HP Client Automation

Application Manager and

Application Self-Service Manager

for the Windows®, Linux, and Macintosh operating systems

Software Version: 8.10

Installation and Configuration Guide

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Contents

1 Introduction

HP Client Automation Agent

The HP Client Automation (HPCA) agent gets installed on end-user computers and enables 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. The following lists and describes the HPCA agent's sub-features.

Table 1 HPCA Agent sub-features

HPCA Agent sub-feature	Description
HPCA Application Manager	Use this sub-feature to distribute mandatory applications throughout the enterprise. This sub-feature is described in this guide.
HPCA Application Self-Service Manager	With this sub-feature, users can install, remove, and update optional applications that are available to them in a service list. This sub-feature is described in this guide.
HPCA Inventory Manager	This sub-feature enables you to collect hardware information and send it to HPCA Inventory Manager for collection and reporting. For more information, see *HP Client Automation Enterprise Inventory Manager Reference Guide*.
Local AIP Extension	For information on this sub-feature, see Local AIP Support for the MSI Redirector on page 39.
HPCA OS Manager	This sub-feature controls the provisioning of operating systems. For more information, see *HP Client Automation OS Manager System Administrator Guide*.
HPCA Patch Manager	This sub-feature analyzes and manages security patches. For more information, see *HP Client Automation Patch Manager Reference 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 Automation Core and Satellite Enterprise Edition User Guide*.
HPCA 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 HPCA Application Self-Service Manager and HPCA Application Manager, you can decide whether an application is mandatory or optional, and specify who controls the installation of the application. By adding HPCA Inventory Manager, you can also discover the hardware and software configurations of HPCA agent computers.

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.

If you want to use HPCA to deploy applications to Windows Terminal Servers, see *HP Client Automation Support for Windows Terminal Server and Citrix User Guide*.

Terminology

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

HPCA agent

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

HPCA agent connect

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

desired state

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

device

A device is a piece of hardware—such as a computer or ATM—that is either a managed device or a target device.

managed device

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

target device

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

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.

user

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

policy

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

Abbreviations and Variables

This guide uses the abbreviations and variables defined in the following tables.

Table 2 Abbreviations Used in this Guide

Abbreviation	Definition
HPCA	HP Client Automation
Core and Satellite	HPCA Enterprise environment consisting of one Core server and one or more Satellite servers. All features are installed as part of the Core or Satellite server installation.
CSDB	Configuration Server Database
Portal	HPCA Portal

Table 3 Variables Used in this Guide

Variable	Description	Default Values
InstallDir	Location where the HPCA server is installed	For a 32-bit OS: `C:\Program Files\Hewlett-Packard\HPCA` For a 64-bit OS: `C:\Program Files(x86)\Hewlett-Packard\HPCA`
SystemDrive	Drive label for the drive where the HPCA server is installed	`C:`

2 Installing the HP Client Automation Agent: Windows

The HP Client Automation (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 1 on page 10.

System Requirements

- 30 MB free disk space.
- MS Windows Installer 3.0 or higher.
- Microsoft .NET runtime 1.1 or higher (required for HPCA 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 5.01 or later.
- TCP/IP connection to a computer running the HPCA Configuration Server.
- Windows NTFS-based file system with Access Control Lists (ACLs) support.
- Windows Server 2003, Windows Server 2008, Windows XP, Windows Vista, or Windows 7 (x86 or x64 where applicable)
- Administrative 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

> In a Lockdown enabled environment, if you have applied Access Control List (ACL) settings to the HPCA agent directories, make sure you revert the ACL settings before you perform the remove, repair, or modify operations for an HPCA agent installer.

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 `\Setup-Core\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 `\Setup-Core\Media\client\default\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 `\Setup-Core\Media\client\default\win32` directory on the HPCA agent media.

- **args.xml**
  The HPCA Application Self-Service Manager arguments file created from information stored in the [ARGS] section of `Install.ini`. This file is stored in `IDMLIB` directory, *<InstallDir>*`\Agent\Lib\`, on the HPCA agent computer and controls the behavior of the HPCA Application Self-Service Manager.

- **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 37.

- **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 38.

  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 HPCA environment, see *HP Client Automation Application Manager and Configuration Server 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.

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

`<InstallDir>\Media\client\default\win32`

`<InstallDir>\ManagementPortal\media\default\win32`

The following sections describe the four `Install.ini` file sections:

- **Properties** section
- **Args** section
- **Objects** section
- **Security Folders** section

[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 4 [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 26.
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 2003 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 enable 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`.
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**.

Table 4 [Properties] Section of Install.ini

Argument	Description
NVDENABLEPROXY	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.
NVDENABLESHORTCUT	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 HPCA Application Self-Service Manager.
NVDSHORTCUT	Indicate whether to install a desktop shortcut for the HPCA Application Self-Service Manager on the subscriber's computer. The default is **Y**.
NVDSTARTMENUICON	Indicate whether to install an icon in the **Start** Menu for the HPCA Application Self-Service Manager on the subscriber's computer. The default is **Y**.
NVDSTARTWMICFGMGR	Indicates whether to install the shortcuts for WMI. The default is **Y**.
NVDRAMSHORTCUT	Indicate whether to install a desktop shortcut for the HPCA Application Manager on the subscriber's computer. The default is **N**.
NVDRAMSTARTMENUSHORTCUT	Indicate whether to install an icon in the **Start** Menu for the HPCA Application Manager on the subscriber's computer. The default is **N**.
NVDRAMCONNECT	Specify a command line to run if an HPCA 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.
NVDLOCALNOTIFYONLY	If set to `Y`, the HPCA agent will enable HPCA Notifies from the local host only. The default is **N**.

Table 4 [Properties] Section of Install.ini

Argument	Description
NVDRADTRAYSTART	Set to `Y` to start the HPCA System Tray automatically if the HPCA Application Manager is selected during the HPCA agent installation process. The default is **N**.
NVDNOTIFYINTERACT	Set to `Y` to enable the HPCA Notify Daemon to interact with the desktop. The default is **N**.
NVDREDIRECTORINTERACT	Set to `Y` to enable the MSI Redirector to interact with the desktop. The default is **N**.
NVDSCHEDULERINTERACT	Set to `Y` to enable the HPCA Scheduler to interact with the desktop. The default is **N**.
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 37.
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 of a simple script, see Using a Post-Install Script on page 38.

[Args] Section of Install.ini

Use the [Args] section to control the behavior of the HPCA Application Self-Service Manager. The information in this section is used to build the HPCA 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>

<IDENTIFICATION>$MACHINE</IDENTIFICATION>

<LOGONPANEL>N</LOGONPANEL>

<PROVIDERNAME>RADIA</PROVIDERNAME>

<CHANNELNAME>SOFTWARE</CHANNELNAME>

<RESOLUTIONPORT>3464</RESOLUTIONPORT>
```

```
<LOG>connect.log</LOG>
<STARTDIR>SYSTEM</STARTDIR>
<RESOLUTIONMANAGER>xxx.xxx.xxx.xxx</RESOLUTIONMANAGER>
<COP>Y</COP>
<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 HPCA 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 restart 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 HPCA 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 HPCA Application Self-Service Manager starts. The default is **N**.

Table 5 [Args] section of Install.ini

Argument	Mandatory or Optional	Description
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.
$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 as *http://hostname:port/nvdurl* for the Configuration Server to be used for HTTP object transfer. There is no default for this argument.

Table 5 [Args] section of Install.ini

Argument	Mandatory or Optional	Description
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. For information on STARTDIR, see startdir on page 22.
redirect	Optional	*Used for the HPCA Application Self-Service Manager only.* Specifies an alternate start-up file, `filename.xml` that can be accessed using a network path or URL. There is no default for this argument. If the redirect tag is set in `args.xml`, the HPCA 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. 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**.

