have the following entitlement scenarios for deploying software into target systems:

- **Machine Only Entitlements**: These are applications, which will only be deployed by using SYSTEM context and the application is owned by the machine level.
- **User Only Entitlements**: These are the applications, which will only be deployed by user context. Hence, entitlements are done in per

use per user based policy, and the application is owned by the end-user of the target machine.

- **Machine/User (Hybrid) Entitlements**: These are the kind of applications, which are partly deployed by SYSTEM and partly deployed by USER. Machine Side has to be run first, before running the first user connect. This is called **Priming Connect**. To facilitate the Priming Connects, there is a `MACHDEF.EDM` file, which will be created by collecting the Connect parameters from the Administrator during the install time.

Machine Defaults (MACHDEF.EDM)

MACHDEF is an abbreviation for Machine Defaults. The `MACHDEF.EDM` file carries the Machine default parameters. Table 4 on page 40 lists the variables of MACHDEF.EDM along with their description and values.

Table 4 MACHDEF Variables

VARIABLE	DESCRIPTION	VALUE
STARTDIR	The directory under machine IDMLIB	SYSTEM, $MACHINE, or $USER
UID	The value to use for entitlement	$MACHINE or $USER
IP	The IP address of the Radia Configuration Server	A valid IP address or IP name
COP	Client Operation Profile resolution enabled	Y or N
ASK	Prompt user	Y or N

When the customer environment has Software Manager with differing user entitlements and no machine entitlement, they should specify the values of MACHDEF variables as follows:

STARTDIR	$USER

UID	$USER

Similarly, when you want to entitle applications to machine and user and machine has all the user applications entitled, you should specify the values of MACHDEF variables as follows:

STARTDIR	SYSTEM
UID	$MACHINE

Suppose a customer always runs a Priming Connect for the machine side after the product is installed, where the machine has all the entitlements. In this scenario, you will not need a MACHDEF.EDM value to get all the default parameters.

[Args] Section of Install.ini

Use the [Args] section to control the behavior of the Application Self-service Manager. The information in this section is used to build the Application Self-service Manager arguments file, `args.xml`, which is stored in `IDMLIB` on the HPCA agent computer. The default directory for `IDMLIB` is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib\`.

The following 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>
<ROOT_CATALOG_NAME>All Software</ROOT_CATALOG_NAME>
</ARGUMENTS>
</RADIA_ARGUMENTS>
```

The XML tags (arguments) that are described in this section are not case-sensitive when you type them in `Install.ini`. However, they will be automatically converted to 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 5 [Args] section of Install.ini

Argument	Mandatory or Optional	Description
askconfirm	Optional	Controls the display of a confirmation message to your subscribers. For example, some instances in which a confirmation message might display are: • A reboot is required. • There is insufficient disk space during deployment. • A data download is interrupted. The default is **Y**.
channelname	Mandatory	The CSDB Domain from which applications are retrieved. The default is **SOFTWARE**.
default_catalog	Optional	Set the default catalog that is selected when the Application Self-service Manager starts. There is no default for this argument.
default_catalog_only	Optional	Set to **Y** to make only the default_catalog available when the Application Self-service Manager starts. The default is **N**.
identification	Optional	Identifies the HPCA agent to the Configuration Server by defining the value for the ZUSERID variable in the ZMASTER object. The default is **$USER**. This value will be overridden if a different User Name is specified in the Set User window in the HPCA Agent Installation Wizard. If you do not want this value to be modified, set **NVDENABLEUSER=N** in the [PROPERTIES] section of `Install.ini`. **$MACHINE**: The HPCA user ID is the name of the subscriber's computer.

Argument	Mandatory or Optional	Description
		$USER: The HPCA user ID is the logon ID for the subscriber currently logged on. **CUSTOM**: literal custom specification.
log	Optional	Specifies the name of the log stored in IDMLOG. IDMLOG is specified in `NVD.INI`. The default is `connect.log`. The default location of `NVD.INI` is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`.
logsize	Optional	Specifies (in bytes) the size of the log file. The default is **1000000**. 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.
logonpanel	Optional	Controls the display of the logon panel. The default is **N**.
managerurl	Optional	Specifies the address (in the form `http://`*`hostname`*`:`*`port`*`/nvdurl`) of the Configuration Server to be used for HTTP object transfer. There is no default for this argument.
providername	Mandatory	The name of the Configuration Server, as was set during its installation. The default is **radia**. This is used to name the folder below the STARTDIR on the HPCA agent computer. See startdir on page 43 for more information.
redirect	Optional	*Used for the Application Self-service Manager only.* Specifies an alternate start-up file (*`filename`*`.xml`) that can be accessed via a network path or URL. There is no default for this argument. If the redirect tag is set in `args.xml`, the Application Self-service Manager uses the properties that are specified in the alternate file.
resolutionmanager	Mandatory	The IP address of the Configuration Server. The Configuration Server name can also be used. There is no default for this argument.

Argument	Mandatory or Optional	Description
		This value will be overridden if a different IP address is specified in the Configuration Server window in the HPCA Agent Installation Wizard. To prevent this value being modified, set **NVDENABLEIP=N** in the [PROPERTIES] section of `Install.ini`.
resolutionport	Mandatory	The port for the Configuration Server. There is no default for this argument. This value will be overridden if a different port is specified in the Configuration Server window in the HPCA Agent Installation Wizard. To prevent this value being modified, set **NVDENABLEIP=N** in the [PROPERTIES] section of `Install.ini`.
root_catalog_name	Mandatory	Use this to customize the name of the root catalog display name. The default is **All Software**.
sslmanager	Optional	The address of the Configuration Server that is to be used for SSL communications. There is no default for this argument. If you want self-maintenance to use SSL communications, append **`::SM`** to the end of the specified IP address or host name, as in **`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 Configuration Server should ever become expired, revoked, or corrupt, it will result in disabling SSL communications to the Configuration Server.
sslport	Optional	The TCP/IP port (usually 443) on which the SSL Manager task is listening. There is no default for this argument. The sslport specification takes the form *`sslport=port`*.
startdir	Optional	The starting `IDMLIB` directory (by default, `C:\Program Files\Hewlett-`

Argument	Mandatory or Optional	Description
		Packard\HPCA\Agent\Lib). Type **startdir=***foldername*. If the folder name contains embedded spaces, enclose the entire name in quotation marks (**" "**).
uioption	Optional	Controls the display of the status window. The default is **N**.

[Objects] Section of Install.ini

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

Table 6 [Objects] section of Install.ini

Argument	Description
ZMASTER_ZDSTSOCK	The port setting for the Configuration Server. The default is **3464**.
ZMASTER_ZIPADDR	The IP address for the Configuration Server. There is no default for this argument.
ZMASTER_ZNTFPORT	The port on which the HPCA agent's Notify daemon is "listening." The default is **3465**.
ZMASTER_ZNTFYSEC	This attribute allows a Notify operation to execute programs from the IDMSYS directory only. This is used for security during Notify operations. The default is **Y**.
ZMASTER_ZTIMEO	The duration (in seconds) that the HPCA agent will wait for a response from the Configuration Server before it times out. The default is **240**. Valid values are numerals from 0 to 3200.

Argument	Description
ZMASTER_ZTRACE	Indicates whether communications buffer information will be included in the log; also generates unique logs for create methods. The default is **N**. • **Y** enables Communication and Method Tracing. • **S** enables Communication summary information; Method Tracing is not enabled. • **N** disables Communication Tracing and Method Tracing.
ZMASTER_ZTRACEL	The level of tracing that is generated in the HPCA agent log files. The default is **040**. Valid values are 0 to 999, where 0 = minimal tracing, 40 is acceptable for most activity, and 999 = maximum tracing.
ZMASTER_ZUSERID	The subscriber's user ID. The default is the name of the user that is currently logged on to the computer.
ZMASTER_ZVRFYUID	Specify **Y** to verify the user ID that was sent by the Configuration Server's Notify command. This verification uses the ZUSERID field from the HPCA agent's ZMASTER object. The default is **N**.
PROXYINF_USEPROXY	Specify **Y** or **N** to indicate whether a proxy server should be used when connecting to the Configuration Server. The default is **N**.
PROXYINF_DISCOVER	*Applicable to Microsoft Internet Explorer only.* Specify **Y** to discover Internet Explorer's proxy settings. The default is **N**.
PROXYINF_PROXADDR	The IP address and port number of your proxy server. The default is **xxx.xxx.xxx.xxx:1080**.
RADSETUP_COP	Set to **Y** to enable Client Operations Profiles. The default is **N**.

[SecurityFolders] Section of Install.ini

Use [SecurityFolders] section to control the folder access for the users. Isolation of SYSTEM and USER access is controlled through these folder settings, so it is imperative that these definitions maintain a separation of USER and SYSTEM access in order to ensure a proper level of security.

If you change these paths, be sure to end the directory path with the name of the directory only; *do not include a closing backslash*.

If the directory path is closed with an ending backslash, the `setacls.bat` run will fail and the directories will not be secured.

USER-based parameters that are prefixed with `IDMUSR`... will create subdirectories in the named folder for each user of the managed device.

```
[SecurityFolders]
IDMUSRMSI="c:\Program Files\Hewlett-Packard\HPCA\Agent\usermsi"
IDMSHRDATA="c:\Program Files\Hewlett-
Packard\HPCA\Agent\shareddata"
IDMPUBLIC="c:\Program Files\Hewlett-Packard\HPCA\Agent\public"
IDMUSR=CSIDL_LOCAL_APPDATA\HPCA\Agent
```

The IDMUSR parameter uses the “HPCA” designation in order to ensure compatibility with more current and future versions of the HPCA agent.

The HPCA agent installation program does not prompt for the locations of these directories. They have to be specified in the `Install.ini` file *before* running the installation program.

Table 7 [SecurityFolders] Parameters

Parameter	Description
IDMUSRMSI	A directory that contains MSI installations and related MSI content for each USER.
IDMSHRDATA	A directory from which MACHINE and USERs share information. Using the default permission settings, the MACHINE context writes SYSTEM objects into this directory and the USER context reads from it to satisfy software update requirements.
IDMPUBLIC	A directory for USERs to write files into. For example, the System Tray, radtray, writes its configuration file (`uiconfig.xml`) into the IDMPUBLIC folder for others to use.
IDMUSR	A directory for USERs objects.

Installing the HPCA Agents

The HPCA agent installation can be initiated by one of the following methods.

- a *command line*: See Installing the HPCA Agent from a Command Line.
- a *logon script*: See Initiating the HPCA Agent Installation from a Logon Script starting on page 50.

After initiating the installation, the HPCA agent installation program runs.

The Windows Terminal Server agent component of HPCA will be automatically installed during the Application Manager agent installation that is documented in this section.

HPCA administrators should consult the *HP Configuration Management Windows Terminal Server and Citrix Support Guide* for information on using the Windows Terminal Server agent.

This section describes some of the ways that you can initiate the HPCA agent installation, and then describes the standard HPCA Agent Installation Wizard.

Installing the HPCA Agent from a Command Line

Before performing an installation from a command line, determine:

- Which HPCA agents to install (See Referencing the HPCA Agent Sub-features, below), and
- How the HPCA agent installation program will be made available to your subscribers. This can be done via: a web page, an FTP site, a mapped drive, a CD-ROM, and e-mail,

Then pass the necessary arguments on a command line. The arguments are detailed in the section, Specifying the HPCA Agent Sub-features to Install, starting on page 48, as well as in Table 9 on page 49 and Table 10 on page 50.

Referencing the HPCA Agent Sub-features

Table 8, lists the valid, recognized mnemonics that must be used when referencing the HPCA agent sub-features on a command line.

Table 8 HPCA agent sub-feature command-line mnemonics

Sub-feature	Mnemonic
Application Manager	NVDINSTALLRAM
Application Self-service Manager	NVDINSTALLRSM
Inventory Manager	NVDINSTALLRIM
Local AIP Extension	NVDINSTALLRLAE
OS Manager	NVDINSTALLROM
Patch Manager	NVDINSTALLPATCH
Personality Backup and Restore Utility	NVDINSTALLPBR
plusHP	NVDINSTALLPLUSHP

Specifying the HPCA Agent Sub-features to Install

To specify the sub-features that you want to install, use the appropriate state argument, as described in Table 9.

Table 9 HPCA agent sub-feature state arguments

Specify:	Action
ADDLOCAL	Type a comma-delimited list of sub-features that you want set to "Will be installed on local hard drive."
REMOVE	Type a comma-delimited list of sub-features that you want set to "Entire feature will be unavailable." This removes the sub-features only, not the product. Therefore, if you use the REMOVE property and type each of the sub-feature names, the core product will still be stored on the computer. To remove the HPCA agent product, type **`REMOVE=ALL`**.

Additional Command Line Arguments

Additional arguments that you can pass to the installation program on the command line are described Table 10.

Table 10 Command line arguments

Sample	Action
/qn	Performs a silent installation. Note: A silent installation is one that takes place without a user interface. This might also be referred to as a "quiet installation," or an "unattended 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 could impact the performance of the installation.
/a TARGETDIR=drive: *\targetdirectory*	Creates a Windows Installer AIP in the specified target directory. Note: A Windows Installer AIP is also known as an ACP. The target directory contains `RADIA.MSI`, the installation folders, `setup.exe`, and any files (such as `Install.ini` and Visual Basic scripts) that are stored in the same directory as `setup.exe`. After you have created the AIP, you can run `setup.exe` and pass the command-line parameters. This starts the Windows Installer and passes the specified parameters to it.
NVDINIFILE=*path* *****INIfile***name***	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` which is located in the current directory.
INSTALLDIR=	Specify the installation directory. Use quotation marks if the path contains spaces.

If you initiate an HPCA agent installation with a command line that does not contain the silent installation argument (**/qn**), the HPCA Agent installation program will open. For more information, see Using the HPCA Agent Installation Wizard on page 52.

Examples

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

```
SETUP.EXE ADDLOCAL=NVDINSTALLRSM /qn /L*v C:\Hewlett-
Packard\HPCA\Agent\install.log
```

The following is an example of a command line that will install the Application Manager and the Application Self-service Manager.

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

The arguments in this command line, and others, are described in Specifying the HPCA Agent Sub-features to Install on page 48 and Table 10 on page 49.

Initiating the HPCA Agent Installation from a Logon Script

You can use a logon script on a Windows machine to automate the HPCA agent installation.

To automatically install HPCA agent on a subscriber's Windows machine, 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 you can add to the logon script that installs the HPCA agents. If the HPCA agents are not already installed when the subscriber logs on to the server, this logon script runs the HPCA agent installation program.

Sample Logon Script

```
:begin

@echo off

if exist C:\progra~1\Hewlett-Packard\HPCA\Agent\LIB\
zmaster.edm goto skipinst

   start setup.exe /qn

:skipinst

if exist C:\progra~1\Hewlett-Packard\HPCA\Agent\lib\
zmaster.edm goto skipinst
```

To determine if the HPCA agents already exist, the script checks for the ZMASTER object (`ZMASTER.EDM`) in its default location on the computer. If ZMASTER:

- Exists, the script skips the installation.
- Does not exist, the HPCA agent installation program launches.

The ZMASTER object begins the resolution process and is the first object to be exchanged during the HPCA agent connect.

In the sample logon script, the command, **`start setup.exe /qn`**, instructs the program to perform a silent installation of the HPCA agents.

Modify this script to reflect your organization's needs.

If the command line does not contain the silent installation arguments, the graphical HPCA Agent installation program opens. For more information, see Using the HPCA Agent Installation Wizard.

Using the HPCA Agent Installation Wizard

If you start an HPCA agent installation without the arguments for a silent installation, the HPCA Agent Installation Wizard opens. The following steps describe the standard installation procedure. These steps can vary based on `Install.ini` or any arguments passed when running the installation.

To install HPCA agents using the Installation Wizard

1. From the folder containing the HPCA agent installation files, run `setup.exe`. The HPCA Agent Installation Wizard opens.

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

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 HPCA agents is

   `C:\Program Files\Hewlett-Packard\HPCA\Agent`.

   If you want to select a different destination for the HPCA agent, click **Browse** and 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 HPCA agents. This overrides the value set for IDENTIFICATION in `Install.ini`.

7 Select the **Create HPCA Application Self-service Manager icon on the desktop** check box if necessary.

8 Click **Next**. The Configuration Server window opens.

9 In the IP Address text box, type the IP address for the 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.

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

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

Install only the HPCA agent sub-features for which you are licensed.

13 From the shortcut menu, select an installation option. These options are described in Table 11.

Table 11 HPCA agent sub-feature selection

Option	Description
Will be installed on local hard drive	Installs the selected sub-feature only.
Entire feature will be installed on local hard drive	Installs the entire feature, including all of its sub-features. Note: To install all HPCA agent sub-features, select **HPCA Agent** at the top of the Select Features window. In this installation program, selecting this option or the "Will be installed on local hard drive" option for the Application Self-service Manager, Application Manager, or Inventory Manager results in the same installation.
Entire feature will be unavailable	The sub-feature will not be installed. If previously installed, this sub-feature will be removed.

If you want to set the same options for all of the sub-features, you can click  **HPCA Agent** and select the appropriate option.

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 target computer and you have chosen to install the Application Self-service Manager, .NET will be installed during the HPCA agent installation. However, if you copied the installation program to your computer and did not include the `\DotNet` folder, the DotNet Settings message will open.

15 Click **OK**.

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

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

17 Click **Next**. The Ready to Install the Application window opens.

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

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

If necessary, the .NET Framework Setup wizard opens. Follow the prompts to install .NET on the target computer. After .NET is successfully installed, the HPCA agent installation begins.

When the installation is done, the successful installation window opens.

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

Removing the HPCA Agents

The Windows Installer installation program offers the ability to remove your HPCA agents. This section describes how to remove the HPCA agent using the Installation Wizard and using a command line.

Using the Installation Wizard to Remove HPCA Agents

This section describes how to remove the HPCA agent using the Installation Wizard.

To remove sub-features of the HPCA agent, use the Modify option on the Application Maintenance window. This is discussed in Modifying the HPCA Agent Installation on page 61.

To remove HPCA agents using the Installation Wizard

1. From the folder containing the HPCA agent installation files, double-click **setup.exe**. The Application Maintenance window opens.
2. Select the **Remove** option.
3. Click **Next**. The HPCA Agent Uninstall window opens.
4. Click **Remove**. The files for all HPCA agents are removed from the computer.

   The HPCA agent has been successfully uninstalled window opens.
5. Click **Finish**.

Using a Command Line to Remove HPCA Agents

This section describes how to use a command line to remove HPCA agents.

To remove HPCA agents using a command line

- From the folder containing the HPCA agent installation files, type the following command line:

  SETUP.EXE REMOVE=ALL

  For additional arguments, see Installing the HPCA Agent from a Command Line on page 47.

  or

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

Example

To silently remove the Application Self-service Manager and Application Manager, type:

SETUP.EXE REMOVE=NVDINSTALLRSM,NVDINSTALLRAM /qn

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

Manually Installing the HPCA Agent

To manage client devices that are not always connected to the network, you can manually install the HPCA agent. For this, a separate installation file is included with the HPCA media.

To manually install the HPCA agent

1. On the target device, insert the HPCA media.
2. Use a command line and navigate to the directory

   `Media\client\default\win32`.
3. Type **`setup-standard.cmd`** *`host`*, where *`host`* is the hostname or IP address of your HPCA server.
4. Press **Enter**.

The HPCA agent is installed and the device is ready to be managed by HPCA.

Installing the HPCA Agent on HP Thin Clients

With the HP **Registration and Loading Facility** (**RALF**) (see HPCA Registration and Loading Facility on page 59) installed and registered with the HPCA infrastructure, you can deploy the HPCA agent to thin client devices as you normally would.

If you are manually installing the HPCA agent, you will need to use the files that are provided on the HPCA media to install RALF (if it is not present) after the HPCA agent installation.

The HPCA agent installation for Windows XPE will automatically install RALF. For other thin client devices, install the HPCA agent then install RALF. The following sections contain detailed instructions.

For RALF installations, “hpcaserver” or the host name defined using the RALF installation parameters must be included in DNS. The host name of the HPCA server must also be included in DNS when the HPCA agent is installed from the HPCA Console.

The HPCA agent installation requires a minimum of 30 MB of free space.

The default port for HPCA agent installations on thin client devices is **3466**.

Manually Installing the HPCA Agent to HP Thin Client Devices

The HPCA agent installation for Windows XPE automatically installs RALF. You do not need to install RALF separately after the agent installation is complete.

If RALF is already present on the device, stop the RALF service before running the HPCA agent installation.

To install the agent to Windows XPE in silent mode, use the following command:

Windows XPE

To install the HPCA agent

1. Access the HPCA media from the Windows XPE thin client device.
2. Navigate to `Media\client\default\win32xpe`.
3. Double-click **setup.exe**.
4. Follow the installation steps.
   - When prompted for the IP address and port number, specify those of your HPCA server.

The HPCA agent is installed.

To install the HPCA agent in silent mode, use the following command:

```
Setup.exe NVDOBJZMASTER_ZIPADDR=<server_ip>
NVDOBJZMASTER_ZDSTSOCK=<server_port>  /qn
```

The following optional logging parameter can be added.

```
/l*v <log file>
```

To remove the HPCA agent

Use the installation program, `setup.exe`, to remove the HPCA agent.

1. Double-click **setup.exe**.
2. Select **Remove**.
3. Click **OK**.

The HPCA agent is removed.

Windows CE

To install the HPCA agent

1. Access the HPCA media from the Windows CE thin client device.
2. Navigate to `Media\client\default\win32ce`.
3. Double-click **Standard.X86.CAB**.
4. Specify the hostname or IP address of the HPCA server.
5. Click **OK**.

The HPCA agent is installed.

- If RALF is already present on the device, reboot the device when the HPCA agent installation is complete.
- If RALF is not present, install RALF on the Windows CE device as described in To install RALF: Windows CE 6.0 on page 58.

To remove the HPCA agent

- Use the Windows Control Panel applet **Add/Remove Programs** to remove the HPCA agent from Windows CE.

Managing these devices requires that the BIOS contains a valid serial number and machine UUID (setting asset tag is also recommended). Without these settings, OS deployment might not work properly.

HPCA Registration and Loading Facility

The HPCA Registration and Loading Facility (RALF) is an agent component that is available for thin client devices that are managed by an HPCA Core infrastructure. RALF auto-registers the device with the HPCA infrastructure, and manages the HPCA agent installation, which is initiated from the main console. While RALF is part of the HPCA agent, it is available pre-installed on the HP thin client factory images so registration can occur upon startup. If it is not on the factory image being used, RALF can be installed and configured on the gold image that is used for subsequent OS deployments. If installing RALF, the HPCA agent should also be installed prior to OS deployment.

RALF Configuration and Operation

RALF is shipped pre-installed on the latest HP thin client images (except those running ThinConnect). It is configured using a default HPCA server hostname defined as "hpcaserver." While the HPCA server can be installed to match this name, it is more common to use this name as a DNS alias in defining the actual HPCA server host name. RALF can also be re-configured to define a different hostname using the command line options that are described in this section.

After it has been installed, RALF runs as a daemon that will periodically probe for the HPCA server. This probing will continue for 24 hours, and then RALF will shutdown. It will start this 24-hour probe again on reboot. After the server is contacted, RALF will register the device with the HPCA infrastructure and wait to accept the request to install the HPCA agent. After the agent is installed, RALF will periodically contact the server and verify device registration attributes.

RALF Installation on Windows Thin Clients

This section details the installation of RALF on Windows thin-client devices.

To manually install RALF: XPE and WES (Windows Embedded Standard)

The HPCA agent installation for Windows XPE will also install RALF, you do not need to install RALF separately.

1. On the HPCA media, go to the `media\client\default\win32xpe\HPCARALF` directory.
2. Use the `HPCARalf.msi` file to install RALF to Windows XPE devices.

To install the HPCA agent in silent mode, use the following command:

```
msiexec /i HPCARalf.msi RALF_HOST=<HOSTNAME>
RALF_PORT=<portnumber> /qn
```

To install RALF: Windows CE 6.0

1. On the HPCA media, go to the `media\client\default\win32ce\HPCARALF` directory.
2. Use the `ralf.X86.cab` file to install RALF to Windows CE devices.
3. When prompted, specify the HPCA server IP address and port (**`hpcaserver`** and **`3466`**, by default).

The HPCA agent is installed.

RALF Command Line Parameters

RALF supports the following command line options. These are presented here for documentation purposes, as most are used internally.

`ralf.exe [-probe] [-host <host>] [-port <port>] [-debug] [-trace] [-version]`

`[-reginit]`

`[-help]`

Table 12 RALF command line options

Option	Description
`probe`	Triggers the HPCA probe.
`host`	Specifies the optional HPCA server host for probing and registration.
`port`	Specifies the optional HPCA server port for probing and registration.
`debug`	Specify a debugging logging level.
`trace`	Specify a tracing logging level.
`version`	Displays the version of `ralf.exe`.
`reginit`	Defines the RALF application configuration file entries for test environments.
`help`	Displays RALF information.

Repairing the HPCA Agents

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

This section describes how to repair HPCA agents using the Installation Wizard and using a command line.

Using the Installation Wizard to Repair HPCA Agents

This section describes how to repair HPCA agents using the Installation Wizard.

To repair HPCA agents using the Installation Wizard

1. From the folder containing the HPCA agent 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 HPCA agent has been successfully installed window opens.
5. Click **Finish**.

Using a Command Line to Repair HPCA Agents

This section describes how to repair HPCA agents using a command line.

To repair HPCA agents using a command line

- From the folder containing the HPCA agent installation files, type the following command line:

  ```
  msiexec /f HPCAE-MgmtApps.msi
  ```

  In the above command line, the *xx* is a placeholder for the version of the Management Applications software release; be sure to replace this with the appropriate version number.

  You can use additional parameters with this command line. For more information, see your Windows Installer documentation.

Modifying the HPCA Agent Installation

The Windows Installer installation program offers the ability to modify your HPCA agent installation by adding or removing individual sub-features. This section describes how to modify the installation of HPCA agents using the Installation Wizard and using a command line.

Using the Installation Wizard to Modify the HPCA Agent Installation

This section describes how to modify the installation of HPCA agents using the Installation Wizard.

To modify the installation of HPCA agents using the Installation Wizard

1. From the folder containing the HPCA agent installation files, double-click **setup.exe**. The Application Maintenance window opens.
2. Select the **Modify** option.
3. Click **Next**. The Select Features window opens. For information about how to use this window, see Using the HPCA Agent Installation Wizard on page 51.
4. Click **Next**. The Ready to Modify the Application window opens.
5. Click **Next**. The HPCA agent has been successfully installed window opens.
6. Click **Finish** to close the installation program.

Using a Command Line to Modify the HPCA Agent Installation

This section describes how to modify the installation of HPCA agents using a command line.

To modify the installation of HPCA agents using a command line

- From the folder containing the HPCA agent installation files, type the following command line:

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

Table 13 HPCA agent sub-feature state arguments

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

Reference the HPCA agent sub-features as listed in Table 8 on page 48 in the section, Referencing the HPCA Agent Sub-features.

Example

The following example command will install the Application Self-service Manager and make the Inventory Manager and Application Manager unavailable.

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

For additional arguments, see Installing the HPCA Agent from a Command Line on page 47.

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 file name of a custom Visual Basic pre-install script in `Install.ini` or on the command line. See the description of NVDPRECAPATH in Table 3 on page 35.

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 Application Self-service Manager, such as those in the [ARGS] section of `Install.ini`, as well as the attribute values for HPCA 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 uppercase letters.

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

  For example, 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 HPCA agents. 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 3 on page 35. For example, if you want to run a script called `radstart.rex`, uncomment and set `NVDPOSTCAPATH=C:\Progra~1\Hewlett-Packard\HPCA\Agent\radstart.rex`.

For more information on using REXX in an HPCA environment, refer to the *REXX Programming Guide*.

Include the script in the `\maint` folder of the HPCA agent 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 CM connection to a CS 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;
```

Local AIP Support for the MSI Redirector

Windows 2000, Service Pack 4 Note

In order for the Local AIP driver to work, the Microsoft Windows 2000 Rollup 1 cumulative patch must be installed.

The Client Automation MSI Redirector is a specialized, local-host HTTP server that accepts and satisfies file requests that are made during an MSI installation. On receiving the HTTP request from MSI, the Redirector retrieves the file from its local cache (if it exists); if the file is not in its local cache, the Redirector requests the file from an upstream Configuration Server or Proxy Server. This process requires that the MSI installation supports HTTP, although some vendors (including Microsoft) have removed HTTP support from their product installations. Without HTTP support, the MSI installation will not be able to directly request the files from the MSI Redirector.

In order to continue to use the MSI Redirector, a level of redirection now exists at the local file-system level. When using this method, MSI is told that the **Application Installation Point** (**AIP**) is local, and requests the files directly from the file system. This request is captured and forwarded to the MSI Redirector, which satisfies the request in its usual way. The file is then placed in the defined local AIP where MSI can process it. The local AIP is temporary; it is removed after the installation is completed.

To enable using the Local AIP

1. Use the Admin CSDB Editor to navigate to the MSI Resources (MSI) Class in the SOFTWARE Domain.

   Each MSI application will have an MSI instance and an IDX instance.

2. Right-click the MSI instance and select **Edit Instance**.

3. Set **MSIDRIVR (Use Local AIP [Y/N])** to **Y**.

   If MSIDRIVR is not in your database, create it in the MSI Resources (MSI) Class as a 1-byte variable with a description of **`Use Local AIP [Y/N]`**.

   HP recommends backing up your database before making changes to a Class template.

   For information on editing Class templates, refer to the *HPCA Administrator User Guide*.

4 Click **OK**.

5 Click **Yes** to confirm the changes.

6 Configure the SETTINGS.LOCALAIP variable in COPs to control the destination of the local AIP folder on the HPCA agent desktop. For example, **C:\localaip**.

HP recommends keeping your LOCALAIP as short as possible to accommodate AIPs that have deep directory structures.

Internet Proxies

Internet proxies are put in place by companies for a variety of reasons. HP Client Automation can detect when an internet proxy is being used. It stores the proxy's address in PROXYINF.EDM, which is in the HPCA agent computer's IDMLIB directory, thereby allowing the HPCA agent authority to pass through the proxy.

You must enable the HPCA agent to discover and use internet proxies by setting

USEPROXY=Y and **DISCOVER=Y**

in the HPCA agent PROXYINF.EDM object.

These **USEPROXY** and **DISCOVER** properties can be set in Install.ini prior to installation, or any time later.

To set up and use internet proxy discovery after the installation, PROXYINF.EDM must be manually edited. This can be done in a number of ways, including using the HPCA Administrator Agent Explorer, and creating a custom REXX script.

For information, refer to the *Admin User Guide*.

The next time that the HPCA agent connects to the Configuration Server it will use the internet proxy that is specified.

3 HPCA Agent Directories, Objects, and Logs

At the end of this chapter, you will:

- Know the directory structure of the HPCA agent.
- Be familiar with the directory structure in Agent Lockdown mode and non-Agent Lockdown mode.
- Be familiar with core HPCA agent objects.
- Know where HPCA agent objects are stored.

HPCA Agent Directories

The initialization settings for the HPCA agents are located in the [NOVAEDM] section in the `NVD.INI` file, on the HPCA agent computer. By default, `NVD.INI` is located in the `IDMLIB` directory.

In a HPCA agent lockdown enabled environment, the `NVD.INI` file is moved from `IDMROOT` to `IDMSYS`.

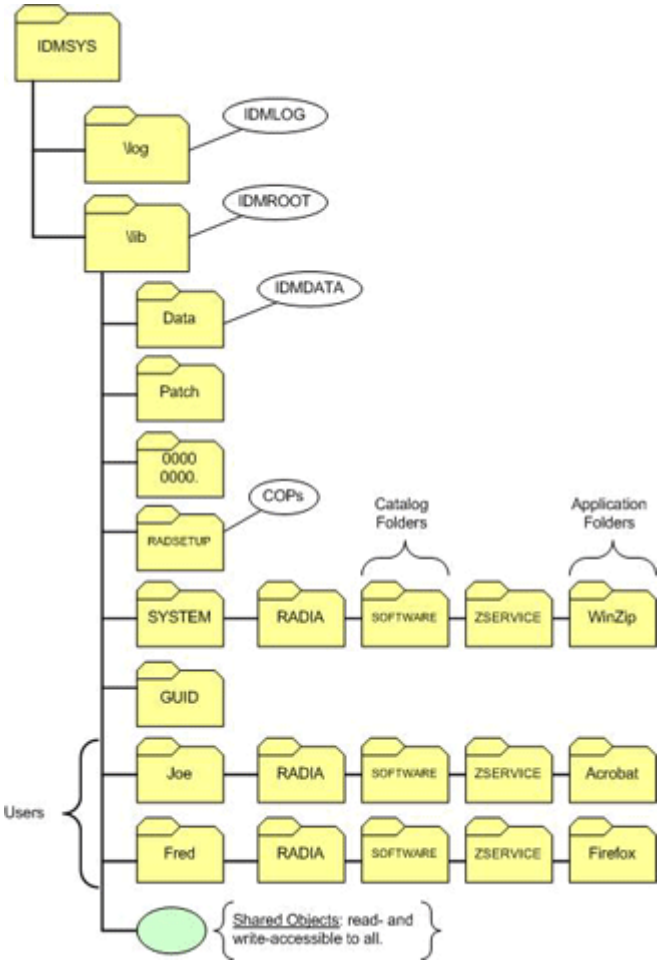
Table 14 NOVAEDM Parameters

Parameter	Description
IDMDATA	When HPCA installs software, the HPCA agent temporarily stores compressed files received from the Configuration Server in this directory. Once the files are decompressed and installed on the HPCA agent computer, the compressed files are deleted. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib\Data`
IDMLIB	The dynamic directory that stores the objects for the service that is currently being managed. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`
IDMSYS	The directory that stores the HPCA agent executables, such as the `.EXE` and `.DLL` files. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent`
IDMROOT	The base directory for `IDMLIB`. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`
IDMLOG	The directory in which the HPCA agent logs are stored. The default is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Log`

Directory Structure in non-Agent Lockdown Mode

Figure 2 illustrates the directory structure in a non-Agent Lockdown Mode. It is clear that SYSTEM directories are not isolated from USER directories. If the Machine-mode Lockdown is not enabled, they may be accessible to any user of the machine. Also, various USER directories would be susceptible to unauthorized access, as well as unauthorized modifications.

Figure 2 HPCA Agent Directory Structure in non-Agent Lockdown Mode



Directory Structure in Agent Lockdown Mode

For administrators who are enabling Agent Lockdown Mode there are choices to be made on where to isolate and store USER data. In Windows, the operating system defines “home” directories for each user and inherently prevents unauthorized access to these directories.

There are several locations that could be used to separate user data, but a typical implementation would have the HPCA administrator configure the

user data store to use the home-directory approach, resulting in an existing managed device's data stores being solely owned and accessible by the SYSTEM. This approach facilitates the migration of an existing environment to Agent Lockdown enabled environment.

If, in your environment, the applicable directory is hidden, use the operating system-specific "view hidden folders" procedure to access and view it.

On the supported Windows operating systems, the home directories are:

- **Windows 2000**, **Windows XP**, and **Windows 2003 Server**:

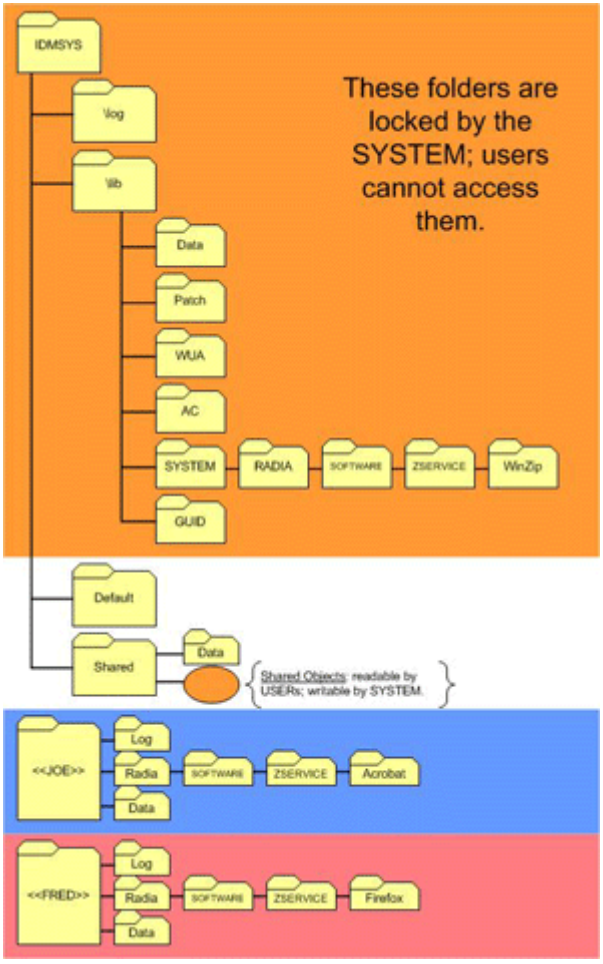
```
C:\Documents and Settings\<username>\Local Settings\
Application Data\HPCA\Agent
```

- **Windows Vista, Windows 7** and **Windows 2008 Server**:

```
C:\Users\<username>\Appdata\Local\HPCA\Agent
```

Figure 3 illustrates the HPCA agent directory structure in Agent Lockdown Mode. The SYSTEM-based directories are no longer on the same "branch" as the USER directories. Therefore, can be secured and are no longer be accessible to any user of the machine — they are accessible to authorized administrators only. Also, each user has its own (USER-specific) directory, which again, is not on the same "branch" as another user. Hence, it is not susceptible to unauthorized access and modifications.

Figure 3 HPCA Agent Directory Structure in Agent Lockdown Mode



The location of the USER folders (**JOE**, **FRED**, and others) is determined at run time. It is based on the user that is logged in and by the value (in `nvd.Ini`) of **`IDMUSR=CSIDL_LOCAL_APPDATA\HPCA\Agent`**. For example, for user **JOE**, this location would be:

On **Windows 2000**, **Windows XP**, and **Windows 2003** Server: `CSIDL_LOCAL_APPDATA` is replaced with `C:\Documents and Settings\`*`Joe`*`\Local Settings\Application Data`.

On **Windows Vista**, **Windows 7**, and **Windows 2008 Server**:

`C:\Users\`*`Joe`*`\Appdata\Local\HPCA\Agent`

HPCA Agent Version

Some of the objects that are described in this guide apply to HPCA agents, version 3.1 and later only. To verify or query an HPCA agent's version:

- Open the `connect.log` file in the `IDMLOG` directory of the host system and, using a text editor, search on the word "version."
- You can also check the **Version** tab of the Properties of RADSKMAN in the `IDMSYS` directory.

HPCA Agent Objects

HPCA agent objects are stored in the `IDMLIB` directory on the HPCA agent computer. When an HPCA agent connects to a Configuration Server, an information exchange (called **resolution**) takes place, during which HPCA checks the status of services, and updates the Configuration Server with information from the HPCA agent objects.

The HPCA agent objects can be used to get answers to questions such as:

- *What is the hardware configuration of the HPCA agent computer?*
- *Was the service successfully installed?*
- *When was the service installed?*
- *What is the HPCA agent computer's name, and which user most recently logged on?*
- *What are the possible data sources for this HPCA agent computer?*

While there are multiple HPCA objects on an HPCA agent computer at any time, there is a core group of five HPCA agent objects that supply information about the status of the current HPCA agent connect. These core objects are listed below, described in Table 15 on page 75, and then detailed in their respective sections following the table.

- ZCONFIG;
- SYNOPSIS;
- SAPSTATS;
- PREFACE; and
- SMINFO.

Table 15 includes information about when the object is created and updated, and a brief summary of what the object includes.

Table 15 HPCA agent objects

Object	Description
ZCONFIG	This object is created at the start of the HPCA agent connect process and contains basic hardware information such as processor, operating system, and drives. Note: a connect is the HPCA agent connecting to a Configuration Server in order to perform resolution and achieve its **desired state** (see desired state the Glossary on page 251). For more information, see Table 16 on page 79.
SYNOPSIS	This object contains a job summary and is transferred to the Configuration Server at the end of the HPCA agent connect. It reports some of the parameters from the RADSKMAN command line and information on the number of files and bytes added, removed, and repaired. Note: Client Operations Profiles must be enabled for this object to be present. For more information, see Table 17 on page 80.
SAPSTATS	This object is updated by any network-bound modules (such as RADCONCT, RADSTGRQ, and RADSTGMS) that need to access the Server Access Profile (SAP). It has one instance for each HPCA agent computer's SAP. For each SAP it summarizes information such as speed, number of files sent and received, and the role of the SAP. RADSKMAN deletes the SAPSTATS object at the beginning of the job. Note: Client Operations Profiles must be enabled for this object to be present. For more information, see Table 18 on page 81.
PREFACE	This object contains core information about each invocation of RADSKMAN and is sent to the Configuration Server at every phase of a RADSKMAN process. For more information, see Table 19 on page 83.
SMINFO	This object is created during Client Operations Profiles resolution but it does not require Client Operations Profiles. It collects information that is independent of the hardware and software that are installed on the computer, and some network information. For more information, see Table 20 on page 88.

Using the HPCA Admin Agent Explorer to View HPCA Agent Objects

The Client Automation Administrator Agent Explorer is installed as a component of the HP Client Automation Administrator (HPCA Administrator). Use it to view objects in the `IDMLIB` directory. You can view any object if you have access to the HPCA agent computer's `IDMLIB` directory. Otherwise, you might need to manually retrieve the object file and store it on your HPCA administrator computer.

To view an object using the Admin Agent Explorer

1. Navigate the **Start** menu and invoke the Client Automation Administrator Agent Explorer. The Admin Agent Explorer opens.
2. If necessary, from the File menu, select **Change Directory** to navigate to the HPCA agent computer's `IDMLIB` directory or to the directory in which the object is stored.
3. Double-click the object's name in the list view. The Admin Agent Explorer displays the selected object.
4. Click **Save/Exit** to close the dialog box.

ZCONFIG (Hardware Configuration Information)

The ZCONFIG object stores hardware configuration information from the HPCA agent computer. Use the HPCA Admin Agent Explorer to view the ZCONFIG object. The following table describes the attributes of ZCONFIG arranged in alphabetical order. These attributes could vary depending on the configuration of the HPCA agent computer.

The ZCONFIG object is sent to the Configuration Server automatically for viewing with the Admin CSDB Editor. If you do not want this object sent to the Configuration Server, set the POLICY.USER.ZCONFIG attribute to **`N`** in the _BASE _INSTANCE_. This will stop collection from ALL users. The object will still exist on the HPCA agent computer.

Table 16 ZCONFIG Attributes

Attribute	Description
BOOTDRV	The boot drive.

Attribute	Description
BOOTDRVI	The type of boot drive, such as IDE.
DHCPSR0*n*	The IP address of the DHCP Server of the LADAPT0*n* adapter.
DHCPSVR	The IP address of the DHCP Server for the current LAN adapter.
DNSDMN01	The name of the domain that is used by the HPCA agent computer for the LADAPT0*n* adapter.
DNSDOMN	The name of the domain that is currently being used.
DNSHNM01	The host name that is used by the HPCA agent computer for the LADAPT0*n* adapter.
DNSHOSTN	The host name that is currently being used.
GATEWY01	The Gateway Address of network adapter 1.
HALCOMP	The company of HAL.DLL.
HALDATE	The date and time of HAL.DLL.
HALFNAME	The original name of HAL.DLL.
HALFVER	The internal version of HAL.DLL.
HALINAME	The name of HAL.DLL.
HALLANG	The language of HAL.DLL.
HALPNAME	The product name of HAL.DLL.
HALPVER	The product version of HAL.DLL.
HALSIZE	The size of HAL.DLL.
IPADDR01	The IP address of network adapter 1.
LADAPT01	LAN Adapter 1
LASTUSER	The most recent user to have logged on to the system.
REBOOTD	The reboot date.
REBOOTT	The reboot time.
SCANTYPE	The type of hardware scan.
SUBNET01	The Subnet Mask for LADAPT01.
ZGATEWAY	The Gateway Address.
ZHDWARCH	The operating system architecture.

Attribute	Description
ZHDWBIOS	The BIOS type.
ZHDWCDDR	The CD-ROM drive letter.
ZHDWCOMP	The computer name.
ZHDWCPU	The CPU type.
ZHDWCPUN	The number of CPUs that are installed.
ZHDWCPUS	The CPU speed.
ZHDWCTYP	The computer type (desktop or laptop).
ZHDWD00	The drive name for drive 00.
ZHDWD00C	The drive classification for drive 00.
ZHDWD00F	The current free space on drive 00.
ZHDWD00S	The type of file system on drive 00.
ZHDWD00T	The total space for drive 00.
ZHDWD01	The drive name for drive 01.
ZHDWD01C	The drive classification for drive 01.
ZHDWD01F	The current free space on drive 01.
ZHDWD01S	The file system on drive 01.
ZHDWD01T	The total space for drive 01.
ZHDWDF_A	The information for floppy drive A.
ZHDWDLST	The list of assigned drive letters.
ZHDWDNUM	The number of assigned drive letters.
ZHDWFPU	The current FPU type.
ZHDWIPAD	The IP address.
ZHDWKYBD	The keyboard type.
ZHDWLANA	The LAN Adapter.
ZHDWLANG	Language
ZHDWMEM	The total physical memory (RAM).
ZHDWMEMF	The current total free memory (RAM).

Attribute	Description
ZHDWMOUS	The type of mouse (pointing device).
ZHDWNET1	Network adapter 1 information
ZHDWNNET	The number of network adapters installed.
ZHDWOS	The operating system and version.
ZHDWOSCL	The operating system classification (workstation or server).
ZHDWOSDB	The operating system build.
ZHDWOSOG	The operating system organization.
ZHDWOSOW	The operating system owner.
ZHDWPA00	Printer 00 information
ZHDWPA01	Printer 01 information
ZHDWPPAR	The number of parallel ports.
ZHDWPPRN	The number of available printers.
ZHDWPSER	The number of serial ports.
ZHDWSVCP	The applied service pack.
ZHDWVIDO	The video type.
ZHDWXPAG	The page size.
ZHWCPU01	First CPU type
ZHWFPU01	First FPU type
ZHDWVIE	Microsoft Internet Explorer version
ZHDWVMSI	MSI version
ZHDWVRES	Video resolution
ZMODEM	Modem present?
ZOBJRRC	Resolution return code
ZOBJRSTY	Resolution type
ZUSERID	User ID or computer name

SYNOPSIS (Client Operations Profile Summary)

The SYNOPSIS object is created on HPCA agents that are using Client Operations Profiles. It summarizes the most recent HPCA agent connect, and can be used to confirm the success/failure of the HPCA agent connect process.

Table 17 SYNOPSIS Attributes

Attribute	Description
STARTIME	The start time, in ISO8601 time format. For example, 1997-08-15T11:12:00-0400
ENDTIME	The end time, in ISO8601 time format.
EXITCODE	The exit code from the job.
ERRORMSG	The text message corresponding to the EXITCODE described in the *HP Configuration Management Management Applications Messages and Codes Guide (Messages and Codes Guide)*.
PRIORAPP	The total number of applications that existed in the service list (installed/not installed) before this job started.
PRIORINS	The total number of installed applications that existed in the service list before this job was started.
PRIORERR	The total number of applications in the service list that have errors before this job started.
CURRAPP	The number of applications in the service list after the job completed.
CURRINS	The number of applications in the service list that have been installed.
UPDNUM	The number of updates found in the service list.
UPDSKIP	The number of updates skipped.
UPDDONE	The number of updates processed.
UPDFAIL	The number of updates that failed.
ADDNUM	The number of new applications found in the service list.
ADDSKIP	The number of installs skipped (possibly optional applications).
ADDDONE	The number of installs processed.
ADDFAIL	The number of installs that failed.
DELNUM	The number of deletes found in the service list.
DELSKIP	The number of deletes skipped.

Attribute	Description
DELDONE	The number of deletes processed.
DELFAIL	The number of deletes that failed.
VERNUM	The number of applications that were verified.
VERSKIP	The number of verifications skipped.
VERDONE	The number of verifications processed.
VERFAIL	The number of verifications that failed.
REPNUM	The number of applications that were repaired.
REPSKIP	The number of repairs skipped.
REPDONE	The number of repairs processed.
REPFAIL	The number of repairs that failed.
CREFRESH	Catalog Refreshed (Y/N)?
JOBID	The job ID that was passed in on the command line via notify.
ZUSERID	The user ID for this job.
ZCONTEXT	The (machine or user) context of this job.
MACHNAME	The machine name of the HPCA agent computer from which this was run.
USEREXEC	The user that executed the job.
CMDLINE	The command-line parameters used to execute this job.

SAPSTATS (Service Access Profile Status)

The SAPSTATS object is generated on HPCA agents that are using Client Operation Profiles, and is used to report the Server Access Profile (SAP) status and usage statistics from the HPCA agent. The SAPSTATS object contains all the variables that are defined in the SAP Class in the CSDB along with the following usage related variables.

Table 18 SAPSTATS Object Attributes

Attribute	Description
BANDWDTH	The percent of bandwidth to use (between 1 and 99).

Attribute	Description
BYTERCVD	The number of bytes received.
BYTESENT	The number of bytes sent.
ENABLED	Is this SAP is enabled (Y|N)?
ERRCOUNT	The number of errors.
FILEMISS	The number of files not found.
FILERCVD	The number of files received.
FILESENT	The number of files sent.
LASTAXSD	The last date/time accessed, in ISO format.
NAME	The friendly name of the SAP.
OBJRCVD	The number of objects received.
OBJSEND	The number of objects sent.
PRIORITY	The priority for this SAP (obtained from the CLIENT.LOCATION Class instance).
PROXY	The internet proxy URI through which the HPCA agent will connect to the SAP. This value is maintained by the HPCA agent.
ROLE	The role of the SAP. The valid values are: **O** (Client Operations Profiles), **M** (Self-maintenance), **S** (Services), **R** (Reporting), **P** (Patch Manager Gateway), **D** (Data), and **A** (All roles).
SPEED	The speed to the SAP from the HPCA agent computer measured in bytes per second.
STATUS	The status of this SAP. • 000 = SAP was successfully accessed • 920 = SAP could not be accessed • 999 = SAP was not used
STREAM	Specifies if streaming is used. This overrides the HPCA agent setting in ZMASTER.ZNORSPNS.
THROTYPE	The type of bandwidth throttling used. The valid values are **NONE**, **ADAPTIVE**, and **RESERVED**.
TIMEOUT	The communications timeout, in seconds.

Attribute	Description
TYPE	The type of SAP. The valid values are: **RCS** (Configuration Server) and **DATA** (Proxy Servers, Staging Servers or a CD-ROM).
URI	The Universal Resource Identifier for the SAP.

PREFACE (RADSKMAN Execution)

The PREFACE object contains information about each execution of RADSKMAN. It is sent to the Configuration Server at every phase of a RADSKMAN process.

At each new phase of the HPCA agent connect, the PREFACE object is updated. The variables in the PREFACE object can be used for resolution and reporting. For resolution, use the attributes of the PREFACE object for ZSTOP expressions, symbolic substitution, and dispatching messages. For reporting, combine MACHNAME, ZUSERID, ZCONTEXT, JOBID, and CTYPE to know which user ran the HPCA agent connect, as well as the type and context of the connect.

Table 19 PREFACE Object Attributes

Attribute	Description
CMDLINE	The RADSKMAN command-line parameters that were used for the current HPCA agent connect.
COMPDN	The distinguished name of the computer in the Active Directory format. This field will be blank if the system is not part of an Active Directory or a Domain environment. Windows operating systems that do not authenticate to Active Directory would show this as their DomainName/MachineName. Example: **CN=ALEE,CN=Computers,DC=usa,DC=asdfoods,DC=com**
CTYPE	The type of HPCA agent. The valid values are: • **RSM**: Application Self-service Manager • **RAM**: Application Manager • **RPS**: Proxy Server or Staging Server (for preloading application resources)
JOBID	The job ID that was specified on the command line for this connect

Attribute	Description
LOCALUID	The starting directory under `IDMROOT` on the HPCA agent computer. The value is derived from the STARTDIR RADSKMAN parameter. So, if **`STARTDIR = $USER`**, LOCALUID would contain the user's ID. If **`STARTDIR = SYSTEM`**, LOCALUID would contain SYSTEM. Note: UID stands for *user's initial directory*; not user's identification.
MACHNAME	The HPCA agent computer's machine name.
USEREXEC	The user who is currently logged on and who executed the command. For Notify and Timers, this would be SYSTEM. For logon scripts, this would be the subscriber's network account name.
ZCONTEXT	The value of ZCONTEXT as passed on the RADSKMAN command line. • **M** indicates that RADSKMAN was run in a machine context. • **U** indicates that RADSKMAN was run in a user context. • A blank indicates that no context was specified on the RADSKMAN command line; the context will default to the context in which the HPCA agent connect was launched.
ZDOMNAME	The CSDB domain that is specified in the DNAME parameter of the RADSKMAN command line. The default is **SOFTWARE**.
ZMGRNAME	The Configuration Server name that is specified in the MNAME parameter of the RADSKMAN command line.
ZUSERID	This field contains the same value that is found in the HPCA agent's ZMASTER.ZUSERID. In most scenarios, it represents the machine name of the HPCA agent computer, but it could also contain the current user name or another value. The value found in this field is often used as the key for policy resolution or reporting. The UID RADSKMAN parameter sets this value.

SMINFO (Systems Management Information)

The SMINFO (Systems Management Information) object is created on all HPCA agent computers. It summarizes hardware-specific information that is independent of the operating system and software that is installed on the HPCA agent computer. HPCA uses SMBIOS standards to access data about the BIOS. SMINFO also includes some network and user ID information.

Unlike the other objects that are discussed in this section, this object is one level lower, under RADSETUP.

Table 20 SMINFO Attributes

Attribute	Description
ASSETTAG	The Unique Asset Tag number of the HPCA agent computer from the BIOS.
BIOSDATE	The date of the computer's BIOS.
BIOSVEND	The vendor of the computer's BIOS.
BIOSVERS	The version of the computer's BIOS.
COMPDOMN	The computer domain.
COMPNAME	The computer name.
FLASHMEM	The amount of flash memory on the machine.
IPADDR	The HPCA agent computer's IP address.
MACADDR	The HPCA agent computer's MAC address.
MACHUUID	The unique machine user ID.
SNENCLOS	The serial numbers for the system enclose structures (from the BIOS).
SNSYSTEM	The serial numbers for the system structures (from the BIOS).
SUBMASK	The subnet mask.
SUBNET	The subnet.
SYSMANUF	The system manufacturer information (from the BIOS).
SYSPROD	The system manufacturer product information (from the BIOS).

The PROFILE File

Some HPCA agent objects, such as ZCONFIG and ZMASTER, are sent to the Configuration Server during an HPCA agent connect and are stored in the PROFILE File of the CSDB. Each HPCA agent is stored as a Domain, and these objects are stored as instances.

By default, each HPCA agent is identified by the subscriber who is currently logged on. The subscriber can be either a computer name or a user name.

Table 21 describes some of the objects in the PROFILE File; these will vary from one CSDB to another because of different configurations.

Table 21 Objects in the PROFILE File

Instance	Information Recorded
ZCONFIG	This instance contains basic hardware information (such as processor, operating system, and drives) for the HPCA agent computer.
ZMASTER	This instance contains information (such as user ID and operating system) that is used to run the HPCA agent.
ZSVCSTAT	This instance contains information about a service after it has been installed on the HPCA agent computer. This is useful for reporting functions, such as determining which users have the service and when it was installed. One instance is created for each service.
ZSTATUS	This instance contains information (such as the number of objects going to and from the HPCA agent computer) about the most recent HPCA agent connect.

Each domain contains several classes that represent the objects that were received from the HPCA agent computer. Use Admin CSDB Editor to view the PROFILE File.

HPCA Agent Logs

The HPCA agent has three primary modules: RADSKMAN, RADPINIT, and RADCONCT. However, the activity-reporting of these three modules is shared in one log file, `connect.log` (the default name).

The default location of `connect.log` is `C:\Program Files\Hewlett-Packard\HPCA\Agent\log`.

When `connect.log` reaches 1 MB in size, a backup log (`connect.bak`) is created.

As stated, `connect.log` and `connect.bak` are the default names given to these logs. You can rename the log (using the parameter, **`log`**) in a format that better suits your needs. (For example, you might prefer to name your logs based on the date and time. Then, if you notice a problem occurring on a certain date, you can retrieve only the logs that you need to review.) Additionally, you have the option of appending information to a log by using the parameter, **`alog`**. The **`log`** and **`alog`** parameters are discussed in Table 22.

Each of the three primary HPCA agent modules can be instructed to use a specific log file by simply adding the **log** parameter to its command line. The three primary HPCA agent modules take command-line parameters in the following format.

Keyword = *value* (in comma-delimited format)

Use the optional **log** and **alog** parameters on the command line to name the log file and append information to an existing log file, respectively. For example, you could add the **log** parameter to a RADSKMAN command line in a Notify in order to generate a specific log name, as in:

```
radskman log=notify10012003.log
```

Table 22 Parameters for Log Files

Parameter	Description
log	The name of the log file that is to be created, such as `connect.log`, the default. Use a valid filename without a path (by default, logs are stored in the `IDMLOG` folder). If there is a log file with the same name, HPCA creates a backup of that file called *`logname`*`.bak`. If there is an existing *`logname`*`.bak`, it will be overwritten.
alog	The name of the log file to which the information will be appended. For example, **`alog=Application1.log`**. Use a valid filename without a path (by default, logs are stored in the `IDMLOG` folder). This parameter has no default; if it is not specified, the information will be appended to the log file that is named in the **log** parameter.

The value for the **log** parameter is stored in the LOGNAME attribute, which is located in the ZMASTER object in the catalog and application directories.

Diagnostic Module (RADSTATE)

RADSTATE is a diagnostic module that will give an overview of the current state of the HPCA agent. The information in the RADSTATE output is based on data that is retrieved from numerous HPCA agent objects.

Usage

The following is a sample of the RADSTATE syntax.

RADSTATE mode=<abcdeimoprsuv>,USERNAME=UserJoe,UID=UserID, MNAME=<*ConfigServer*>,DNAME=<*DB_domain*>,SNAME=<*service*>

- **IDMROOT**: use to set IDMROOT (optional; defaults to the current IDMROOT setting)
- **Mode**: see Table 23.
- **USERNAME**: the user name; used for reporting
- **UID**: the user ID (optional)
- **MNAME**: the name of the HPCA Configuration Server (optional)
- **DNAME**: the HPCA Configuration Server Database domain (optional)
- **SNAME**: the name of the service (optional)

Table 23 lists and describes the valid values for the `mode` parameter.

Table 23 RADSTATE Modes

Mode	Description
a	Display the ZVERLIST object
b	Verify instance data(temporarily disabled)
c	Check for duplicates and conflicts in FILE objects
d	Display an output log in the native editor
e	Check for EDM duplicates and conflicts (valid only with c mode)
i	User/Machine context report
m	Show module information
o	Create objects
p	Display Patch data (by default, this mode is skipped)
r	Display all resources
s	Display service detail
u	Display service user summary
v	Verbose mode
?	Print this help message

When RADSTATE is run in the **verbose** mode, it provides a great deal of basic information regarding the HPCA agent environment, including: global object statistics, current date and time, environment, emulator, and timeout settings, trace levels, service status, and locations of the `IDMSYS`, `IDMLIB`, and `IDMLOG` directories.

Run RADSTATE at any time to check HPCA agent configurations, such as after each HPCA agent connect. After RADSTATE is run using mode option **o**, the ZRSTATE and ZRSTATES objects are built and can be sent to the Configuration Server.

RADSTATE should be run:

- Whenever HPCA agent-specific information is required.
- If it is suspected that some files did not correctly deploy.
- If desktop updates have not occurred.

Manual execution of RADSTATE produces a summary style report, `radstate.log`, which is written to the IDMLOG directory and which contains the current state of the services and resources that are installed on the HPCA agent desktop. RADSTATE is executed from a command line using the appropriate parameters, separated by a comma. For example:

```
radstate mode=vo, IDMROOT=C:\Program Files\Hewlett-Packard\
HPCA\Agent\Lib
```

Method Dispatching

When the client-connect module (RADCONCT) dispatches methods, it creates an object called **ZDSPM000**, which contains the information for the instance that is being instantiated. The methods then read the information that is stored in ZDSPM000 and do their work. When the methods need to convey the results to RADCONCT, they create a **ZMRESULT** object with two variables, **ZMRC** and **ZMMSG**.

- ZMRC contains the extended error information that is found in the subscriber error codes.
- ZMMSG contains a corresponding message.

When the method exits, it will do so with one of the exit codes described in Table 24.

Table 24 Method Exit Codes

Exit Code	Description
0	No errors
4	Warning; continue the process
8	Failure; abort process
16	Fatal error; abort process

Exit Code 4: RADCONCT logs the information that is contained in ZMRC and ZMMSG.

Exit Codes 8 and **16**: RADCONCT creates a ZERROR object with ZMRC and ZMMSG.

4 Implementing Entitlement Policy

At the end of this chapter, you will:

- Understand how HPCA can integrate with your existing policy information.
- Understand the POLICY Domain.
- Be able to create new users and assign them to groups for use in simple environments.
- Be able to connect services to groups.

HPCA and Policy Management

The HP Client Automation (HPCA) products allow an HPCA administrator to use existing policy information while managing the data in an environment.

HPCA can use real-time policy information from:

- Active Directory
- NDS
- iPlanet
- ISOCOR
- SQL Server, Oracle, or Sybase
- SQL 92-compliant (ODBC) data sources
- Any LDAP-compliant directory

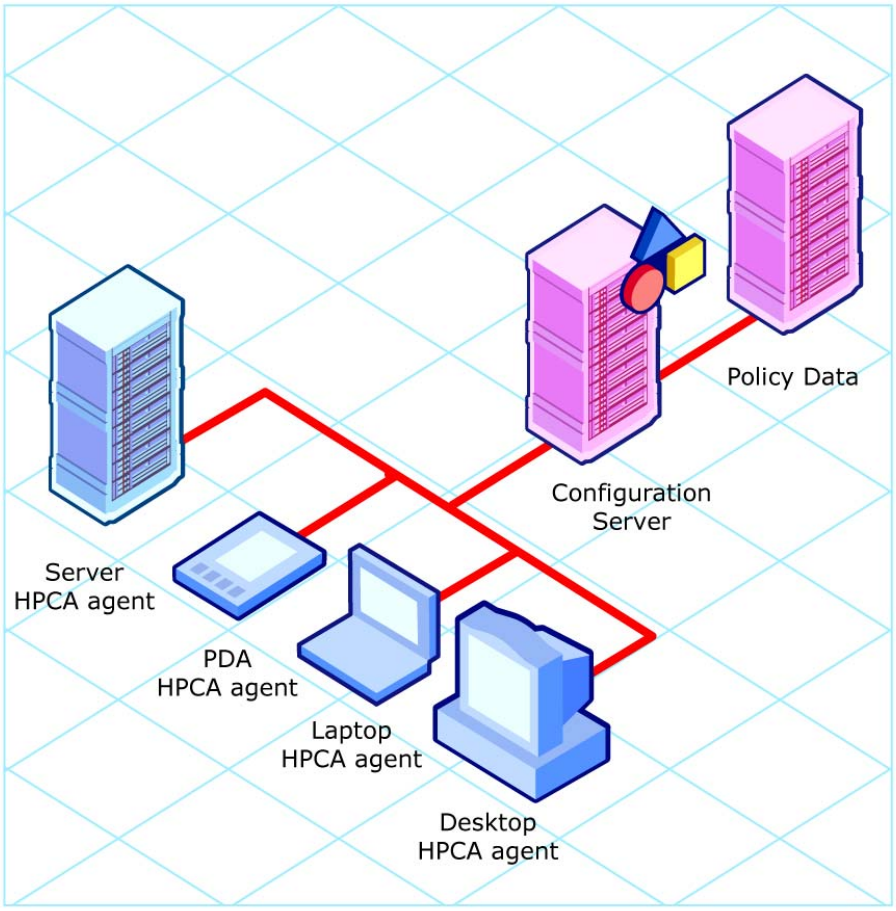
You can continue to use the tools that you are familiar with to manage policies and, as you modify group assignments, subscriptions to data are kept up-to-date.

Accessing Existing External Policy Information

When an HPCA agent connects to the Configuration Server, HPCA retrieves policy information in real-time from the appropriate data stores. In the simplest environment, such as a lab used for testing, you might want HPCA to search the CSDB for this information. In a large-scale environment where an external policy store already exists, HPCA can leverage this existing information. This information is sent back to the Configuration Server, which determines which data are to be managed for the user, group, or computer.

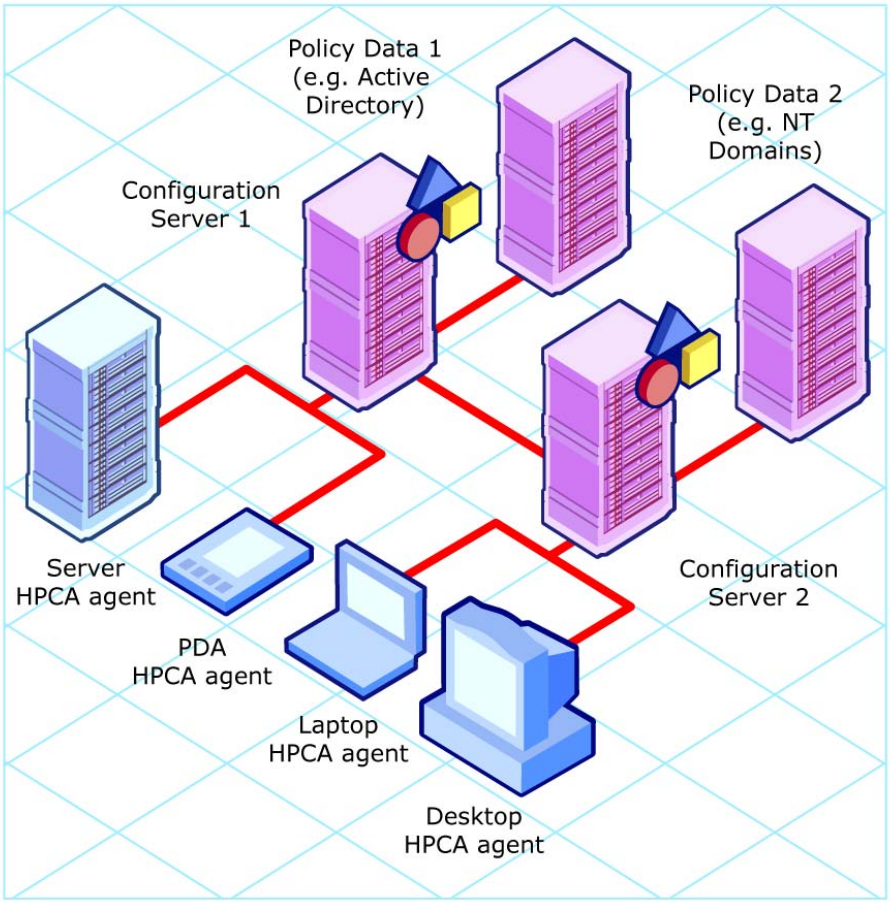
For technical details about integrating your existing policy using the Policy Server, see the HP support web site and the *HP Client Automation Policy Server Installation and Configuration Guide* (*Policy Server Guide*).

Figure 4 Policy information from an external source



HPCA also supports multiple Configuration Servers with multiple types of external policy stores. This is especially useful in migration scenarios where you are consolidating multiple external policy stores over a period. During this time, you can continue to use as many existing policy stores as necessary.

Figure 5 Policy information from multiple external sources



Directories-based Entitlement

(Such as Active Directory and NDS)

If you want to leverage your investment in LDAP-based directory services or SQL-based databases, HP offers the HP Client Automation Policy Server (Policy Server). The Policy Server is a plug-in to the HPCA Integration Server used for administration purposes such as mapping services to users or computers in the directory tree. The Configuration Server can be configured

to query the Policy Server to determine what services should be distributed and managed for the agent.

The Policy Server is an optional feature available from HP. Contact your HP sales representative for details.

Refer to the *Policy Server Guide* for more information.

HPCA integration with existing policy greatly reduces the total cost of ownership of your environment by allowing you to continue to manage policies from your existing repository while HPCA manages your data.

The POLICY Domain

If you are using real-time policy information from an external source, such as NT domains, to manage your data, you might need to configure a connection from your external policy store to the POLICY Domain in the CSDB. The configuration may vary based on the policy store.

This section contains an overview of the POLICY Domain. Most medium to large organizations will use its existing policy information and will have limited use for this domain. However, in the simplest environment, you can use the POLICY Domain in the CSDB to organize subscribers into logical groups in preparation for distributing software.

In this section, you will learn:

- About the classes in the POLICY Domain.
- How to create users and groups.
- How to assign users to groups.

Once you are familiar with the POLICY Domain and understand the basics of managing policy information within HPCA, you can extend that knowledge to learn how to integrate your existing policy information with HPCA. This information might also be useful if you want to create a simple lab environment to test the management of your data.

To access the POLICY Domain

1 Navigate the **Start** menu and invoke the Client Automation Administrator CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.

The user ID and password are:
User ID: **ADMIN**
Password: **secret**

2 Double-click **PRIMARY**.

3 Double-click **POLICY**.

Classes in the POLICY Domain

The POLICY Domain has eight default Classes, as described in Table 25.

Table 25 Classes in the POLICY Domain

Class	Description	Example Instances
Country/Region (COUNTRY)	Use for clock synchronizations with the Configuration Server. Do not assign services to this class.	France, Japan
Departments (DEPT)	Use to group subscribers into departments.	Finance, Manufacturing
Mobile Device Config (MBLCONFG)	Defines the parameters for mobile device configuration when using the Mobility Server.	RmmUser
Multicast (MULTCAST)	Use to configure HPCA agent computers to use multicasting.	MCast1, Mcast2
PDACONFG (PDACONFG)	Defines the parameters for PDA configuration.	PDAUser
Server Stagers (STAGER)	Define Proxy Servers and Staging Servers within your distribution network.	CDROM, RPS
Users (USER)	Define individual subscribers. This can be either a user name or a computer name.	William, SSampson

Class	Description	Example Instances
Workgroups (WORKGRP)	Use to group subscribers into functional groups.	Project Planning, Project Team

You can also add other classes to the POLICY Domain in accordance with your organization's needs. For example, if your organization is an insurance company, you can add AGENTS and OFFICES classes. If your organization is a bank, you might add classes such as BRANCHES and TELLERS to organize your subscribers.

Refer to the *Administrator Guide* for information about creating new classes.

Creating Users and Groups

There may be times when you need to create individual users or groups in HPCA. For example, you might want to create a lab environment that is used to test the distribution and management of your data. To create a simple environment, create several users, assign them to groups, and then assign services to the groups.

In this section, you will learn how to create a user in the USER Class of the POLICY Domain. You can follow the same steps to create a new WORKGRP or DEPT instance by substituting the appropriate Class name.

In the following example, you will use the Admin CSBD Editor to create a new user (SSampson) in the USER Class.

To create a new user

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.
3. Double-click **PRIMARY**.

4 Double-click **POLICY**.

5 Right-click **Users (USER)**.

6 Select **New Instance**.

7 In the Create Instance dialog box, type a display name (up to 25 characters) and an instance name (up to 25 characters).

8 Click **OK**.

The user instance, SSampson, is created.

Assigning Users to Groups

If you created several users, you might want to assign them to one or more groups. In the following example, we will use the Admin CSDB Editor to assign the user SSampson to the Sales department.

The Sales instance, shown in the Departments (DEPT) Class, might not appear in your Configuration Server Database. To add this instance (or instances that are appropriate to your organization), follow the procedure To create a new user, starting on page 99. However, instead of right-clicking USER, right-click the appropriate Class, such as Departments (DEPT).

To assign a user to a group

1 Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

The user ID and password are:
User ID: **`ADMIN`**
Password: **`secret`**

2 If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.

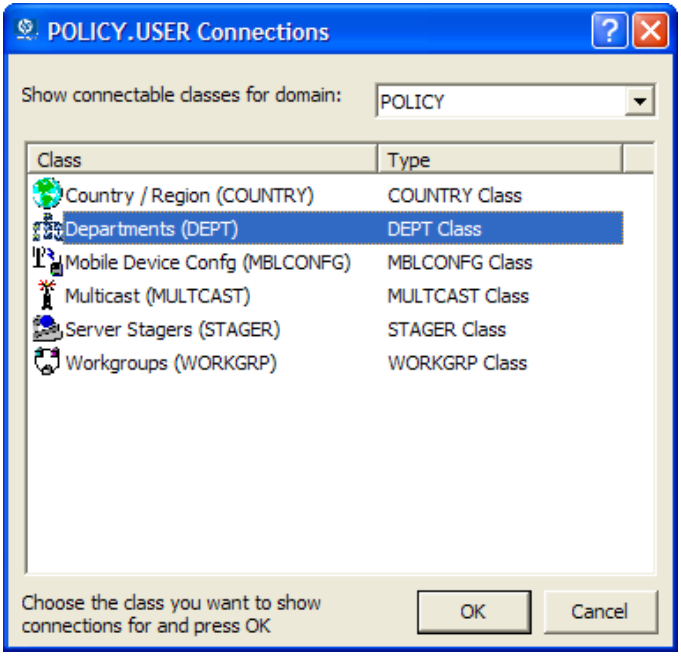
3 Double-click **PRIMARY**.

4 Double-click **POLICY**.

5 Double-click **Users (USER)** to open the list of all user instances.

6 Right-click the user instance (in this example, SSampson) and select **Show Connections** from the menu that opens.

The POLICY.USER Connections dialog box opens and displays a list of classes to which you can connect the selected instance.



7 Select **Departments (DEPT)**, and then click **OK**.

The DEPT Class instances appear in the list view. This allows you to easily make a connection between an instance in the DEPT Class and an instance in the USER Class.

8 Select the **Sales** Instance from the list view and drag it to the appropriate USER instance (in this example, **SSampson**). When your cursor turns into a paper clip, release the mouse button. The Select Connection Attribute dialog box opens.

9 Click **Copy** to create the connection from **Users.SSampson** to **Department.Sales**.

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

11 Click **OK** when you receive the confirmation that "SSampson has been connected to Sales."

SALES is now listed under the SSAMPSON user instance, indicating that SSampson is part of the Sales department.

Connecting Services to Groups

Whether you are using an external policy source or managing policy within HPCA, you will need to define the services that your subscribers will receive.

If you are using the Policy Server, refer to the *Policy Server Guide* for more information.

In this section, you will learn how to connect users and groups to the services that HPCA will manage. In the following example, we will use the Admin CSDB Editor to authorize the WinZip application for all subscribers in the Sales department.

To connect the WinZip application to the Sales department

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.
3. Double-click **PRIMARY**.
4. Double-click **POLICY**.
5. Double-click **Departments (DEPT)** to open the Departments Class.
6. Right-click the **Sales** instance (in the tree view) and select **Show Connections**.

   The POLICY.DEPT Connections dialog box opens. This dialog box displays a list of classes to which you can connect the selected instance.
7. From the Show connectable classes for domain drop-down list, select **SOFTWARE**.
8. Click **Application (ZSERVICE)**, and then click **OK**. The instances in the ZSERVICE Class appear in the list view.
9. Select the **WinZip** Instance from the list view and drag it to the appropriate Departments instance (in this example, Sales). When your cursor turns into a paper clip, release the mouse button. The Select Connection Attribute dialog box opens.