Table 5 [Args] section of Install.ini

Argument	Mandatory or Optional	Description
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 444) 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-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**.
uioptmsi	Optional	Controls the display of the MSI 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 enables 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.
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 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**.

Table 6 [Objects] section of Install.ini

Argument	Description
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="<InstallDir>\Agent\usermsi"

IDMSHRDATA="<InstallDir>\Agent\shareddata"

IDMPUBLIC="<InstallDir>\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 HPCA Agent

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

- **Command line**: See Installing HPCA Agent using Command Line on page 25.
- **Logon script:** See Installing HPCA Agent using Logon Script on page 28.

After initiating the installation, the HPCA agent installation program runs. 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 HPCA Agent using Command Line

Before performing an installation from a command line, determine:

- Determine which HPCA agents you want to install. For more information, see Referencing the HPCA Agent Sub-features on page 26.
- Determine how the HPCA agent installation program will be made available to the users. This can be done using a web page, an FTP site, a mapped drive, a CD-ROM, or e-mail.

Then pass the necessary arguments on a command line. For information on the command line arguments, see Specifying the HPCA Agent Sub-features to Install on page 26, as well as Table 9 on page 26 and Table 10 on page 27.

Referencing the HPCA Agent Sub-features

The following table 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 the following table.

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 the following table.

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\INIfilename*	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 Installing HPCA Agent using Wizard on page 28.

Examples

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

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

The arguments in this command line, and others, are described in the section Specifying the HPCA Agent Sub-features to Install on page 26 and Table 10 on page 27.

Installing HPCA Agent using 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 Installing HPCA Agent using Wizard on page 28.

Installing HPCA Agent using 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.

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

1. From `\Setup-Core\Media\client\default\win32` folder, 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. If necessary, select **Create HPCA Application Self-Service Manager icon on the desktop** check box.
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 the following table.

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 HPCA Application Self-Service Manager, HPCA Application Manager, or HPCA 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 HPCA 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.

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.

Removing HPCA Agent using Installation Wizard

To remove sub-features of the HPCA agent, use the Modify option on the Application Maintenance window. For more information, see Modifying HPCA Agent Installation on page 36.

1. From `\Setup-Core\Media\client\default\win32` folder, double-click **setup.exe**. The Application Maintenance window opens.
2. Select **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**.

Removing HPCA Agent using Command Line

From `\Setup-Core\Media\client\default\win32` folder, type the following command line:

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

For additional arguments, see Installing HPCA Agent using Command Line on page 25.

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 HPCA Application Self-Service Manager and HPCA 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.

1. On the target device, insert the HPCA media.
2. Use a command line and navigate to `\Setup-Core\Media\client\default\win32` directory.
3. Type **`setup-standard.cmd`** *host*, where *host* is the host name 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 HPCA Agent on HP Thin Client Devices

With the **HP Registration and Loading Facility** (RALF) installed and registered with the HPCA infrastructure, you can deploy the HPCA agent to thin client devices as you normally would. For more information on RALF, see HPCA Registration and Loading Facility on page 34.

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 HPCA Agent on 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.

Windows XPE

To install the HPCA Agent on Windows XPE

1. Access the HPCA media from the Windows XPE thin client device.

2 Navigate to `\Setup-Core\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 on Windows XPE in silent mode

Use the 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

1 Double-click **setup.exe**.

2 Select **Remove**.

3 Click **OK**.

The HPCA agent is removed.

Windows CE

To install the HPCA Agent on WIndows CE

1 Access the HPCA media from the Windows CE thin client device.

2 Navigate to `\Setup-Core\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 the section To install RALF on Windows CE 6.0 on page 34.

To remove HPCA Agent

Use the Windows Control Panel applet **Add/Remove Programs** to remove 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 may be 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

Depending on the HP thin client image being used, RALF may be pre-installed. If so, 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.

Installing RALF on Windows Thin Clients

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

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

1. On the HPCA media, navigate to `\Setup-Core\Media\client\default\win32xpe\HPCARALF` directory.
2. Use `HPCARalf.msi` file to install RALF on Windows XPE devices.

To install the HPCA agent in silent mode

Use the command, **`msiexec /i HPCARalf.msi RALF_HOST=<HOSTNAME> RALF_PORT=<portnumber> /qn`**

To install RALF on Windows CE 6.0

1. On the HPCA media, navigate to `\Setup-Core\Media\client\default\win32ce\HPCARALF` directory.
2. Use the `ralf.X86.cab` file to install RALF on 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 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.

Repairing HPCA Agents Using Installation Wizard

1. From the folder containing the HPCA agent installation files, double-click **setup.exe**. The Application Maintenance window opens.
2. Select **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**.

Repairing HPCA Agents Using 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 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.

Modifying HPCA Agents Using Installation Wizard

1 From the folder containing the HPCA agent installation files, double-click **setup.exe**. The Application Maintenance window opens.

2 Select **Modify** option.

3 Click **Next**. The Select Features window opens. For information, see Installing HPCA Agent using Wizard on page 28.

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.

Modifying HPCA Agents Using 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 26.

Example

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

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

For additional arguments, see Installing HPCA Agent using Command Line on page 25.

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. For information on NVDPRECAPATH, see Table 4 on page 16.

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

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. For information on NVDPOSTCAPATH, see Table 4 on page 16. 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`.

Include the script in the `\maint` folder of the HPCA agent install. It will automatically get copied into `IDMSYS`.

Local AIP Support for the MSI Redirector

The HPCA 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

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

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, see *HP Client Automation Administrator Installation and User Guide*.

4. Click **OK**.

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

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

   By default, the LOCALAIP attribute is not available in PRIMARY.CLIENT.SETTINGS class. However, you can edit the SETTINGS class to create the LOCALAIP attribute by using HPCA Administrator CSDB Editor. Make sure that the attribute type is set to **Variable**. For information about how to edit a class to create an attribute, see the *HP Client Automation Administrator Installation and User Guide*.

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, see *HP Client Automation Administrator Installation and User Guide*.

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

3 Installing the HPCA Agent: Linux and Macintosh

Install only the agents for which you have licenses. If you do not have a license, the agent will not authenticate with the Configuration Server.

Note to Macintosh users: The HPCA Agent for Mac OS X is similar to the HPCA Agent that is installed and runs on Linux operating systems. For that reason, instructions for using the HPCA Agent for Mac OS X have been included in this guide. There are obvious differences, though. For example, installing the agent to Macintosh devices may require the sudo command as well as the default installation location for the Mac OS X Agent is, `/Applications/HP/CM/Agent`.

System Requirements

- TCP/IP connection to a computer running Configuration Server.
- HPCA agent requires 20 MB free disk space.

Platform Support

For detailed information about supported platforms, see the release note document that accompanies this release.

Prerequisites

- HP recommends installing the agents as root (or with a Mac OS X user ID capable of issuing sudo commands). Root authority is required to apply owner and group designators to managed resources.
- Install the agent on a local file system.
- The installation program must be run from within Linux or Mac OS X. Although you can continue to work within your operating system (performing other tasks and operations) while the installation program is being executed, we strongly recommend that you do not.

- If you intend to run any of the graphical components of the agent software on a Linux operating system, make sure the Linux environment variable DISPLAY is set in your environment. If it is not, you will need to set this variable to indicate the host name or IP address to which you would like to redirect the graphical display.

Table 14 [PROPERTIES] Section of INSTALL.INI

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

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

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

To successfully run applications, standard Linux environment variables are required. Minimally, these environment variables should include the fully qualified path of the installed client executables, the path to the operating system-specific Motif libraries, and the standard Linux operating system paths for operating system executables and shared libraries. HP recommends these be included as part of the logon scripts of the Linux user ID who installs, and will maintain the agents.