10 Click **Copy** to create the connection from DEPT.SALES to Application.WinZip.

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

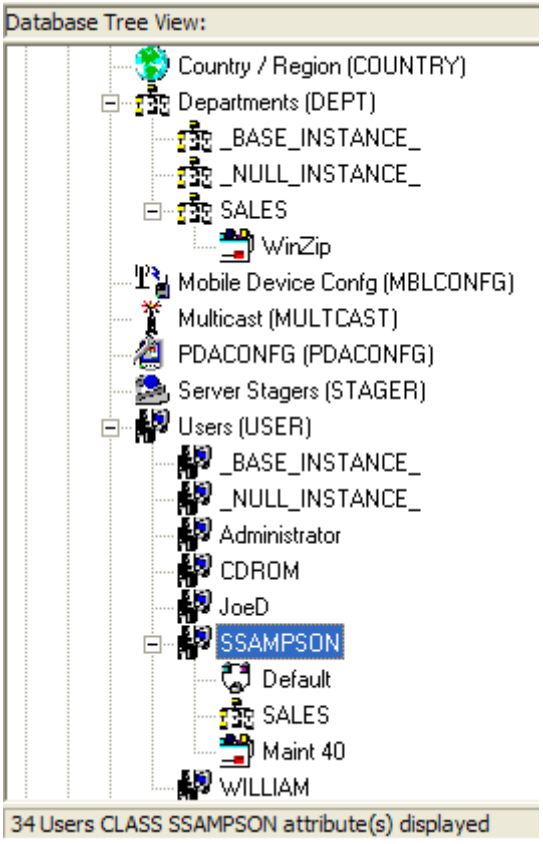
12 Click **OK** when you receive the confirmation that “Sales has been connected to WinZip.”

In the image that follows, note the following:

— WinZip is listed under DEPT.SALES, which indicates that the entire Sales department is authorized to receive the WinZip application.

— SSampson is listed under the USER Class, as is the SALES Instance, indicating that SSampson is part of the Sales department.

Therefore, based on these two conditions, HPCA will manage the WinZip application on SSampson’s computer.



Whether you are using an external policy store, or managing policy within HPCA, you can quickly modify the services that individuals are authorized for by manipulating the connections between services and groups, adding users to groups, or removing users from groups.

5 Configuring Client Operations Profiles

At the end of this chapter, you will:

- Understand the benefits of Client Operations Profiles.
- Know how to implement Client Operations Profiles.
- Know more about the CLIENT Domain and designating servers for HPCA agents, controlling troubleshooting settings, hardware scan settings, and user interface settings.
- See a simple implementation example.

Client Operations Profiles

If you have multiple Configuration Servers, Proxy Servers, or want to store files that manage applications on a local CD-ROM, you might want to reconfigure the HPCA agent before connecting to the Configuration Server. Use **Client Operations Profiles** to do this. Client Operations Profiles, along with the HPCA object-oriented schema, allows you to control certain agent behaviors based on any attribute from an agent object. Benefits of using Client Operation Profiles include, but are not limited to:

- Failover capability for HPCA servers.
- Dynamic assignment and selection of an agent computer's available servers based on network location, speed, or other criteria.
- Defining which Configuration Server to use based on its functional role, allowing for load balancing among Configuration Servers.
- Enhanced diagnostics capabilities.

To use Client Operations Profiles, you must be using version 3.1 or later of the HPCA agent and the CSDB.

The CLIENT Domain

The CLIENT Domain in the CSDB controls Client Operations Profiles. Its classes include sample instances that can be used to configure HPCA agent computers' operations. HP provides an example of using the agent computer's network location, stored in the ZCONFIG object to prioritize the downloadable locations for application data for each agent computer. The classes are:

- **Alert Management (RADALERT)**
  Use this class to manage alerts.
- **Connect Defer Prefer** (**CDFCFG**)
  Use this class to control the appearance and behavior of the Connect Deferral dialog box that is presented to users.
- **Core Settings (SETTINGS)**
  Use this class to define how to use your Server Access Profile, to define scripts you want to use, and to set other global parameters.
- **Diagnostics (DIAGS)**
  Use this class to override tracing levels set on the HPCA agent.

- **Hardware Scan Config (RADHWCFG)**
  Use this class to control the type of hardware scan that the HPCA agent should perform.
- **Network Locations (LOCATION)**
  Use this class to group users based on a location, such as their subnet.
- **Notify Security (NTFYSEC)**
  Use this class to use COPs to set RADEXECD to use internal authentication with the Portal.
- **RSM UI Preferences (RADUICFG)**
  Use this class to manage the display of the Application Self-service Manager user interface.
- **Server Access Profile (SAP)**
  Use this class to define Configuration Servers and possible data-access points for HPCA-managed services.

Implementing Client Operations Profiles

Implement Client Operations Profiles and customize the profiles in your environment in the CLIENT Domain of the Configuration Server Database. There are five major implementation tasks.

1 Identify HPCA Servers, see page 109.

2 Create Server Access Profile (SAP) Instances, see page 110.

3 Set Criteria for each SAP Instance, see page 114.

4 Set Priority for each SAP for each Location, see page 114.

5 Enable Client Operations Profiles, see page 116.

The following sections describe each of these tasks. Before beginning this procedure, a discussion of server types and roles is required.

Understanding Server Types and Roles

A **Server Access Profile** (**SAP**) is a generic way of defining all possible data-access points for a service. A SAP can be either a Configuration Server, a Proxy Server, or a CD-ROM drive. Client Operations Profiles allows you to identify and prioritize data-access points without the need for additional customized scripts.

Before beginning this process, it is important to understand server **types** and **roles**, which are reflected, respectively, in the TYPE and ROLE attributes of the SAP Class.

Server Types

A server's type can be either **RCS** or **DATA**.

- **RCS**
  Only a Configuration Server can be assigned the RCS type.
- **DATA**
  The DATA type can be assigned to Configuration Servers, Proxy Servers, and CD-ROM drives. Use this type only for servers from which HPCA agents will download applications.

Server Roles

In addition to being assigned a type, each server has a role (a function) that is specified in the ROLE attribute of the SAP Class. Roles are described in this section.

Proxy Servers and CD-ROM drives can serve the role of **Data download (D)** only (see Data download, on page 109), whereas a Configuration Server can:

- Serve any of the following roles.
- Have a distinct role.
- Have multiple roles.

There is another role that is not listed in this section because it is specific to HPCA Proxy Server-OS Manager operations.

For information about this additional role, refer to the *HP Client Automation Enterprise OS Manager System Administrator User Guide* (*OS Manager Guide*).

- **Client Operations Profiles (O)**
  Use this Configuration Server to get the HPCA agent computer's Client Operations Profiles.
- **Service resolution (S)**
  Use this Configuration Server to resolve the HPCA agent computer's services.
- **Agent self-maintenance (M)**
  Use this Configuration Server to perform agent self-maintenance.

- **Reporting (R)**
  Use this Configuration Server for storing reporting objects from the HPCA agent computer. These objects are stored in the PROFILE File in the CSDB.
- **Data download (D)**
  Use this Configuration Server, Proxy Server, or CD-ROM drive to download application data to the HPCA agent computer.
- **Patch Manager Gateway (P)**
  Use this Patch manager Server to download patches and make them available to the HPCA agent computer.
- **All (A)**
  Use this Configuration Server for any of the roles listed above.

When an HPCA agent is ready to download files, it will first use servers with TYPE=DATA in the order of priority that has been set in the LOCATION Class. If a server with TYPE=DATA has a ROLE of anything other than D, it will be skipped—not used for data download.

If the agent is unable to download all the necessary files after processing all servers with TYPE=DATA, it will begin processing servers of TYPE=RCS—again, in order of priority as established in the LOCATION Class. In order to use a Configuration Server for data download, two conditions must be met:

- The SETTINGS.RCSDATA attribute for the agent computer must be set to **Y**.
- The SAP.ROLE for the Configuration Server must be either **D** or **A**.

Task 1 Identify HPCA Servers

Identify your HPCA servers, and determine the type and role for each. Types are defined in the TYPE attribute of the SAP Class. Roles are defined in the ROLE attribute of the SAP Class. Your HPCA server can be a Configuration Server, Proxy Server, or CD-ROM. HPCA servers with TYPE=DATA, must have a role of Data download (D). Configuration Servers, set to TYPE=RCS, can serve many roles. You will need to decide which roles your Configuration Servers can perform.

Only a Configuration Server can be designated as anything other than data download. For all other SAP instances, if you specify anything other than data download, the SAP will be ignored.

Task 2 Create Server Access Profile (SAP) Instances

The SAP Class of the Configuration Server Database contains samples for each type of Server Access Profile (SAP). Use the Admin CSDB Editor to copy the instance that most closely resembles the server type and role for which you need a SAP instance. Table 26 describes the attributes in the SAP Class.

After copying the instance, use Table 26 to configure the instance for your enterprise.

Instances in the SAP Class are used before the IP that is specified in the RADSKMAN command line.

Table 26 Attributes of the SAP Class

Attributes	Description
ZSTOP00n	Use to stop the process from completing if certain requirements are met. For example, you might want to prevent a laptop computer from using this SAP.
NAME	Friendly name of the SAP instance.
TYPE	Use to specify the type of HPCA server. • Set to **RCS** if using Configuration Server. • Set to **DATA** for Proxy Server or CD-ROM. If the HPCA agent computer is unable to reach any of its Server Access Profiles, it will default to the last known Configuration Server. For examples, see Table 27 on page 114. Note: Refer to the *OS Manager Guide* for information on using the Z role with the HPCA Proxy Server and HPCA OS Manager.
URI	Create the **URI** (**Universal Resource Identifier**) to specify the Configuration Server or Proxy Server. For examples, see Table 27 on page 114.

Attributes	Description
ROLE	Specifies the role of the SAP. Valid values are: • A = ALL (default) • D= Data download • M = HPCA agent self-maint. • P = Patch Manager Gateway • O = Client Operations Profiles • R = Reporting • S = Service resolution The default is **A**. A blank or null value defaults to ALL. Multiple values can be specified, and must be adjacent to one another—not separated by a spaces or comma. Note: Only Configuration Servers can be designated as anything other than type D. For servers where TYPE=DATA, if you specify anything other than D, that SAP instance will be skipped. Note: Refer to the *OS Manager Guide* for information on using the Z role with the HPCA Proxy Server and HPCA OS Manager.
ENABLED	Specify whether this SAP is enabled (**Y**) or disabled (**N**). The default is **Y**. If the variable is blank or non-existent, the SAP is enabled.
TIMEOUT	Specify (in seconds) the communications timeout. Valid values are numerals 0 through 3200. If this is a valid numeric value, it will override the HPCA agent timeout value (found in ZMASTER.ZTIMEO). If it is blank, the HPCA agent's ZMASTER.ZTIMEO value will be used.
PUSHBACK	Specify the number of times for an HPCA agent to retry connecting to a Configuration Server if the Configuration Server pushed it back. The default is **0**, which means skip this Configuration Server. Valid values are numerals 1 through 999.

Attributes	Description
THROTYPE	Specify the bandwidth throttling options. • Set to **ADAPTIVE** to yield to other services that are using the network. • Set to **RESERVED** to allow for a specific reservation of the bandwidth. It is the maximum percentage of network bandwidth to use. • Set to **NONE** to disable bandwidth throttling and use the maximum available bandwidth. If this attribute contains a valid value, it will override HPCA agent bandwidth throttling. If this attribute is blank, the existing variable value on the HPCA agent computer will be used.
BANDWDTH	Specify the percentage of bandwidth to use. Valid values are numerals 1 through 99. If this attribute contains a valid value, it will override HPCA agent bandwidth setting. If this attribute is blank or non-existent, all bandwidth will be used.
STREAM	Specify **Y** to enable streaming. The default is **N**. This value will override the HPCA agent setting that is found in ZMASTER.ZNORSPNS. Caution: Streaming is not suitable for all network environments. Consult your network administrator before enabling it.
PROXY	*Do not modify.* The internet proxy URI through which the HPCA agent will connect to the SAP.
PRIORITY (&(LOCATION.SAPPRI))	*Do not modify.* The SAP obtains its priority by querying the priority value that is specified in the LOCATION Class.

Attributes	Description
PRODUCT	Specify which HPCA agents can use this SAP instance. Multiple HPCA agents can be specified, but they must be separated by a comma. The default is *all HPCA agents*, which can be expressed with a blank. The following are suggested identifiers for the HPCA agents: • Application Manager: AM • Inventory Manager: IM • Application Self-service Manager: ASM • OS Manager: OSM • Patch Manager: PATCH On a RADSKMAN command line, use this parameter to specify which products to filter.
FILTER	Use this attribute to filter the SAP based on any available object attribute. For example, if you want to use this SAP for a specific service, specify **`APPINFO.ZOBJNAME=`***`Service Name`*. Note: The ZSERVICE object is not available during installation. Use the APPINFO object instead. APPINFO, located in the service's `LIB` directory, is a copy of the service's instance from the ASERVICE object.
NETTTL	Specify the number of "hops" for the HPCA agent computer to use for ICMP speed checks. The default is **3**.

If you want to override the use of the SAP object, add the RCSURI parameter to the RADSKMAN command line. RCSURI should be in the same format as the Universal Resource Identifier. For the syntax of this parameter, see Table 27 on page 114.

Creating the Universal Resource Identifier

For each instance of the SAP Class, you will need to identify a URI (Universal Resource Identifier) for the Server Access Profile (SAP). RFC 1630 proposes the following format:

```
<scheme>:<scheme specific format>
```

where the scheme is usually the network protocol, such as HTTP or TCP. If the scheme-specific format has slashes, it indicates a hierarchical path. Universal Resource Locator (URL) is a form of URI where the scheme-specific format is defined as:

```
//<user>:<password>@<host>:<port>/<url path>
```

Details on how to access the specified resource are defined in the URL path. The most prevalent form is: *//host:port/url path*. Examples for specifying the URI are shown in Table 27.

Table 27 URI Example

SAP Type	Settings for URI and TYPE attributes
Configuration Server over TCP/IP using default port of 3464	URI = tcp://ovcmcs:3464 TYPE = RCS
Configuration Server over TCP/IP using port 7800	URI = tcp://ovcmcs:7800 TYPE = RCS
Configuration Server using SSL on port 443	URI = tcps://ovcmcsssl:443 TYPE = RCS
Proxy Server using HTTP	URI = http://ovcmps:3466 TYPE = DATA
CD-ROM	URI = file://&(ZCONFIG.ZHDWCDDR)|/DATA/ TYPE = DATA

Task 3 Set Criteria for each SAP Instance

After creating your SAP instances, decide how to segment your enterprise. One example would be to assign a SAP to an agent computer based on its subnet; use the Admin CSDB Editor to create one LOCATION Instance for each subnet.

The ZCONFIG object for an agent computer includes an attribute called NETLOC. (This variable uses underscores, _, instead of dots to identify the agent computer's subnet.) You may want to name the LOCATION Instance based on possible subnets of your agent computers so that you can easily connect a user to their appropriate LOCATION Instance based on their subnet. For example, if you have a subnet of 10.10.10.1, create a LOCATION instance called 10_10_10_0. Task 5, Enable Client Operations Profiles on page 116 shows how to connect the subscribers to the appropriate LOCATION Class using the agent computer's ZCONFIG.NETLOC variable.

Task 4 Set Priority for each SAP for each Location

Use instances in the LOCATION Class to define the priorities of your Server Access Profile based on location criteria. The priority for a Server Access

Profile is defined directly above the connection to that SAP instance in the SAPPRI attribute.

Lower numbers have a higher priority. Therefore, if the Instance SAP.SAMPLE_RCS_EAST has a priority of 10 and the Instance SAP.SAMPLE_DATA_RPS_EAST has a priority of 40, SAP.SAMPLE_RCS_EAST will be used before SAP.SAMPLE_DATA_RPS_EAST.

The SAPPRI can be any whole number from 01 to 99. The SAPs do not need to be listed in the LOCATION instance in their priority order.

Table 28 describes the attributes of an instance in the LOCATION Class.

Table 28 Attributes of the LOCATION Class

Attribute	Description
NAME	The friendly name of the instance.
ALWAYS	Specify an instance in the SETTINGS class. The default connection is SETTINGS.DEFAULT_SETTINGS.
ALWAYS	Specify an instance in the DIAGS Class. The default connection is DIAGS.DEFAULT_DIAGS.
ALWAYS	Specify an instance in the RADUICFG Class.
ALWAYS	Specify an instance in the RADHWCFG Class.
ALWAYS	Specify an instance in any class to connect to this LOCATION instance.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 10.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **10**.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 20.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **20**.

Attribute	Description
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 30.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **30**.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 40.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **40**.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 50.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **50**.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 60.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **60**.
SAPPRI	Specify the priority of the SAP instance that is referenced in the _ALWAYS_ class connection below this attribute. The default is the SAP that is referenced in the connection below this instance has a priority of 70.
ALWAYS	Specify a SAP instance for the priority entered into SAPPRI above this attribute. The default priority is **70**.

Task 5 Enable Client Operations Profiles

There are two phases to this step.

1. Create a process on the Configuration Server so that the objects associated with Client Operations Profiles are resolved (see Enable COPs on the HPCA Configuration Server).
2. Enable the agent computer to use Client Operations Profiles (see Enable COPs on the HPCA Agent).

Enable COPs on the HPCA Configuration Server

To enable Client Operations Profiles, use the RADSETUP Instance in the PROCESS Class in the SYSTEM Domain. This instance should already be in the CSDB.

Make a class connection to CLIENT.LOCATION.&(ZCONFIG.ZNETLOC). This will map the user to its appropriate LOCATION instance based on the ZNETLOC attribute in the HPCA agent computer's ZCONFIG object. The ZNETLOC attribute identifies the HPCA agent computer's subnet using underscores instead of periods to separate the four octets. Instances of the LOCATION Class must be defined to match each of the subnets in your environment to be able to dynamically assign COPs configuration settings based on locations within your network.

Enable COPs on the HPCA Agent

By default, COPs is disabled on HPCA agent computers in order to accommodate backward compatibility with previous versions of HPCA (HP Configuration Management). There are three ways to enable COPs on the agent computer. Choose a method based on whether the HPCA agent has already been installed, and the method that best suits your needs.

If you have not already installed the HPCA agent:

- Customize `Install.ini` so that the COP variable is added to the RADSETUP object. Do this by adding a line (shown in bold below) to the [Objects] section of `Install.ini`. For more information, see [Objects] Section of Install.ini on page 44.

```
[Objects]
; Set HPCA object attribute values
; A value of _NONE_ will set the attribute to blank
;
RADSETUP_COP=Y
;ZMASTER_ZDSTSOCK=
```

```
;ZMASTER_ZIPADDR=
;ZMASTER_ZNTFPORT=3465
```

If you want to enable COPs on existing HPCA agents:

- Use a REXX method, `initmeth.rex` to add and set the COP variable in the RADSETUP object. `Initmeth.rex` runs each time a First Refresh Catalog is called and can build the RADSETUP object with COP=Y to enable COPs.

  The `initmeth.rex` method does not get installed by the HPCA agent; it can be created by an HPCA administrator and deployed to the HPCA agent folder. If the script exists in the agent folder, the HPCA agent will execute `initmeth.rex` as described in this section.

  For more detailed information on REXX methods, refer to the *REXX Programming Guide*.

  Add the following lines to the `initmeth.rex`:

```
/* Sample INITMETH.REX to Enable the COP */
call edmget('RADSETUP',0)
RADSETUP.COP = 'Y'
call edmset 'RADSETUP'
```

  Be sure to deploy the updated `initmeth.rex`.

- Use the COP parameter of RADSKMAN to enable or disable Client Operations Profiles. To enable, add **`COP=Y`** to your list of parameters for RADSKMAN. *This will enable or disable Client Operations Profiles for this HPCA agent connect only*. Use `initmeth.rex` as shown above to enable COP for all agent connects or create a variable in CLIENT.SETTINGS called COP, and set the value to Y. Ultimately, both of these methods will create a COP attribute in the RADSETUP object with a value of Y. Alternatively, if you need to disable Client Operations Profiles after enabling it, run RADSKMAN with COP=N to disable for *that* agent connect only.

Client Operations Profiles Example

This section provides a simple example of how to configure a Client Operations Profiles. The driving force is to have your HPCA agent computers connect with the most appropriate Configuration Server. Usually, you will

want to assign your HPCA agent computers to a Configuration Server based on network address.

Scenario

Suppose you divide your enterprise into two regions, EAST and WEST. All agent computers in the EAST region are in the 192.111.111.0 network, and all agent computers in the WEST region are in the 193.111.111.0 network. In addition, suppose you have two Configuration Servers, one called RCS_EAST as the primary HPCA server for the EAST region, and one called RCS_WEST as the primary HPCA server for the WEST region.

To configure the sample scenario

1. Build two Server Access Profile (SAP) instances, one for RCS_EAST and one for RCS_WEST.

   In the Server Access Profile (SAP) Class use the TYPE attribute to specify a server as type DATA or RCS. In this example, we will be configuring only Configuration Servers. Therefore, all servers will have SAP.TYPE set to RCS.

   For each Server Access Profile instance, you must also identify a role. Again, for simplicity, we will set SAP.ROLE to A for all. This means that the Configuration Server can provide client operations profiles, service resolution, maintenance, data, and reporting.

   At a minimum, you will need to specify the Universal Resource Identifier (URI) attribute. Customize other variables as needed.

2. Build two location instances, one for the EAST region, and one for the WEST region.

   Create a location instance called 192_111_111_0 with a friendly name of Sample_Location East, and a location instance called 193_111_111_0 with a friendly name of Sample_Location West.

3. Connect the LOCATION instance to the appropriate Server Access Profile (SAP) instance.

   — In the LOCATION.Sample_Location East instance define a connection to the SAP.Sample_RCS EAST.

   — In the LOCATION.Sample_Location West instance define a connection to the SAP.Sample_RCS WEST.

4. Now, consider what you want to happen in the following cases:

— Suppose you are a client in the EAST Region and the RCS_EAST is unavailable. Your options are:

  – Abort

  or

  – Go to RCS_WEST as a second choice.

— Suppose you are an agent in the EAST region and the RCS_EAST is busy. In other words, the task limit defined in your Configuration Server settings file has been reached. Your options are:

  – Continue to retry the RCS_EAST until a connection is available

    or

  – Go to RCS_WEST as a second choice.

Once you understand the concepts involved, and feel comfortable with this process, you can begin to add other components to the Client Operations Profile. After you finish with TYPE=RCS, configure your servers with TYPE=DATA. In addition, you can identify particular servers of TYPE=RCS to use different ROLES.

Additional Classes in the CLIENT Domain

In addition to the SAP and LOCATION Classes, the following classes in the CLIENT Domain can be used for various customizations and diagnoses.

- Alert Management (RADALERT)
- Connect Deferral Configuration (CDFCFG)
- Core Settings (SETTINGS)
- Diagnostics (DIAGS)
- Hardware Scan Options (RADHWCFG)
- Notify Security (NTFYSEC)
- Setting User Interface Properties (RADUICFG)

These classes are described in detail in the sections that follow.

Alert Management (RADALERT)

Use this class to configure the displaying and reporting of alert events.

Table 29 Attributes of the RADALERT Class

Attribute	Description
WMIALRT	Specify **Y** to monitor WMI BIOS events.
ALRTDISP	Specify **Y** to locally display WMI events.
DISPSEV	Specify a minimum alert-severity level to display.
DISPCTG	Specify which CSV event categories to display.
REPSEV	Specify a minimum alert-severity level to report.
REPCTG	Specify which CSV event categories to report.
TIMEOUT	Specify a timeout for local events to display.
SMRTMON	Specify **Y** to monitor SMART events.
SMRTDISP	Specify **Y** to locally display SMART events.
SMRTREP	Specify **Y** to report SMART events.

Connect Deferral Configuration (CDFCFG)

Use this class to configure the user-facing Connect Deferral dialog box. Connect deferral is a function with which an administrator can configure options for the downloading and installation of mandatory service-related actions, including giving users some control as to when to take these actions. For more information on connect deferral, see the section User Actions for Mandatory Services, on page 240.

Table 30 Attributes of the CDFCFG Class

Attribute	Description
NAME	The friendly name of the instance.
ENABLE	Specify **Y** (the default) to enable the connect-deferral function. Note: RADSKMAN has been updated to include a new command line option, **cdf=y/n**, which enables/disables this function. The RADSKMAN setting will supersede this CDFCFG setting .

Attribute	Description
ABORT	Specify **Y** (the default) to enable the **Cancel** button. If **N** is specified, the **Cancel** button will be disabled and the text that describes the cancel feature ("Click Cancel to cancel this process without rescheduling.") will be hidden.
DESCTEXT and DESCTXT2	Specify customized replacement text for the descriptive text that is at the top of the Connect Deferral dialog. • DESCTEXT will replace the first two sentences of text. • DESCTXT2 will replace the text "To continue with these actions...".
DOMAINS	This is a comma-delimited list of domains with which this function can be used. The default value is `SOFTWARE,PATCHMGR,OS`. If, for example, **`SOFTWARE,OS`** is specified, PATCHMGR connects will not have this functionality available. Note: Custom domains in an HPCA Configuration Server Database can be added to this list so that users can defer services in these domains also.
TIMEOUT	Specify the length of time (in minutes) for the Connect Deferral dialog to wait before automatically triggering the pending action.

Attribute	Description
SOFTWARE, PATCHMGR, and OS attributes	Specify the maximum number of days that a user can defer a connect for each of the supported domains. For example, if `SOFTWARE` is set to **5**, the user can defer a SOFTWARE connect for a maximum of 5 days; after that, the pending action will be forced on the user's machine. PATCHMGR and OS are for specifying the maximum days that a connect for those domains can be deferred. A local value is saved in the CDFDEFER object in IDMROOT to determine when the user started deferring. (If the user clicks **Allow**, this date is reset to `0`.) On the next connect, this value is queried in order to determine how many "deferral" days remain. For example, if the action is deferred on Monday and `SOFTWARE` is set to **5**, on Tuesday the message will indicate 4 "deferral" days remaining, and so on, until the number of days reaches zero. When there are no remaining "deferral" days, **Cancel** and **Defer** will be disabled and the user will have to allow the connect. Notes: • These values will affect the "Defer for" list; intervals that are greater than this setting will not be available in the drop-down list. • On the right side of the window, a message will indicate the remaining number of days that the user can defer the actions. • Connect Deferral looks at `dname=` to figure out which value in CDFCFG to use. • Custom domains in an HPCA Configuration Server Database can be added to this list so that users can defer services in these domains also. • The default is SOFTWARE if `dname` is not specified.

Core Settings (SETTINGS)

Use an instance in the SETTINGS Class to define how to use your Server Access Profile, define scripts you want to use in pre-configuration processing, and set other global parameters.

If similar attributes exist in the SETTINGS and SAP Classes, the value for the attribute in the SAP Class will be used.

Table 31 Attributes of the SETTINGS Class

Attributes	Description
NAME	The friendly name of the instance.
SAPPING	Set to **Y** to have the HPCA agent ping all of the SAPs. If EQUISORT is **S**, this must be **Y**. A result reflecting the speed of the connection will be returned and stored in the SPEED attribute in the SAPSTATS object. The default is **N**.
PUSHBACK	Specify a numeral from 0 to 999 for the number of times the HPCA agent should retry connecting to a Configuration Server if the Configuration Server pushes back on the initial HPCA agent connect. Set to **0** (the default) to skip a Configuration Server if it pushes back on the HPCA agent connect.
EQUISORT	Specify the action to take if several SAP instances have the same priority. • Set to **S** to use the SAP with fastest network speed. **SAPPING=Y** is required. • Set to **R** (the default) to randomly select which SAP instance to use. This is recommended for workload balancing.
USELSAP	During an HPCA agent connect, if a service has to use a lower-priority SAP to complete the data download, specify whether the remaining services should continue from this SAP by specifying **Y**, the default. If **USELSAP=N**, the HPCA agent will go through the SAPs in priority for each service.
RCSDATA	If all the required data has not been downloaded after using all of the TYPE=DATA SAPS, specify **Y** to use the SAPs with TYPE=RCS. To prevent the HPCA agent computers from using Configuration Servers, specify **N**. The default is **Y**.
ADINFO	Specify **Y** (the default) to collect the HPCA agent computer's Active Directory information, which will then be stored in the ADINFO object in the `RADSETUP` directory which, by default, is located in `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`. This information will be sent to the Configuration Server for all resolution processes.
ZGRPINFO	Specify **Y** (the default) to collect the HPCA agent computer's User Group information, which will then be stored in the NTGROUPS object in the `RADSETUP` directory which, by default, is located in `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`. This information will be sent to the Configuration Server for all resolution processes.

Attributes	Description
LSCRIPT	If you have set a service to perform an immediate reboot and you run RADSKMAN from a login script, specify **Y** (the default). If you have set a service to perform an immediate reboot and you want RADSKMAN to be restarted in the user context when a user logs on, specify **N**. For more information on reboot options, see the section Restarting the HPCA Agent Computer on page 150.
ALWAYSD	Specify **Y** (the default) to download pre-configuration objects always. Doing so guarantees that your SAP or persistent objects are downloaded even if nothing has changed. If your SAP client object is corrupted for any reason, it will be re-downloaded even if the desired state didn't change. In addition, if one of the variables is a substitution, it will download the object with the new values because a variable change by substitution doesn't change the desired state.
ALWAYSS	Specify **Y** (the default) to always upload all of the objects that are in the `RADSETUP` directory to the Configuration Server.
EXBSETUP	Specify a script to run before pre-configuration processing. This script must be in the HPCA agent computer's `IDMSYS` directory. The default script is **PRESETUP.REX**.
EXASETUP	Specify a script to run after pre-configuration processing. This script must be in the HPCA agent computer's `IDMSYS` directory.
CMETHOD	Specify a script to run after catalog resolution but before service processing.
EXBOUTBX	Specify a script to run after service processing but before the objects in the outbox are flushed to the Configuration Server.
EXBEXIT	Specify a script to execute before RADSKMAN ends. If you are doing a customized reboot process, specify it here. This script must be in the HPCA agent computer's `IDMSYS` directory. The default location is `C:\Program Files\Hewlett-Packard\HPCA\Agent`. Note: Client Operations Profiles must be enabled on the HPCA agent for the EXBEXIT to be used.
TIMEOUT	Specify the timeout (in seconds) for the Server Access Profile (SAP). • If this contains a valid numeric value (0 to 3200) it will override the HPCA agent timeout (ZMASTER.ZTIMEO). • If this is blank, the HPCA agent will use the value of ZMASTER.ZTIMEO.

Attributes	Description
THROTYPE	Specify the type of bandwidth throttling to use. • Specify **ADAPTIVE** to yield to other services that are using the network. • Specify **RESERVED** to allow for a specific reservation of the bandwidth. It is the maximum percentage of network bandwidth to use. • Specify **NONE** for no bandwidth throttling, and use the maximum available bandwidth. This is the default.
BANDWDTH	Specify the percentage of bandwidth (between 1 and 99) to use. If this is blank or the variable does not exist, then all of the bandwidth will be used.
RADTRAY	Specify command-line arguments to be used for the HPCA System Tray. The first argument must be **Y** in order to enable the System Tray, then the following parameters (comma-separated) can be specified. **/C** = Show the HPCA System Tray in console mode when it starts. **/NOCANCEL** = Hide the Cancel button. **/NOPAUSE** = Hide the Pause button. **/D** = Add debug message to the log for troubleshooting. Example: **RADTRAY=Y, /C, /NOPAUSE** enables the System Tray in console mode but does not display the PAUSE button.
USEDEFS	Specify **Y** to default to the Configuration Server that is set on the command line if a SAP cannot be found for the needed ROLE.
DEFROLE	Specify roles for the Configuration Server that is specified on the command line. The default ROLE is **A** (All); the Configuration Server will be able to perform any ROLE. Note: To use DEFROLE, USEDEFS must be set to **Y**.
RAD2XUI	Specify **Y** to view the vintage Radia user interface dialog boxes. Use this if you are not using the HPCA System Tray or if you want a message to pop up on the screen in addition to it.

Attributes	Description
RSTROPT	Specify when a file is eligible for checkpoint restart based on calculated network bandwidth. This will apply to all files that are to be downloaded during this HPCA agent connect. The format is *Below Threshold Limit*, *Network Threshold Value*, *Above Threshold Limit*. Therefore, if **RSTROPT = 100KB, 86KB, 10MB**, the HPCA agent will first calculate the network bandwidth, then either of two scenarios will apply: • If the network bandwidth is under 86KB, the file size is compared to 100KB. If the file size is over 100KB, checkpoint restart is enabled for that file. • If the network bandwidth is over 86KB, the file size is compared to 10MB. If the file size is over 10MB, checkpoint restart is enabled for that file.
DISKFREE	Specify a minimum amount of free disk space for HPCA to maintain. If a service is over the limit, it will not be installed.
REMUNINS	Specify **Y** to stop notifies from remote machines from un-installing a service. This does not stop applications from being un-installed as part of a policy change if a standard HPCA agent connect is started from a remote notify. The remove notify string must contain the text **req="Un-install"**.
DETPROXY	Specify **N** to skip running internet proxy detection at the beginning of the HPCA agent connect.
ACTMAINT	The HPCA maintenance module, UPGRDMAINT, processes all maintenance activities. It can be launched by RADSKMAN immediately after the maintenance is staged or on an independent schedule. Note: The **mnt** parameter of RADSKMAN must be set to **Y** for maintenance to be processed. • Specify **I** (the default) to download maintenance files and immediately activate them. Note: Application Self-service Manager users will receive a "needs to be updated" dialog box offering an **OK** button only. Application Self-service Manager will close, install maintenance, and then restart. • Specify **D** to defer maintenance activation. Maintenance files are downloaded, but not activated. To activate maintenance, call **radsksman req="Self Maintenance"** or call UPGRDMAINT directly using a timer or other method. • Specify **P** to prompt Application Self-service Manager users (only). A

Attributes	Description
	dialog box will display stating that maintenance is available and giving the user the option to cancel. The files are downloaded, but not activated. The user will be prompted again at the next check for maintenance by the Application Self-service Manager interface. Note: This is the same as **I** for Application Manager users.
SENDRPT	Specify whether to send reporting objects to the Configuration Server at the end of the HPCA agent connect. Usually, the reporting objects for each service, such as APPEVENT, CLISTATS, and ZSVCSTAT, are sent to the Configuration Server immediately after they are created. This requires multiple disconnects and reconnects to the Configuration Server. • Specify **D** to defer sending all reporting objects. • Specify **I** (the default) to immediately send the reporting objects.
NETSPEED	Specify the method to be used to check the speed of the HPCA agent's **ICMP** (Internet Control Message Protocol) connection to the Configuration Server or Proxy Server. • Specify **C** (the default) in order to run the ICMP check. • Specify **M** in order to run the ICMP check and get the speed of the network card; returns the greater of the two values (for use when ICMP is disabled in the environment). • Specify **H** in order to run the ICMP check with a high-performance counter in order to enable the check to differentiate between servers that have <2ms response times. • Specify **N** in order to turn off the network speed check.
NETTTL	Specify the number of "hops" (0–999) for the HPCA agent computer to use for ICMP speed checks. The default is **3**.

Attributes	Description
FLUSHU	Specify whether to flush the reporting objects (from users' outbox folders) during HPCA agent connects or to save the objects locally (on the HPCA agent machine) for transfer at a later time. • A value of **A** will result in user-connect reporting objects being saved off, then sent up during the next machine connect. • Specify **Y** (the default) in order to have the reporting objects always sent up—regardless of the context of the HPCA agent connect. • Specify **N** in order to never flush users' outbox folders. **FLUSHU=N** is applicable only for user connects. Note: Some reporting objects will be deleted and regenerated for each connect; others will accumulate new information for each connect and be sent up when reporting is enabled. Examples: Specify **FLUSHU=N** on user connects to build up reporting objects in each user's outbox folder. During a machine connect, specify **FLUSHU=A** to transfer all objects. **FLUSHU=Y** will always send the current connecting HPCA agent's reporting objects from the outbox folder.

Diagnostics (DIAGS)

Use this class to override default trace settings on the HPCA agent computer. You can also set parameters for running the RADSTATE program. RADSTATE is a diagnostic module that is designed to give an overview of the current state of the HPCA agent. The information in the RADSTATE output is based on data that has been retrieved from numerous HPCA agent objects. For additional information on RADSTATE, see the section, Diagnostic Module (RADSTATE), on page 87.

Instances of this class allow you to easily set tracing levels as well as RADSTATE parameters for a user, a machine, or a group of users. These attributes were intentionally put into their own transient class for this purpose. To do this, set the _ALWAYS_ Diagnostics Class connection in LOCATION._BASE_INSTANCE_ to **`DIAGS.&(ZCONFIG.ZHDWCOMP)`**. Then, create an instance in the DIAGS Class with the computer name of the HPCA agent computer for which you want to set the tracing. If the machine name does not exist in the DIAGS Class, the DEFAULT_DIAGS Instance settings will be used.

Table 32 Attributes of the DIAGS Class

Attribute	Description
NAME	The friendly name of the instance.
RADSTATE	Specify the parameters for RADSTATE to run. If no parameters are specified, RADSTATE will not run. Note: RADSTATE must exist in the `IDMSYS` directory. The _BASE_INSTANCE_ of the DIAGS Class is set to **VO**, which will run RADSTATE in verbose mode, building the ZRSTATE and ZRSTATES objects. You need to specify the parameters for RADSTATE only, not the RADSTATE executable.
ZTRACE	Specify whether communications tracing should be recorded to the HPCA agent log file. • **`N`** (the default) turns off communication buffer tracing. • **`S`** provides summary communication buffer information to the HPCA agent log. This includes the number of records read and written, and the type of records processed. • **`Y`** provides full communication buffer information to the HPCA agent log. All data that has been transmitted and received will be echoed to the HPCA agent log file. Caution: **`ZTRACE=Y`** could result in a large amount of data being written to the HPCA agent log and could severely impact HPCA agent performance. Do not specify this setting unless instructed to do so by HP Technical Support.