Table 15 Environment Variables

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

In Table 15, `$IDMSYS` represents the fully-qualified path to the agent executables, often referred to as the `IDMSYS` location. MOTIF represents the fully-qualified path to the Motif libraries installed with the operating system.

The inclusion of the MOTIF libraries is required only when running HPCA agent or HPCA Administrator graphical tools such as HPCA Administrator Publisher, Administrator Agent Explorer, and the presentation of the agent logon panel.

After the agent is installed, the file `.nvdrc` is placed in the `HOME` directory of the Linux user ID who performed the installation. This file aids you in setting the required environment variables needed to use the agents. HP recommends adding a line to the appropriate logon scripts to invoke this shell script:

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

Prerequisites for running HPCA on 64 bit Red Hat Enterprise Linux

The following library files are required to run the HPCA agent on 64 bit Red Hat Enterprise Linux x86 :

- `glibc`
- `libXau`
- `libXdmcp`
- `libX11`
- `zlib`

Install these library files using the appropriate package for your operating system. For example,

- For 64 bit Red Hat Enterprise Linux 5, the library files can be installed using the following packages:
  - `glibc-2.5-12.i686.rpm`
  - `libXau-1.0.1-3.1.i386.rpm`
  - `libXdmcp-1.0.1-2.1.i386.rpm`
  - `libX11-1.0.3-8.el5.i386.rpm`
  - `zlib-1.2.3-3.i386.rpm`
- For 64 bit Red Hat Enterprise Linux 6, the library files can be installed using the following packages:
  - `glibc-2.12-1.7.el6.i686.rpm`
  - `libX11-1.3-2.el6.i686.rpm`
  - `nss-softokn-freebl-3.12.7-1.1.el6.i686.rpm`
  - `zlib-1.2.3-25.el6.i686.rpm`

Also install the dependent RPMs of the above listed RPMs.

Recommendations

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

Before you install the HPCA agent, consider the following:

- You can perform a local installation of the agents.
- Your HPCA systems administrator can perform a Remote Installation Setup. This process stores the installation media in a selected directory path. Later agent installations can be initiated from any number of intended agent workstations providing they have access to the directory path selected during the Remote Installation Setup.
- Performing an installation from a customized configuration file provides a number of benefits.

— Replication of precise installation details on multiple clients.

— Ability to use a pre-installation method that runs any script or executable before the agent installation.

— Ability to use a post-installation method, which runs any script or executable after the agent is installed.

— You can configure the installation to force a client connection to the Configuration Server immediately after the installation.

— You can pre-configure the IP address and port number of the Configuration Server that the agent will be connecting to.

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

Installation Methods

You can install the agents by:

- Executing the installation procedure directly from the HPCA media.
- Copying the files from the DVD media into a temporary directory and executing the installation procedure.

Several parameters can be used on the command line when installing the agents. These parameters are used to install the agent using the graphical mode, non-graphical mode, plain mode, or silent mode. The following table describes the installation parameters.

Table 16 Command Line Installation Parameters

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

Including Maintenance Files with HPCA Agent Installation

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

Within your agent installation media `/ram` directory, create a file called `maint.tar` that includes all updated files.

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

Installing the HPCA agent

This section describes both the graphical (using a GUI) and non-graphical (using a command line) installations of the agent.

Graphical Installation

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

Local Installation

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

> These instructions will guide you through the local graphical installation of the agent. For the non-graphical installation instructions, see Non-graphical Installation on page 52.

1. At a command prompt, change your current working directory to the correct Agents platform subdirectory on the installation media.

   Example:

   In Linux: **`cd /`***<dvd-mount-point>***`/Setup-Core/Media/client/default/linux`**

   In Mac OS: **`cd /`***<dvd-mount-point>***`/Setup-Core/Media/client/default/macx86`**

   > *<dvd-mount-point>* refers to the dvd mount location chosen by the administrator or user.
   >
   > For example: **`cd /dvdrom/Setup-Core/Media/client/default/linux`**

2. Type **`./install`**, (for Mac OS X, type **`sudo ./install`**) and press **Enter**.

   The Welcome window opens.

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

3. Click **Next**. The End User License Agreement window opens.
4. Read the agreement and click **Accept** to continue. The Select Components to Install window opens.
5. Select the check boxes for the agents you want to install.
6. Click **Next**.

   > The next few steps are required for Linux operating systems only. If you are installing to a Mac OS X device, skip to step 11 and select the installation type.

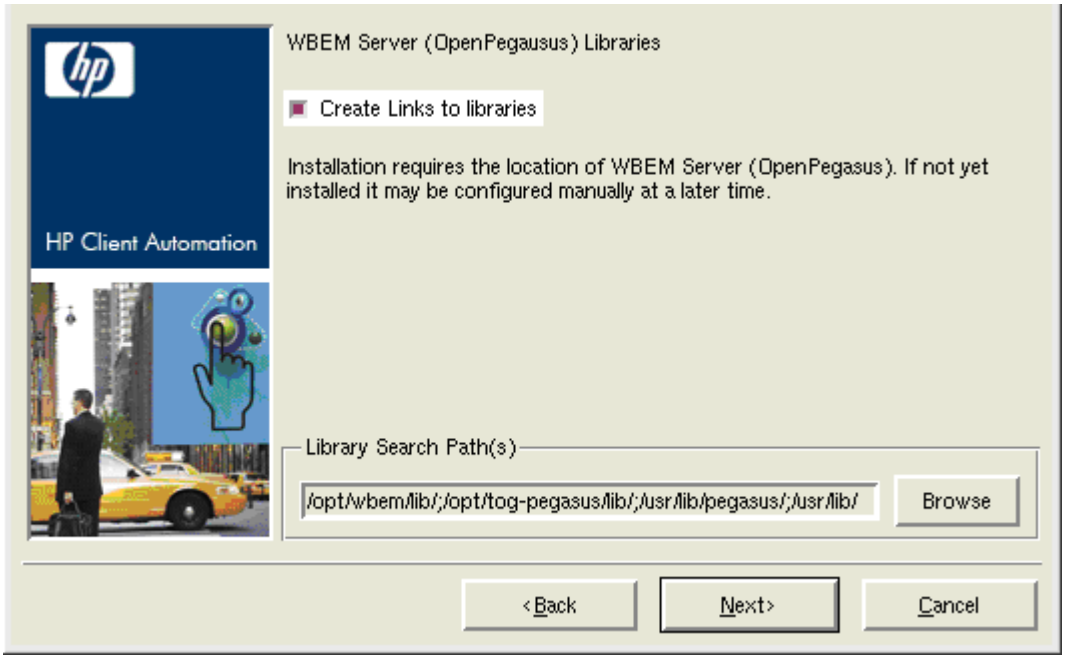
   The Daemons window opens.

7 Select when you want the Daemons to start. The Daemons run on the client computer and perform HPCA management tasks. or information, see About HPCA Daemons on page 56.

— Select **Start after installation** to start the daemons after the HPCA Agent installation is complete.