Attribute	Description
ZTRACEL	Specify the level of tracing (as **000**, **040**, or **999**) that will be recorded to the HPCA agent log file. If blank, use existing value. Caution: Setting ZTRACEL to a high number could result in a large amount of data being written to the HPCA agent log and could severely impact HPCA agent performance. Do not specify this setting unless instructed to do so by HP Technical Support.

Hardware Scan Options (RADHWCFG)

Use instances in the RADHWCFG Class to specify the type of hardware scans you want performed on the agent device. Hardware scan information is reported in the ZCONFIG object. To implement the hardware scan options, connect an instance of the RADHWCFG Class to an instance in the LOCATION Class.

Client Operations Profiles must be enabled in order to use the RADHWCFG Class. For testing, consider creating a RADHWCFG object on the agent device with all the attributes in the RADHWCFG Class, and then change the attributes to Y or N to see the result in the ZCONFIG object.

HP provides four sample instances in RADHWCFG.

- **Base Instance**
  Create copies of the _BASE_INSTANCE_ to create your own hardware scans.
- **Default Hardware Scan**
  This instance scans for the most commonly requested information.
- **Hardware Configuration (Network Only)**
  This instance scans for network information only.
- **Sample Dynamic Scan**
  This instance provides samples using the Dynamic Scan variables.

The table below details each of the possible hardware scans. Examples of the ZCONFIG attributes that might be returned are provided.

The attributes that are returned will depend on the hardware configuration. For example, if the agent device has only one printer connected, only one ZHDWPA0*n* attribute will be reported in ZCONFIG.

Table 33 Attributes of the RADHWCFG Class

Attribute	Description
NAME	The friendly name of the instance.
CPU	Specify **Y** to scan for CPU information. ZCONFIG attributes: ZHDWBIOS, ZHDWCOMP, ZHDWCPU, ZHDWCPUN, ZHDWCPUS, ZHDWFPU, ZHDWXPAG, ZHWCPU01, ZHDFPU01
OS	Specify **Y** to scan for operating system information. ZCONFIG attributes: REBOOTD, REBOOTT, WTSSRVR, ZHDWLANG, ZHDWOS, ZHDWOSDB, ZHDWOSOG, ZHDWOSOW, ZHDWSVCP
MEMORY	Specify **Y** to scan for memory information. ZCONFIG attributes: ZHDWMEM, ZHDWMEMF
HDLOCAL	Specify **Y** to scan for internal hard drives. ZCONFIG attributes: ZHDWCDDR, ZHDWD00, ZHDW00C, ZHDWD00F, ZHDWD00S, ZHDW00T, ZHDWD01, ZHDW01C, ZHDWDF_A, ZHDWDLST, ZHDWDNUM
HDREMOTE	Specify **Y** to scan for external hard drives. ZCONFIG attributes: ZHDW00, ZHDWD00C, ZHDWD00F, ZHDW00S, ZHDW00T, ZHDWDLST, ZHDWDNUM
NETWORK	Specify **Y** to scan for network information. ZCONFIG attributes: GATEWY01, IPADDR01, LADAPT01, NETLOC01, SUBNET01, ZGATEWAY, ZHDWIPAD, ZHDWLANA, ZHDWNET1, ZHDWNNET, ZNETLOC, ZSUBNET
PERIPHER	Specify **Y** to scan for peripherals such as keyboard and mouse. ZCONFIG attributes: ZHDWKYBD, ZHDWMOUS, ZHDWPPAR, ZHDWPSER, ZHDWVIDO, ZHDWVRES
PRINTER	Specify **Y** to scan for printers. ZCONFIG attributes: ZHDWPA00, ZHDWPA01, ZHDWPPRN
HAL_VER	Specify **Y** to scan for the HAL (Hardware Abstraction Layer) version. ZCONFIG attributes: HALCOMP, HALDATE, HALFNAME, HALFVER, HALINAME, HALLANG, HALPNAME, HALPVER, HALSIZE
APP_VER	Specify **Y** to scan for versions of MSI (ZHDWVMSI) and IE (ZHDWVIE).

Attribute	Description
WMISCAN	Specify **Y** to perform the scan using WMI (Windows Management Instrumentation).
DSCAN00n	Specify **Y** to use the dynamic scan variable. See Dynamic Scanningbelow.
ZCFGOBJ	Specify the name of an object created to receive the results of any dynamic scans that are defined in the RADHWCFG class. The default is the ZCONFIG object. The new object will be created in the RADSETUP directory and will be sent to the Configuration Server as part of the HPCA agent connect.

Dynamic Scanning

In addition to the built-in scans, create your own scans using the Dynamic Scan (DSCAN00n) Instances. There are three types of dynamic scan instances **WMI**, **Registry**, and **File**. The format for a dynamic scan is:

VariableName **=** *Type***(***Parm1, Parm2,* **…)**

Where

- *VariableName* is the attribute in ZCONFIG where you want the information to be reported.
- *Type* is WMI, Registry or File.
- *Parmn* is the query for the information.

See the examples below.

The Dynamic Scan for ZCONFIG is restricted to the `root\cimv2` namespace only.

Example 1: WMI

A WMI scan would use the following format: VariableName = WMI(WQL Statement, Property, Default). To collect the Model of an agent device using WMI, create a DSCAN000 variable similar to:

```
HWMODEL=WMI("Select * from Win32_ComputerSystem"; Model; NONE)
```

This scan would create the variable ZCONFIG.HWMODEL, and populate it with the agent device's model.

Example 2: Registry

To scan a registry key to determine where Adobe 5.0 is installed, create a DSCAN001 variable similar to:

```
ADOBEPTH=REG(HKLM\SOFTWARE\Adobe\Acrobat_Reader\5.0\InstallPath)
```

The result will be reported in ZCONFIG.ADOBEPTH.

When scanning for a default registry value, the path to the registry key must end with a backslash. For example, to read the default value of the Installer key type **ADOBEPTH=REG("HKLM\SOFTWARE\Adobe\Acrobat Reader\6.0\Installer\")**

To read the Path value of the Installer key, type **ADOBEPTH=REG("HKLM\SOFTWARE\Adobe\Acrobat Reader\6.0\Installer\Path")**

Example 3: File

Dynamic file scanning can return size (SIZE), date stamp (DATE), file version (FVER), product version (PVER), and time (TIME) stamp of a specified file. You can request any combination of these properties. To scan for the file `C:\temp\test.exe`, create a DSCAN002 similar to:

```
TEST####=FILE(c:\Temp\Test.exe;SIZE,DATE,FVER,PVER,TIME)
```

The #### will be replaced by the corresponding file property name. One attribute will be created in the ZCONFIG object for each file property for which you scanned. In this example, five variables will be created based on the information collected on the `C:\temp\test.exe` file, ZCONFIG.TESTSIZE, ZCONFIG.TESTDATE, ZCONFIG.TESTFVER, ZCONFIG.TESTPVER, and ZCONFIG.TESTTIME.

Notify Security (NTFYSEC)

Use this class to use COPs to set RADEXECD to use internal authentication with the HPCA Portal.

- This class contains a DEFAULT_NTFYSEC Instance that inherits all values from the _BASE_INSTANCE_ of the class.

  By default, this instance is connected to the **SAPPRI** (**SAP Priority 30**) Attribute of **PRIMARY.CLIENT.LOCATION._BASE_INSTANCE_**.

Table 34 Attributes of the NTFYSEC _BASE_INSTANCE_

Attribute	Description
ZNTFYSEC	Enable the notify-security feature. Valid values are **Y** (Yes), **N** (No), and **L** (Lock). The default is Y.
ZVRFYUID	Specify whether to verify the internal user ID. Valid values are **Y** (Yes), **N** (No), and **I** (Internal). The default is N. Note: In PRIMARY.CLIENT.LOCATION._BASE_INSTANCE_, the default value for this attribute is I.
ZVRFYPWD	Specify whether to verify the internal password. Valid values are **Y** (Yes), **N** (No), and **I** (Internal). The default is N. Note: In PRIMARY.CLIENT.LOCATION._BASE_INSTANCE_, the default value for this attribute is I.
ZEXTSEC	Enable HPCA *extended security*. Valid values are **Y** (Yes) and **N** (No). The default is N.
ZIGNRURI	This anti-spoofing attribute lets you to enable RCSURI stripping (the notify daemon strips out the value before executing the command). Valid values are **Y** (Yes) and **N** (No). The default is N. For more information on RCSURI, see Client Operations Profiles on page 190.
ZIGNDURI	This anti-spoofing attribute lets you to enable DATAURI stripping (the notify daemon strips out the value before executing the command). Valid values are **Y** (Yes) and **N** (No). The default is N. For more information on DATAURI, see Client Operations Profiles on page 190.

Usage Note

Changes to the notify-security settings will not be immediately effective; an HPCA agent connect must be performed in order to enable the new settings. This differs from other COPs settings, which happen as part of a single connect.

Additional Documentation

The following HP support documents contain additional information about notify security, the notify daemon, RCSURI and DATAURI stripping, and NTFYSEC.

- Radia Client-Notify Security
- Configuring an EDM:Client to Receive Notify Messages
- Enhanced Notify Security for Configuration Manager Agent v5.x

Setting User Interface Properties (RADUICFG)

RADSKMAN Client Operations Profiles Parameters

Use the RADUICFG Class to specify settings for the Application Self-service Manager user interface.

You must be licensed for the Application Self-service Manager to use this class.

Table 35 Attributes of the RADUICFG Class

Attribute	Description
PNLOUTBR	Specify **Y** to display the Side Bar, which is located on the left side of the panel and provides navigation throughout the interface.
BNHOME	Specify **Y** to display the Home button on the Side Bar.
BNMYSOFT	Specify **Y** to display the My Software button on the Side Bar.
BNPREFER	Specify **Y** to display the Preferences button on the Side Bar.
BNBNDWTH	Specify **Y** to display the Bandwidth button on the Side Bar.
BNHISTRY	Specify **Y** to display the History button on the Side Bar.
BNSTATUS	Specify **Y** to display the Status button on the Side Bar.
SHWMENUS	Specify **U** to allow the user to control appearance of the Menu bar. Specify **Y** or **N** to turn on/off the Menu bar and not allow the user to control its appearance.
SHWCATLG	Specify **U** to allow the user to control appearance of the catalog list. Specify **Y** or **N** to turn on/off the catalog list and not allow the user to control its appearance.
STRTCHNG	Specify **Y** to allow the user to modify the startup parameters in General Options in Preferences. Specify **N** to disallow this permission.

Attribute	Description
STRTFILE	Specify the filename for the startup parameters found in the General Options in Preferences.
STRUPMSG	Specify **Y** to warn the user if the startup parameter file has changed.
ASKOFFL	Specify **U** to allow the user to control prompting for offline use of Application Self-service Manager. Specify **Y** or **N** to turn on/off the prompt and not allow the user to control the prompt.
BWSTRTUP	Set to **A** to automatically display the bandwidth control when processing a service that has bandwidth settings. Set to **Y** to always display regardless of whether the service has bandwidth settings; set to **N** to never display the bandwidth control.
COLORSET	Select **SYSTEM** to use the operating system colors. Select **DEFAULT** to use the HPCA default color scheme. Note: The user will not be able to change the colors if either of the above two options are selected. Select **CUSTOM** to use COLORSEL, COLORBAK, COLORBTN, and COLORWK. Select **USER** to allow the user to control the colors. • COLORSEL: Specify a color for the selection areas. • COLORBAK: Specify a color for the interface background. • COLORBTN: Specify the color for the buttons. • COLORWK: Specify the color for the work area. You can change the color scheme of COLORSEL, COLORBAK, COLORBTN, and COLORWK by specifying a combination of RGB values or the name of the color. For example, to change the color of the selection area to color red, set the attribute value of COLORSEL to RED or set the RGB values as R=255, G=0, and B=0. Note: Check the Microsoft web site for available colors.
STATSTRT	Specify **Y** to show the status window on start up.
CUSTIMG	Specify a custom image file or banner. Acceptable file types are JPG/JPEG, GIF, TIF, and BMP. The size limitations in pixels are approximately height of 60 and a width of 250. If no location is specified for the file, the default is `IDMLIB` which, by default, is located in `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`.

Attribute	Description
CUSTURL	Specify a URL that the HPCA agent computer's default internet browser will open to if the subscriber clicks on the CUSTIMG.
CUSTTEXT	Specify the text to display when the HPCA agent computers mouse hovers over the CUSTIMG.
CUSTTTLE	Specify the text to display in the Application Self-service Manager title bar.
COLTYPE	Set to **Forced** if you want only the columns that are specified in COLNAMES to appear. Set to **Required** if at least the columns specified in COLNAMES should appear. Name and Status are always displayed.
COLNAMES	Specify the columns you want displayed. Separate the columns with a comma.
EXPSITEM	Specify **U** to allow the user to control the expansion of the active Service List item. Specify **Y** or **N** to allow/disallow the user to expand the active item in the Service List.
EXPCITEM	Specify **U** to allow the user to control the expansion of the active catalog item. Specify **Y** or **N** to allow/disallow the user to expand the active catalog item.
SHWGRID	Specify **U** to allow the user to control the display of grid lines. Specify **Y** or **N** to turn on/off the display of grid lines.
SHWADVOP	Specify **U** to allow the user to control the display of Advanced Options. Specify **Y** or **N** to turn on/off the display of Advanced Options such as the Download Only, Reconfigure, and Undo buttons.
PROXYUSE	Specify **U** to allow the user to control the use of an internet proxy. Specify **Y** or **N** to allow/disallow the user to control the use of an internet proxy.
PROXYDSC	Specify **U** to allow the user to control internet proxy discovery. Specify **Y** or **N** to turn on/off the proxy discovery.
PROXYADD	Specify the internet proxy server's address.
PROXYPRT	Specify the internet proxy server's port.

Attribute	Description
BTNINST	Specify **Y** to enable the Install button.
BTNUPDT	Specify **Y** to enable the Update button.
BTNDWLD	Specify **Y** to enable the Download button.
BTNRECFG	Specify **Y** to enable the Reconfigure button.
BTNUNDO	Specify **Y** to enable the Undo button.
BTNVRFY	Specify **Y** to enable the Verify button.
BTNREPR	Specify **Y** to enable the Repair button.
BTNDEL	Specify **Y** to enable the Delete button.
BTNCANCL	Specify **Y** to enable the Cancel button.
BTNPAUSE	Specify **Y** to enable the Pause button.
SHWCOLEX	Specify **Y** to show the Install button.
SHWINFO	Specify **Y** to show the Extended Info button when a service item is expanded.
SHWSCHEV	Specify **Y** to show the Scheduled Event button when a service item is expanded. This button looks like a clock.
TMNUTXT0*n*	Create a custom menu for the HPCA System Tray. This menu will be available when you right-click the System Tray icon. To create a separator bar, type **SEPARATOR** as the menu text.
TCMDTXT0*n*	Create a custom menu item for the HPCA System Tray. Specify a command to run when TMNUTXT0*n* is clicked in the System Tray. The command must be available from the `IDMSYS` directory.
NAME	Friendly name of the instance.

6 Preparing Services

At the end of this chapter, you will:

- Know how to install services with machine and user components, and under the system account.
- Know how to restart the HPCA agent computer.
- Be aware of service options.

Configuring Applications in the Machine/User Context

Your enterprise might require that applications be configured to accommodate multiple users, or that one computer always has available the same applications regardless of the user. A service might be considered multi-context if it has components to be installed in the machine context and in the user context.

This is a feature of only the Application Manager agent.

In order to complete the installation of a multi-context service, the HPCA agent computer will need to connect to the Configuration Server twice: once to install the machine components and once to install the user components. The machine components are installed first. If the machine portion does not successfully complete, installation of the user component will not take place. The machine portion can be invoked through Notify and timers. The user portion should be embedded in a logon script, desktop shortcut, or batch file that is local to the user.

Complete the following steps to configure your service for machine or user installations.

1. Use either the Admin Publisher or the Admin CSDB Editor to specify whether a package component is to be installed in the User or Machine context. For instructions, see Setting the Context of Components.
2. Use Admin CSDB Editor to configure your service to deploy under either the system or user account. See Setting the Service Mode on page 144.
3. Use Admin CSDB Editor to set the deployment methods for the service. See Deploying a Machine/User Service on page 147.

Setting the Context of Components (ZCONTEXT)

Use the Admin Publisher to select machine and user components separately. Set the context of a component using either the Admin Publisher during the publishing process, or using the Admin CSDB Editor after the publishing process.

To take advantage of the Machine/User context, previously packaged applications must be repackaged.

To set the context in HPCA Admin Publisher

1. Right-click the files or directories and select **Set Properties**. The Instance Properties dialog box opens.
2. In the **Agent Management** tab select the appropriate context for the component.

If you have already completed the publishing process, use the Admin CSDB Editor to set the ZCONTEXT attribute in the component's instance.

To set the context in HPCA Admin CSDB Editor

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If prompted, specify a user ID and password, and click **OK**. The Admin CSDB Editor window opens.
3. Double-click **PRIMARY**.
4. Double-click **SOFTWARE**.
5. Double-click **Application Packages (PACKAGE)**.
6. Double-click the component's class.
7. Double-click the component.
8. Double-click **ZCONTEXT**.
9. Type the appropriate value based on the information in Table 36.

Table 36 Component Context (ZCONTEXT) options

Setting	Explanation
blank	Leave ZCONTEXT blank if the component is independent of context. This component is installed during machine and user connects.
U	Type **`U`** to indicate that this component will be deployed only to the subscriber logged on when the application is initially deployed.
M	Type **`M`** to indicate that the file should be deployed to all users of the computer.

Setting	Explanation
User Specified	*This option is for future use.*

10 Click **OK** to complete the changes.

11 Click **Yes** to confirm the changes and return to the Admin CSDB Editor.

As a rule, the component will be processed if its ZCONTEXT attribute matches the value of the context parameter in the RADSKMAN command line or if the component's ZCONTEXT attribute is blank.

Now that you have set the component's context, specify that the ZSERVICE instance for the application has machine and user components.

Setting the Service Mode (ZSVCMODE)

The ZSVCMODE attribute in the ZSERVICE class is used to determine if the machine/user context is relevant to the package's deployment. If you need to create the ZSVCMODE attribute, add it to the class template for the ZSERVICE class. Create it as a variable of length 3. Accept the other default properties. The possible values are M, U, MU, blank, and EMU.

We recommend that you back up the CSDB prior to making class template changes.

Table 37 Values for ZSVCMODE in the ZSERVICE Class

Value	Explanation
Blank	Use this when you want the components to install whether the client is logged on in the machine or user context. The application will only be installed using the available context.
EMU	Enhanced Machine/User service: If the HPCA agent connect is being made in the user context, but the machine side of the application has not yet been installed, this will force the machine connect. After the machine connect completes successfully, the user connect is initiated to install the user components. Use this for optional applications that the user controls through the Application Self-service Manager.

Value	Explanation
EMU:AD=N	Enhanced Machine/User service: If the HPCA agent connect is being made in the user context, but the machine side of the application has not yet been installed, this will force the machine connect. After the machine connect completes, the user connect is initiated to install the user components. Use this for optional applications on a shared computer that the user controls through the Application Self-service Manager. The addition of AD=N prevents a user from being able to remove the machine components of the application. Other users of the agent computer may still need the machine components of the application. The valid application events are: AI = application install AD = application delete AU = application update AR = application repair VA = version activation VD = version deactivation The default for each event is **Y**. Separate multiple events with a comma.
M	Machine service only Set ZSVCMODE to M if the service has only machine components. This service will be ignored if context is set to u on the RADSKMAN command line.
MU	Machine/User service Set ZSVCMODE to MU if the service has both machine and user components. The user connect will verify that the machine components have been installed before installing the user components. The user components will not be installed if the machine components are not present.

To set ZSVCMODE in ZSERVICE

1 Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

The user ID and password are:
User ID: **`ADMIN`**
Password: **`secret`**

2 If prompted, specify a user ID and password, and click **OK**. The Admin CSDB Editor window opens.

3 Double-click **PRIMARY**.

4 Double-click **SOFTWARE**.

5 Double-click **Application (ZSERVICE)**.

6 Double-click the appropriate service.

7 Double-click **ZSVCMODE** in the list view.

8 Type the appropriate values based on the values show in Table 37 on page 144.

9 Click **OK** to complete the changes.

10 Click **Yes** to confirm the changes and return to the Configuration Server Database Editor.

Enhanced Machine/User Services for HPCA Application Self-service Manager

When an application has machine and user components, the Application Self-service Manager agent needs elevated privileges on the HPCA agent in order to properly install machine components, and the user components need a user logged on to access the user's settings. A machine component might be a file or registry key while a user component might be a desktop shortcut. If context is set to U the subscriber will not be able to install the machine side of the application, and the user connect will fail. By setting ZSVCMODE to EMU, when the subscriber selects the application to install, the client will check to see if the machine components are already installed. If they are not, Application Self-service Manager will install the machine components *for that service only,* and, then, install the user components. In other words, two separate HPCA agent connects will run, one in machine context and one in the user context. Set the CONTEXT tag to U in the `args.xml` file to enforce EMU behaviors.

ZSVCMODE must be changed to 3 bytes and EMU must be one of the choices.

If ZSERVICE.ZSVCMODE is set to EMU, when the Application Self-service Manager client encounters a service that is marked as EMU it first checks to see if the machine catalog exists, and if the requested service exists in the machine catalog:

- If the service exists, and is marked installed in the machine catalog, the service is installed for the user.
- If the service is not installed on the machine side, but the catalogs are synchronized, then the client will first install the machine side of the service and then install the user piece of the service.
- If the machine catalog is missing (because a machine connect never ran), then the client gets the machine catalog, and installs the service on the machine side. Then, if the service was successfully installed on the machine side, the user side of the service will be installed.

Deploying a Machine/User Service

The client will need to connect to the Configuration Server twice to complete the installation of services that are marked with ZSVCMODE set to **`MU`**. The first connect will be in the machine context. In the RADSKMAN command line, add a parameter of **`context=M`**. This will set the `startdir=SYSTEM` by default. Do this by using either a Timer or a Notify command.

The second connection will install the user components. Do this in a logon script, batch file, or desktop icon since the user needs to be logged on. Use the RADSKMAN command line with the **`context=U`** parameter added. If ZSVCMODE is **`MU`**, the user components will *only* be installed if the machine connect has finished successfully.

Service Groups

HPCA manages products that require more than one service-package to establish full product installation or operation. You can use Service Groups when a product requires other service-packages or has dependencies on other services.

This includes MSI-packaged products where:

- A product can use more than one MSI service-package. For example, if MS Office requires other language-pack services.
- A large product, such as MS Office, needs to be split into smaller sub-services in order to install only specific parts of the product suite.

The Application Self-service Manager user interface will display only the master service.

For detailed information on creating Service Groups, refer to the *HP Client Automation Administrator User Guide* (*Administrator Guide*).

Installing Services with the System Account (ZSYSACCT)

For computers running Windows NT, Windows 2000, or Windows XP, you can specify whether to install a service under the system account or the user's account. To do this, modify the ZSYSACCT attribute in the Application (ZSERVICE) instance with one of the parameters detailed in this section.

The ZSYSACCT attribute controls—on a per-service basis—whether to use the system account for installation.

- Set to **`Y`** to install the application under the system rights. The type of connect is ignored.
- Set to **`N`** (the default) or blank to install the application under the user who is currently logged on. The type of connect is ignored.
- Set to **`M`** to install the application under the System Account if the current connect is in the machine context (**`context=m`**).
- Set to **`U`** to install the application under the System Account if the current connect is in the user context (**`context=u`**).

To edit the ZSYSACCT attribute in the Application instance

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If prompted, specify a user ID and password, and click **OK**. The Admin CSDB Editor window opens.
3. Navigate to the ZSERVICE Class by double-clicking **PRIMARY**, **SOFTWARE**, and **Application (ZSERVICE)**.
4. Double-click the appropriate application instance, such as Amortize.

The attributes appear in the list view on the right side.

5 Double-click **ZSYSACCT**.

The Editing Instance dialog box opens.

6 Select **Install under System Account** to use system rights, or clear the check box to install under the rights of the user who is logged on.

7 Click **OK** to close the Editing Instance dialog box.

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

Local Catalog Processing

Local catalog processing reduces the network bandwidth and the number of connects required to the Configuration Server to manage applications. Use a Timer or a Notify command to make the machine connect with **`context = m`** on the RADSKMAN command line.

The ZSVCMODE attribute of the application must be M or MU to use this feature.

If you have only one user for a computer or multiple users on one computer with the same entitlements, local catalog processing allows you to make one connection to the Configuration Server for the machine and user components of a service. During the machine connect, the required configuration information will be downloaded to the agent computer, machine and user components of the services will be downloaded in a compressed format, and the machine components will be installed. For the user connect, set **`cat = m`**, **`local = y`**, and **`context = u`** on the RADSKMAN command line. When the user connect is made, the user's services will be resolved based on the machine's service list, and the already downloaded resources will be added, modified, or deleted as needed.

If an HPCA agent computer has two or more users with distinct entitlements, you will need to create policies for each machine so that all components for all of the services for all users of that HPCA agent computer will be downloaded. Contact Professional Services for implementation.

Restarting the HPCA Agent Computer

You might need to restart an HPCA agent computer based on an application event. To do this, specify a reboot type and reboot modifiers in the ZSERVICE.REBOOT attribute. The modifiers allow you to:

- Set the type of warning message.
- Handle a reboot with either a machine or user connect.
- Cause an immediate restart after the application event.

If the `hreboot` parameter is missing from the RADKSMAN command line, the parameter defaults to **Y** to handle service reboot requests. If **`hreboot = p`**, the HPCA agent computer will power down, regardless of whether there is a service requiring a reboot.

First, specify the application event that needs the reboot. Table 38 below lists the codes for all possible application events. Set the application event code to a reboot type and any reboot modifier that you need to use. The sections below describe each type of reboot and all reboot modifiers.

If you need an application to immediately perform a hard reboot with no warning messages on application installation and repair, set ZSERVICE.REBOOT to **`AI=HQI, AR=HQI`**.

The parameters for the reboot attribute are not case-sensitive.

Table 38 Reboot Events and Codes

Application Events	Code	Description
Install	AI	Specifies a reboot behavior for application installations. The default is no reboot.
Deinstall	AD	Specifies a reboot behavior for application removals. The default is no reboot.
Locked File	AL	Specifies a reboot behavior when a locked file is encountered. The default behavior when a locked file is encountered is to perform a Hard reboot with just an OK button (HY).
Update	AU	Specifies a reboot behavior for application updates. The default is no reboot.

Application Events	Code	Description
Repair	AR	Specifies a reboot behavior for application repairs. The default is no reboot.
Version Activation	VA	Specifies a reboot behavior for application version activations. The default is no reboot.

Reboot Types

After deciding which application events need a reboot, choose the type of reboot. HPCA sends a message to the operating system that the computer needs to reboot. There are three types of reboot.

- **Hard Reboot (H)**
  All applications are shut down regardless of whether there are open, unsaved files or not. The subscriber will not be prompted to save open, modified files.
- **Soft Reboot (S)**
  Users are prompted to save their data if applications have open, unsaved files. If applications have unsaved data, the reboot will wait for the user to respond to the application's request for the user to save his data.
- **No Reboot (N) (default reboot type)**
  The computer will not restart after completing the specified application event. This is the default reboot type for all application events except a Locked File Event (AL). If you specify AL=N, the agent computer will not perform a hard reboot with an OK and Cancel button when a locked file is encountered. *If no restart type is specified for an application event, no restart will occur.*

Reboot Modifier: Type of Warning Message

You can specify the type of warning message you want to send to the subscriber before the restart occurs. If you specify a type of reboot, but do not specify a type of warning message, the default warning message for that type will be displayed. There are three types of warning messages. Warning messages are displayed automatically for the Application Self-service Manager and for Application Manager used with the HPCA System Tray. If you do not want to show a warning message, specify **`ask=N`** in a RADSKMAN command line.

- **Quiet (Q)**
  No reboot panel will be displayed.
- **OK Button (A)**
  A warning message will display with an OK button only. Clicking the **OK** button will initiate the reboot. The user will not be able to cancel the restart.
- **OK and Cancel Button (Y)**
  Clicking the **OK** button will initiate reboot. If the subscriber clicks **Cancel**, the reboot will be aborted.

You can specify a timeout value for the Warning Message box by adding the RTIMEOUT value to the RADSKMAN command line. Set RTIMEOUT to the number of seconds you want the HPCA agent to wait before continuing with the reboot process.

Reboot Modifier: Machine and User Options

The HPCA agent can connect as a machine or as a user by specifying the context parameter on the RADSKMAN command line. Use the machine/user reboot modifier to specify if the reboot should complete based on the type of connect.

- **Reboot on Machine connect (blank)**
  When a machine/user reboot modifier is not supplied, the default behavior will be to reboot on a machine connect only. This default behavior should satisfy the majority of reboot requirements.
- **Reboot on User connect only (U)**
  The reboot will be honored on a user connect only where context=u in RADSKMAN or if the context parameter is not specified. The reboot will not occur where context=m in RADSKMAN.
- **Reboot on both Machine and User connect (MU)**
  Reboot will only occur when both the machine and user components of the application are installed.

Reboot Modifier: Immediate Restart

You can modify each type of reboot by adding **I** (for Immediate). Use this when you want the computer to restart immediately after resolving the current service. HPCA will resolve the rest of the subscriber's services after

the computer restarts. If you specify **I** but not **H** (hard) or **S** (soft) as the type of reboot, a hard reboot will be performed.

Specifying Multiple Reboot Events

If you have two services that require a reboot event on the same HPCA agent connect, the most restrictive reboot type and reboot panel will be used. The least restrictive reboot type is No Reboot (N), followed by Soft Reboot (S), and the most restrictive is Hard Reboot (H). The least restrictive reboot warning message supplies both an OK and Cancel button (Y), followed by an OK button only (A), and the most restrictive is completely quiet (Q).

Suppose a subscriber is assigned an application that needs a soft reboot with just an OK button on installation, AI=SA. The subscriber is also assigned a second application that needs a hard reboot that displays both an OK and Cancel button, AI=HY. After all of the subscriber's application events are completed, a Hard Reboot (H) with only an OK button displayed (A) will be performed.

Preparing Versioned Applications

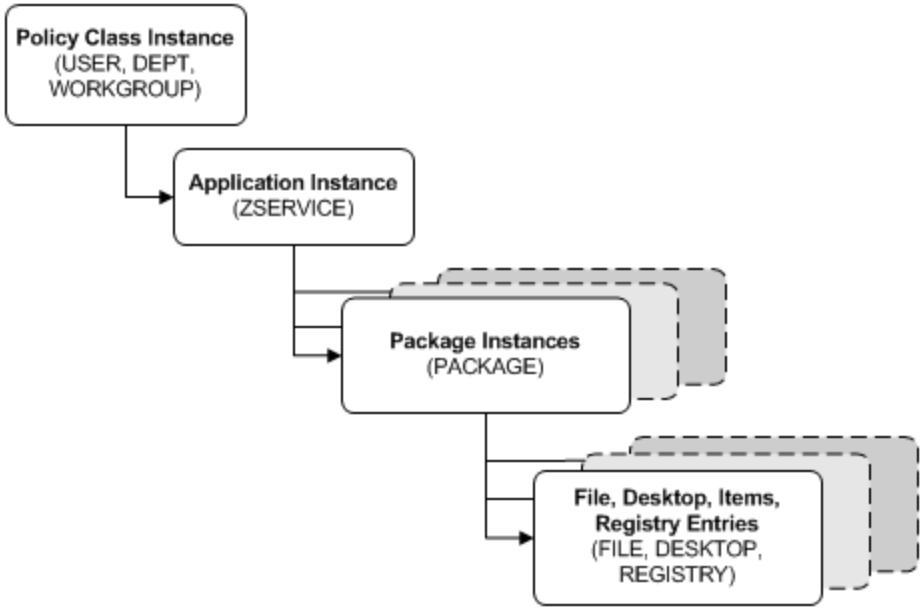
Typically, when you deploy an application to an HPCA agent computer, via either the HPCA Scheduler or the HPCA Notify, it is activated immediately. There is another option, Version Groups, which enables you to roll out a new version of an application to subscribers; it gives you the options of having it activate upon delivery or at a pre-determined time. If the installation of the new version fails, HPCA will automatically roll back to the previous version. If problems occur in the new version after installation, you can deactivate the new version and roll back to the previous version for some, or all, subscribers.

After versioning is configured, the compressed files are stored on the HPCA agent computer, and the versioning takes place. The roll forward/roll back can be entirely local, not requiring any data to be transferred at the version change time. It can also be configured to be partially local, with a minimum of data being transmitted.

Versioned vs. Non-versioned Applications

Versioned and non-versioned applications adhere to different connection models within the CSDB. For non-versioned applications, one Application instance connects to one or more package instances.

Figure 6 CSDB path for non-versioned application deployments

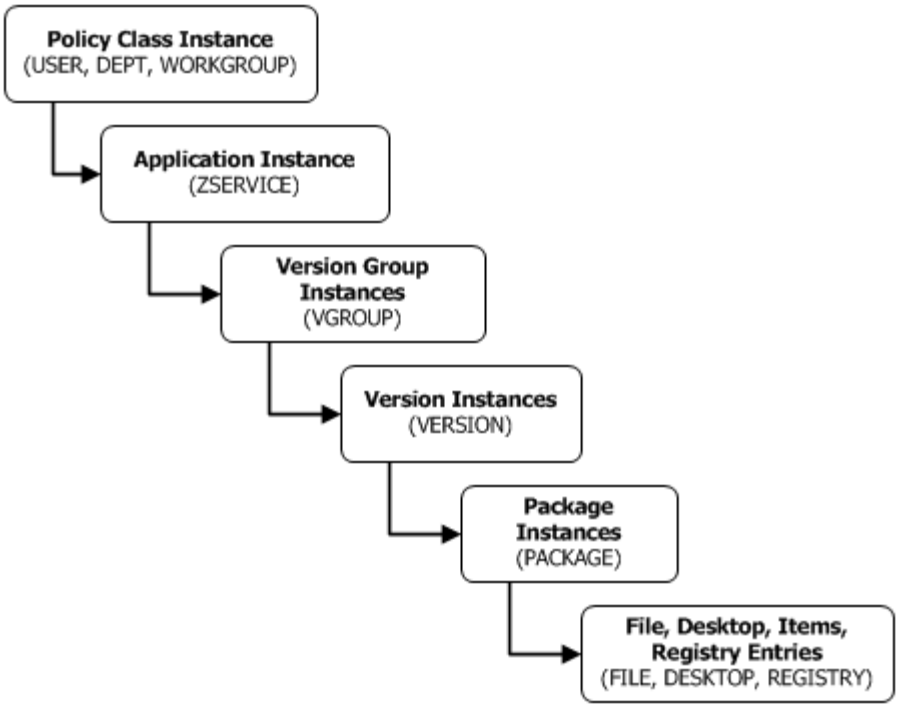


Versioned applications adhere to a different connection model than non-versioned applications. For versioned applications, an Application instance (ZSERVICE) connects to a single Version Group (VGROUP) instance.

If you want to use multiple Version Groups, you must create one Service for each Version Group.

The Version Group instance connects to one or more Version instances that connect to one or more Package instances. A Version instance (which represents one version of a software application) contains one HPCA package. Each HPCA package is represented in the CSDB by an instance of the PACKAGE Class.

Figure 7 CSDB path for deployments of versioned application.



To prepare versioned applications

1. Use the Admin Publisher to package the application.
2. Right-click the **ZSERVICE** Class and select **New Instance**.
3. In the Create Instance dialog box, type a display name and an instance name, and click **OK**.

To finish creating the Version Group, see The Version Group Editor.

The Version Group Editor

Use the Version Group Editor, in the Admin CSDB Editor, to create, edit, and delete instances for each version of an application, as well as manage the deployment of a version group. A version group contains all versions of an application.

To manage a versioned application, in the Version Group class create an instance that represents the set of versions for the application. Then, use the Version Group Editor to create instances for each version of the application.

Creating a Version Group

In the following example, we will use the Admin CSDB Editor to create a new instance in the Version Group (VGROUP) class.

To create a Version Group

1 Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

The user ID and password are:
User ID: **`ADMIN`**
Password: **`secret`**

2 If necessary, type a user ID and password and click **OK**. The Admin CSDB Editor window opens.

3 Navigate to the **SOFTWARE** Domain of the **PRIMARY** File, and right-click **Version Group (VGROUP)**.

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

5 In the text field of the Create Instance dialog box, type a name (such as Amortize) for the Version Group, and click **OK**. The Editing Version Group dialog box opens.

Creating a Version Instance

Now that you have created a Version Group (VGROUP) instance, it is necessary to learn how to create an instance for each version of your application.

To create a version instance

2 In the Version Group Editor, click **Add**. The Create Version dialog box opens.

2 Type a suffix that identifies the version. For example, **`Version 1`**.

3 Click **OK**. The Version Editor dialog box opens.

The Version Editor dialog box contains a list of Application Package (PACKAGE) instances that are stored in the Configuration Server Database. Use this dialog box to connect the new Version (VERSION) instance to an Application Package (PACKAGE) instance. There is a one-to-one correspondence between these two instances.

4 Click the appropriate Application Package (PACKAGE) instance.

5 Click **OK**. The Version instance appears in the Unassigned Version list.

Add a Version instance for each version of the application that will be available to subscribers through this Version Group.

To delete a version instance

3 In the Version Group Layout list, select the version that you want to delete.

2 Click **Delete**.

The instance for the version appears in the Unassigned Versions list. The icon is in a dimmed state, ready for deletion.

To restore the instance, click the instance in the Unassigned Versions list and then click **Un-delete**.