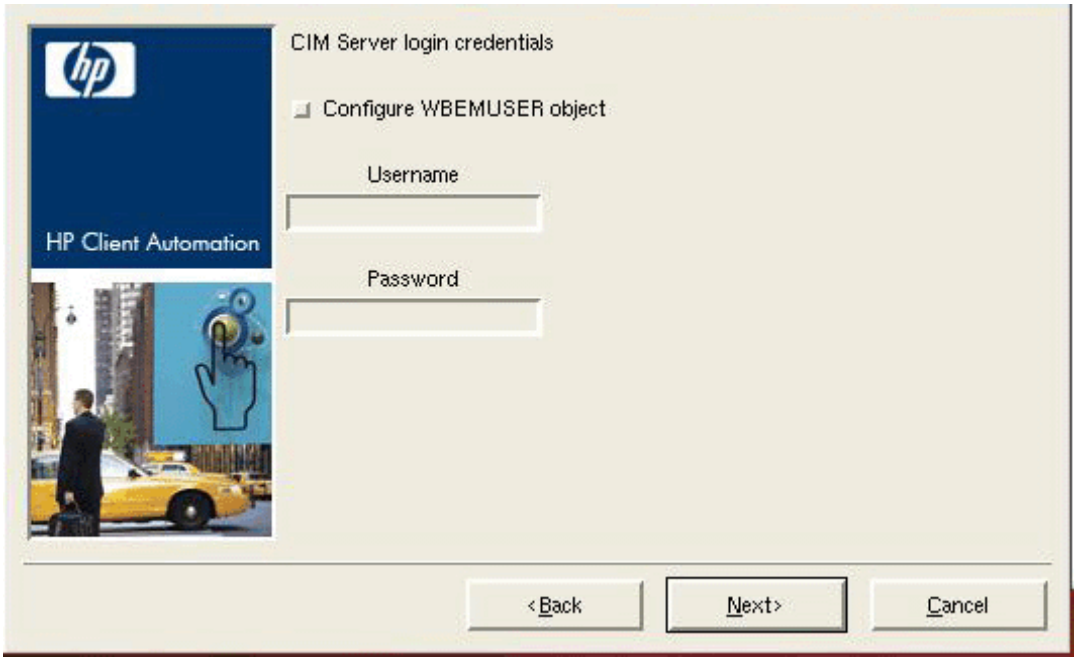
— Select **Automatic start after reboot via init scripts** to configure the daemons to start automatically each time the device is restarted.

8 Click **Next**. The WBEM Server (OpenPegasus) Libraries window opens.



Select **Create Links to libraries** to create a link to existing WBEM Server libraries. Enter the location in the text box. Links can be created after the HPCA Agent is installed.

9 Only in a 64-bit system, the following CIM login dialog box will appear:



Enter the credentials, for the CIM server, under the Username and Password options. CIM is a common information model for describing management properties that is not bound to a particular implementation. For more information on CIM, please refer the CIMSERVER documentation on Linux.

10 Click **Next**. The Select Installation Type window opens.

11 Select **Local Install** to install the agent onto a local computer, and then click **Next**. The Agent Location window opens.

12 Type the name of the directory where you want to install the agent, or click **Browse** to navigate to it.

13 Click **Next**.

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

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

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

The Lib Directory window opens.

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

15 Click **Next**. The Log Directory window opens.

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

17 Click **Next**. The Configuration Server IP Address window opens.

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

19 Click **Next**. The Configuration Server Port Number window opens.

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

21 Click **Next**. The Package Settings window opens.

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

23 When you are satisfied with the settings, click **Install** to install the agent with these settings.

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

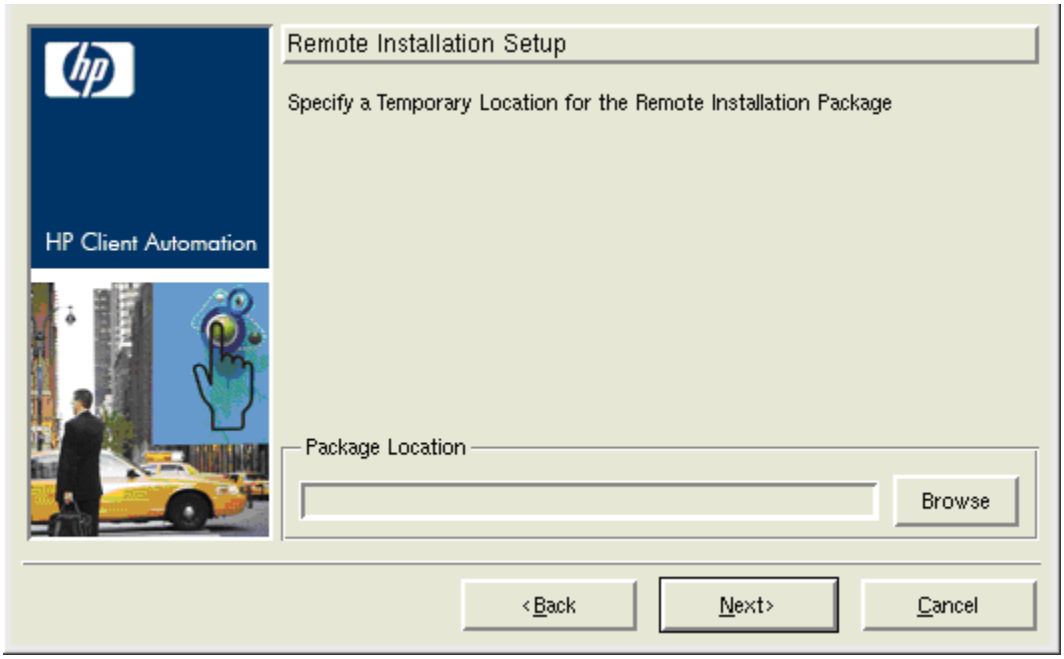
The HPCA Agent has been successfully installed.

Remote Installation Setup

This section describes how to create an agent installation configuration file that can be used to install the Agent in silent mode or to a remote computer.

After the Remote Installation Setup is finished, a configuration file is saved in a directory you specify. Use the `-cfg` installation option to use the configuration file you created.

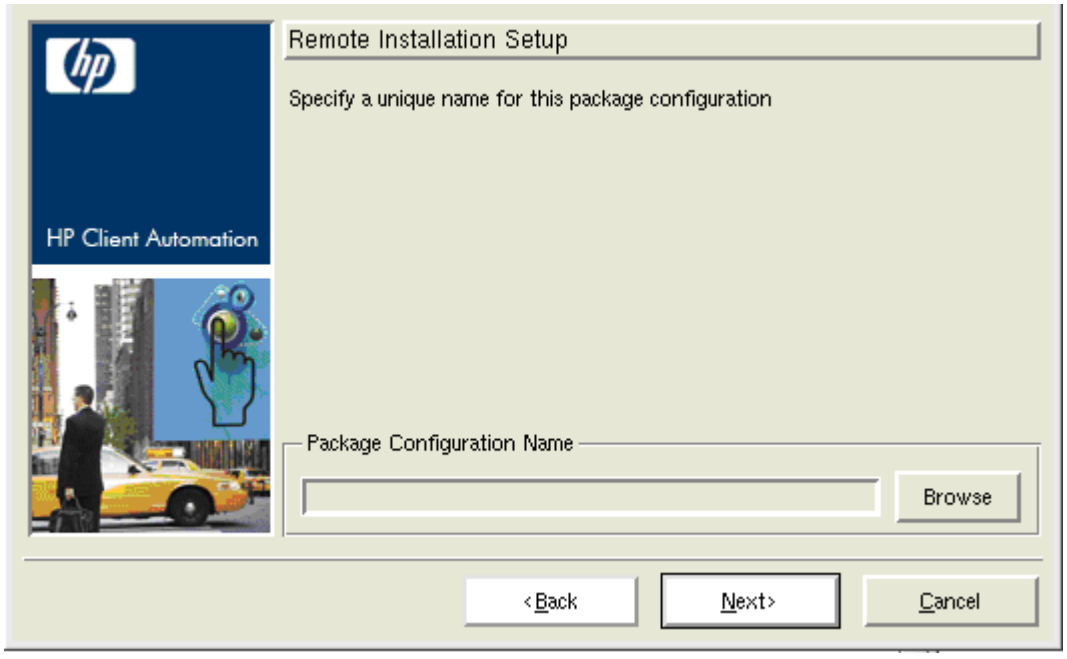
The remote installation is identical to the local install with the exception of two additional steps required for creating the remote installation package. Follow the steps for a local install, above, and when prompted, enter the required information for creating the remote installation package.



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

— Click **Next**.

The Package Configuration Name window opens.



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

After a remote installation is complete, the agent installation media is stored on disk for future installations.