The version instance will not be deleted until you close the Version Group Editor.

3 Click **OK** to close the Version Group Editor.

Assigning Version Instances to the Version Group

After creating your Version instances, you must assign them to the Version Group.

To assign Version instances to the Version Group

- In the Unassigned Versions list, click a Version instance and drag it over a connection labeled <no assigned version> in the Version Group Layout list.

  Assign each of the Version instances that you created to the Version Group.

To remove a Version instance assignment

- In the Version Group Layout, click a Version instance and drag it to the Unassigned Versions area. Then, release the mouse button.

Preparing a Version Group for Deployment

Now that you have created the Version instances and assigned them to your Version Group, you are ready to specify how you would like to deploy the versions. Use the Version Group Information area in the Version Group Editor to define the deployment of the versions.

To prepare a Version Group for deployment

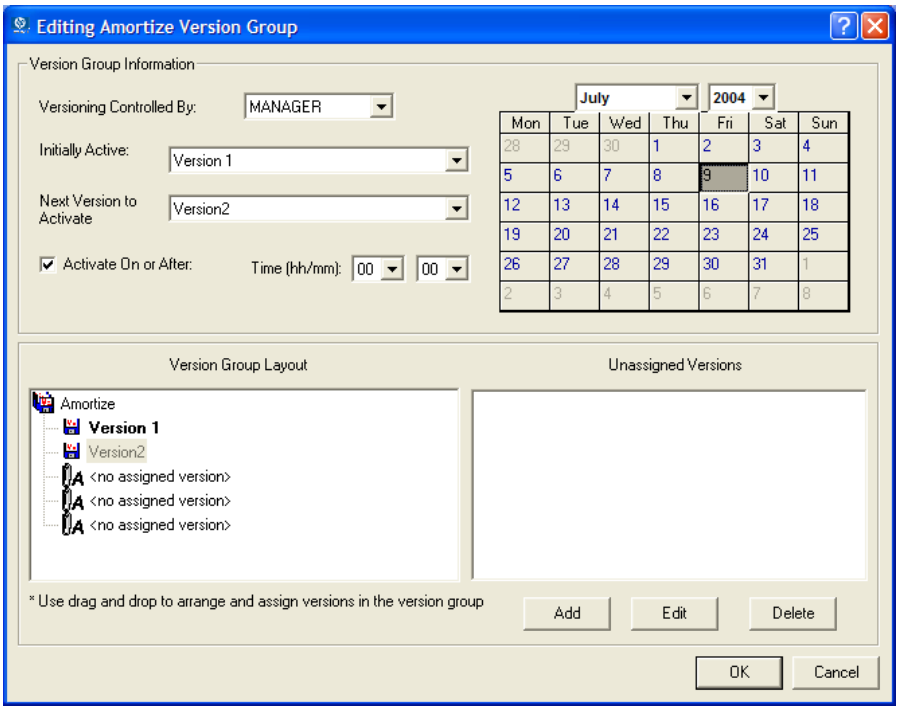
1. In the Versioning Controlled By drop-down list, select:
   - **Manager** if you want to control the version to be deployed.
   - **Client** if you want the subscriber to control the version to be deployed.

     This is used with the Application Self-service Manager only.

     If you want the ability to schedule the version deployments (with the Configuration Server) you must select **MANAGER** from the Versioning Controlled By drop-down list.
2. In the Initially Active drop-down list, select the version that you want to activate on the HPCA agent computer the next time the subscriber connects to the Configuration Server.

   You can also select from the versions that appear in the Version Group Layout list. The selected version appears in bold text in the Version Group Layout list, as shown in the next figure.
3. Select the **Activate on or After** check box to access additional controls that can be used to delay activation of a version until a specific date and time.

   If you select **MANAGER** in the Versioning Controlled By drop-down list, you must select the **Activate On or After** check box so that the Configuration Server knows when to activate the next version.



4 In the Next Version to Activate drop-down list, select the version of the application that you want to activate after the initial version.

5 In the Time (hh/mm) drop-down list, select when you want the version to be activated.

6 Use the Calendar controls to set the date of deployment for the next version.

If you use the Time and Calendar controls to schedule the deployment of a version, consider the following:

- You can schedule deployments of versions only if the Configuration Server controls the versions
- If you selected **MANAGER** in the Versioning Controlled By drop-down list, you must select the **Activate On or After** check box to let the Configuration Server know when to activate the next version.
- If you delete a VGROUP instance, the associated TIMER instance will be deleted.

7 Click **OK** to save the information in the Version Group Editor.

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

The Version Group instance appears in the Version Groups (VGROUP) Class. If you scheduled the next version to activate, HPCA creates an instance in the Scheduling (TIMER) Class and automatically connects the timer to the Version Group.

To connect the Version Group to the Service

1. In the Admin CSDB Editor, navigate to PRIMARY.SOFTWARE .ZSERVICE.
2. Right-click the appropriate service (such as Amortize) and select **Show Connections**. The SOFTWARE.ZSERVICE Connections dialog box opens.
3. Click **Version Groups (VGROUP)** and click **OK**.

   The Version Group instances appear in the list view of the Admin CSDB Editor.
4. Click **Amortize** in the list view and drag it to the appropriate Application (ZSERVICE) instance (in this example, Amortize). When your cursor changes to a paper clip, release the mouse button. The Select Connection Attribute dialog box opens.
5. Click **Copy**.
6. Click **Yes** to confirm that you want to connect the Amortize Version Group to the Amortize service.
7. Click **OK** when you receive a confirmation message.

Be sure to connect the ZSERVICE instance to the POLICY instance for the subscribers to whom you want to deploy this.

The next time the HPCA agent connects to the Configuration Server, the initial version of the application is activated and the compressed files for the next version will be stored on the HPCA agent computer.

Editing a Version Group

After you create a version group and its instances, you might want to return to the Version Group Editor to make changes.

To edit a Version Group

1. In the Admin CSDB Editor, navigate to the Version Group instance located in PRIMARY.SOFTWARE.VGROUP.

2 Right-click the appropriate Version Group instance and select **Version Group Editor**. The Version Group Editor opens.

3 Edit the Version Group as necessary.

4 Click **OK** to save your changes.

or

Click **Cancel** to close the Version Group Editor without saving your changes.

The Version Group (VGROUP) Class

Each instance of the Version Group (VGROUP) Class defines a set of versions for an application, and contains connections to the Versions (VERSION) Class. Table 39 describes the VGROUP Class attributes.

Table 39 Version Group (VGROUP) Class Attributes

Attribute	Description
ZSTOP00*n*	In ZSTOP attributes, expressions that evaluate to true cause resolution of the instance to be skipped. If left blank, the instance is not skipped and resolution continues. This is useful for assigning a version to a set of users. Use the Admin CSDB Editor to set this attribute.
CONTROL	Indicates whether the HPCA administrator (MANAGER) or the subscriber (CLIENT) controls which version to activate on the HPCA agent computer. Use the Versioning Controlled By drop-down list in the Version Group Editor to set this option. Note: HPCA agents support HPCA administrator-controlled version activation, but do not support subscriber-controlled activation.
INITIAL	Indicates which version to activate on the HPCA agent computer. Use the Initially Active drop-down list in the Version Group Editor to set this option.
ROLLBACK	Indicates whether to automatically roll back to the previously activated version when deployment of a new version fails. The default is **Y**.
REQACTDT	The earliest date on which a version in this Version Group will be activated on any HPCA agent computer. If this attribute is blank, the version identified by the INITIAL attribute will be activated at the end of the HPCA agent connect that causes the version to be transferred to the HPCA agent computer. Use the calendar controls in the Version Group Editor to set REQACTDT.

Attribute	Description
REQACTTM	The earliest time, on the date specified by the REQACTDT attribute, after which a version in the Version Group will be activated on any HPCA agent computer. The version identified by the INITIAL attribute will be activated during the next HPCA agent connect. Use the Time (hh/mm) drop-down lists in the Version Group Editor to set REQACTTM.
NAME	The friendly name for the VGROUP instance. This is set when you create the instance using the Admin CSDB Editor.
ACTDATE	This data is set and maintained, by the HPCA agent, in the VGROUP object on the HPCA agent computer. Do not alter its value.
STATUS	This data is set and maintained, by the HPCA agent, in the VGROUP object on the HPCA agent computer. Do not alter its value.
CURVERS	This data is set and maintained, by the HPCA agent, in the VGROUP object on the HPCA agent computer. Do not alter its value.
NEXTVERS	This data is set and maintained, by the HPCA agent, in the VGROUP object on the HPCA agent computer. Do not alter its value.
SOURCE	This data is set and maintained, by the HPCA agent, in the VGROUP object on the HPCA agent computer. Do not alter its value.
TIMERCON	If you specify a “next version to activate,” the Admin CSDB Editor automatically creates a timer and stores the connection to that timer in this attribute.
VERCON0*n*	Connects to each version in the Version Group. Each VERCON0*n* attribute contains a connection to one instance of the VERSION Class. This is set when you assign a version to the Version Group in the Version Group Editor.

The Versions (VERSION) Class

Each instance of the VERSION Class defines one version of an application to be deployed and managed by HPCA. Use the Version Group Editor to create VERSION Class instances and assign them to a Version Group. Table 39 on page 161 describes the VERSION Class attributes.

Table 40 Versions (VERSION) Class Attributes

Attribute	Description
ZSTOP00*n*	In ZSTOP attributes, expressions that evaluate to true cause resolution of the instance to be skipped. If left blank, the instance is not skipped and resolution continues. This is useful for assigning a version to a set of users. Use the Admin CSDB Editor to set this attribute.
NAME	The friendly name for the VERSION instance. This is set when you create the instance using the Admin CSDB Editor.
PACKAGE	Connects to a PACKAGE Class instance, which represents the packaged software for this version.

Application (ZSERVICE) Attributes

This section describes the attributes of the Application (ZSERVICE) instance in the CSDB Editor. Many of the values for these attributes are set when using the HPCA Administrator tools, such as the Admin Packager and the New Application Wizard in the Admin CSDB Editor. You can also use the Admin CSDB Editor to modify the values of these attributes in the SOFTWARE.ZSERVICE class.

You might notice that some attributes do not have values, or their values are not displayed in the Admin CSDB Editor. The HPCA agent uses these attributes. For example, the INSTDATE attribute is used to record the date on which the service was installed on the HPCA agent computer. The value for this attribute is stored in the PROFILE File for the HPCA agent computer in the Configuration Server Database.

Table 41 Modifiable SOFTWARE.ZSERVICE Attributes

Attribute	Description
ZSTOP*nnn*	Stops resolution if the expression evaluates to TRUE. Example: **`WORDPOS(EDMGETV(ZMASTER,ZOSTYPE),'WIN32_NT WIN64_NT')=0`** This example expression will stop resolution (the application will not be installed) on the instance if the HPCA agent's operating system is neither Windows 32-bit nor Windows 64-bit.

Attribute	Description
ZSVCNAME	Use this attribute to set the name of the service that will display in the Application Self-service Manager user interface. This value is initially set in the Short Description field in the New Application Wizard.
ZSVCTTYP	This indicates for which HPCA agent this application was packaged. • Specify **A** for Application Manager. • Specify **S** for Application Self-service Manager. This value is initially set in the New Application Wizard.
ZSVCMO	Use this attribute to designate a service as *mandatory* or *optional*. • When using the Application Manager, services are typically designated as mandatory (**M**); • When using the Application Self-service Manager, services are typically designated as optional (**O**). If both HPCA agents are being used you could also specify mandatory then optional (**ZSVCMO=MO**), or optional then mandatory (**ZSVCMO=OM**). • The first character indicates how the application should be handled before installation. • The second character indicates how the application should be handled after installation. Note: You might need to edit the ZSERVICE class template to allow the **ZSVCMO=OM** setting. Refer to the *HPCA Admin User Guide* for more information on editing a class template. To process mandatory applications using Application Self-service Manager, add **enterprisemanagement=auto** to the `args.xml` file. This value is initially set based on the setting for the application target type (ZSVCTTYP) in the New Application Wizard.
ZSVCPRI	Use this attribute to set the priority level for the service. Services are created based their priority. The lower the number, the higher the service's priority. • A service with **ZSVCPRI=01** would have the highest priority. • A service with **ZSVCPRI=99** would have the lowest priority.
ALWAYS	Any method that you specify for this attribute is unconditionally executed when this instance is resolved.
ZCREATE	A method that runs when the service is installed.
ZINIT	A method that runs when the service is initialized.

Attribute	Description
ZDELETE	A method that runs when the service is deleted.
ZUPDATE	A method that runs when the service is updated.
ZVERIFY	A method that runs when the service is verified.
ZREPAIR	A method that runs when the service is repaired.
PUBDATE	*Reserved for future use.*
UPDDDATE	*Reserved for future use.*
AUTHOR	The name of the author of the service. This appears in the extended information area in the Application Self-service Manager user interface. This value is initially set in the Author field in the New Application Wizard.
DESCRIPT	A description of the service. This appears in the properties for the service in the Service List. This value is initially set in the Long Description field in the New Application Wizard.
VENDOR	The name of the vendor of the service. This appears in the Application Self-service Manager user interface. This value is initially set in the Vendor field in the New Application Wizard.
URL	The web address where the subscriber can find additional information about the service. This appears in the properties for the service in the Application Self-service Manager user interface. This value is initially set in the Web URL field in the New Application Wizard.
CATGROUP	Use this attribute to group a set of applications. You can display applications based on their group in the Application Self-service Manager user interface.
PRICE	Specify the price of an application. This will be displayed to subscribers in the extended information area in the Application Self-service Manager user interface.
SCHEDOK	*For Application Self-service Manager only.* • Specify **`Y`** to allow the subscriber to locally change the update schedule. • Specify **`N`** to retain control on the Configuration Server.
VERSION	The version of the software. This appears in the properties for the service in Application Self-service Manager user interface. The value is initially set in the Version field in the New Application Wizard.

Attribute	Description
NAME	This name appears in the properties for the service in the Application Self-service Manager user interface. The value is initially set in the Short Description field in the New Application Wizard.
OWNER	*Reserved for future use.*
RUNDLG	Specify **Y** to enable the processing of DIALOG Class instances during the installation of the service; specify **N** (the default) to disable this processing.
REBOOT	This attribute is used to restart the HPCA agent computer based on an application event. Specify the action by equating an application event to a reboot **type**, **panel**, or **connect**. Event on which to Restart: **AI** = Install; **AD** = Deinstall; **AU** = Update; **AR** = Repair; **AV** = Verify Type of Panel: **Q** = No panel; **A** = OK button only; **Y** = OK and Cancel buttons. Type of Reboot: **S** = Soft reboot (default of type Y panel); **H** = Hard reboot (default of type A panel); **N** = No reboot Type of Connect: None specified = Reboot on machine connect (**context=m**); **U** = reboot on user connect (**context=u**); **MU** = reboot when machine and user parts of the service have been installed.
EVENTS	Set this attribute to indicate on which events to report. Specify your event by equating an application event to an event type. **AI**=Application Install; **AD**=Application Deinstall; **AU**=Application Update; **AR**=Application Repair; **AV**=Application Verify; **VA**=Version Activation; **VD**=Version Deactivation What to Report on: **S**=Success; **F**=Failure; **B**=Both (success and failure); **N**=None The default is **AI=B,AD=B,AU=F,AR=N,VA=F,VD=F**
ERTYPE	Set this attribute to send an APPEVENT object. Currently, this supports the Object format only, so the default is **ERTYPE=O**..

Attribute	Description
ADAPTIVE	Set this attribute to indicate whether the installed package is dependent on HPCA agent settings that must be monitored periodically. • Specify **Y** for Yes. • Specify **N** for No. If the settings change, the HPCA agent must reconnect to the Configuration Server to get new or different components.
LREPAIR	Set this attribute to enable local repair of broken applications. If an application is broken due to missing files, the files (locally stored) can be used to repair the application. • Specify **Y** for Yes. • Specify **N** (the default) for No.
REMOVAL	This attribute controls how the application is managed when a service is removed. • **REMOVAL=A** (Abandon) will delete the service's objects on the HPCA agent, but leave its components. The service will no longer be managed by HPCA. • **REMOVAL=D** (Delete) will delete the service's objects and components. The service will still be managed by HPCA. — This is the default. • **REMOVAL=U** (Unmanage) will stop management of the service by HPCA. Neither the objects nor the components will be deleted. This applies only to optional applicatons (**ZVSCMO=O**) that are removed based on entitlement policy. Note: If a subscriber removes an optional application, the service's objects are also removed, regardless of the REMOVAL setting.
RECONFIG	Set this attribute to indicate whether an application can be relocated after it has been installed. For example, you can move an application from the C drive (on which it was installed) to the D drive without having to remove and re-install the application. • Specify **Y** for Yes. • Specify **N** for No.
ZSVCCAT	Set this attribute to indicate whether the service is visible in the Application Self-service Manager catalog. For optional applications, the default is **Y**; for mandatory applications, the default is **N**. These defaults can be overridden.

Attribute	Description
UIOPTION	Set this attribute to indicate whether the Service Status window will be displayed. Possible values are: • **UIOPTION=NONE**: No interface displayed. • **UIOPTION=FULL**: Interface displayed; Cancel button is available. • **UIOPTION=INFO**: Interface displayed; no Cancel option.
CACHE	This attribute enables element caching. • Specify **Y** for Yes. • Specify **N** (the default) for No.
CACHELOC	*For Windows Installer applications only*. Specify the location of the folder, on the HPCA agent computer, that is used to cache the compressed application files that are needed for the product. The default is **_UNDEF_**. HPCA support for Windows Installer tags the PRODGUID value to this value in order to create the folder. For example, if **CACHELOC=C:\progra~1\Hewlett-Packard\HPCA\Agent** and **PRODGUID=12345_XXXX** the cache folder would be `C:\progra~1\Hewlett-Packard\HPCA\Agent\12345_XXXX\cache`. Note: The folder `\cache` is automatically appended to PRODGUID. If you are not deploying a Windows Installer-enabled application, the files will be cached in IDMDATA.
CACHELIM	*For Windows Installer applications only*. Specify a number between **000** and **100** to indicate the cache limit—defined as "the percentage of used drive space." If the percent of used space is greater than the cache limit, all of the product's cached files are removed and the cache folder is deleted. This is checked after every file is cached on the disk.
ZDISCONN	Set this attribute to indicate whether the HPCA agent is allowed to disconnect from the Configuration Server if there is an open session with the Configuration Server. • Specify **Y** to disconnect the HPCA agent from the Configuration Server. • Specify **N** (the default) to keep the HPCA agent connected to the Configuration Server.

Attribute	Description
ZSYSACCT	Set this attribute to indicate whether to install the service under the system account or the user's account. • Specify **Y** to install the application using the system rights. • Specify **N** (the default) to install the application using the rights of the user that is logged on.
MCELIGBL	Indicates whether the application is eligible for multicasting. • Specify **Y** (the default) for Yes. • Specify **N** for No.
RSTRSIZE	Use this attribute in the appropriate ZSERVICE Class instance to control which files are enabled for check-point restart based on the amount of data (in bytes) that are being downloaded.
ZSVCMODE	Set ZSVCMODE to: • **M** if the service has machine components only. This service will be ignored if **context=u** on the RADSKMAN command line. • **U** if the service has user components only. This service will be installed if **context=u** or is left blank on the RADSKMAN command line. You might want to use this setting if the application consists only of user registry changes or user desktop shortcuts. • **MU** if the service has machine and user components. The user connect will verify that the machine components have been installed before installing the user components. You will need to run two RADSKMAN connects—one with **context=m** and one with **context=u**. • **EMU** if the HPCA agent connect is being made in the user context but the machine side of the application has not yet been installed, because this will force the machine connect. After the machine connect completes, the user connect is initiated to install the user components. Use this for optional applications that the user controls through the Application Self-service Manager. Leave ZSVCMODE blank to treat the service as single mode that can be installed independently by the machine or the user. In other words, install the entire service ignoring the component's ZCONTEXT.

Attribute	Description
ZBITARCH	Use this attribute to specify the bit size-based architecture to which the service can be deployed. • Set to **32** to deploy to 32-bit architectures. • Set to **64** to deploy to 64-bit architectures. • Leave blank to deploy to all architectures.

Reporting Attributes in ZSERVICE

Some of the attributes in the ZSERVICE Class are calculated. They are updated when the service is installed, verified, updated, repaired, or deleted and reported in the HPCA agent computer's service objects.

These attributes should not be modified using Admin CSDB Editor.

Table 42 Calculated ZSERVICE Attributes – DO NOT MODIFY

Attribute	Description
ZSVCCSTA	This status code for the service is used to determine why files for a service might not be correctly deployed. Values range from 000–999.
SIZE	The uncompressed size of the application that is displayed to the subscribers in the extended information area in the Application Self-service Manager user interface. This "calculated" field is the cumulative value of the SIZE that is defined in the PACKAGE class; do not modify it.
COMPSIZE	The compressed size of the application that is displayed to the subscribers in the extended information area in the Application Self-service Manager user interface. This "calculated" field is the cumulative value of the COMPSIZE that is defined in the PACKAGE class; do not modify it.
ZAVIS	The HPCA agent manages this attribute to show, in the catalog, the different states of the application. The four states are: • **Available** indicates whether a service is available from the Configuration Server. • **Verified** indicates whether a service has been verified. • **Installed** indicates whether the service has been installed. • **Synchronized** indicates whether the installed service has all of the

Attribute	Description
	latest changes from the Configuration Server. The valid values for each state are: **Y** (Yes), **N** (No), and **X** (unknown).
VERDATE	This attribute indicates (in local time, in the format of MMM DD,YYYY HH:MM:SS) when the application was last verified on the HPCA agent computer. This is displayed to the subscribers in the extended information area in the Application Self-service Manager user interface. The HPCA agent manages this attribute.
UPGDATE	This attribute indicates (in local time, in the format of MMM DD,YYYY HH:MM:SS) when the application was last updated on the HPCA agent computer. This is displayed to the subscribers in the extended information area in the Application Self-service Manager user interface. The HPCA agent manages this attribute.
INSTDATE	This attribute indicates (in local time, in the format of MMM DD,YYYY HH:MM:SS) when the application was installed on the HPCA agent computer. This is displayed to the subscribers in the extended information area in the Application Self-service Manager user interface. The HPCA agent manages this attribute.
DELDATE	This attribute indicates (in local time, in the format of MMM DD,YYYY HH:MM:SS) when the application was removed on the HPCA agent computer. The HPCA agent manages this attribute.

7 Deploying Services

At the end of this chapter, you will:

- Understand the deployment methods available in HPCA.
- Be able to use a timer to deploy a service at a pre-determined time.
- Know how to use the Notify function to update an application, remove an application, or send an e-mail message to a subscriber.
- Be able to deploy versioned applications.
- Understand how HPCA supports Windows Installer applications.

Deployment Methods

After publishing packages and creating services using the HPCA Administrator, and deciding which users and groups will receive the services (see *Chapter* 4, Implementing Entitlement Policy), you are ready to deploy the services to your subscribers.

If you have used other systems-management software, you might be familiar with the term **job**. A job is used to distribute a package. It includes a set of instructions that must be performed, a package containing the files or software, the targets for the job, and the schedule for carrying out the job.

In HPCA, you do not need to use a job. You can perform each of the steps—creating the package, defining targets (assigning users), and selecting a deployment method—individually. This provides flexibility because you can use multiple deployment methods to distribute a single package.

HP Client Automation offers two deployment methods.

- **Scheduler**
  Installs the service at a specific time or sets any command line to run at an interval.
- **Notify**
  Forces one or more agent computers to connect to the Configuration Server to install, update, or remove an application, or sends an e-mail to the subscribers of a particular service.

Before selecting a deployment method, consider the following questions.

- *Does the application need to be deployed at a certain time?*
  If so, use Scheduler.
- *Do you want to notify the users via e-mail when you are deploying the application?*
  If so, use Notify.
- *Do you want to install a new application, update an application, or remove an application?*
  If so, use Notify.
- *Are there multiple versions of the application?*
  If so, use Version Groups. See Chapter 6, Preparing Services.

In addition to the Scheduler and Notify methods, applications can be deployed using the Application Self-service Manager user interface in which

some of the download and installation control is given to the user. This is described in the next chapter, HPCA Application Self-service Manager User Interface.

Concurrent HPCA agent connects from separate remote terminal sessions to the same machine are not supported.

This support is available only when running under Windows Terminal Services and when using the HPCA Windows Terminal Server extensions.

Testing Deployments

To ensure successful deployments, thoroughly test your implementation.

- Publish and deploy software in a test environment before making the software available for live deployment.
- Test deployments to all target operating systems.
- Test all major capabilities of the deployment, including updates to the application, removing the application from the subscriber's desktop, customized installations, and variations in hardware configurations—such as shortages of disk space and physical memory—that might affect the deployment.

Connection Parameters (RADSKMAN)

Regardless of which deployment method you choose, you will need to create and run a RADSKMAN command line. You can specify a RADSKMAN command line from a command prompt, a Scheduler (TIMER) instance, and a Notify command. Use RADSKMAN to:

- Check the status of all existing mandatory applications.
- Add new mandatory applications.
- Remove any mandatory applications that are no longer assigned to the subscriber.

Before using RADSKMAN in a production environment, test the command-line parameters. The RADSKMAN parameters can be divided into the following categories:

- Core (see page 176)

- Operations (see page 178)
- Machine/User (see page 179)
- Client Operations Profiles (see page 182)
- Process (see page 183)

The tables that follow describe the RADSKMAN parameters. After the tables, on page 184, are sample RADSKMAN lines for common situations.

Core

Core parameters are used in most RADSKMAN commands. These parameters include the location of your Configuration Server, and how to identify the HPCA agent computer for policy.

Table 43 RADSKMAN Core Parameters

Parameter	Explanation
cat	• Set **`cat=prompt`** to run self-maintenance, display the logon panel, and check the status of other services. • Set **`cat=y`** to check the status of services only. • Set **`cat=m`** to use the local machine catalog for resolving the user's service list. This is used with **`context=u`**. Typically, this is also used with **`local=y`**. The Application Manager default is **prompt**. The Application Self-service Manager default is dependent on the request type.
dname	The CSDB domain name for the services. This is the directory in which the service catalog (`ASERVICE.EDM`) is stored. For example, `dname=SOFTWARE`. The default for both HPCA agents is **SOFTWARE**. However, if **`preload=y`**, the default is **RADSTAGE**.
IP	The IP address of the Configuration Server. Note: If you do not specify the IP address, HPCA uses the IP address that is specified in the ZMASTER object stored in `IDMLIB` (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent\LIB\`). The default for both HPCA agents is **NOVARCS**.
mname	The name of the Configuration Server. For example, mname=RADSVR01. The default for both HPCA agents is **RADSTAGE**.

Parameter	Explanation
port	The Configuration Server port. Note: If this is not specified, HPCA uses the port that is specified in the ZMASTER object stored in `IDMLIB` (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent\LIB\`). The default for both HPCA agents is **3464**.
sname	Specifies the name of the service that you want to process. If you do not specify a service, all mandatory services are processed.
startdir	Specifies the `IDMLIB` starting directory. Note: HP recommends specifying **`startdir`** on the command line if **`uid`** has been specified on the command line. If **`startdir`** is not specified, it will be set to the same value as **`uid`**. • Specify **`startdir=$MACHINE`** to use the computer name. • Specify **`startdir=$USER`** to use the currently logged on user. • Specify **`startdir=`***`value`* to specify a custom starting directory. If *`value`* contains embedded spaces, enclose the entire name in quotation marks. The defaults for both HPCA agents are: **$USER** (if started in a user context, **`context=u`**); **SYSTEM** (if started in machine context, **`context=m`**). Note: Application Self-service Manager does not pass a context by default.
uid	The identification that is used to identify the current session. Note: HP recommends specifying **`startdir`** on the command line if **`uid`** has been specified on the command line. If **`startdir`** is not specified, it will be set to the same value as **`uid`**. • **`uid=$MACHINE`** identifies the current session by the name of the computer. • **`uid=$USER`** identifies the current session by the name of the currently logged on user. • **`uid=`***`custom`* is used to identify the current session by a custom value that you specify. The defaults for both HPCA agents are: **$USER** (if started in a user context, **`context=u`**); **SYSTEM** (if started in machine context, **`context=m`**). Note: If you do not specify a context for Application Self-service Manager, the LOCALUID—as specified in the ZMASTER object stored in `IDMLIB` (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib\`)—will

Parameter	Explanation
	be used.

Operations

These parameters influence how the HPCA agent will connect. Its features include computer restart handling, log specifications, and the display options for the user.

Table 44 RADSKMAN Operations Parameters

Parameter	Explanation
ask	• Set **ask=y** to prompt the subscriber before restarting the computer, which gives them a chance to save their work and close applications. • Set **ask=n** to restart the computer without prompting the subscriber. This is useful for unattended computers. The default for Application Manager is **Y** if HPCA System Tray is running; **N** if System Tray is not running or there are no users logged on. The default for Application Self-service Manager is **Y**.
hreboot	• Specifying **hreboot=y** will allow RADSKMAN to handle a computer restart if it is required by the service. • Specify **hreboot=p** to power off the computer. The HPCA agent computer will shut down regardless of the service's reboot settings. If **hreboot=p** is used, the system assumes a quiet mode and the user does not receive an alert on the screen. If an alert is required, an alert type needs to be passed as follows: — Use **hreboot=py** to receive an Ok/Cancel alert on the screen. — Use **hreboot=pa** to receive an OK alert on the screen. — Use **hreboot=pq** or **hreboot=p** to surpress the alert. For more details on **hreboot**, consult the *CAE Application Manager Installation and Configuration Guide*. Note: The **hreboot** options **pa** and **py** are available only with client code 4.0.3 or greater. Note: This replaces handle_reboot. The default for Application Manager is **Y**. The default for Application Self-service Manager is **N**.

Parameter	Explanation
ind	• Specify **ind=n** to hide the status indicator for each service. • Specify **ind=y** to show the status indicator for each service. The default for both HPCA agents is **Y**.
jobid	Use jobid to further describe the source of this command line. It shows up in the APPEVENT, IDENTITY, PREFACE, and SYNOPSIS onjects as JOBID. The defaults for both HPCA agents are: **UserConnect** (if started in a user context); **MachineConnect** (if started in machine context).
log	Create a name for the log that is stored in the `IDMLOG` directory.
logsize	Specify the maximum size (in bytes) of the log file. When the log size is reached, a backup file (`.bak`) is created (by default, `connect.bak`). If a backup file exists, it will be overwritten. The default for both HPCA agents is **1000000**.
rtimeout	Specify the number of seconds to wait—before rebooting the HPCA agent computer—if a reboot panel has been requested for a service. This timeout will allow a user to save and close applications before a reboot.

Machine/User

These parameters are beneficial when there are multiple users on the same HPCA agent computer, and with applications with machine and user components. These parameters control the frequency of connections to the Configuration Server, the display of the user logon panel, and when to send objects to the Configuration Server.

Table 45 RADSKMAN Machine/User Parameters

Parameter	Explanation
cat	• Set **`cat=prompt`** to display the logon panel and check the status of other services. • Set **`cat=y`** to check the status of services only. • Set **`cat=m`** to use the local machine catalog for resolving the user's service list. This is used with **`context=u`**. Usually, this is also used with **`local=y`**. The Application Manager default is **prompt**. The Application Self-service Manager default is dependent on the request type.
catexp	Use this parameter (in the format <*`attribute name`*>:<*`value`*>) to process applications based on a specific attribute in the ZSERVICE Class. Note: Specify multiple "or" conditions with a forward slash (**`/`**).
context	Set **`context=m`** when installing an application in the machine context; **`context=u`** when installing an application in the user context. • If **`context=m`** the following defaults are assumed. — **`uid=$machine`** — **`startdir=system`** — **`cat=prompt`** — **`ulogon=n`** • If **`context=u`** the following defaults are assumed. — **`uid=$user`** — **`startdir=$user`** — **`cat=prompt`** — **`ulogon=y`** The Application Manager defaults are: **u** if started with a user logged on; **m** if no user is logged on. There is no default for Application Self-service Manager; all components are processed.

Parameter	Explanation
flushu	If **local=y** (see next parameter in this table): • Specify **flushu=y** on user connects in order to send reporting objects to the Configuration Server at the end of the local connect for immediate feedback. This is the default behavior on user connects. • Specify **flushu=n** to prevent the reporting objects being sent to the Configuration Server. Be aware that the user's objects will continue to grow until they are sent to the Configuration Server. Note: **flushu=n** is applicable only for user connects and cannot be used for machine connect. On a machine connect, set **flushu=a** in order to send all reporting objects to the Configuration Server. The default for both HPCA agents is **Y**.
local	Specify **Y** to install resources, from the local HPCA agent computer, for the user's services. Use this only with **context=u**. Usually, this is used with **cat=m**.
machfreq	This parameter specifies whether and how frequently HPCA will run. It can be used to prevent HPCA from running every time an HPCA agent computer reboots. If set to an integer (*n*) a machine connect will run only if it has been *n* hours since the most recent machine connect. This will reduce the number of OS Manager commits on a thin agent computer by ensuring that the HPCA agent will not run more than once within the specified number of hours. If **machfreq=0**, the machine connect will run on every reboot of the thin client.
mnt	Specify (**Y|N**) whether to process HPCA agent self-maintenance on this connect. The default for both HPCA agents is **N**.
ulogon	This parameter display/hide the logon panel; it is valid only if **cat=prompt**. Note: If using the HPCA System Tray, specify ulogon=n to display the HPCA logon panel, which is not supported by the System Tray. The Application Manager default is **N**. The Application Self-service Manager default is **Y**.

Parameter	Explanation
userfreq	Use this variable to prevent HPCA from running every time a user logs into the HPCA agent computer. It is valid only if **`context=u`**. If set to an integer (*n*) a user connect will run only if it has been *n* hours since the most recent user connect or if a machine connect has run. • If **`machfreq=0`**, a user connect will run only if a machine connect has run since the last user connect. • If the value of userfreq is blank or not supplied, a user connect will run every time an HPCA agent connect is run with **`context=u`**.

Client Operations Profiles

These parameters are used for specifying how to use Client Operations Profiles. For more information, see Chapter 5, Configuring Client Operations Profiles, on page 105.

Table 46 RADSKMAN Client Operations Profiles Parameters

Parameter	Explanation
cop	• Specify **`Y`** to enable Client Operations Profile resolution for this HPCA agent connect only. • Specify **`N`** to disable Client Operations Profiles resolution for this HPCA agent connect only. The default for both HPCA agents is **N**.
cdf	• Specify **`Y`** to enable the Connect Deferral feature. • Specify **`N`** to disable the Connect Deferral feature. For more information on the Connect Deferral feature, see User Actions for Mandatory Services on page 240.
datauri	Add **`datauri`** (in the Universal Resource Identifier format) to the RADSKMAN command line to override the use of the SAP object for the DATA type.
product	If you used the SAP.PRODUCT attribute to identify that a SAP can be used with a specific product only, specify that product using this parameter. Multiple product filters must be separated by a comma.

Parameter	Explanation
rcsuri	Add **rcsuri** (in the URI format) to the RADSKMAN command line to override the use of the SAP object for the RCS type. For more information on this parameter, see Creating the Universal Resource Identifier on page 113.

Process

Process parameters involve service processing such as whether to repair or add applications on the current HPCA agent connect. These parameters also allow you to specify criteria for: service processing, sending application data to a Proxy Server, and handling SSL security for your HPCA agents.

Table 47 RADSKMAN Process Parameters

Parameter	Explanation
Add	Specify (**Y**|**N**) whether to install applications during this HPCA agent connect. The default for both HPCA agents is **Y**.
autofix	Specify (**Y**|**N**) whether to automatically repair broken applications. The default for both HPCA agents is **Y**.
catexp	Use this parameter (in the format *<attribute name>:<value>*) to process applications based on a specific attribute in the ZSERVICE Class. Note: Specify multiple "or" conditions with a forward slash (**/**).
del	Specify (**Y**|**N**) whether to delete applications during this HPCA agent connect. The default for both HPCA agents is **Y**.
merge	Specify an object name to have all variables in that object included in the ZMASTER object, and sent to the Configuration Server.
mnt	Specify (**Y**|**N**) whether to process HPCA agent self-maintenance on this connect. The default for both HPCA agents is **N**.
preload	Used for Proxy Server preloading. Specify **Y** to use the the `IDMDATA` directory that is specified in `NVD.INI`. Otherwise, specify the location of a directory into which the files will be copied.

Parameter	Explanation
rep	Specify (**Y**|**N**) whether to repair applications during this HPCA agent connect. The default for both HPCA agents is **Y**.
sendcat	Specify **Y** to send the service list, stored in the HPCA agent computer's ASERVICE object, to the Configuration Server at the end of the connect so that additional analysis can be done on it.
sslmgr	Specify the hostname or IP address of the Configuration Server. Note: To perform HPCA agent self-maintenance over a secure channel (SSL), add the flag **::sm** to the end of the SSL Manager IP address.
sslport	Specify the SSL communications port (normally, 443).
upd	Specify (**Y**|**N**) whether to update applications during this HPCA agent connect. The default for both HPCA agents is **Y**.
ver	Specify (**Y**|**N**) whether to verify applications during this HPCA agent connect. The default for both HPCA agents is **Y**.

RADSKMAN Examples

The following examples are provided to illustrate common uses of RADSKMAN.

Perform a first catalog refresh that brings down the catalog (`aservice.edm`), runs self-maintenance, does not display the user logon panel if using Application Manager, and processes all mandatory applications:

```
radskman ip=10.10.10.15,port=3464,mname=HPAgent,
dname=software,cat=prompt
```

Perform a silent, full connect for user <*machine name*> with no user logon or progress indicator panels. This is a typical command used by a daily timer. Note that the value of **ip=** can be either a DNS name or an IP address:

```
radskman ip=test.corp.com,port=3464,mname=HPAgent,
dname=software,cat=prompt,uid=$machine,ulogon=n,ind=n
```

Verify mandatory applications without updating the catalog, running self-maintenance, or repairing broken applications. Note that, prior to using **cat=n**, the machine must perform a first refresh catalog using **cat=prompt** at least once to bring down the catalog:

```
radskman ip=10.10.10.15,port=3464,mname=HPAgent,
dname=software,cat=n,autofix=n
```

Install an application (WinZip) while updating only the catalog. Note that the Configuration Server uses a custom port number:

```
radskman ip=10.10.10.15,port=5004,mname=HPAgent,
dname=software,cat=y,sname=WinZip
```

Process all mandatory applications, handle reboot requests, and prompt the user with a panel to confirm the reboot request:

```
radskman ip=10.10.10.15,port=3464,mname=HPAgent,
dname=software,cat=prompt,hreboot=Y,ask=Y
```

Preload a stager using a location of **d:\stager** and display the progress indicator panels. Note that if the HPCA System Tray feature is enabled, the progress indicator will be displayed in the System Tray information bubble. If the System Tray is disabled, the progress indicator will be displayed in a separate panel:

```
radskman ip=10.10.10.15,port=3464,uid=STAGER,
preload=d:\stager,ind=Y
```

Perform a machine connect:

```
radskman context=m
```

— Note that because **context=m** and no other parameters were passed, the following default values are assumed:

```
ip=NOVARCS, port=3464, uid=$machine, startdir=system,
cat=prompt, ulogon=n, mname=HPAgent, dname=software
```

Perform a user connect:

```
radskman context=u
```

— Note that because **context=u** and no other parameters were passed, the following default values are assumed:

```
ip=NOVARCS, port=3464, uid=$user, startdir=$user,
cat=prompt, ulogon=y, mname=HPAgent, dname=software
```

Perform a user connect only if: a machine connect has occurred *and* at least 12 hours have passed since the most recent user connect:

```
radskman context=u,userfreq=12
```

Deployment Methods

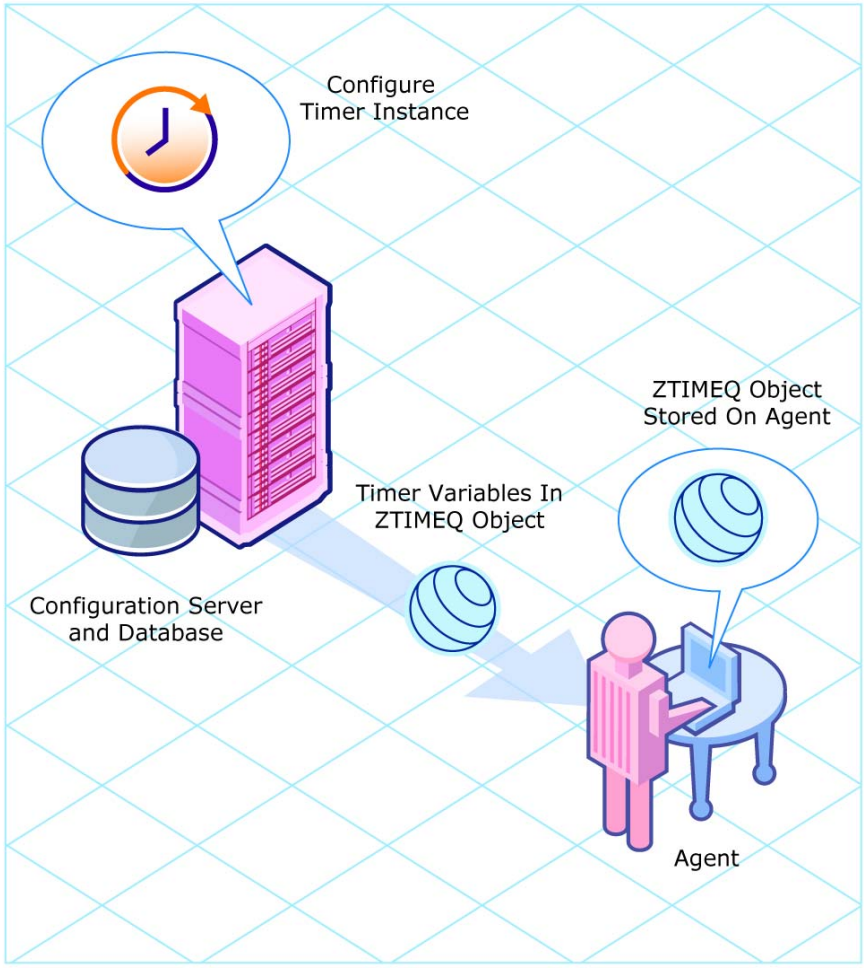
This section details the HPCA Scheduler and HPCA Notify deployment methods. You can use multiple methods to deploy a service.

HPCA Scheduler

The HPCA Scheduler service, RADSCHED, is installed with the Application Manager on the HPCA agent computer and allows you to deploy a service at a pre-determined time. The Scheduler runs as a system service that starts automatically.

To schedule the deployment of a service, configure a timer in the Configuration Server Database. When the HPCA agent computer connects to the Configuration Server, the timer information is transferred to the HPCA agent computer in the ZTIMEQ object.

Figure 8 Transferring the timer instance



This section describes how to create and configure a timer instance and then connect it to a service. Before creating and configuring a timer, consider the following.

- What time of day should the timer expire? Be sure to consider network traffic.
- How often should the timer to expire? Daily? Weekly? Hourly?

- Does the timer need to expire more than once? Is this timer for a one-time installation of an application or one that will periodically check for mandatory applications?
- What should happen when the timer expires? Do you want to install, remove, or update an application?

Scheduled Deployment Strategy

One of the suggested strategies for implementing the Application Manager agent is *scheduled deployment*. This strategy installs a set of mandatory applications when you install the Application Manager, and transfers to the HPCA agent computer a timer that periodically checks for new mandatory applications.

Use the following exercise to create a sample timer that updates all mandatory services on a weekly basis and which randomly expires between 5:00 PM and 7:00 PM in order to alleviate network congestion. Use the information in this section to configure timers for your HPCA environment.

Creating a Timer

Use the Admin CSDB Editor to create a Scheduling (TIMER) instance in the SOFTWARE Domain.

To create a TIMER instance in the SOFTWARE Domain

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If necessary, type a user ID and password, and click **OK**. The Admin CSDB Editor window opens.
3. Navigate down through the **PRIMARY** File, **SOFTWARE** Domain, **Scheduling (TIMER)** Class, and right-click the TIMER Instance.
4. Select **New Instance**. The Create Instance dialog box opens.
5. Type a name (such as **`Mandatory Apps Timer`**) for the instance, and click **OK**.

Scheduling (TIMER) Class Attributes

The TIMER Class attributes (described in Table 48) contain the information that is needed to execute the timer on the HPCA agent computer.

Table 48 Scheduling (TIMER) Class Attributes

Attribute	Usage
ALWAYS	Stores connections to other instances.
NAME	The friendly name for this instance.
PINGDLAY	If **ZNOPING=N**, PINGDLAY specifies the time (in milliseconds) between pings. The default is **2000**.
PINGCNT	If **ZNOPING=N**, PINGCNT specifies number of ping attempts. The default is **3**.
RETRYINT	Specify the number of minutes to wait between command executions. Note: This is ignored if **RETRYFLG=N**.
RETRYLMT	Specify the number of times to retry the command. • Specify **0** to retry until the command succeeds. Note: This will be ignored if **RETRYFLG=N**.
NETAVAIL	Use to check the availability of the network. • Specify **Y** to check for network availability before executing the TIMER instance. If the network is not available, network availability will be checked every time the timer wakes up until the network is available. • Specify **N** (the default) and the TIMER instance will be executed without checking for network availability. • Specify **W** to check for network availability before executing the TIMER instance. If the network is not available and the time window's end limit has been reached, the timer will wait until the next time window before checking for network availability again.
RETRYFLG	Use to specify the retry activity. • Specify **Y** to retry the command up to <*RETRYLMT*>, ignoring the end time for the timer. • Specify **W** to retry the command up to up to <*RETRYLMT*>, but stop retrying after the specified limit time has passed. • Specify **N** to not retry. Note: A return code other than 200 will indicate success, and stop the

Attribute	Usage
	retries.
RETRYRC	Specify return codes that qualify for the retry logic. If this variable does not exist or is blank, RETRYRC will default to **200** which means there was a fatal error due to a network connection failure with the Configuration Server. If you populate this attribute and a return code of 200 qualifies for a retry, be sure to specify 200 in the list. Example: **`RETRY=200, 202, 209`**
ZNOPING	Use this attribute to control automatic sensing of a network connection between the HPCA agent computer and the Configuration Server. The default is **Y**. • Specify **`Y`** to prevent the Scheduler service from pinging the Configuration Server. This is especially useful for mobile users. • Specify **`N`** to have the Scheduler service to ping the Configuration Server. • Specify **`W`** if you are specifying an end limit in the ZCHDEF attribute. The Scheduler will ping the Configuration Server before executing the command. If the Configuration Server is unavailable, the ZPENDING flag will be set to **W**. If the ZSCHEDEF has a limit time, then, when that time passes, the ZPENDING flag will be set to **N** and the Scheduler will not attempt to execute the command until its next scheduled time. An expired timer continually evaluates whether communications with the Configuration Server can be established. When communications are established, the command line that is associated with the timer is executed. After executing the command line, the Scheduler service resumes normal evaluation of whether the timer has expired again. If this attribute is not present in the ZTIMEQ object, the Scheduler service will not ping the Configuration Server. If the Configuration Server is successfully pinged, the command in ZRSCCMDL executes and the ZPENDING attribute—in the HPCA agent's ZTIMEQ object—is set to **N**, to indicate that the Scheduler service does not need to ping the Configuration Server again. If the Configuration Server is not successfully pinged, the timer is not processed any further, and the ZPENDING attribute value remains **Y**, to indicate that the next time the Scheduler service "pops," it should ping the Configuration Server again.

Attribute	Usage
ZRSCCMDL	Use this attribute to specify the command line that is executed on the HPCA agent computer when the timer expires. Use RADSKMAN to verify and update HPCA-managed mandatory applications. For a list of the parameters and examples, see Connection Parameters (RADSKMAN) on page 175.
ZSCHDEF	Use this attribute to specify when the timer expires. The syntax for this attribute varies depending on the frequency, which can be DAILY, HOURLY, WEEKLY, MONTHLY, INTERVAL, MONTHDAY, NUMDAY, WEEKDAY, or STARTUP. For instructions on how to set ZSCHDEF, see Specifying the Timer Expiration on page 193.
ZSCHFREQ	Use this attribute to specify how often the timer should expire. • Specify **`ONCE`** to have the timer to expire one time. • Specify **`PERIODIC`** to have the timer to expire repeatedly. • Specify **`RANDOM`** to have the timer to expire in random intervals. For more information, see Deploying Applications over a Period of Time on page 198.
ZSCHTYPE	This attribute is valid only when **`ZSCHFREQ=PERIODIC`**. Valid values are IMMEDIATE and DEFERRED. Specify **`DEFERRED`** to indicate that the first time an event is attempted to be launched, it will be deferred until the next scheduled time, regardless of when the timer instance is evaluated. This was designed so that events that are scheduled for off-peak hours will not launch while a user is working. **Example 1** Assume a timer with **`ZSCHDEF=DAILY(&ZSYSDATE,04:00:00)`**. • If **`ZSCHTYPE=IMMEDIATE`** and it is: — Earlier than 4:00 a.m., the command in the instance will be executed the same day at 4:00 a.m. — Later than 4:00 a.m., the command in the instance will be executed immediately. • If **`ZSCHTYPE=DEFERRED`** and it is: — Earlier than 4:00 a.m., the command in the instance will be executed the same day at 4:00 a.m. — Later than 4:00 a.m., the command in the instance will be executed the next day at 4:00 a.m.

Attribute	Usage
	Example 2 Assume a timer with **ZSCHDEF=WEEKDAY(FRIDAY,04:00:00)**. • If **ZSCHTYPE=IMMEDIATE** and it is: — Either not Friday, or earlier than 4:00 a.m. on Friday, the command in the instance will be executed on Friday at 4:00 a.m. — Later than 4:00 a.m. on Friday, the command in the instance will be executed immediately. • If **ZSCHTYPE=DEFERRED** and it is: — Not Friday, the command in the instance will be executed on the next occurring Friday, at 4:00 a.m. — Earlier than 4:00 a.m. on Friday, the command in the instance will be deferred one week and executed a week later on the following Friday, at 4:00 a.m. — Later than 4:00 a.m. on Friday, the command in the instance will be executed a week later on Friday at 4:00 a.m.
ZSTOP	Expressions evaluating to “true” in ZSTOP attributes cause resolution of the instance to be skipped. If left blank, the instance is accepted and resolution continues. This is useful if you want to set conditions on which of your subscribers receive the timer.
The values for the following attributes are inherited from the _BASE_INSTANCE_ of the TIMER Class; they should not be edited.	
RUNSYNC	Specifies whether synchronous timer execution will take place. The default value is **Y**.
ZOBJPRI	The deployment priority level (relative to the other elements being deployed during the HPCA agent connect) of the ZTIMEQ object. A value of **90** is inherited from the _BASE_INSTANCE_. Note: Elements with priority levels that are lower than this value will be deployed before this ZTIMEQ object.
ZSCHMODE	This attribute is specific to the Application Self-service Manager and is used when a ZTIMEQ Instance is run. Its value, `Default`, should not be changed.
ZSVCOID	The object ID of the Application instance to which this Scheduling instance is connected.
ZCHNNAME	The Configuration Server Database domain that contains the Application instance to which this Scheduling instance is connected.

Attribute	Usage
ZPRVNAME	The name of the Configuration Server to which the subscriber that is receiving this timer instance is connected. The value is inherited from the _BASE_INSTANCE_.
ZCREATE	The Scheduler “create” method that runs on the HPCA agent computer. The value is inherited from the _BASE_INSTANCE_.
ZVERIFY	The Scheduler “verify” method that runs on the HPCA agent computer. The value is inherited from the _BASE_INSTANCE_.
ZUPDATE	The Scheduler “update” method that runs on the HPCA agent computer. The value is inherited from the _BASE_INSTANCE_.
ZDELETE	The Scheduler “delete” method that runs on the HPCA agent computer. The value is inherited from the _BASE_INSTANCE_.

Configuring the Timer

This section offers a review of the syntax that is used to configure the attributes of the TIMER instance. Following that, in the section, Deploying Applications over a Period of Time, is a sample exercise on how to configure a TIMER instance to deploy mandatory applications during off-peak hours.

Specifying the Timer Expiration (ZSCHDEF)

Use the ZSCHDEF and ZSCHFREQ attributes to specify when and how often a timer will expire.

- ZSCHDEF indicates when the timer will expire;
- ZSCHFREQ indicates how often the timer will expire.

The syntax of the ZSCHFREQ attribute will influence the settings of the ZSCHDEF attribute. Use Table 49 on page 195 to determine the appropriate syntax for the value of ZSCHDEF. Before configuring the ZSCHDEF attribute, review the following syntax-formatting considerations.

- The value of WEEKDAY must be UPPERCASED and will accept only the days of the week: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, and SUNDAY.
- In all ZSCHDEF attribute syntax, the *time* value must be expressed in base-24 time, in the format **HH:MM:SS**. Valid values are **00:00:00**–**23:59:59**.

- In all ZSCHDEF attribute syntax, the *date* value must be expressed in the format **YYYYMMDD**.

Limit Time Parameter

The *limit time* parameter is used to specify a time after which the command will not be executed. For example, the command

DAILY(20070707,18:00:00[,20:00:00])

will execute any time between 6 p.m. and 8 p.m. on July 7, 2007, but it will not execute after 8 p.m. So, if the target machine is not powered on (or the Scheduler is not running) during this time, the command will not execute. It will be rescheduled for the next occurrence of "between 6 p.m. and 8 p.m." which, in this case, because it is a "daily" command, will execute on the next day, July 8, 2007.

ZSCHFREQ=RANDOM

When **ZSCHFREQ=RANDOM** is specified the *time* parameter is automatically replaced with two parameters, the *time* parameter is automatically replaced with two parameters, *start time* and *end time*.

Be sure to not use the *limit time* parameter as an *end time* indicator; their functionalities are different and doing so will result in a malformed ZSCHDEF command.

If ZSCHFREQ=RANDOM and the *limit time* parameter is NOT specified: The *end time* parameter can span midnight (it can be the next day). For example, the commands

DAILY(20070707,20:00:00,06:00:00) and

NUMDAYS(20070707,20:00:00,06:00:00,,14)

will execute at random times between 8 p.m. on July 7, 2007 and 6 a.m. on July 8, 2007. Note that even though the *limit time* parameter is not specified in either command, NUMDAYS still requires the third comma in order to be considered a valid argument; DAILY does not.

If ZSCHFREQ=RANDOM and the *limit time* parameter IS specified: The *end time* parameter cannot span midnight. If it does, the RADTIMEQ create method will log a warning and set the *start time* to midnight (00:00:00).

Table 49 ZSCHDEF Attribute Syntax

Attribute	Description
HOURLY	The timer will expire and run hourly, starting any time after the specified time but not later that the specified limit time, based on the system's date. Syntax: `&SYSDATE,time[,limit time]` Example: **`ZSCHDEF=HOURLY(&ZSYSDATE,04:30:00)`** Note: If **`ZSCHFREQ=RANDOM`**, the *`start time`* and *`end time`* parameters are activated. Syntax: `&SYSDATE,start time,end time[,limit time]` Example: **`ZSCHDEF=HOURLY(&ZSYSDATE,04:30:00,09:00:00)`** For more information, see Specifying the Timer Expiration on page 193.
DAILY	The timer will expire and run daily at the specified time (but not later that the specified limit time), based on the system's date. Syntax: `&SYSDATE,time[,limit time]` Example: **`ZSCHDEF=DAILY(&ZSYSDATE,12:00:00)`** Note: If **`ZSCHFREQ=RANDOM`**, the *`start time`* and *`end time`* parameters are activated. Syntax: `&SYSDATE,start time,end time[,limit time]` Example: **`ZSCHDEF=DAILY(&ZSYSDATE,12:00:00,14:00:00, 18:00:00)`** For more information, see Specifying the Timer Expiration on page 193.
WEEKLY	The timer will expire and run at the specified time (but not later that the specified limit time) on every seventh day, based on the system's date. Syntax: `&SYSDATE,time[,limit time]` Example: **`ZSCHDEF=WEEKLY(&ZSYSDATE,08:00:00)`** Note: If **`ZSCHFREQ=RANDOM`**, the *`start time`* and *`end time`* parameters are activated. Syntax: `&SYSDATE,start time,end time[,limit time]` Example: **`ZSCHDEF=WEEKLY(&ZSYSDATE,08:00:00,12:00:00, 14:00:00)`** For more information, see Specifying the Timer Expiration on page 193.

Attribute	Description
INTERVAL	The timer will expire and run every *n* minutes starting at the specified time (but not later that the specified limit time), based on the system's date. Syntax: `&SYSDATE,time,[limit time],interval` Example: **`ZSCHDEF=INTERVAL(&ZSYSDATE,04:00:00,06:00:00,30)`** Notes: INTERVAL must be specified in minutes. The third comma is required regardless of whether a third argument is specified. If **`ZSCHFREQ=RANDOM`**, the *`time`* parameter is automatically replaced with two parameters, *`start time`* and *`end time`*. Syntax: `&SYSDATE,start time,end time,[limit time],interval` Example: **`ZSCHDEF=INTERVAL(&ZSYSDATE,04:00:00,23:00:00, 06:00:00,30)`** For more information, see Specifying the Timer Expiration on page 193.
WEEKDAY	The timer will expire and run at the specified time (but not later that the specified limit time) on the specified weekday, every week. Syntax: `WEEKDAY,time[,limit time]` Example: **`ZSCHDEF=WEEKDAY(TUESDAY,01:00:00)`** Note: If **`ZSCHFREQ=RANDOM`**, the *`time`* parameter is automatically replaced with two parameters, *`start time`* and *`end time`*. Syntax: `WEEKDAY,start time,end time[,limit time]` Example: **`ZSCHDEF=INTERVAL(TUESDAY,04:00:00,06:00:00, 10:00:00)`** For more information, see Specifying the Timer Expiration on page 193.
MONTHDAY	The timer will expire and run at the specified time (but not later that the specified limit time) on the specified weekday in the week of the month that is indicated by the 4th parameter. Syntax: `WEEKDAY,time,[limit time],week of the month` Example: **`ZSCHDEF=MONTHDAY(TUESDAY,01:00:00,,2)`** Notes: The valid values for the 4th parameter are 1–5. If this argument is not specified, the timer will expire during the first week of the month. The third comma is required regardless of whether a third argument is specified.

Attribute	Description
	If **ZSCHFREQ=RANDOM**, the *time* parameter is automatically replaced with two parameters, *start time* and *end time*. Syntax: *WEEKDAY,start time,end time,*[*limit time*]*,week of the month* Example: **ZSCHDEF=MONTHDAY(TUESDAY,01:00:00,04:00:00,,2)** Important Note: Consider the consequences of specifying an *end time* that spans midnight (occurs on the following day). For more information, see Specifying the Timer Expiration on page 193.
MONTHLY	The timer will expire and run at the specified time (but not later that the specified limit time) on the n^{th} of every month, starting in the specified month and year. Syntax: *date,time*[*,limit time*] Example: **ZSCHDEF=MONTHLY(20040215,01:00:00,05:30:00)** Note: If **ZSCHFREQ=RANDOM**, the *time* parameter is automatically replaced with two parameters, *start time* and *end time*. For more information, see Specifying the Timer Expiration on page 193. Syntax: *date,start time,end time*[*,limit time*] Example: **ZSCHDEF=MONTHLY(20040215,01:00:00,05:30:00, 07:00:00)** Important Note: This attribute reschedules differently than other ZSCHDEF attributes; it will reschedule by adjusting the month (but retaining the date) for which it was originally scheduled, rather than adjusting the date based on when it eventually ran. For example, assume **ZSCHDEF=MONTHLY(20040116,05:30:00)** and that the HPCA agent device was powered off on January 16th and that the timer didn't execute until January 18th. The new schedule would automatically revise to **MONTHLY(20040216,05:30:00)** rather than **MONTHLY(20040218,05:30:00)**.
NUMDAYS	The timer will expire and run at the specified time (but not later that the specified limit time) on the specified date, then again on every n^{th} day (as specified by the 4th parameter). Syntax: *date,time,*[*limit time*]*,number of days* Example: **ZSCHDEF=NUMDAYS(20040803,18:00:00,21:30:00,14)** Notes: The third comma is required regardless of whether a third argument is specified.

Attribute	Description
	If **ZSCHFREQ=RANDOM**, the *time* parameter is automatically replaced with two parameters, *start time* and *end time*. Syntax: *date,start time,end time,[limit time],number of days* Example: **ZSCHDEF=NUMDAYS(20040803,18:00:00,21:30:00, 22:00:00,14)** For more information, see Specifying the Timer Expiration on page 193.
STARTUP	When the Scheduler starts on the HPCA agent device, it will immediately execute all Timer instances that have ZSCHDEF=STARTUP specified. It will check for special conditions such as NETAVAIL, ZNOPING, and RETRYFLG. After executing all the STARTUP instances, RADSCHED will return to its regular timer loop. It will execute STARTUP instances in the regular timer loop only if the ZPENDING flag on that instance was set (because NETAVAIL or ZNOPING could not get through or RETRYFLG is on and the return code was 200 during startup run).

Deploying Applications over a Period of Time

Applications can be deployed over a period of time in order to balance the workload on the Configuration Server and alleviate network congestion.

To do this, configure the timer for "random" expiration and use ZSCHDEF to specify the period of time during which the applications should be deployed. The time-period options are detailed in Table 49 on page 195.

In the following example, a timer will be configured to deploy mandatory applications on a weekly basis. The deployments will be scheduled to run between 5:00 p.m. and 7:00 p.m. in order to alleviate network congestion.

To specify when the timer expires

1. Navigate the Admin CSDB Editor to the timer instance and double-click **ZSCHFREQ**. The Editing Instance dialog box opens.
2. In the Frequency drop-down list, select **RANDOM**.
3. Click **ZSCHDEF**.
4. In the Timer Parameter text box, type **WEEKLY(&ZSYSDATE,17:00:00,19:00:00)**.
5. Click **ZSCHTYPE**.

6 In the Type (Immediate/Deferred) drop-down list, select **IMMEDIATE**.

7 If you are done editing the attributes for the timer instance, click **OK** and then click **Yes** when prompted to confirm your changes.

or

Select another attribute to edit.

Specifying the Command Line (ZRSCCMDL)

When the timer expires, it executes on the HPCA agent computer any command line that you've specified.

To see how timers work, create a timer that runs a command line such as *SystemDrive*:\Notepad.exe.

Remember to configure the timer to immediately expire, and attach it to a service. Then, deploy the service. When the timer expires on the HPCA agent computer, the Notepad application opens.

To specify a command line

1 Navigate the Admin CSDB Editor to the timer instance and double-click **ZRSCCMDL**. The Editing Instance dialog box opens.

2 In the Command line to execute text box, type the appropriate command line to execute the program.

3 Click **OK**, and then click **Yes** when prompted to confirm your changes.

At the beginning of this section, we indicated that we would be deploying new mandatory applications on a weekly basis. The following procedure will demonstrate how to specify a command line that will update all mandatory services and perform self-maintenance.

Connecting the Timer to a Service

Once you have created the timer, you must connect it to a service. Each subscriber that receives the service with which the timer is associated will receive the timer information in the ZTIMEQ object the next time his/her HPCA agent connects to the Configuration Server.

In the example in this section, we created a timer that is intended to deliver mandatory applications. Now, we will connect the timer to a service and assume that all subscribers are receiving it.

For the following exercise, assume a service named ProDraw. The steps are identical for the services in your database.

To connect the timer to a service

2 In the Admin CSDB Editor, navigate down through the **PRIMARY** File, **SOFTWARE** Domain, and **Application (ZSERVICE)** Class, and right-click ProDraw.

2 In the menu that opens, click **Show Connections**. The SOFTWARE.ZSERVICE Connections dialog box opens.

3 Select **Scheduling (TIMER)** and click **OK**. The TIMER Class instances appear in the list view.

4 In the list view, click **Mandatory Apps Timer** and drag it to ProDraw. When the cursor changes to a paper clip icon, release the mouse button. The Select Connection Attribute dialog box opens.

5 Click **Copy**.

6 Click **Yes** to confirm that you want to connect the ProDraw service to the Mandatory Apps Timer.

7 Click **OK** to close the confirmation message.

Testing the Timer Deployment

The first time that an HPCA agent computer connects to the Configuration Server after the timer has been created, the timer information is transferred to the HPCA agent computer in the ZTIMEQ object, ZTIMEQ.EDM.

In the exercise that follows, you will force the HPCA agent computer to connect to the Configuration Server so that you can view the ZTIMEQ object.

To connect to the HPCA Configuration Server

1 On the HPCA agent computer, go to a command prompt and change the directory to the location of RADSKMAN (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent`).

2 Type **`radskman ip=`***`manager_ip`***`,port=`***`mgr_port`**. Be sure to specify a valid IP address and port for the Configuration Server.

For information about RADSKMAN and the above parameters, see Connection Parameters (RADSKMAN) on page 175.

3 Press **Enter**.

After the HPCA agent connect completes, you can view the ZTIMEQ object on the HPCA agent computer, as described in the next section.

If you plan to do additional testing, consider creating a batch file that contains the command line. Save the file in `IDMSYS` (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent`) on the HPCA agent computer. Then, create a shortcut on the desktop of the HPCA agent computer.

Removing the Timer Object

After the timer expires, the ZTIMEQ object will be removed from the HPCA agent computer during its next connect to the Configuration Server. This is dependent on the expiration settings in the TIMER.ZSCHFREQ attribute.

- If the timer is configured to expire once, the ZTIMEQ object will be removed immediately after the timer expires, during the next HPCA agent connect to the Configuration Server.
- If the timer is configured to expire more than once, the ZTIMEQ object will be removed after the timer expires for the last time, during the next HPCA agent connect to the Configuration Server.

Viewing the Timer Object

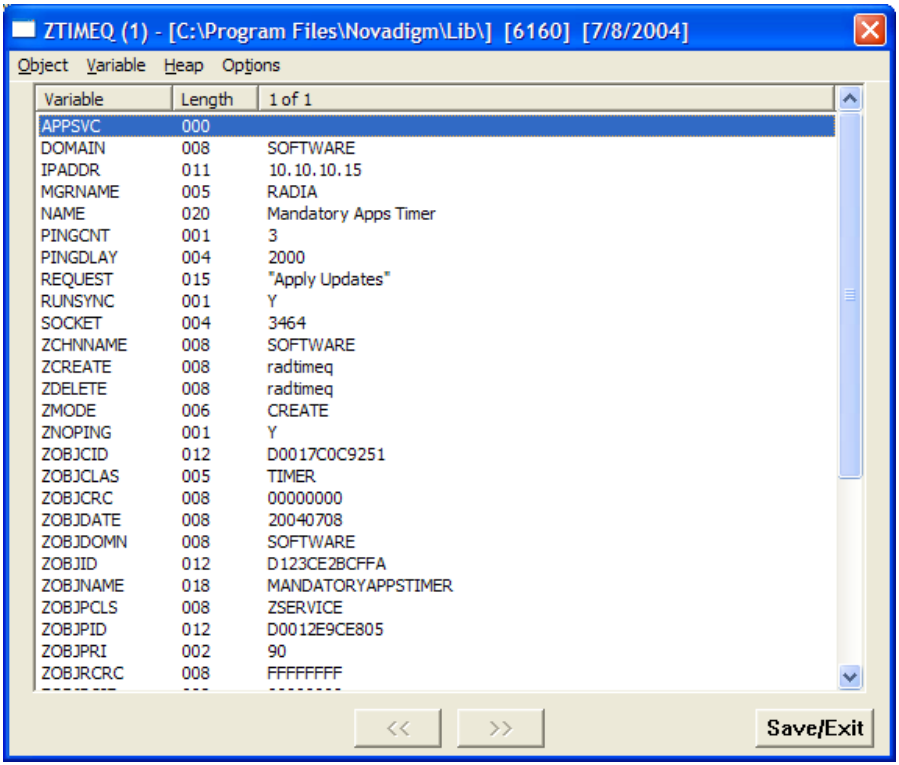
After having forced the HPCA agent to connect to the Configuration Server and retrieve the ZTIMEQ object, it can be viewed (and modified) via the Admin Agent Explorer, which was installed as part of the HPCA Administrator.

The ZTIMEQ object contains one instance for each Scheduling (TIMER) instance in the Configuration Server Database. Therefore, if two services have associated timer instances there will be two instances in the ZTIMEQ object.

To view the ZTIMEQ object on the HPCA agent computer

1 Navigate the **Start** menu and invoke the Admin Agent Explorer.

2 Double-click the **ZTIMEQ** object. The ZTIMEQ object opens.



To modify a variable in the ZTIMEQ object, see the next section.

Experimenting with Timers

If you want to experiment with timers, you can modify the ZRSCCMDL, ZSCHDEF, ZSCHFREQ, and ZSCHTYPE variables in the ZTIMEQ object on the HPCA agent to see what happens in various situations.

To edit a variable in ZTIMEQ

1. Double-click the variable that you want to edit. The Change Variable dialog box opens.
2. Type the new value.
3. Click **Save/Exit**.

To quickly determine whether the timer expires, change ZRSCCMDL to run any executable, such as Notepad. When the timer expires, Notepad should open, confirming that the timer expired.

Timer Logs

Timer events are tracked in three logs—RADSCHED.LOG, RADSHIST.LOG, and RADTIMEQ.LOG—that are stored in the `IDMLOG` directory (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent\Log`).

Table 50 describes the timer logs.

Table 50 Timer Logs

Log File	Description
`RADSCHED.LOG`	Lists the results of the most recent Scheduler expiration. The Scheduler, RADSCHED, runs in the background. It wakes up once per minute and examines the ZTIMEQ object to determine whether a timer has expired. This log contains information from only the most recent expiration.
`RADSHIST.LOG`	Lists all of the programs that were dispatched because a timer instance expired. It reflects all activity that has taken place since RADSCHED was last started.
`RADTIMEQ.LOG`	Lists the events that occurred during the last execution of the RADTIMEQ method. RADTIMEQ executes when the application to which the timer is attached is created, updated, verified, or deleted. Only the last execution's events appear in the log, with an indication of what activity took place regarding the application.

HPCA Notify

HPCA Notify is used to force one or more HPCA agent computers to connect to the Configuration Server in order to install, update, or remove an application.

The Notify service runs in the background on each HPCA agent computer and waits to receive a Notify message from the Configuration Server. When a message is received, the HPCA agent computer connects to the Configuration Server and performs the action that is indicated by the Notify operation.

HPCA Notify can also send e-mail notification to HPCA agent computers.

You can initiate a Notify by:

- Selecting **Notify Subscribers** from the shortcut menu for an Application (ZSERVICE) instance. Use this option to update and remove applications

only. You cannot use this type of Notify to install an application because it notifies existing subscribers.

- Creating a Drag-and-Drop Notify command. Use this option to install, update, and remove applications. The benefit of this type of Notify is that the application does not have to be installed on the HPCA agent computer to perform the Notify.

  Drag-and-Drop Notify is intended for environments with one Configuration Server. If your environment has multiple Configuration Servers, consider using the Portal.

Requirements for Using Notify

To use Notify

- The HPCA agent computer must connect to the Configuration Server prior to the notification. This populates the PROFILE File, which contains the HPCA agent computer's network address that is used by Notify.

  Notify is designed to notify only subscribers whose information is in the PROFILE File in the CSDB.

- Confirm that the Configuration Server Notify task (**znfytmgr**) is properly configured in the Configuration Server settings file, `edmprof.dat`, as shown below. The `edmprof` file and the relevant lines are created when the Configuration Server is installed.

```
[MGR_ATTACH_LIST]
ATTACH_LIST_SLOTS = 15
RESTART_LIMIT = 7
VERIFY_INTERVAL = 5
CMD_LINE=(zutilmgr) RESTART=YES
CMD_LINE=(zrexxmgr) RESTART=YES
CMD_LINE=(ztcpmgr PORT=3464,NAME=tcpmgr_3464) RESTART=YES
CMD_LINE=(znfytmgr NAME=NotifyManager) RESTART=YES
CMD_LINE=(zrtrymgr) RESTART=YES
```

- If you are using Drag-and-Drop Notify to run a command, store the program that you want to execute in the `IDMSYS` directory (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent`).

- If you are using e-mail to notify subscribers, be sure that the subscriber's correct e-mail address is stored in the EMAIL attribute of the USER instance in the USER Class of the POLICY Domain.

- If you are using e-mail to notify subscribers, be sure that the Configuration Server is properly configured for e-mail.

Initiating a Notify from a ZSERVICE Instance

To update or remove a service, initiate the Notify from the shortcut menu for the Application (ZSERVICE) instance.

Notify communicates with HPCA agent computers that are members of an **audience list**. An HPCA agent computer is added to the audience list when HPCA installs an application onto that computer.

To initiate a Notify from a ZSERVICE Instance

1. Right-click the **Application (ZSERVICE)** instance, such as ProDraw. A shortcut menu opens.
2. Select **Notify Subscribers**.

   The Notify retrieves the list of subscribers from the POLICY Domain.

   — If the application does not have any subscribers, a warning message appears.

   — If the selected application does have subscribers, a message appears to confirm that you want to build an audience list.
3. Click **Yes** to confirm that you want to build an audience list. The HPCA Notify Manager opens.

   A list of subscribers to the application appears in the Audience List Details area.

   — By default, the entire audience will be notified.

   — To select individual subscribers, click **Remove All**. Then, select the appropriate subscribers and click **Select**.

   — To remove an individual subscriber, select the appropriate subscriber and click **Remove**.

   The total number of HPCA agent computers in the audience list and the number of selected HPCA agent computers are displayed at the bottom of the dialog box.
4. Click **Next** when you have finished selecting HPCA agent computers.
5. Select the **Notification Type** for all members of the audience list.

— **Send an Email**
Select this option to inform subscribers of an application's status.

The subscriber's e-mail attribute (EMAIL) in the user instance must contain a valid entry. Be sure to complete the Subject and Message fields.

— **Update the Application on the target machine(s)**
Select this option in order to install updates or new versions of an application on the HPCA agent computers.

— **Remove the Application on the target machine(s)**
Select this option in order to remove an application from the HPCA agent computers.

Typically, Notify removes the application without requesting permission from the HPCA agent. This allows removal of applications from unattended HPCA agent computers.

If you want to require the subscriber to give permission to remove an application, select the **Prompt for deletion on client** check box.

6 Click **Next** to continue. The Notification Details dialog box opens.

By default, the Notify occurs immediately and generates an object in the NOTIFY File in the Configuration Server Database. The object is named according to the date and time of the Notify action in the following format: YYYY_MM_DD_HH_MM_SS.

Use this dialog box to create a custom domain in which to store the object or to defer the notify action to a later time or date.

— Select **Use Custom Notify Domain** and type a name for the new domain—located in the NOTIFY File of the CSDB.

— Select **Deferred Notify** and use the Time (hh/mm) drop-down lists and the calendar controls to schedule the Notify.

7 Click **Next**. The Notification Summary dialog box opens.

8 Click **Finish** to begin the Notify. A message asks if you want to start the status monitor.

9 Click **Yes** to view the status of the Notify. A dialog box opens with a list of the subscribers and the status of the notification.

10 Click **Refresh** to update the Status Monitor.

11 Click **Close** when you have finished.

Creating a Drag-and-Drop Notify Command

Use a Drag-and-Drop Notify command to initiate an immediate Notify to one or more subscribers. The benefit of this is that the application does not have to be installed on the HPCA agent computer in order to perform the Notify. You might use this type of notify to install software, update all mandatory services, or even run an executable on the HPCA agent computer.