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

Customizing the Installation Configuration File

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

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

Table 17 Configuration File Variables

Variable	Sample Value	Description
REMOTE	0	0 designates a local installation. 1 designates a Remote Installation Setup.

INSTDIR	`/opt/HP/CM/Agent`
	Or
	`/Applications/HP/CM/Agent`
		The default installation directory.

IDMLOG	`/opt/HP/CM/Agent/log`
	Or
	`/Applications/HP/CM/Agent/log`
		This can be defined to designate a directory for `IDMLOG` other than the default `INSTDIR/log`.

IDMLIB	`/opt/HP/CM/Agent/lib`
	Or
	`/Applications/HP/CM/Agent/lib`
		This can be defined to designate a directory or `IDMLIB` other than the default `INSTDIR/lib`.

PREPROC		The fully qualified name of a script or executable to run pre-installation.
PREPARM		Any parameters that may be required by the pre-installation method specified in the variable PREPROC.
POSTPROC		The fully qualified name of a script or executable to be run post-installation.

Table 17 Configuration File Variables

Variable	Sample Value	Description
POSTPARM		Any parameters required by the post-installation method specified in the variable POSTPROC.
MGRIP	192.168.123.40	The default IP address for connection to the Configuration Server.
MGRPORT	3464	The default port number for connection to the Configuration Server.
NTFYPORT	3465	The default Notify port used.
CONNECT	Y	Connects to the Configuration Server immediately after the installation. Default behavior is **N**. Set to **Y** if you want your agent to connect to the Configuration Server automatically after the installation.
OBJECTS	./object.txt	The file that is used to create or update HPCA attributes after the installation.
DUAL	1	0 designates RAM only selected. 1 designates more than one component selected.
SelectComponent	0	0 signifies that the specified component is not installed or upgraded. 1 signifies that the specified component is installed or upgraded. Example, SelectComponent RAM 1.

Using a Pre- or Post-Installation Script

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

```
#!/bin/sh
#
```

```
cd /opt/HP/CM/Agent

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

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

/opt/HP/CM/Agent/radskman mname=NVDM,dname=SOFTWARE,ip=$ZIPADDR,
port=$ZDSTSOCK,cat=prompt,ind=y,uid=\$MACHINE,startdir=SYSTEM,ulogon=n
```

Customizing Installed Object Variable Content

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

```
OBJECT_NAME VARIABLE_NAME VARIABLE_VALUE
An example of a valid object file is:
ZMASTER ZTRACE N
ZMASTER ZTRACEL 000
```

When creating an object text file:

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

Silent Installation

HP recommends that you install the HPCA agent as root.

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

- your HPCA system administrator has already run the Remote Installation Setup installation method.
- the workstation running the silent installation is able to access the directory path where the installation media was stored.

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

Table 18 Silent installation command line parameters

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

Non-graphical Installation

These instructions guide you through the local non-graphical installation of the agent. For the graphical installation, see Graphical Installation on page 45.

1 At a command prompt, change your current working directory to the correct operating system Agents subdirectory on the installation media.

Example:

In Linux: **`cd /`**<*dvd-mount-point*>**`/Setup-Core/Media/client/default/linux`**

In Mac OS: **`cd /`**<*dvd-mount-point*>**`/Setup-Core/Media/client/default/macx86`**

<*dvd-mount-point*> refers to the dvd mount location chosen by the administrator or user.

For example: **`cd /dvdrom/Setup-Core/Media/client/default/linux`**

2 Type **`./install -mode text`**, (for Mac OS X, type **`sudo ./install -mode text`**) press **Enter**. The agent installation begins.

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

4 Read the license agreement, type **`Accept`** and press **Enter**.

5 In the next few steps, select which agents to install. Type **`Y`** or **`N`** and press **Enter** at each prompt.

- HPCA Application Manager
- HPCA Inventory Manager
- HPCA Application Self-Service Manager
- HPCA OS Manager

— HPCA Patch Manager

The next few steps are required for Linux operating systems only. If you are installing to a Mac OS X device, skip to step 9 and select the installation type.

6 You are prompted to start the Daemons after installation. Press **Enter** to accept the default (Y) and start the Daemons after install or type **N** and press **Enter** to start them later.

7 You are then prompted to automatically start the Daemons after a restart using init scripts. Press **Enter** to accept the default (N) and *not* start the Daemons each time the device is restarted or type **Y** and press **Enter** to enable Daemons to automatically start when the device is restarted.

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

Type **1**, and press **Enter** to install the agent locally.

or

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

For this example, the default is accepted.

9 Specify the installation location for the agent, and then press Enter.

10 Specify the location for the HPCA proprietary objects (`IDMLIB`), and press **Enter**.

11 Specify the location for the log files created by HPCA (`IDMLOG`), and press **Enter**.

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

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

14 Review the installation settings you have chosen.

15 If you would like to install the agent with these parameters, press **Enter** to accept the default answer of **Y**.

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

16 When you are satisfied with the settings, press **Enter** to install the agent.

The agent is installed.

Installing the HPCA Agent on HP Thin Client Devices

With the HP Registration and Loading Facility (RALF) installed and registered with the HPCA infrastructure, you can deploy the HPCA agent to the thin client devices as you would normally (RALF is installed by default on the latest HP thin client devices). For more information, see HPCA Registration and Agent Loading Facility on page 54.

However, if you are installing the HPCA agent manually you will also need to install RALF (if it is not present already) after the Agent installation using the files provided on the HPCA media.

For RALF installations, “hpcaserver” or the host name defined using the RALF install parameters must be included in DNS. The host name of the HPCA Server must also be included in DNS when the Agent is installed from the HPCA console.

Installation of the HPCA Agent requires minimum free space of 5 MB on the `/opt` file system.

Manually Installing HPCA Agent on HP Thin Client Devices

1. Login to the target HP thin client device as root. If you are running ThinPro, you may have to create a custom connection for xterm (see note below).
2. Create a new directory called `/opt/hpca`.
3. Copy the install media from the appropriate Linux thin client sub-directory on the HPCA media to a temporary directory such as `/tmp`.
4. Change the working directory to the new temporary directory and run the installation by typing:

   `./install -i` *HPCAS_Server*

   Where HPCA_Server is the hostname or IP address of the HPCA Configuration Server.

   The HPCA Agent is installed.
5. If RALF is already present on the device, restart the device when the Agent installation is complete.

   If RALF is not present, install RALF on the device. For more information, see Installing RALF on Linux (Debian or ThinPro) on page 55.

To remove the HPCA Agent from a Linux-based HP Thin Client device

1. Login to the target HP thin client device as **root**.
2. Change the current directory to `/opt/hpca/agent`
3. Type **`./uninstall`** and press **Enter**.

The HPCA Agent is removed.

To create a custom connection for xterm

If you are using the ThinPro operating system, you may need to create a custom connection to create an xterm connection.

1. From the HP menu in the lower left corner, select **Shutdown**.
2. From the **Thin Client Action** drop down, select **switch to admin mode** and specify the Administrator password (default password is **root**). Note: Control Center background will change from blue to red.
3. From the Control Center, click **Add** drop down list and select the custom option.
4. Set Name to **`xterm`**.
5. Set Command to run to: **`sudo xterm -e bash &`**.
6. Click **Finish**.

You now have a connection you can use to open an xterm session.

HPCA Registration and Agent Loading Facility

The HPCA Registration and Agent Loading Facility (RALF) is an agent component available for thin client devices managed by an HPCA Core infrastructure. RALF auto-registers the device with the HPCA infrastructure, and manages the HPCA agent install which is initiated from the main console. While RALF is part of the HPCA agent, RALF may be 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 used for subsequent OS deployments. If installing RALF, the HPCA agent should also be installed prior to OS deployment.

RALF configuration and operation

Depending on the HP thin client image being used, RALF may be pre-installed. If so, 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 described below.

Once installed, RALF runs on Linux 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 upon reboot. Once the server is contacted, RALF will register the device with the HPCA infrastructure and wait to accept the request to install the HPCA agent. Once the agent is installed, RALF will periodically contact the server and verify device registration attributes.

Installing RALF on Linux (Debian or ThinPro)

You must have root authority to install RALF to Linux devices.

1. On the HPCA Media, navigate to `Setup-Core/Media/client/default/linuxtc/hpcaralf` directory.
2. Copy the install media to `/tmp` on the Linux device.
3. Change the current directory to the `/tmp` directory.
4. On Debian devices run **`dpkg -i hpcaralf.deb`**
5. On Thinpro devices (with read only root file system):
   a. Run **`fsunlock`** (to mount the file system as writable)
   b. Run **`/usr/share/hpkg/.hpkg_util -i hpcaralf.deb`**
   c. Run **`fslock`** (to remount the file system as read only)
6. After the installation is complete, either restart the device or run **`/etc/init.d/hpcaralf`** to start and initialize RALF.

   You can use this script, **`/etc/init.d/hpcaralf`**, to start and stop the RALF daemon on the device.

RALF command line parameters

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

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

`[-confinit]`

[-help]

Table 19 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
confinit	Defines the RALF Application configuration file entries for test environments
debug	Specify a Debugging logging level
trace	Specify a tracing logging level
version	Displays the Version of `ralf.exe`
help	Displays RALF information

About HPCA Daemons

The agent installation program installs the following daemon executables:

- **Notify** (default port **3465**)

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

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

- **Scheduler**

  Use the Scheduler service, **radsched**, to schedule timer-based deployments of applications.

  Make sure you have port number 3461 open on Linux clients to use **radsched** successfully.

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

The installation of radexecd and radsched as services under Mac OS X will install sample startup scripts under Mac OS X POSIX style path `/Library/StartupItems/Radexecd` and `/Library/StartupItems/Radsched`

Sample Shell Scripts

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

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

Troubleshooting

If you encounter any problems while installing the Agent, perform the following steps before contacting technical support:

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

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

4 HPCA Agent Directories, Objects, and Logs: Windows

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

Table 20 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

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.

HPCA agent objects can be used to:

- determine the hardware configuration of the HPCA agent computer
- check the status of a service, for example, check if the service is successfully installed
- determine when the service was installed
- determine the HPCA agent computer's name and the most recently logged on user
- determine the possible data sources for the 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 listed below are described in Table 21 on page 61, and then detailed in their respective sections following the table.

- ZCONFIG
- SYNOPSIS
- SAPSTATS
- PREFACE
- SMINFO

The following table includes information about when the object is created and updated, and a brief summary of what the object includes.

Table 21 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 on page 11. For more information, see Table 22 on page 62.
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 23 on page 65.
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 24 on page 67.
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 25 on page 68.
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 26 on page 70.

Using HPCA Administrator Agent Explorer to View HPCA Agent Objects

The HPCA Administrator Agent Explorer is installed as a component of the 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 HPCA Administrator Agent Explorer

1. Navigate to **Start** → **Programs** → **HP Client Automation Administrator** → **HP Client Automation Administrator Agent Explorer**. The HPCA Administrator 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 HPCA Administrator 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 Administrator 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 HPCA Administrator 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 22 ZCONFIG Attributes

Attribute	Description
BOOTDRV	The boot drive.
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 LADAPT0n 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.

Table 22 ZCONFIG Attributes

Attribute	Description
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.
ZGATEWAY	The Gateway Address.
ZHDWARCH	The operating system architecture.
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.

Table 22 ZCONFIG Attributes

Attribute	Description
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).
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

Table 22 ZCONFIG Attributes

Attribute	Description
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 or failure of the HPCA agent connect process.

Table 23 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 Appendix A, HPCA Agent: Messages and Codes.
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.

Table 23 SYNOPSIS Attributes

Attribute	Description
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.
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 using notify.
ZUSERID	The user ID for this job.
ZCONTEXT	The (machine or user) context of this job.
DNAME	The HPCA Configuration Server Database domain.
MNAME	The name of the HPCA Configuration Server.
MACHNAME	The machine name of the HPCA agent computer from which this was run.
STARTDIR	Specifies the IDMLIB starting directory
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 24 SAPSTATS Object Attributes

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

Table 24 SAPSTATS Object Attributes

Attribute	Description
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.
TYPE	The type of SAP. The valid values are: • **RCS**: Configuration Server • **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 25 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**: HPCA Application Self-Service Manager • **RAM**: HPCA 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

Table 25 PREFACE Object Attributes

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 S**`TARTDIR = 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.
ZPKGRELI	This field contains the same value that is found in the HPCA agent's ZMASTER.ZPKGRELI. The ZMASTER.ZPKGRELI value is set during Agent install process and updated during the deployment of self-maintenance process to indicate the current level of an Agent installation. HPCA Core console uses this value to report the version of the Agent corresponding to a connection from a managed device. The value found in this field is used as the key for policy resolution to determine whether an Agent upgrade service is applicable to an Agent or not.
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 26 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).

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 27 on page 71.

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 27 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.

RADSTATE (Diagnostic Module)

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 28 on page 72.
- **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)

The following table lists and describes the valid values for the mode parameter.

Table 28 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`, that 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 the following table.

Table 29 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.

5 HPCA Agent Directories, Objects and Logs: Linux and Macintosh

This guide describes the *suggested* implementation for the HP Client Automation (HPCA) Agents, HPCA Application Manager and HPCA Application Self-Service Manager. Although you will tailor this strategy to meet your organization's needs, HP recommends that you review this guide for a comprehensive understanding of these agents. This chapter describes agent objects.

HPCA Agent Directories

The initialization settings for the HPCA Application Self-Service Manager for Linux and Mac OS are located in the `.nvdrc` file on the agent device. This is located, by default, in the home directory of the account used to install the agent.

Table 30 NOVAEDM Parameters

Parameter	Description
IDMDATA	When HPCA installs software, the agent temporarily stores compressed files received from the Configuration Server in this folder. After the files are decompressed and installed on the agent device, the compressed files are erased. Default: `/opt/HP/CM/Agent/lib/Data/`
IDMLIB	Dynamic directory that stores the objects for the service currently being managed. Default: `/opt/HP/CM/Agent/lib/`
IDMSYS	Stores the agent executables, such as `.EXE` and `.DLL` files. Default: `/opt/HP/CM/Agent/`
IDMROOT	The base directory for `IDMLIB`. This is a static path. Default: `/opt/HP/CM/Agent/lib/`
IDMLOG	Stores the agent logs. Default: `/opt/HP/CM/Agent/log/`

The following table explains the directory structure. The directories are preceded with `/opt/HP/CM/Agent/`.

Table 31 Agent directories

Directory (/opt/HP/CM/Agent/..)	Description
`/CACertificates`	SSL Certificates
`/lib/MAINT`	Maintenance Storage Directory
`/lib/BACKUP`	Upgrade Maintenance Backup folder
`/lib/SYSTEM`	Starting Directory (startdir) created during connect (Name will vary).
`/lib/SYSTEM/CM-CS`	Configuration Server name (mname)
`/lib/SYSTEM/CM-CS/SOFTWARE`	Directory Name (dname)
`/lib/SYSTEM/CM-CS/SOFTWARE/ZSERVICE`	ZSERVICE Class
`/lib/SYSTEM/CM-CS/SOFTWARE/ZSERVICE/DRAGVIEW`	Sample application directory

HPCA Agent Objects

When an agent device connects to the Configuration Server, information is exchanged between the agent and the Configuration Server. This exchange is called resolution. During resolution, HPCA checks the status of services, and updates the Configuration Server with information from objects stored on the agent device.