The Drag-and-Drop Notify works only if the HPCA agent computer has connected to the Configuration Server prior to the notification. This populates the PROFILE File, which contains the HPCA agent computer's network address.

The Drag-and-Drop Notify is intended for use in environments with one Configuration Server.

If you are working in an environment with multiple Configuration Servers, consider using the Push Manager.

In the following example, we will create a command that will update all mandatory services that are on your HPCA agent computers.

To create a Drag-and-Drop Notify

To use a Drag-and-Drop Notify to run a command, the program that you want to execute must be stored in the `IDMSYS` directory (by default, `C:\Program Files\Hewlett-Packard\HPCA\Agent`).

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

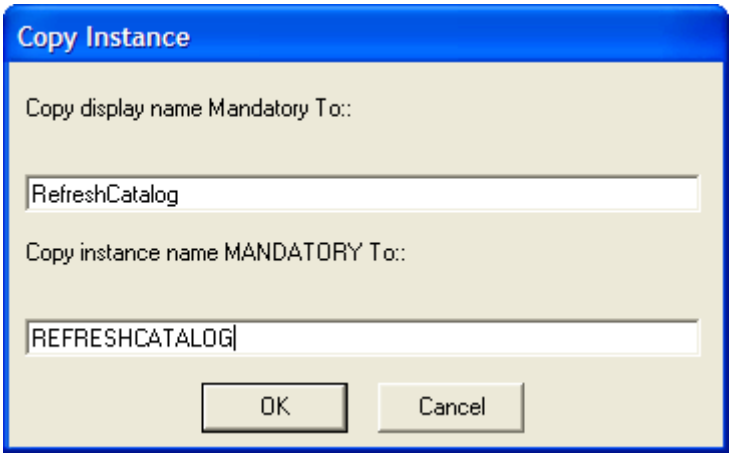
   

   The user ID and password are:

   User ID: **`ADMIN`**

   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.
3. In the Admin CSDB Editor, navigate down through the **PRIMARY** File, **SYSTEM** Domain, and **Application Manager (ZCOMMAND)** Class.
4. Right-click the **Mandatory** Instance, and select **Copy Instance**. The Copy Instance dialog box opens.



5 Type a display name (such as RefreshCatalog) and name for the instance in the appropriate text boxes, and click **OK**. The **RefreshCatalog** Instance appears in the list of ZCOMMAND Class instances.

6 Double-click the instance in the tree view. The attributes appear in the list view.

7 Double-click the **ZCMDPRMS** attribute. The Edit Instance dialog box opens.

8 Type the command line that you want to execute on the HPCA agent computer. For example:

```
radskman ip=mgr_ip,port=mgr_port
```

This command line updates/installs all new and old mandatory applications. For more information, see Specifying the Command Line on page 199.

9 Click **OK**.

10 Click **Yes** to confirm that you want to save your changes.

11 From the POLICY Domain, select a User, Workgroup, or Department instance and drag it to the RefreshCatalog command.

12 When the cursor changes to a wand, release the mouse button.

The Notify is immediately sent to the specified subscribers and the command line in ZCMDPRMS is executed.

Retrying a Notify

Sometimes a subscriber cannot be notified. This could occur for one of the following reasons:

- The HPCA agent computer is powered off.
- The subscriber does not have a valid e-mail address listed in the CSDB.
- The HPCA agent computer is not running the Notify service.
- The HPCA agent computer is not accessible via the standard communications channel.

An unsuccessful Notify attempt creates an instance in the RETRY Domain of the NOTIFY File. The RETRY Domain is created the first time a Notify fails.

By default, HPCA automatically retries the Notify. To do this, the Configuration Server is started with the Notify Retry Manager (ZRTRYMGR task), as indicated in the following excerpt from the Configuration Server settings `edmprof` file, located in the `bin` directory of the Configuration Server installation directory.

```
[MGR_ATTACH_LIST]
ATTACH_LIST_SLOTS = 15
RESTART_LIMIT = 7
VERIFY_INTERVAL = 5
CMD_LINE=(zutilmgr) RESTART=YES
CMD_LINE=(zrexxmgr) RESTART=YES
CMD_LINE=(ztcpmgr PORT=3464,NAME=tcpmgr_3464) RESTART=YES
CMD_LINE=(znfytmgr NAME=NotifyManager) RESTART=YES
CMD_LINE=(zrtrymgr) RESTART=YES
```

After modifying the `edmprof` file, restart the Configuration Server service in order to ensure that the changes take effect.

For more information on editing the Configuration Server Settings file, refer to the *Configuration Server Guide*.

By default (check the value of VERIFY_INTERVAL in the `edmprof` file excerpt above), every five minutes the Notify Retry Manager will examine the NOTIFY File's RETRY Domain. The Notify Retry Manager will attempt the Notify operation for each instance it finds in the RETRY Domain.

Viewing the Results of a Notify

You can find information about a Notify:

- In the Admin CSDB Editor, in the NOTIFY File. See Viewing an Instance in the NOTIFY File.
- In the Status Monitor accessed from the NOTIFY File in the Admin CSDB Editor. See Viewing Results of a Notify or Retry in the Status Monitor on page 212.
- In the Configuration Server log. The log file is stored on the Configuration Server in the `LOG` directory (by default, `C:\Program Files\Hewlett-Packard\HPCA\ConfigurationServer\log`).

Viewing an Instance in the NOTIFY File

The NOTIFY File is created in the CSDB after the first Notify is initiated. Each Notify operation creates one object in the NOTIFY File. The objects are named in the format, YYYY_MM_DD_HH_MM_SS, according to the date and time of the Notify action. In each object there is an instance for each subscriber that was notified. Each instance contains important information about the subscriber and the notify operation.

To view an Instance in the NOTIFY File

1 In the Admin CSDB Editor, double-click **NOTIFY**.

Notice that there are several default Notify objects; each represents a single Notify operation. The objects are named according to the date and time of the Notify action in the following format: YYYY_MM_DD_HH_MM_SS.

The custom NOTIFY Domain, REDBOX, is also a Notify object. However, this Notify was given a custom domain name in the Notification Details dialog box.

Finally, notice the RETRY Domain. The first unsuccessful Notify creates the RETRY Domain and an instance in it.

2 Double-click the Notify object that you want to review.

3 Double-click **NOTIFY**.

The NOTIFY File is divided into domains, with each domain representing one Notify operation. The name of the domain is in the form YYYY_MM_DD_HH_MM_SS, representing the date and time when the Notify operation was initiated.

Each NOTIFY Domain has one NOTIFY Class. Each NOTIFY Class contains an Instance for each subscriber that was notified. The instances are named with eight-digit numbers, starting with 00000001 and running sequentially up to the total number of notified subscribers.

Each Instance contains attributes that identify the subscriber, the kind of Notify operation, and the results of the Notify operation for that subscriber.

4 Review the attributes in the list view.

The following table describes the Notify Instance's attributes.

Table 51 Attributes in the NOTIFY Instance

Attribute	Description
ZUSERID	The USER, WORKGRP or DEPT that was notified.
ZCIPADDR	The IP address of the HPCA agent computer.
EMAIL	The subscriber's e-mail address (if using e-mail notification).
NTFYTYPE	The type of notify, such as E for e-mail notification.
NTFYDATE	The date of the Notify.
NTFYTIME	The time of the Notify.
NTFYMSG	A message indicating the status of the Notify, such as "Successfully notified."
NTFYRC	The return code that was generated for a Notify.
NTFYCMDL	The command line that the Notify executed.
NTFYSUBJ	The subject of the e-mail that is sent (if using e-mail notification).
LOCALUID	The user ID for the subscriber that is currently logged on to the computer.
NTFYRTIM	The time at which the notification should execute.
NTFYRNUM	The number of times to retry the Notify.
NTFYDOMN	The name of the domain in which this instance is stored.
NTFYINS	The name of this instance.
NTFYPORT	The registered port for Notify.
NTFYPWD	The encrypted password for the Notify.
NTFYUINF	The user information passed to the Notify operation from the Notify Manager.
NTYFYRMAX	The maximum number of times to retry the Notify.
NTYFYDLAY	The amount of time (in seconds) to wait before retrying the Notify.

Attribute	Description
NTYFYMAC	The physical address of the HPCA agent computer. This is used for Wake-on-LAN.
NTYFYMASK	The network mask. This is used for Wake-on-LAN.

Viewing Results of a Notify or Retry in the Status Monitor

Use the Status Monitor to review the results of a Notify or Retry operation for all of your subscribers.

To see the status of a Notify or Retry

1. In the Admin CSDB Editor, double-click **NOTIFY**.
2. Right-click the appropriate Notify Domain or the **RETRY Domain** for which you want to see the status.
3. Click **Status Delete** to delete the status information.

   or

   Click **Status Display** to display the Status Monitor.
4. Click **Refresh** if you think the status might have changed.

   or

   Click **Close** to close the Status Monitor.

Drag-and-Drop Notify for Wake-On-LAN Clients

HPCA can issue a wake-up packet to remotely power-on HPCA agent computers that have been configured for Wake-On-LAN (WOL).

The Admin CSDB Editor facilitates the configuring of the WOL agent computers to which you want to assign Drag-and-Drop Notify eligibility (DDN).

In order to perform Drag-and-Drop Notify for Wake-On-LAN agents, two settings must be added to the Configuration Server Settings file. Refer to the *Configuration Server Guide* for more information.

Assigning HPCA Agents using DDN

The ease and straight-forwardness of the drag-and-drop functionality dramatically simplifies assigning DDN-eligibility to WOL agents. Use the Admin CSDB Editor to connect Notify instances to a USER, WRKGRP, DEPT, and SERVICE.

In order to take advantage of the drag-and-drop feature to assign HPCA agents for WOL Notify, use the Admin CSDB Editor. When you have accessed the Admin CSDB Editor, you can click and hold a Notify instance, drag it to the instance to which you want it connected, and release (drop) it onto it, thereby creating the connection. Refer to the *HP Configuration Management Administrator User Guide (Administrator Guide)* for information about performing drag-and-drop connections.

Overview of HPCA Admin CSDB Editor Steps

The agent computer's MAC (Media Access Control) address and sub-net value must be reported in the ZCONFIG object of the PROFILE File. (These values are LADAPT01 and SUBNET01, respectively, in the ZCONFIG object.)

This section outlines the steps you must take once you have accessed the CSDB with the Admin CSDB Editor.

To configure a WOL client for DDN

1. Navigate the **Start** menu and invoke the Admin CSDB Editor. The Admin CSDB Editor Security Information dialog box opens.

   The user ID and password are:

   User ID: **`ADMIN`**

   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.
3. Double-click **PRIMARY**.
4. Navigate to the **POLICY** Domain.
5. Within the POLICY Domain, create a new USER instance, for example, USER1.
6. Perform an HPCA agent connect to the Configuration Server with the user ID, USER1.

   This will populate the database with the necessary agent information.

In order to perform DDN, the user must exist, with the ZCONFIG and ZMASTER objects, in the Configuration Server PROFILE File.

Next, you will need to verify the values in the **HARDWARE_SCAN**.

7 Open the **HARDWARE_SCAN** object under PROFILE.USER1.ZCONFIG, and check that the **LADAPT01** and **SUBNET01** attributes are present.

In order to perform the DDN for WOL to wake up this machine you will need to shut down the HPCA agent machine (USER1).

Next, you will need to create and configure a new instance for the Drag-and-Drop Notify in the Configuration Server Database.

8 Use the Admin CSDB Editor to create a new instance (for example, DDN_WOL) under PRIMARY.SYSTEM.ZCOMMAND.

9 Specify the following parameters:

ZCMDPRMS: **radskman ip=***manager_ip*, **port=***mgr_port*

Note: For more information on RADSKMAN, see Specifying the Command Line on page 199.

ZCMDTYPE: **EXE**

ZCMDNAME: **NOTIFY**

10 Set up the POLICY.USER1 Instance for DDN by dragging the instance to the ZCOMMAND.DDN_WOL Instance and dropping it on to it.

You have successfully configured a new WOL user for Drag-and-Drop Notify.

To verify the success of the configuration

On the HPCA agent machine:

1 Wait approximately ten minutes before checking the HPCA agent log.

2 Access `C:\Program Files\Hewlett-Packard\HPCA\Agent\Log` and check the `RADNTFYD.log` and verify the times of the following entries.

These times should match the time at which you did the Notification.

```
SyncObjFrmDisk    EDM009461 01.254 13:40:30 Total [0001] pools restored (v161)
EDMNTFYD          EDM000001 01.254 13:40:30 Password verification has not been requested
EDMNTFYD          EDM000001 01.254 13:40:30 Path restricted to EDMSYS subdirectory
EDMNTFYD          EDM000001 01.254 13:40:30 Userid verification has been disabled
Pooltab_replace   EDM009453 01.254 13:40:30 Pool [C:\PROGRAM~1\HEWLETT-PACKARD\HPCA\AGENT\
        LIB\ZLOCAL.EDM] has [5] variables and [1] heaps of size [1024] each (v153)
Edm_ObjPtr_Save   EDM009443 01.254 13:40:30 Object [ZLOCAL   ] being saved (v143)
```

```
EDMNTFYD          EDM000001 01.254 13:40:30 UID: user1
EDMNTFYD          EDM000001 01.254 13:40:30 CMD: radskman mame=rad_manager,dname=software,
        ip=208.244.231.61,port=3464,startdir=$machine,ulogon=n,hreboot=y
nvd_exec          EDM000512 01.254 13:40:30 Module Information: Rev 1.105 Oct 30 2000 11:18:08
nvd_exec          EDM000010 01.254 13:40:30 NVD_EXEC CALLED: Program [C:\PROGRA~1\HEWLETT-
        PACKARD\HPCA\AGENT \radskman] PARAMETERS[mname=rad_manager,dname=software,
        ip=208.244.231.61,port=3464,Zstartdir=$MACHINE,ulogon=n,hreboot=y]
EDMNTFYD          EDM000001 01.254 13:40:31 Closing socket #44

CloseLogFile      EDM000001 01.254 13:40:31 Closing log file on [Tues Sep 11 13:40:31 2001]
```

On the Configuration Server machine:

1. From the Admin CSDB Editor, right click the Notify Domain.
2. Select **Refresh**. Note that a new file, NOTIFY has been created.

   The NOTIFY File will be created on the first notification event only.

3. Verify the notification event.

8 HPCA Application Self-service Manager User Interface

At the end of this chapter, you will:

- Know how to customize the Application Self-service Manager user interface.
- Understand how your subscribers can access the Application Self-service Manager user interface, and grant subscribers the ability to manage (install, update, verify, and remove) applications on their computers.
- Be able to use the Application Self-service Manager user interface from a subscriber's perspective.

The HPCA Application Self-service Manager User Interface

This section describes how to access and use the HPCA Application Self-service Manager user interface.

Accessing the User Interface

Depending on the installation, you will access the user interface through the Windows **Start** menu, or by double-clicking the Client Automation Application Self-service Manager icon on your desktop.

HPCA Administrator Functions

- An HPCA administrator can set up and enable security (in the form of **password authentication**) for users logging on to the Application Self-service Manager user interface. Two HP-specific security methods—EDMSIGN and EDMSIGNR—allow the Configuration Server to use password authentication. An HPCA administrator establishes this security in the Admin CSDB Editor. For more information, refer to the *HP Client Automation Administrator User Guide*.
- An HPCA administrator can use the RADUICFG Class, in the CLIENT Domain, to control the display of the HPCA Application Self-service Manager user interface. For more information, see Table 35 on page 136

To access the user interface

- Click **Start → All Programs → HPCA Client Automation Agent → Client Automation Application Self-Service Manager**.
- Double click on the **Client Automation Application Self-Service Manager** icon on your desktop.

The user interface opens.

Using the User Interface

The HPCA Application Self-service Manager user interface has four main sections.

- **Global Toolbar**
  Allows you to refresh the catalog and pause or cancel the current action.
- **Side Bar**
  Displays various menu choices available while using the HPCA Application Self-service Manager.
- **Catalog List**
  Lists the different software catalogs available.
- **Service List**
  Lists the applications to which you are entitled.

Global Toolbar

The Global Toolbar allows you to refresh the catalog, pause the current action, and cancel the current action. Once an action has been paused, no other action can take place. until you either resume the action (by clicking the **Pause** button again), or cancel the action by clicking the **Cancel** button.

When one of the buttons in the Global Toolbar is not available for the current action it will appear grayed-out.

To refresh the catalog

- To refresh the selected catalog using the Global Toolbar, click **Refresh**.

To pause or resume the current action

- To pause the current action using the Global Toolbar, click **Pause**.
- To resume a paused action, click **Resume**. (The **Pause** button is replaced with this button after you pause an action).

To cancel the current action

- To cancel the current action using the Global Toolbar, click **Cancel**.

Side Bar

Use the Side Bar to configure and customize your HPCA Application Self-service Manager.

The following sections detail the icons on the Side Bar.

Home

Click this button to access your home catalog.

My Software

Click **My Software** to display only services that you have installed. Click the button again to display all available software from the selected catalog.

Preferences

Click **Preferences** to access various display options, service list options, and connection options for the HPCA Application Self-service Manager.

At any point you can click on **OK**, **Apply**, or **Cancel** in the top right corner of the Preferences section to keep or disregard any changes you make.

History

Click **History** to display a history of the current session.

Bandwidth

Click **Bandwidth** to display the bandwidth slider. Changing this value dynamically changes the throttling value.

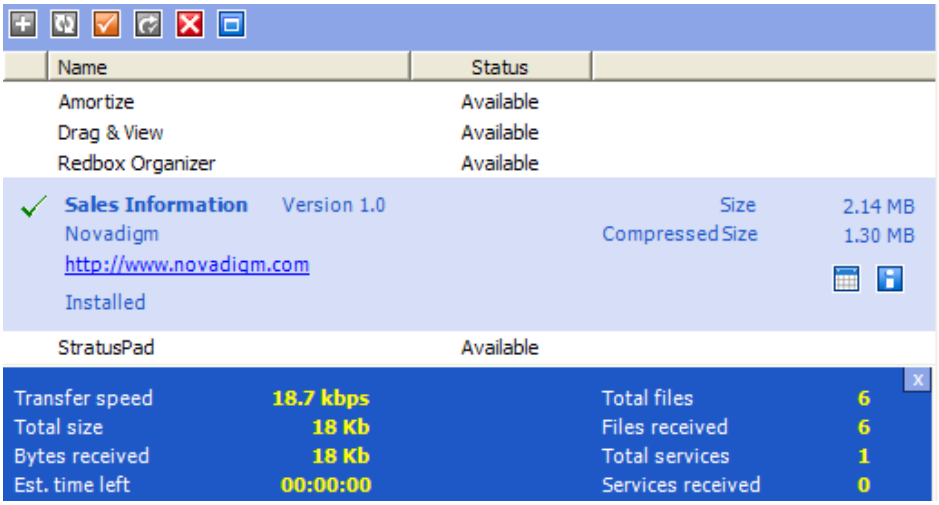
To adjust the bandwidth settings using the bandwidth slider

- Click and drag the slider to increase or decrease the amount of bandwidth throttling desired.
- You can also adjust bandwidth throttling from within the Preferences, Connection options section.

Status

Click **Status** in the Side Bar to display the status of the current action including the size, estimated time, progress, and available bandwidth.

Figure 9 Status



Docking and Un-Docking the Status Window

The Status window can be docked or un-docked from the Application Self-service Manager. This enables you to position the Status window anywhere on your screen. The Status window is docked by default.

To un-dock the Status window

1 Click **Status** in the Side Bar.

2 Right-click in the Status window that opens.

3 Select **Docked** from the shortcut menu.

The Status window will be released from the Application Self-service Manager, allowing you to position it anywhere on your screen.

To dock the Status window

1 Click **Status** in the Side Bar.

2 Right-click in the Status window that opens.

3 Select **Docked** from the shortcut menu (only if there is no check mark present).

When the Status window is docked, a check mark will appear next to the word **Docked** in the shortcut menu.

The Status window will be docked into the HPCA Application Self-service Manager.

Catalog List

The Catalog List section lists the available software catalogs and any virtual catalogs.

To select a catalog

- In the Catalog List, click on the HPCA Configuration Server catalog you would like to view in the Service List section. Refresh the catalog at any time by right-clicking on the name of the catalog and selecting Refresh from the shortcut menu.

Virtual Catalogs

Virtual catalogs are subsets of the default catalog defined by specifying a name in the CATGROUP value for a service. Any services with the same CATGROUP value will be grouped together in a virtual catalog.

To set the CATGROUP attribute

1. Navigate the **Start** menu and invoke the HPCA Admin CSDB Editor. The Security Information dialog box opens.

   The user ID and password are:
   User ID: **`ADMIN`**
   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.
3. Double-click **PRIMARY**.
4. Double-click **SOFTWARE**.
5. Double-click the name of the service you would like to add to a virtual catalog.
6. Double click the **CATGROUP** attribute and type the name of the virtual catalog to which you would like to add the service.
7. Click **OK**.

Service List

The Service List section lists the available applications. A check mark appears next to software that is already installed. The column headings can be customized, as described in Table 53 on page 228.

Table 52 Buttons in the Service List section

Button	Action	Description
	Install	Installs the selected service on your machine.
	Update	Updates the selected service.
	Verify	Verifies the files for the selected service.
	Repair	Repairs the selected service.
	Remove	Removes the selected service from your machine.
	Expand/Collapse	Expands and collapses the selected service.
	Download Only (Advanced)	Download the selected service from the catalog into local cache without installing. This button will be available only if you have selected **Show advanced operations** in the Service List Options of Preference. For more information, see Preferences on page 220.
	Reconfigure (Advanced)	Reconfigures the installation of the selected service. This button is available only when the selected application is installed and the RECONFIG variable is set to Y in the ZSERVICE instance for the application. This button will be available only if you have selected **Show advanced operations** in the Service List Options of Preference. For more information, see Preferences on page 220.

Button	Action	Description
	Undo (Advanced)	Undo the last action. This button will be available only if you have selected **Show advanced operations** in the Service List Options of Preference. For more information, see Preferences on page 220.

The buttons in the Service List section will be gray when they are not available for the selected application.

General Options

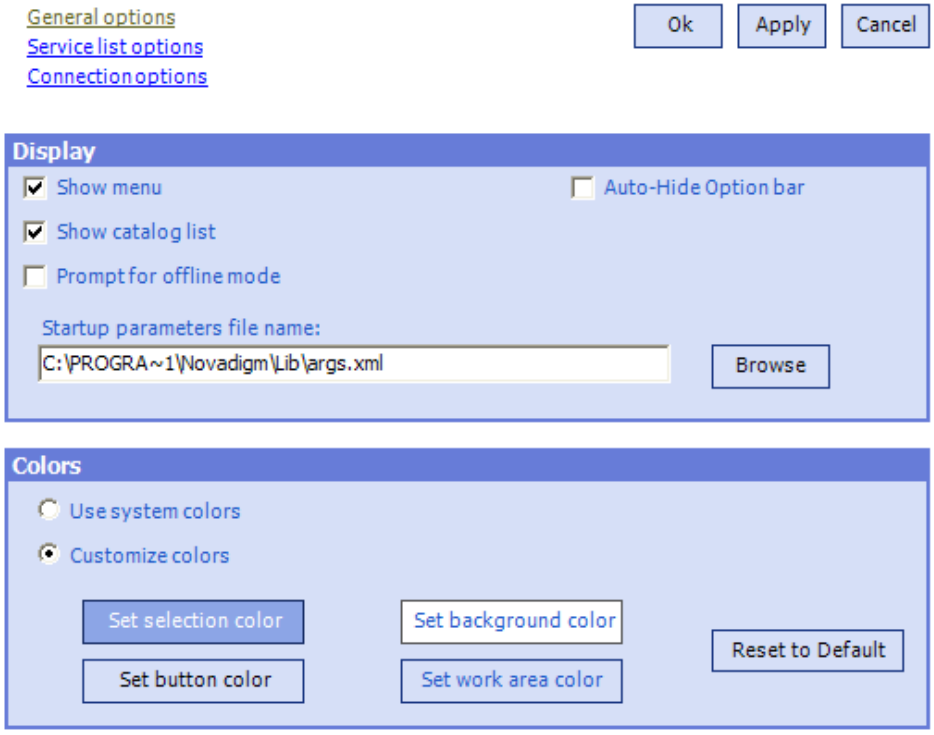
You can use the General options window to modify the appearance of the HPCA Application Self-service Manager.

To view the General options window:

1 Click **Preferences** on the Side Bar of the HPCA Application Self-service Manager.

Click **General options**, to display the General options as shown in Figure 10.

Figure 10 General Options



To modify the display

- To display the menu, select the **Show menu** check box.
- To display the catalog list, select the **Show catalog list** check box.
- To be prompted to use the HPCA Application Self-service Manager in offline mode at the beginning of each session, select the **Prompt for offline mode** check box.
- To automatically hide the option bar, select the **Auto-Hide Option bar** check box.
- To change the start-up parameters file, click **Browse**, and navigate to the path where the start-up parameters file exists.

To modify the colors

- If you would like to use the system colors, click **Use system colors**.

- If you decide to use your own custom colors, click **Customize colors**. After selecting **Customize colors**, you can choose the following
  - **Set selection color** to modify the color of selections.
  - **Set button color** to modify the button colors.
  - **Set background color** to modify the background color.
  - **Set work area color** to modify the background color.

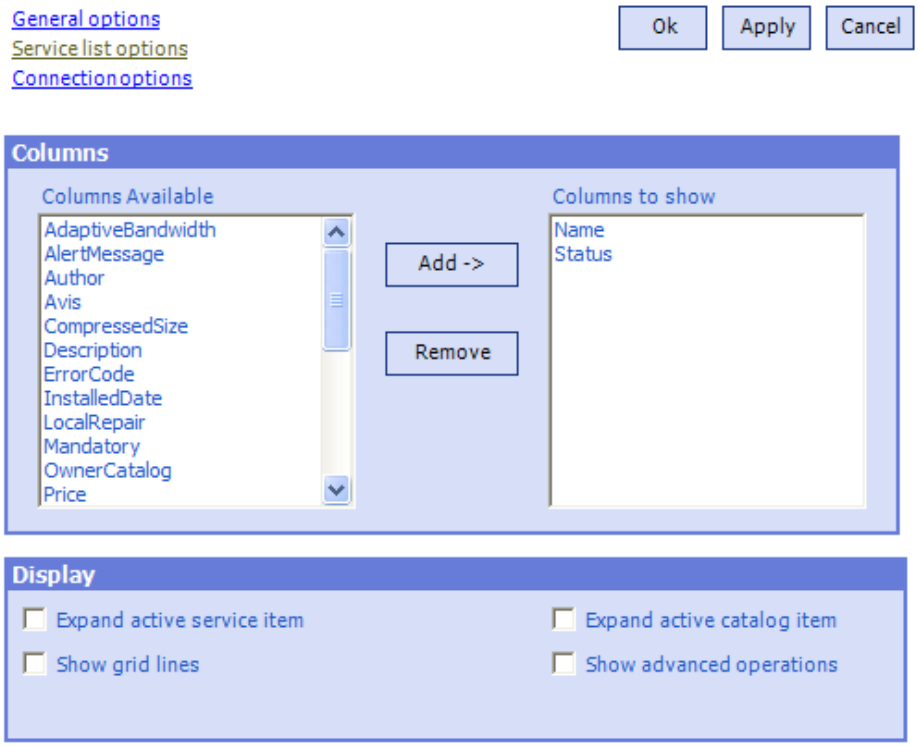
Service List Options

You can use the Service list options window to modify the appearance of the Service List.

To view the Service list options window:

1. Click **Preferences** on the Side Bar of the HPCA Application Self-service Manager.
2. Click **Service list options**, to display the Service list options as shown in Figure 11.

Figure 11 Service List Options



Customizing the Column Names in the Service List

Use the Columns area to customize the columns that appear in your service list. The right-hand column lists the column names currently displayed in your service list. For a description of each available column heading, see Table 53 on page 228.

To add columns to the Service List

1 In the Columns Available list box, select one or more names. Hold the **Shift** or **Ctrl** key on your keyboard to select multiple consecutive or non-consecutive column names, respectively.

2 Click **Add**. The selected columns are listed in the Columns to show list box.

To remove columns from the Service List

1. In the Columns to show list box, select one or more names. Hold the **Shift** or **Ctrl** key on your keyboard to select multiple consecutive or non-consecutive column names, respectively.
2. Click **Remove**. The selected columns are removed from the Columns to show list box and returned to Columns available.

Customizing the Display

- Select the **Expand active service item** check box to expand the current service item in the Service List.
- Select the **Show grid lines** check box to display the Service List with grid lines separating each service.
- Select the **Expand active catalog item** check box to expand the current catalog selected.
- Select the **Show advanced operations** check box to display the **Download**, **Reconfigure**, and **Undo** buttons in the Service List section.

Table 53 Column Headings Available for the Service List

Column Heading	Description
Author	The author of the service.
CompressedSize	The size of the compressed service (bytes).
Description	A short description of the service.
InstalledDate	The date on which the service was installed on your computer.
LocalRepair	If data is repairable locally (cached on your computer).
Name	The name of the service.
OwnerCatalog	The originating application Domain name.
Price	Price of the service.
PublishedDate	The date on which the service was published to the catalog.
RepublishedDate	The date on which the service was republished to the catalog.

Column Heading	Description
Size	The size of the service (bytes). Note: You will need this amount of free space on your computer to install the service.
Status	Current status of the software • Available • Installed • Update Available • Broken
UpgradedDate	The date on which the service was upgraded.
Url	The software vendor's URL.
Vendor	The software vendor who supplied the service.
VerifiedDate	The date on which the service was last verified.
Version	The version of the service.

Connection Options

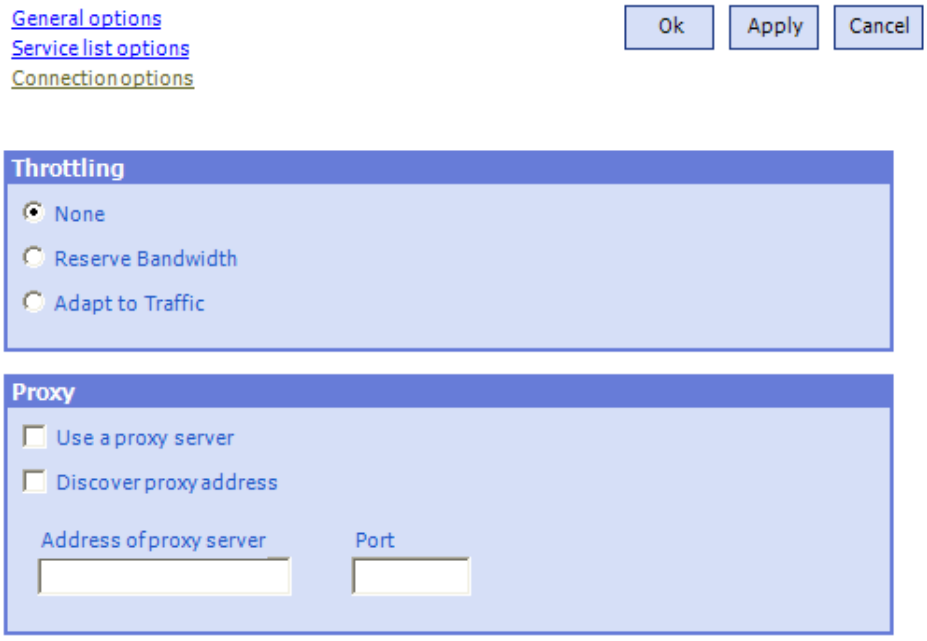
You can use Connection options to select the type of bandwidth throttling to use or to specify the settings required for using a proxy server.

To view the Connection options window:

2 Click **Preferences** on the Side Bar of the HPCA Application Self-service Manager.

3 Click **Connetion options**, to display the Service list options as shown in Figure 12.

Figure 12 Connection Options



- **Throttling**
  - Select **None** for no throttling.
  - Select **Reserve Bandwidth** to select along the scale to indicate the maximum percentage of the network bandwidth to use. The reserve bandwidth can be changed in the user interface by the subscriber as the download is happening.
  - Select **Adapt to traffic** to slide along the scale to indicate the minimum percentage of the network bandwidth to use. The adaptive bandwidth cannot be changed during a data download process. It can only be set before a job is dispatched.
- **Proxy**

  HPCA has the ability to detect an internet proxy when an internet proxy is used. The internet proxy's address is then stored in `PROXYINF.EDM` located in the agent computer's `IDMLIB` directory. The default location of IDMLIB is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib`. The next time the agent computer connects to the Configuration Server, the specified internet proxy will be used. To use this feature, you must

enable your HPCA agent to use and discover an internet proxy. If you are using the Application Self-service Manager, set the proxy settings in the Connection section of Preferences.

Installing Software from the User Interface

The applications that are available to you are listed in the Service List. You can install one or more of these applications at any time.

To install software

1. In the Service List, click the name of the software that you want to install.
2. Click **Install**.

   Some installations might display a set of dialog boxes. If so, follow the instructions. Otherwise, the installation begins immediately.

   You can also right-click the name of the software that you want to install, then select **Install** from the shortcut menu that opens.

   A progress bar displays the installation progress.

   — Click **Cancel** in the Global Toolbar to cancel the installation.

   — Click **Pause** in the Global Toolbar to pause the installation. If you pause an action, you will not be able to perform any other actions until you either cancel or resume the currently paused action.

Refreshing the User Interface Catalog

The catalog is refreshed whenever you log on to the Application Self-service Manager user interface. While you are logged on, if you believe that the list of applications that you're authorized to use has changed, or that updates to your installed applications have become available, click **Refresh Catalog** in the Global Toolbar to retrieve the updated list of applications.

You can also right-click any item in the Service List, then select **Refresh Catalog** from the shortcut menu that opens.

Viewing Information in the User Interface

You might want more information about an application than the Service List provides. If you would like to know the vendor, version, size, and date the application was installed, you can either add these columns to the Service List or click **Show Extended Information** in the expanded service box.

If you would like more information from the manufacturer, click on the link provided.

To view more information

- In the Service List, select the appropriate software, and click **Show Extended Information**.

  You can also right-click the appropriate software, select **Properties**, then select **Information from the shortcut menu that opens**.

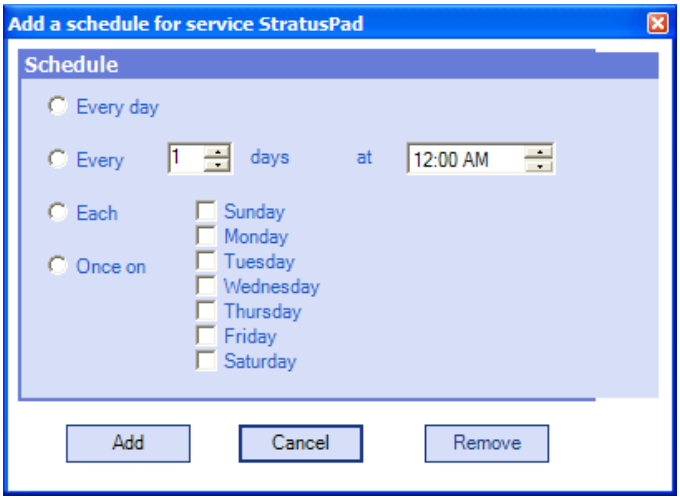
Click the corresponding **Cancel** button to return to the Service List.

Scheduling Timed Events

After selecting an installed service, in the expanded service box, click **Schedule Timed Events** to specify a schedule that will automatically update the applications that are installed on your computer. For example, you can schedule updates to occur during off-peak hours when there is less network traffic.

To schedule updates for an installed application

1. In the Application Self-service Manager user interface, select an installed application.
2. Click **Schedule Timed Events**. The Schedule dialog box opens.



3 Select one of the following:

— **Every day**
Updates occur every day at the specified time.

— **Every n days**
Updates occur every n days. Use the up and down arrows next to the Every option button to select the frequency of updates.

— **Each weekday**
Updates occur every weekday whose check box is selected. You can select more than one day.

4 Use the up and down arrows or type in the box labeled **at** to specify a specific time for the update.

5 Click **Add** to close the dialog box and accept the scheduled update.

Verifying Software

To check the installation of an application

1 In the Service List, select the installed service that you would like to verify.

2 Click **Verify**.

You can also right-click the name of the software, then select **Verify** from the shortcut menu that opens.

— If the application passes verification, the date and time of verification will appear in the Verified Date column for the application.

— If the application fails verification, **Broken** will appear in the Status column.

3 To repair the software, click **Repair**.

Repairing Software

If there is something wrong with an application, click **Repair** to fix it.

To repair software

1 Select an application that needs to be repaired (This is designated by an X in the first column, and Broken, in the Status column).

2 Click **Repair**. HPCA retrieves the files needed to fix the application.

Reconfiguring Software

Use the Reconfigure option in the Service List section to reconfigure the installation of software on your computer. The reconfigure option allows you to re-install the selected software to adjust different configurations, for example, the directory where the software was installed.

The Reconfigure button is available only if the application is installed and the RECONFIG variable is set to Y in the ZSERVICE instance for the application.

To reconfigure software

1 Select the software you would like to reconfigure.

2 Click **Reconfigure**.

3 Some installations might display a set of dialog boxes. If so, follow the instructions. Otherwise, the installation begins immediately.

Removing Software

Use the Remove option to remove software from your computer.

To remove software

1 Select the software that you want to remove.

2 Click **Remove**.

3 Click **Yes** if you are asked to confirm that you want to remove the application.

Alternatively, right-click the name of the installed software and select **Remove** from the shortcut menu that opens.

HPCA Agent Self-maintenance

Maintenance for the HPCA agents is available from HP Technical Support. The maintenance will include import decks for the Configuration Server Database. New instances will be created in the PRDMAINT Class in the PRDMAINT Domain; there is one PRDMAINT instance for each PRODUCT_PLATFORM combination for this release (HPCA 7.90). These instances will be connected based on the HPCA agent's platform and current product level. Once you have decided to roll out the maintenance to the HPCA agent computers, you can add the service to the user's entitlements.