Agent objects are stored in the `IDMLIB` directory on the agent device. After installing the agent and connecting to the Configuration Server, you can use agent objects to:

- determine the hardware configuration of the agent device
- Check if status of a service, for example, check if the service is successfully installed
- determine when was the service was installed
- determine the agent computer's name and the most recently logged on user
- determine the possible data sources for the agent device

While there are multiple HPCA objects on an agent device at any time, there is a core group of objects that supply information about and the status of the current agent connect. Table 32 on page 77 these core objects. The table includes information on when the object is created or updated, and a brief summary of what the object includes. Each object listed has its own

section in this chapter including a table listing its attributes. There are other objects created during the agent connect, but only the most commonly used ones are noted here. Check the HP support web site for information on other agent objects.

Table 32 HPCA Agent Objects

Object	Description
ZCONFIG	ZCONFIG is created at start of agent connect process. Contains basic hardware information for the agent device such as processor, operating system, and drives. For more information, see Table 33 on page 78.
SYNOPSIS	This object is transferred to the Configuration Server at the end of the agent connect. Note: Client Operations Profiles must be enabled for this object to be present. RADSKMAN stores a job summary in the SYNOPSIS object. It reports some of the parameters from the RADSKMAN command line and information on the number of files and bytes added, removed, and repaired.For more information, see Table 34 on page 79.
SAPSTATS	Updated by any network bound modules that need to access the Server Access Profile (SAP) such as RADCONCT, RADSTGRQ, and RADSTGMS. RADSKMAN deletes the SAPSTATS object at the beginning of the job. Note: Client Operations Profiles must be enabled for this object to be present. The SAPSTATS object has one instance for each of the agent device's Server Access Profiles (SAP). It summarizes information for each SAP such as speed, number of files sent and received, and the role of the SAP. For more information, see Table 35 on page 81.
PREFACE	PREFACE is sent to the Configuration Server at every phase of a radskman process including: • Client Operations Profile resolution • Self Maintenance resolution • Catalog resolution • Single service resolution (This can happen multiple times depending on what services are processed.) • Outbox flush For more information, see Table 36 on page 83.
SMINFO	(Linux Only) SMINFO is created at the start of the agent connect process. SMINFO collects information that is independent of the hardware and software installed on the device, and some network information. For more information, see Table 37 on page 84.

Using HPCA Administrator Agent Explorer to View HPCA Agent Objects

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

To view an object using HPCA Administrator Agent Explorer

1. From the directory where you installed HPCA Administrator, run **`radobjed`** to start HPCA Administrator Agent Explorer.
2. Navigate to the agent device's `IDMLIB` directory, or to the directory where the object is stored.
3. Double-click the object's name in the list view.
4. The HPCA Administrator Agent Explorer displays the selected object.
5. Click **Save/Exit** to close the dialog box.

ZCONFIG (Hardware Configuration Information)

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

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 agent device.

Table 33 ZCONFIG attributes

Attribute	Description	Example
RUNLEVEL	Current run level at time of scan	5
ZHDWCOMP	Computer Name	qalinux
ZHDWCPU	CPU type	I686
ZHDWD00	Drive name for drive 00	/dev/hda2
ZHDWD00F	Current free space on drive 00	26913026048
ZHDWD00M	Mount Point for Drive 00	/
ZHDWD00T	Total space for drive 00	35152932864
ZHDWDNUM	Number of drive letters assigned	3
ZHDWMACH	Machine Type	I686
ZHDWMEM	Total physical memory (RAM)	133,619,712
ZHDWOS	Operating system	Linux

Table 33 ZCONFIG attributes

Attribute	Description	Example
ZHDWSVCP	Service pack applied	2.4.20-8
ZHDWXHID	Host ID (output of hosted command)	771039E4
ZHDWXHN	Host Name	qalinux
ZOBJNAME	Name of Object	HARDWARE_SCAN
ZOSMAJOR	Major Component of OS version	2
ZOSMINOR	Minor Component of OS version	4
ZOSREV	OS revision (output of uname –v)	#1 Thu Mar 13 17:54:28 EST 2003
ZOSVER	OS version (output of uname –r)	2.4.20-8
ZUSERID	User ID or computer name	LINUXUSER

SYNOPSIS (Client Operations Profile Summary)

— The SYNOPSIS object is created on agents using Client Operations Profiles. The SYNOPSIS object summarizes the most recent agent connect. Use the SYNOPSIS object to confirm the success or failures of the agent connect process. For more information on implementing Client Operations Profiles, see Chapter 5, Configuring Client Operations Profiles.

Table 34 SYNOPSIS object attributes

Attribute	Description
STARTIME	Start time in ISO8601 time format. For example, 1997-08-15T11:12:00-0400
ENDTIME	End time in ISO8601 time format
EXITCODE	Exit code from the job
ERRORMSG	Text message corresponding to the EXITCODE
PRIORAPP	Total number of applications that existed in the service list (installed/not installed) before this job started
PRIORINS	Total number of installed applications that existed in the service list before this job was started
PRIORERR	Total number of applications in the service list that have errors before this job started
CURRAPP	Number of applications in the service list after the job completed
CURRINS	Number of applications in the service list that have been installed

Table 34 SYNOPSIS object attributes

Attribute	Description
UPDNUM	Number of updates found in the service list
UPDSKIP	Number of updates skipped
UPDDONE	Number of updates processed
UPDFAIL	Number of updated that failed
ADDNUM	Number of new applications found in the service list
ADDSKIP	Number of installs skipped (possibly optional applications)
ADDDONE	Number of installs processed
ADDFAIL	Number of installs that failed
DELNUM	Number of deletes found in the service list
DELSKIP	Number of deletes skipped
DELDONE	Number of deletes processed
DELFAIL	Number of deletes that failed
VERNUM	Number of applications that were verified
VERSKIP	Number of verifications skipped
VERDONE	Number of verifications processed
VERFAIL	Number of verifications that failed
REPNUM	Number of applications that were repaired
REPSKIP	Number of repairs skipped
REPDONE	Number of repairs processed
REPFAIL	Number of repairs that failed
CREFRESH	Catalog Refreshed (Y/N)
JOBID	Jobid passed in on the command line using notify
ZUSERID	Userid for this job
ZCONTEXT	Context of this job (M – Machine or U – User)
MACHNAME	Machine name of the agent device from where this was run
USEREXEC	User that executed the job
CMDLINE	Command line parameters used to execute this job

SAPSTATS (Service Access Profile Status)

The SAPSTATS object is generated on agents using Client Operation Profiles, and is used to report the Server Access Profile (SAP) status and usage statistics from the agent. The SAPSTATS object contains all the variables defined in the SAP class in the Configuration Server database along with the following usage related variables. For more information on the SAP class, see Chapter 5, Configuring Client Operations Profiles.