To minimize the need for separate PRDMAINT bundles for different operating systems requiring the same maintenance, the ZMASTER.ZOSTYPE variables identify the Windows operating system type or family.

Usage Notes

1 All packages are disabled by default. This is accomplished by setting a ZSTOP expression to **1** to prevent deployment. Either remove this value for general deployment, or use this ZSTOP expression to restrict its deployment to certain groups.

2 The first REQUIRES connection is reserved for any possible hot fix, a fix that is sent to you directly by Technical Support is not yet available in a fix or service pack. This package, _HOTFIX, will be used to chain any required fixes (and/or enhancements) and will be maintained by the customer. The second connection is for any locally customized code to be included as part of maintenance.

3 Use the ACTMAINT attribute in the SETTINGS Class of the CLIENT Domain to specify how you want maintenance processed. You can choose to immediately download and install maintenance (**I**), download only and

install later (**D**), or prompt users to install maintenance at another time (**P**).

Maintenance runs only when the RADSKMAN parameter **mnt=Y**. For more information, see ACTMAINT on page 127 and the **mnt** parameter (Table 47 on page 183).

HP will provide an updated PRDMAINT instance with each new maintenance pack. The customer is not required to apply all maintenance.

To deploy client maintenance packages

1. A maintenance package is made available on the HP support web site in the form of an export deck.
2. Download the files. There should be at least an `xpi` and `xpr` file.
3. Stop the Configuration Server service and copy the export files to the Configuration Server `bin` directory.
4. Import the files using the EDMAMS utility.

   For example, if you were given two files, `MAINT_RAM_40_RC3.XPI` and `MAINT_RAM_40_RC3.XPR`, you might use the following command lines.

   ```
   ZEDMAMS VERB=IMPORT_INSTANCE,FILE=MAINT_RAM_40_RC3.XPI,
   PREVIEW=NO

   ZEDMAMS VERB=IMPORT_RESOURCE,FILE=MAINT_RAM_40_RC3.XPR,
   PREVIEW=NO
   ```

   Your command line could vary depending on a number of factors. For detailed information on EDMAMS, refer to the *Configuration Server Guide.*
5. Restart the Configuration Server.
6. Assign the Maintenance Server to the appropriate users in the POLICY Domain.

   To run the maintenance portion of an HPCA agent connect process, the `mnt` parameter of the RADSKMAN command line must be set to **Y**.

During catalog processing, the HPCA agent will process all services found in the PRDMAINT Domain, perform arbitration to determine appropriate maintenance, and deploy the maintenance to the maintenance staging directory. The default location for this is `c:\Program Files\Hewlett-Packard\HPCA\Agent\_Maint_`.

Backup and Restore Capabilities

The installation of the HPCA agent creates a `backup` directory—in the `IDMROOT` folder—that contains a copy of the core files (the minimum components) that are needed in order to perform an HPCA agent connect with the Configuration Server.

These core files enable the restoration of the HPCA agent (via the Portal) in the event the `IDMSYS` directory becomes corrupted or files are deleted. The HPCA agent can then perform the verification, and repair missing and corrupted files.

Restoring a Damaged HPCA Agent

1. Select either the **Notify by Device** or **Notify by Subscription** operation.
2. From the Notify Type drop-down list, select **Custom Notify**.
3. Specify:

   `upgrdmaint /restore`

   This will copy the contents of the `backup` directory to the `IDMSYS` folder. The HPCA agent will now be functional so a notification can be sent to perform a full connect or a maintenance-only connect in order to repair the HPCA agent files.

Administrators can update the `backup` directory also.

Updating the Backup Directory

1. Select the **Notify** operation.
2. From the Notify Type drop-down list, select **Custom Notify**.
3. Specify:

   `upgrdmaint /backup`

   The core files will be copied from the `IDMSYS` folder into the `backup` directory.

   This command is useful after a service pack or fix pack has been deployed to the HPCA agent; the `backup` directory can be synchronized so that it contains the latest maintenance.

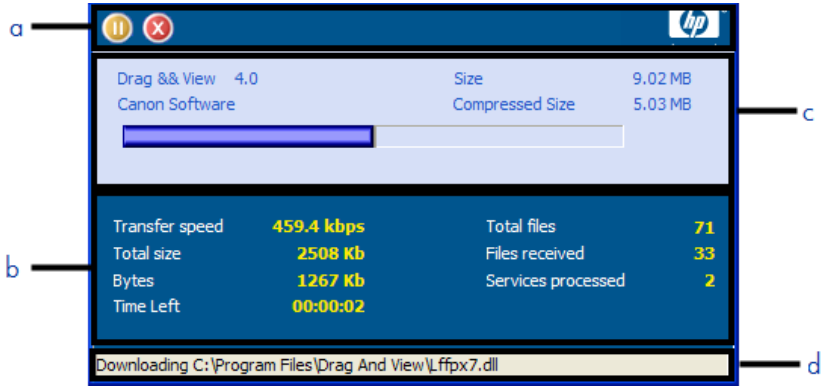
HPCA System Tray

The HPCA System Tray icon provides status and statistics information, as well as pause and cancel mechanisms. The System Tray icon sits in listen mode, and accepts requests for the display of dialog boxes and status information that will be displayed when the HPCA agent needs user interaction.

An icon shows in the System Tray area of the Task Bar. By moving your cursor over the icon, you can see one of three states depending on the HPCA agent's activity.

- **Idle**
  When the System Tray is in listen mode, the icon is static.
- **Active**
  The icon becomes active when the HPCA agent is working or when user intervention is required. The icon animates and an informational bubble will appear when the cursor moves over the icon. The bubble provides information on the type of activity that is occurring. If a critical notify occurs, the bubble will automatically pop up.
- **Console View**
  The Console View can be launched by the shortcut menu that is available when you right-click on the icon, or by double-clicking on the icon. The Console view appears as shown in Figure 13.

Figure 13 System Tray Console



Legend

a Button Bar

b Status Area

c Information Panel

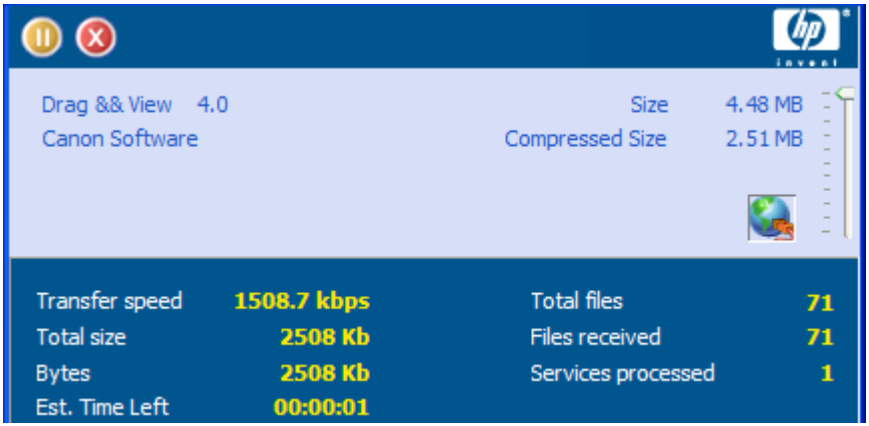
d Status Message Area

The Console View contains the following parts:

- **Button Bar**
  Contains buttons for Pause and Cancel, and a logo that animates when HPCA is actively working.
- **Status Area**
  Contains statistics about the current processes, including transfer speed, total size of transmission, bytes received, estimated time left of transmission, total files to be transmitted, number of files received, and number of services processed.
- **Information Panel**
  Contains information about the service that is currently being processed, as well as a progress bar that shows the percentage finished.
- **Status Message Area**
  The Status Message Area shows a message about the current process.
- **Bandwidth Control**
  If you set bandwidth throttling for the service on the Configuration Server, and you click the bandwidth toggle button in the System Tray Console, a slider for bandwidth control appears. Adjusting the slider will result in the bandwidth throttling value being changed.

The bandwidth control shows when bandwidth throttling is available (based on the throttling type for the service, Adaptive or Reserved). In addition, the bandwidth slider will be displayed if the throttling type is valid and the UIOPTION attribute of the Application (ZSERVICE) instance is set to FULL. FULL is the default value. Set UIOPTION to INFO to show what is happening on the agent computer, but disable all the controls so that the subscriber cannot make any changes. Set the UIOPTION to NONE so that no dialog boxes are displayed. Set the UIOPTION using the Admin CSDB Editor.

Figure 14 Bandwidth Control in the System Tray Console



User Actions for Mandatory Services

The **Connect Deferral** window allows an HPCA administrator to give users several options when service “actions” (such as a software installation) are pending for their machine. This feature lets users decide—based on their current activity—whether to immediately take the required actions, or defer them to a more convenient time.

An HPCA administrator can specify two “deadline” type counters for the required actions.

- The “deferral” days remaining will be displayed on the right side of the window. The user will be able to repeatedly defer the actions—but only for the duration that is established by an administrator—at which point the actions will be automatically taken on their machine.
- The dialog countdown timer that is displayed in the bottom of the window indicates the number of minutes before the dialog is automatically dismissed and the “Allow” action forced. When the countdown reaches 1 minute, the timer will change to display the number of seconds, and will be refreshed every 5 seconds. If the counter reaches 0 (zero) and the user has taken no action, the “Allow” action will be forced.

Connect Deferral Window

The Connect Deferral window presents information about the required actions and offers several options to the user. The columns of the Connect Deferral window are described in Table 54.

Table 54 Connect Deferral Window Columns

Column	Description
Service	This column presents a description of the services that require user action. If the service description is not supplied in the SERVICE Instance, the service name will be displayed.
Action	This column displays the resulting impact on the machine when the user action is taken. This can be: • Delete: remove the service from the machine • Install: install the service on the machine • Update: update an existing service on the machine
Type	This column lists the type of service. A service type can be: • OS (operating system) • Patch • Software
Reboot	This column displays the setting of the ZSERVICE reboot flag. For more information on the ZSERVICE reboot flag, see Restarting the HPCA Agent Computer on page 150
Size (in MBs)	This column displays the size of the service.

Connect Deferral User Actions

The user options for pending services are:

- **Allow**

  This results in the immediate execution of the activities that are listed in the Action column.

- **Cancel**

  This causes the current connection to the Configuration Server to be aborted; the action will remain pending in future connections.

- **Defer**

This is used in conjunction with the **Defer for** drop-down list. The user can postpone taking action on the services by selecting a deferal interval.

— **Fifteen minutes** will cause the current connection to the Configuration Server to sleep for fifteen minutes; a ZTIMEQ object will not be created.

— The other intervals (**One hour**, **Four hours**, **One day**, **One week**, and **Two weeks**) will result in the creation of a ZTIMEQ object. For more information on testing the ZTIMEQ object, see Testing the Timer Deployment on page 200.

Applications: Alert Messages and Deferrals

Use the HPCA Admin CSDB Editor to show the subscriber that an application has a high priority or to display an additional message. An Application (ZSERVICE) Instance can be set to *normal* or *high* priority. An exclamation point (**!**) denotes that an application is high priority.

If you are using the Application Self-service Manager with the System Tray to manage a high priority service and an alert condition arises, the alert bubble will “pop” and the message will display in the status bubble of the System Tray icon.

When an application is deployed, an administrator can—based on the network threshold, the data-download size, a date setting, or a deferral count—have a deferral message display. When an application has data that needs to be downloaded to the HPCA agent computer, the HPCA agent will check whether the application is configured for deferral. If it is, the Application Self-service Manager will check the current bandwidth setting against the administrator-specified bandwidth threshold setting. A deferral message, asking the subscriber if s/he wants to defer the deployment, will be displayed if:

- The current network speed is slower than the Network Threshold (DT) value AND the size of the service is greater than the *below-threshold size* (DBT) value, or
- The current network speed is faster than the Network Threshold (DT) value AND the size of the service is greater than the *above-threshold size* (DAT) value.

An HPCA administrator administrator can configure “number-of-occurrences” and “last-deferral-date” application-deferral limits. Then, if the

number of deferrals or the deferral date is reached, the application will be installed/updated without a deferral message being displayed.

An HPCA administrator can also configure a “minimum-byte-count” limit on which to alert. If the size of the data is less than the minimum byte count, the alert panel will be skipped.

If an application has been configured for a deferral and all of the requirements that are listed below are met, the HPCA agent will display the deferral message.

- The Alert Mode (DM) is configured (=**`Install`**, **`Update`**, or **`Both`**) for the current operation.
- The current network speed is slower than the Network Threshold Speed (DT) and the data to be downloaded is greater than the below threshold size (DBT).
- The current network speed is faster than Network Threshold Speed (DT) and the data to be downloaded is greater than the above threshold size (DAT).
- The UIOPTION attribute in the ZSERVICE instance is set to something other than **`NONE`**.
- If specified, the deferral date, Allow Install Deferral up to (DI), or Allow Update Deferral up to (DU) has been reached.

  or

- The number of deferrals allowed (DN) has been reached.

If these requirements are met and you are using the Application Self-service Manager, the deferral message will be displayed to the user, who can then choose to defer the action or continue with it.

If the user does not respond to the defer/continue, the action that is identified in the DA attribute (see DA on page 246) will be taken.

The following sections describe how to create and configure alert/deferral instances in the Configuration Server Database.

Alert Message and Deferral Instances in the Configuration Server Database

To implement an application alert or deferral, you must create an instance in the Alert/Defer (ALERTDEF) Class of the CSDB and connect it to the appropriate Application (ZSERVICE) Class instance.

Creating

The Alert/Defer (ALERTDEF) Class has been added to the SOFTWARE Domain in the CSDB to facilitate the configuring of application alerts. In order to configure an alert, create an instance in the Alert/Defer (ALERTDEF) Class.

To create an instance of the Alert/Defer (ALERTDEF) Class

1 Navigate the **Start** menu and invoke the Admin CSDB Editor. The Security Information dialog box opens.

The user ID and password are:
User ID: **`ADMIN`**
Password: **`secret`**

2 If necessary, type a User ID and Password, and then click **OK**. The Admin CSDB Editor window opens.

3 Navigate to the **SOFTWARE** Domain of the **PRIMARY** File, and right-click **Alert/Defer (ALERTDEF)**. A shortcut menu opens.

4 Click **New Instance**. The Create Instance dialog box opens.

5 Type a name (such as SalesAlert) for the new instance.

6 Click **OK**.

The new (SalesAlert) instance has been created.

Configuring

Once the instance is created, you need to configure it for your alert. The Alert/Deferral (ALERTDEF) Class includes two sample instances, Dial Up Sample Defer and LAN Sample Defer. In this exercise, we will use the SalesAlert instance that was previously created.

To configure an Alert/Deferral (ALERTDEF) instance

1 Use the Admin CSDB Editor to navigate to the **SalesAlert** instance.

2 Double-click the **SalesAlert** instance.

3 Double-click the variable that you want to edit.

For information on the attributes for this class, see Table 55.

Table 55 Variables in the ALERTDEF Class

Variable	Description
ALERTMSG	An exclamation point (**!**) preceding "Service Alert Message" denotes a high priority message.
DM	**Alert Mode** The type of activity for which a deferral alert will be triggered. • Set to **I** for **Installations**. • Set to **U** for **Updates**. • Set to **B** (the default) for **Both** (installations and updates).
DN	The maximum number of deferrals that will be allowed before the DA (Deferral Action) action will be taken. The default is **0**.
DT	The network bandwidth threshold, in bytes. The current network speed must be less than this value in order to meet the deferral requirement. The default is **86000**.
DBT	The minimum cumulative size (in bytes) of the files that are being downloaded on a slow network and which will trigger the deferral. The default is **50000**. A deferral will be triggered if the network speed is slower than the Network Threshold (DT) value AND the cumulative size of the files that are being downloaded exceeds this value (**DBT=***n*). If **DBT=0**, it is ignored (there will be no deferral if the speed of the network is below the Network Threshold (DT) value).
DAT	The minimum cumulative size (in bytes) of the files that are being downloaded a fast network and which will trigger the deferral. The default is **0**. A deferral will be triggered if the network speed is faster than the Network Threshold (DT) value AND the cumulative size of the files that are being downloaded exceeds this value (**DAT=***n*). If **DAT=0**, it is ignored (there will be no deferral if the speed of the network exceeds the Network Threshold (DT) value).
DTO	The duration (in seconds) for which the Defer Alert dialog box will display; the default is **120**. After the timeout is reached, the DA (Action on timeout) action will be taken.

Variable	Description
DA	The action that will be taken if the subscriber does not respond to the Defer Alert dialog box in the time that is allowed by the DTO (Alert Timeout) variable. • Specify **C** (the default) to continue with the specified action. • Specify **D** to defer the specified action.
DI	The threshold date (in YYYYMMDD format) after which the option to defer the application installation will no longer be available—the application will be installed.
DU	The threshold date (in YYYYMMDD format) after which the option to defer the application update will no longer be available—the application will be updated.
Name	The friendly name for the instance.
DEFOPTNS	This attribute is used to resolve the values of the other attributes of this class. The default is **&(DM),&(DN),&(DT),&(DBT),&(DAT),&(DTO),&(DA),&(DI),&(DU)**. Do not modify this value.

In this exercise, we'll add an alert message with high priority. To do this, double-click the **ALERTMSG** variable.

4 In the text field, type the message that you want to be displayed.

5 Click on the next attribute, and type in the appropriate value.

6 Click **OK** when you are finished editing the attributes. The Instance Edit Confirmation dialog box opens.

7 Click **Yes** to confirm the changes.

The **SalesAlert** Instance has been configured with an alert message.

Connecting

Now that the Alert/Defer (ALERTDEF) Instance (SalesAlert) is created and configured, it must be connected to an Application (ZSERVICE) instance.

- Use the Admin CSDB Editor to click and drag the **SalesAlert** Instance to the Application (ZSERVICE) Instance with which you want the alert message to be associated.

For additional information on using the Admin CSDB Editor refer to the *HP Administrator User Guide*.

Glossary

Administrative Installation Point (AIP)

Also called Administrative Control Point (ACP).

An AIP is a server share or local directory structure that contains all of the files that are needed to run setup for a Windows Installer-enabled application.

agent

The HPCA agent (Application Manager and Application Self-service Manager) runs on the agent computer. It communicates with the Configuration Server to receive information about the desired state of the agent computer, and compares that information to the actual state of the agent computer. Then, the HPCA agent makes adjustments in order to make the actual state match the desired state.

agent computer

An agent computer is a computer (workstation or server) on which the HPCA agent software has been installed.

agent object

An agent object is a file located on the agent computer that contains information about the configuration of services and hardware.

applications

Also called software, data, and services.

Applications are one type of content that HPCA can manage on subscriber computers. Use the HPCA Administrator Packager to create packages of data to be managed on your subscribers' computers.

attended

An attended computer is a computer that a user is logged on to and using.

attribute

Also called field, attribute, or property.

An attribute is a single, descriptive data item in a class. The class template contains a definition (e.g., the name, data type, description, and length) for each attribute that makes up the class. Class instances contain a set of attributes and each attribute contains a value.

attribute property

An attribute property controls some aspect of how an attribute is processed on the Configuration Server and HPCA agent computer. Each attribute defined in a class template has a set of Configuration Server properties and a set of client properties.

audience list

An audience list is a directory of the subscribers for an application used by HPCA Notify.

base instance

The base instance contains the default values for the attributes that make up a class. When you create a new instance in that class, the attributes in the new instance inherit the default values, as specified in the base instance.

byte level differencing

Byte level differencing is the process of packaging a patch containing updates or corrections to a resource. The patch is calculated by differencing an existing copy of the resources in the CSDB against the resources currently being packaged.

class

See instance.

class connection variable

A class connection variable determines the path of resolution for a client's distribution model during the HPCA agent connect process. It is a branch in the resolution process.

A class connection is resolved and resolution continues using the target instance identified in the class connection variable if the class connection variable attribute's name is _ALWAYS_, INCLUDES, REQUIRES, or if the name of the attribute matches the current value of the system message.

class instance

See instance.

clean computer

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

Admin Client Explorer

See Admin Agent Explorer.

Admin Agent Explorer

The Administrator Agent Explorer, installed with the Administrator, can be used to view or edit local objects, or create new objects. You can also use the Admin Agent Explorer to view objects located on a file server or on other computers to which you are connected via a local area network (LAN).

Admin CSDB Editor

The Admin Configuration Server Database Editor, installed with the HPCA Administrator, is used to manipulate the contents of the CSDB.

Admin Packager

The Admin Packager is used to create packages of data and store them in (i.e., promote them to) the CSDB.

Admin Screen Painter

The Admin Screen Painter, installed with the HPCA Administrator, is used to develop custom dialog boxes.

Application Manager

The Application Manager is the HPCA agent that manages mandatory services. The HPCA administrator uses the CSDB Editor to specify the services that the Application Manager manages on the agent computer. No user interface is available.

Application Self-service Manager

The Application Self-service Manager is the HPCA agent that is used to manage optional services. The HPCA administrator uses the Admin CSDB Editor to specify the services that are available to the subscriber.

The subscriber installs and manages data that is available from the Application Self-service Manager user interface.

component class

A component class is a type of class used to identify the items (files, registry entries, links, icons, and so forth) that make up the content identified by a Configuration class instance. Typically, this class' instances have distributable data associated with them such as FILE, REGISTRY, or DESKTOP.

Use the Admin CSDB Editor's Class Editor to set the class type to "Component."

configuration class

A configuration class identifies content to be managed on subscribers' computers by grouping together instances of component classes. Typically, a configuration class' instances do not have distributable data associated with them. They are connected to instances of one or more component classes, perhaps through an instance of another configuration class. Examples: ZSERVICE, PACKAGE, VGROUP, VERSION, and so forth.

Use the Class Editor in the Admin CSDB Editor to set the class type to "Configuration."

Configuration Server

The Configuration Server distributes applications to agent computers. It runs on the server and maintains the CSDB, which stores information that the Configuration Server needs to manage digital assets for distribution to agent computers.

Configuration Server Database

The Configuration Server Database (CSDB) stores all of the information necessary to manage digital assets on an agent computer, including:

- The software and data that HPCA distributes.
- The "desired state" of each agent computer with respect to the HPCA-managed content.
- The policies determining which subscribers can subscribe to which packages.
- Security and access rules for HPCA administrators.

Use the Admin CSDB Editor to manipulate the CSDB.

desired state

The desired state embodies the content that HPCA manages for a specific agent computer. A model representing the desired state for each agent computer is stored in the CSDB. The desired state model is created and managed using the Admin CSDB Editor.

domain

A domain logically partitions a file in the CSDB to group together "like" classes. Three examples are the POLICY Domain, the SOFTWARE Domain, and the SYSTEM Domain.

- The POLICY Domain contains the classes that identify users individually and by their association with groups of other users.
- The SOFTWARE Domain contains the classes needed to define and deploy applications. HPCA administrators will do most of their work in the POLICY and SOFTWARE Domains of the PRIMARY File.
- The SYSTEM Domain contains the classes that contain administrative and process control definitions.

expression variable

An expression variable contains a single line REXX command that is executed during resolution. If the expression evaluates to "true" in an attribute named ZSTOP, it causes resolution of the current instance to end. Resolution continues in the calling instance with the variable following the one that called the instance containing the expression variable.

file

A file is the highest level in the hierarchy of the CSDB and it groups similar domains together. The PRIMARY File is an example of this level.

The PRIMARY File is used to define and maintain the distribution model. This is one of the pre-configured files distributed with the Configuration Server and installed when you first install HPCA. Others are the NOTIFY File and the PROFILE File. HPCA administrators will do most of their work in the PRIMARY File.

instance

Also called class instance.

An instance is a CSDB object containing a specific occurrence of a class. This is analogous to a row in a relational data table or a record in a traditional flat file. The attributes of an instance contain the data describing one specific entity of that class.

Inventory Manager

The Inventory Manager is a policy-driven, inventory management tool that automatically discovers information about software and hardware, and consolidates the results into web-based reports. The Inventory Management client is a WbEM (Web-based Enterprise Management) consumer.

mandatory service

A mandatory service is a service that is required on the agent computer. Services are made mandatory by setting the ZSVCMO variable in the Application instance to M.

method

A method is a program that performs functions that are meaningful in the context from which they are called.

Methods can be written in REXX or in a language that produces an executable that can validly run on the platform where it is invoked. The HP-supplied REXX run-time environment interprets REXX methods.

Client methods run on the agent computer, while Configuration Server methods run on the Configuration Server computer.

method variable

The method variable identifies the method, or program, to be executed as part of the resolution process.

For Configuration Server methods, it contains a reference to an instance of the SYSTEM Domain PROCESS class that identifies the method to execute and the parameters to be passed to the method. Configuration Server methods are located in the Configuration Server `bin` subfolder for executable methods and in the `REXX` subfolder for REXX methods.

For HPCA agent methods, it contains the name of the method to execute on the HPCA agent computer. The name of a method variable that executes an HPCA agent method identifies the event (such as installing or removing software) for which the method should be executed. HPCA agent methods are located in the `IDMSYS` location on the HPCA agent computer.

Notify

A notify forces one or more agent computers to connect to the Configuration Server to install, update, or remove an application, or send an e-mail to subscribers of a particular service.

null instance

The null instance of a class is used when an instance of that class that does not exist. During resolution, if a connection to a non-existent instance of a class is attempted, the null instance is used. This provides a resolution path that handles broken connections.

object

An object is a data structure containing variables stored in a file with an `.EDM` extension on the agent computer. An object can consist of one or more instances. Each instance contains the same set of variables. The values held in the variables can vary from instance to instance.

Use the Admin Agent Explorer to view, edit, or create objects.

optional service

An optional service is available to subscribers via the Application Self-service Manager user interface, and which each subscriber can decide to install based on need. Services are made optional by setting the ZSVCMO variable in the Application instance to O.

package

A package is the data that is packaged as an individual unit.

policy

A policy determines which subscribers (or computers) have access to what software. The POLICY Domain class instances identify users. Connections to the POLICY class instances identify the content to be managed for those subscribers.

promote

When you promote a package that was created with the Admin Packager, you are storing the package in the CSDB.

Proxy Server

When used in your environment, the Proxy Server can reduce the load on your Configuration Servers by distributing requested resources to agent computers. The Proxy Server maintains multiple data caches containing the resources needed for each agent computer's desired state.

publish

To bundle a set of related data into a single unit that can be managed by HPCA.

resolution

Resolution occurs when the Configuration Server accomplishes a unit of work in response to a service request. The unit of work is defined by the contents of the CSDB and parameters included in the service request itself.

In other words, what HPCA does depends upon what information is stored in the CSDB and what information accompanies the request for HPCA to perform some action.

For example, the HPCA agent connect submits service requests by sending an object to the Configuration Server. The Configuration Server then performs resolution in response to each request. The parameters that control the processing of the service request are in the input object.

resource

Also called a file.

A resource is a single component that is bundled into a package. Examples of resources are files, desktop links, and sets of registry keys.

Scheduler

The Scheduler service (`radsched.exe`) that is installed with the Application Manager allows an HPCA administrator to deploy a service at a specific time.

Screen Painter

See Admin Screen Painter.

service

Also called a software application, application, or software. A service represents a group of related packages that define the content to be managed by HPCA.

session

A session identifies a packaging exercise in Admin Packager that results in the creation of one HPCA package.

Software Manager

See Application Self-service Manager.

symbol

A symbol is the name of a variable in global memory, preceded by an ampersand.

symbolic substitution

CSDB instances and HPCA agent objects consist of variables that contain values. The value of a variable can contain a specification that refers to the value of another variable. During the resolution process, HPCA can substitute the value of the second variable to replace the reference in the first variable.

References to be processed with symbolic substitution are specified using an initial ampersand.

For example, one of the _ALWAYS_ connection variables in the SYSTEM.PROCESS.ZMASTER instance of the Configuration Server Database contains the value POLICY.USER.&(ZMASTER.ZUSERID). The reference &(ZMASTER.ZUSERID) refers to the ZMASTER object's ZUSERID variable, which contains the user ID typed into the HPCA log-on dialog box on the HPCA agent, when the subscriber visits the HPCA Software Management Web page. If the user typed in JDOE for the user ID, symbolic substitution would render the effective value of the _ALWAYS_ connection variable as POLICY.USER.JDOE.

The substitution is not permanent; the value in the CSDB does not change. Only the value in the in-storage object derived from the CSDB instance for the current resolution process contains the substituted value.

The parentheses are required only if the reference is qualified—contains a period. If the reference is unqualified, the parentheses are optional.

For example, these symbolic substitution specifications are correct:

&(ZMASTER.ZUSERID)

&(ZUSERID)

&ZUSERID

and this is incorrect:

&ZMASTER.ZUSERID

System Explorer

See Admin CSDB Editor.

System File Protection (SFP)

System File Protection prevents protected system files from being replaced. When a program attempts to replace or move a file that is protected, the file's digital signature is checked to determine whether the file is valid or not.

Timer

See Scheduler.

unattended

An unattended computer is a computer that is not currently in use (attended) by a person.

variable

A variable is a piece of named storage that contains a changing value. The variable's value forms a part of the client's resolved distribution model and can influence the resolution process through messaging or symbolic substitution.

version group

A version group is a collection of one or more versions of one application that HPCA deploys and manages. Use version groups to roll out a new version of an application to the appropriate subscribers, and activate it upon delivery or at a predetermined time.

Web-based Enterprise Management (WbEM)

Web-based Enterprise Management (WbEM) is an initiative from the Distributed Management Task Force (DMTF) to develop standard technologies for accessing management information in an enterprise-computing environment.

Windows Management Instrumentation (WMI)

Windows Management Instrumentation (WMI) is the Microsoft implementation, for Windows platforms, of Web-based Enterprise Management (WbEM). WMI provides support for WbEM's Common Information Model (CIM).

ZCONFIG

The ZCONFIG object contains basic hardware information for the agent computer such as processor, operating system, and drives.

ZMASTER

The ZMASTER object contains information about the agent computer that is necessary to run the HPCA agent such as the identity of the subscriber and the IP address of the agent computer.

ZSTOP

A ZSTOP expression is used to stop the resolution of an instance based on certain criteria. For example, create a ZSTOP expression to deploy a ZSERVICE instance only to agent computers with a particular operations system.

ZTIMEQ

The ZTIMEQ object is created, based on information in the Scheduler (TIMER) instance, when a timer is deployed to the HPCA agent.

A Agent Lockdown Mode

The goal of the HPCA agent lockdown mode is to ensure the integrity, confidentiality, and availability of the content and methods that are stored and used by the management agent. This prevents non-privileged users from tampering with critical system-level content or breaching confidentiality by viewing content they should not have access to.

In Windows, the operating system allows defining HOME directories for each user. The administrator configures the user data store to use the HOME directory style approach. The HPCA processing methods and other objects are owned by the SYSTEM user. This was done intentionally so that migration is less disruptive to the SYSTEM mode for existing customers who might want to migrate to Agent Lockdown Mode.

To solve the "What to trust" issue, the HPCA agent does not trust any parameters that are passed in from a USER request (for example, RADSKMAN command). The SYSTEM side is predefined with trusted and secured objects either at install time or by performing a priming connection after installation to the Configuration Server to get the default parameters.

The implementation of security permissions is the responsibility of the HPCA Administrator. Sample processing script `setacls.bat` file can be used to set ACLs which isolate USERs from the SYSTEM and other USERs.

Features

- The HPCA agent runs using the existing HPCA infrastructure. There are no changes required for the HPCA infrastructure with the exception of policy entitlements.
- USER directories are moved from the `IDMROOT` directory to `CSIDL_LOCAL_APPDATA\HPCA\Agent`.
- SYSTEM privately owns all of `IDMROOT`. No read or write access by USERs.
- USERs get private `Log` and `Data` directories specific to each user.
- USERs can add a custom directory with their own script to access permissions. USERs can also run the customize the sample script, called `setacls.bat`. The Customized script can be used to set access permissions after installation of the HPCA agent.

A sample `setsecure.bat` file is provided to understand the use of `setacls.bat` file.

- SYSTEM's `Log` and `Data` directories cannot be accessed by USERs.
- `IDMSYS\DEFAULTS` stores the priming objects that are needed to run a HPCA agent.
- **`ZSYSACCT=Y`** applications will be wholly owned by SYSTEM; USERs cannot access the objects for the specified application.
- USERs have access to execute some files from `IDMSYS`, however SYSTEM methods (such as, daemons, `upgrdmaint`, and `radtimeq`) will be executed by SYSTEM only.
- USERs cannot create TIMER instances.
- SYSTEM side implementations like Patch Manager and OS Manager, which are entirely owned by the SYSTEM, will keep working without any changes.
- USER MSI files will be stored in a separate directory.
- SYSTEM side MSI files will not be accessible to USER.

Known Limitations

Following are the known limitations of Agent Lockdown Mode. Note that some of these are intentional limitations to ensure the security aspect of the HPCA agent.

- Agent Lockdown Mode does not support FAT16 or FAT32 file systems because these do not support ACLs.
- USER connects cannot create TIMER instances. This is achieved by locking out ZTIMEQ as well as removing execute permissions to `radtimeq.exe`.
- Maintenance is entitled to SYSTEM only; USERs cannot initiate HPCA agent maintenance.

Access Control Lists

To enable Agent Lockdown Mode on the HPCA agent, an Administrator needs to set the proper ACL permissions so that certain directories are not accessible by Windows “Standard Users”.

Ensuring Security with ACLs

The ACLs need to be customized based on the environment. For example, if multiple users are included in an *Administrators* group on your devices, but you don’t want all of these users to have access to the secured folders, you must do one of the following:

- Revise the memberships of that Administrators group to include only the administrators who are authorized to access the secured folders.
- Remove access for that Administrators group and specify which individual administrators can access the secured folders.

Setting ACLs

The `setacls.bat` file contains sample statements which you can use to create a new script. This customized script can be used to set ACLs in the HPCA environment. Customizing the batch file is an optional task. If you do not customize the `setacls.bat` file, ACLs will be set using the sample statements provided in the `setacls.bat` file.

The HPCA agent installer creates temporary environment variables, so that the batch script can access them.

The sole purpose for the creation of these variables is for the exclusive use by the batch script; they are automatically deleted at the conclusion of the installation process.

- MSI_NVD_IDMSYS
- MSI_NVD_IDMUSRMSI
- MSI_NVD_IDMPUBLIC
- MSI_NVD_IDMSHRDATA

The sample script blocks access to the following services by standard users, who are not authorized to execute them. Only the MACHINE can access these modules.

- `Radexecd`: This is the HPCA Notify Daemon.
- `Radsched`: This is the HPCA Scheduler Daemon.
- `Radstgms`: This is the HPCA MSI Redirector.

The sample script also blocks access to the following two stand-alone applications by the standard users, who are not authorized to execute them. Only the MACHINE can access these modules.

- `Radtimeq`
- `Upgrdmaint`

Table 56 describes the access levels for the new directories, along with the applicable mnemonic from `Nvd.ini`.

- SYSTEM access is read- and write-accessible for all these directories.
- USER access values are: read-only (**R**), read- and write-accessible (**RW**), no access (**N**).

Table 56 New Directory Access Levels

Mnemonic	USER Access	Example
IDMSHRDATA	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\SHAREDDATA
IDMPUBLIC	RW	C:\PROGRA~1\HEWLET~1\HPCA\Agent\PUBLIC
IDMUSR	RW	CSIDL_LOCAL_APPDATA\HPCA\Agent\
IDMUSRMSI	RW	C:\PROGRA~1\HEWLET~1\HPCA\Agent\USERMSI\
IDMSYS	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\
IDMLIB	N	C:\PROGRA~1\HEWLET~1\HPCA\Agent\Lib\
IDMLOG	N	C:\PROGRA~1\HEWLET~1\HPCA\Agent\Log\
IDMDATA	N	C:\PROGRA~1\HEWLET~1\HPCAAgent\Lib\Data\
NONE-CACertificates	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\CACertificates\
NONE-DEFAULTS	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\DEFAULTS\

B HP Client Management Interface Alerts

The PlusHP sub-feature of the HPCA agent, installs HP System Software Manager (HP SSM) and HP Client Management Interface (HP CMI) components on the target device. It provides Self Monitoring, Analysis, and Reporting Technology (SMART) Drive Alert Monitoring and HP Hardware Alert Monitoring based on HP CMI. HP CMI is used to monitor and gather hardware related alerts and events for reporting in the HPCA Console.

For more information on how to configure HP CMI to enable hardware alerts reporting in the HPCA Console, see HP Client Automation Core and Satellite Enterprise Edition User Guide.

The following hardware related alerts are reported using the HP CMI and SMART Drive Alert Monitoring:

Table 57 HP CMI and SMART Runtime alerts

Runtime alerts	Desktop	Workstation	Notebook
BIOS configuration change	x	x	x
BIOS configuration security	x	x	x
Chassis intrusion	x	x	
Fan stall	x	x	
Fan normal*	x	x	
Thermal caution	x	x	
Thermal critical	x	x	
Thermal normal*	x	x	

* Can be indirectly detected by a management console through the absence of a Fan Stall or Thermal Caution/Critical alert.

Table 58 HP CMI and SMART Post error alerts

POST error alerts	Desktop	Workstation	Notebook
101-Option ROM Checksum Error	x	x	

POST error alerts	Desktop	Workstation	Notebook
163-Time & Date Not Set	x	x	
164-Memory Size Error	x	x	
214-DIMM Configuration Warning	x	x	
511-CPU fan not detected	x	x	
512-Rear Chassis fan not detected	x	x	
513-Front Chassis fan not detected	x	x	
515-Power Supply fan not detected	x	x	
912-The computer cover has been removed	x	x	
917-Front Audio Not Connected	x	x	
918-Front USB Not Connected	x	x	
1720-SMART Hard Drive detects imminent failure	x	x	
1801-Microcode Update Error	x	x	

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