Table 35 SAPSTATS object attributes

Attribute	Description
BANDWDTH	Percentage of bandwidth to use between 1 and 99.
BYTERCVD	Bytes received
BYTESENT	Bytes sent
ENABLED	Specifies if this SAP is enabled. **Y** for enabled, **N** for disabled.
ERRCOUNT	Number of errors
FILEMISS	Number of files not found
FILERCVD	Number of files received
FILESENT	Number of files sent
LASTAXSD	Last Date/Time Accessed in ISO format
NAME	Friendly name of the SAP.
OBJRCVD	Number of objects received
OBJSEND	Number of objects sent
PRIORITY	Priority for this SAP obtained from the CLIENT.LOCATION Class instance.
PROXY	The internet proxy URI through which the agent will connect to the SAP. Maintained by agent.
ROLE	Role of the SAP. Possible values are: **O**: Client Operations Profiles **M**: Self Maintenance **S**: Services **D**: Data **R**: Reporting **A**: All of the above roles
SPEED	Speed to the SAP from the agent device measured in Bytes per second
STATUS	Status of this SAP • 000= SAP was accessed successfully • 920 = SAP could not be accessed • 999 = SAP was not used

Table 35 SAPSTATS object attributes

Attribute	Description
STREAM	Specifies if streaming is used. **Y** for enabled. This overrides the agent setting in ZMASTER.ZNORSPNS.
THROTYPE	Type of bandwidth throttling used. Possible values are **NONE**, **ADAPTIVE**, and **RESERVED**.
TIMEOUT	Communications timeout in seconds.
TYPE	Type of SAP. Possible values are: • **RCS**: Configuration Server • **DATA**: Proxy Servers or a CD-ROM.
URI	Universal Resource Identifier for the SAP

PREFACE (RADSKMAN Execution)

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

- Client Operations Profile resolution
- Self Maintenance resolution
- Catalog resolution
- Single service resolution (This can happen multiple times depending on what services are processed.)
- Outbox flush

At each new phase of the 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, for symbolic substitution, and for dispatching messages. For reporting, you can combine MACHNAME, ZUSERID, ZCONTEXT, JOBID, and CTYPE to know which user ran the agent connect, the type of connect, and the context.

Table 36 PREFACE Object Attributes

Attribute	Description
CMDLINE	The RADSKMAN command line parameters used for the current 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	Type of agent. The possible values are: • **RSM**: HPCA Application Self-Service Manager • **RAM**: HPCA Application Manager • **RPS**: Proxy Server (for preloading application resources)
JOBID	The jobid specified on the command line for this connect (client versions 3.0 and above).
LOCALUID	The starting directory under IDMROOT on the agent device. LOCALUID contains the value derived from the STARTDIR radskman parameter. For example, if **STARTDIR = $USER** then LOCALUID would contain the user's ID. If **STARTDIR = SYSTEM** then LOCALUID would contain 'SYSTEM'. UID stands for user's initial directory not the user's identification.
MACHNAME	HPCA Agent device'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 agent connect was launched.

Table 36 PREFACE Object Attributes

Attribute	Description
ZDOMNAME	The Configuration Server Database's domain specified in the DNAME parameter of the radskman command line. If DNAME is not specified in the command line, the default is **SOFTWARE**.
ZMGRNAME	The Configuration Server's name specified in the MNAME parameter of the radskman command line.
ZUSERID	The ZUSERID field contains the same value found in ZMASTER.ZUSERID of the agent. In most scenarios, this represents the machine name of the agent device, but may 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 Systems Management Information (SMINFO) object is created on all agent devices. The SMINFO object summarizes hardware specific information that is independent of what operating system or software is installed on the agent device. HPCA uses SMBIOS standards to access data about the BIOS. SMINFO also includes some network and user ID information.

Table 37 SMINFO object attributes

Attribute	Description
ASSETTAG	Unique Asset Tag number of the agent device from the BIOS.
COMPDOMN	Computer Domain
COMPNAME	Computer Name
IPADDR	Agent device's IP address
MACADDR	Agent device’s MAC address
MACHUUID	Unique machine user ID.
SNENCLOS	Serial Numbers for the system enclose structures from the BIOS.
SNSYSTEM	Serial Numbers for the system structures from the BIOS.
SUBMASK	Subnet Mask
SUBNET	Subnet
SYSMANUF	System manufacturer from the BIOS.
SYSPROD	System manufacturer product information from the BIOS.

Controlling Default Permissions for Directories and Objects

Directories, objects, and log files created by HPCA are assigned permissions based on current umask settings and execute permissions on objects and log files are removed. In order to change the default permissions assigned when new directories, objects, and log files are created by HPCA within `IDMLIB`, you can use environment variables or you can create a `DEFAULTS.EDM` file in `IDMROOT`.

Note that environment variables will always take precedence. If the environment variables are set and a `DEFAULTS.EDM` file exists, values defined using the environment variables are used.

These methods for controlling permissions apply only to newly created, service-related directories and objects within `IDMLIB`. For example, `/opt/HP/CM/Agent/lib/SYSTEM/CMCS/SOFTWARE/ZSERVICE/SAMP_APP/00000000.000`.

To control permissions using environment variables

Set the following environment variables with the permissions you want assigned by default:

- For directories: **`IDMLIBPERM`**
- For objects: **`IDMOBJPERM`**
- For log files: **`IDMLOGPERM`**

To control permissions using DEFAULTS.EDM.

1. In `IDMROOT` directory, create an object, `DEFAULTS.EDM`.
2. Add the following variables with the permission value to be used when new objects, log files, or directories are created by HPCA.
   - For directories: **`LIBPERM`**
   - For objects: **`OBJPERM`**
   - For log files: **`LOGPERM`**

   For example, to exclude write permissions for objects for group and other, create a `DEFAULTS.EDM` file with the following:

   ```
   OBJPERM     0644
   ```

   To exclude write permissions for logs for group and other, create a `DEFAULTS.EDM` file with the following:

   ```
   LOGPERM     0644
   ```

   To set the default permissions of directories to read and write for everybody, create a `DEFAULTS.EDM` file with the following:

   ```
   LIBPERM     0777
   ```

HPCA Agent Logs

The 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 `/opt/HP/CM/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 38 on page 86.

Each of the three primary agent modules can be instructed to use a specific log file by simply adding the **`log`** parameter to its command line. The three primary 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 38 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.

RADSTATE (Diagnostic Module)

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

When RADSTATE is run with the **Verbose** parameter (mode **v**), it provides basic information regarding the agent environment:

- Global object statistics
- Current date and time
- Current operating system
- Locations of the `IDMSYS`, `IDMLIB`, and `IDMLOG` directories
- Environment settings
- Emulator settings
- Trace levels
- Timeout settings
- All Service status including component totals by User and Service including instance totals and byte totals.
- Timer Information

Use radstate at anytime to check agent configurations. For example, run radstate at the end of each 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 as needed.

Radstate should be run:

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

Manual execution of radstate produces a summary style report, radstate.log, regarding the current state of services and resources installed on the agent desktop. Radstate is executed from the command line using the appropriate parameters, separated by a comma, for example:

```
radstate mode=vo, IDMROOT=/opt/HP/CM/Agent/lib
```

For a technical document with additional information, see the HP support web site.

6 HPCA Application Self-Service Manager Interface: Windows

Accessing the HPCA Application Self-Service Manager Interface

Depending on the installation, you will access the HPCA Application Self-Service Manager interface through the Windows **Start** menu, or by double-clicking the **Client Automation Application Self-Service Manager** icon on your desktop.

To access the HPCA Application Self-Service Manager interface

- Click **Start** → **All Programs** → **HPCA Client Automation Agent** → **Client Automation Application Self-Service Manager**.
- Double click **Client Automation Application Self-Service Manager** icon on your desktop.

The HPCA Application Self-Service Manager interface opens.

If some of the options mentioned in the chapter are not available to you, it means that they have not been provided to you by the administrator.

HPCA Administrator Functions

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 on RADUICFG class, see Appendix B, HPCA Agent Settings Classes in CLIENT Domain (Client Operations Profiles).

Using HPCA Application Self-Service Manager Interface

The HPCA Application Self-Service Manager interface has four main sections.

- **Global Toolbar**
  Enables 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 enables 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 unavailable.

To refresh the catalog

Click **Refresh** on the Global Toolbar.

To pause the current action

Click **Pause** on the Global Toolbar.

To resume the current action

Click **Resume** on the Global toolbar to resume a paused action. (The **Pause** button is replaced with this button after you pause an action).

To cancel the current action

Click **Cancel** on the Global Tooldbar to cancel the current action.

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 **Home** to access your home catalog.

My Software

Click **My Software** to display only services that you have installed.

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 **OK**, **Apply**, or **Cancel** in the top right corner of the Preferences section to keep or discard 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

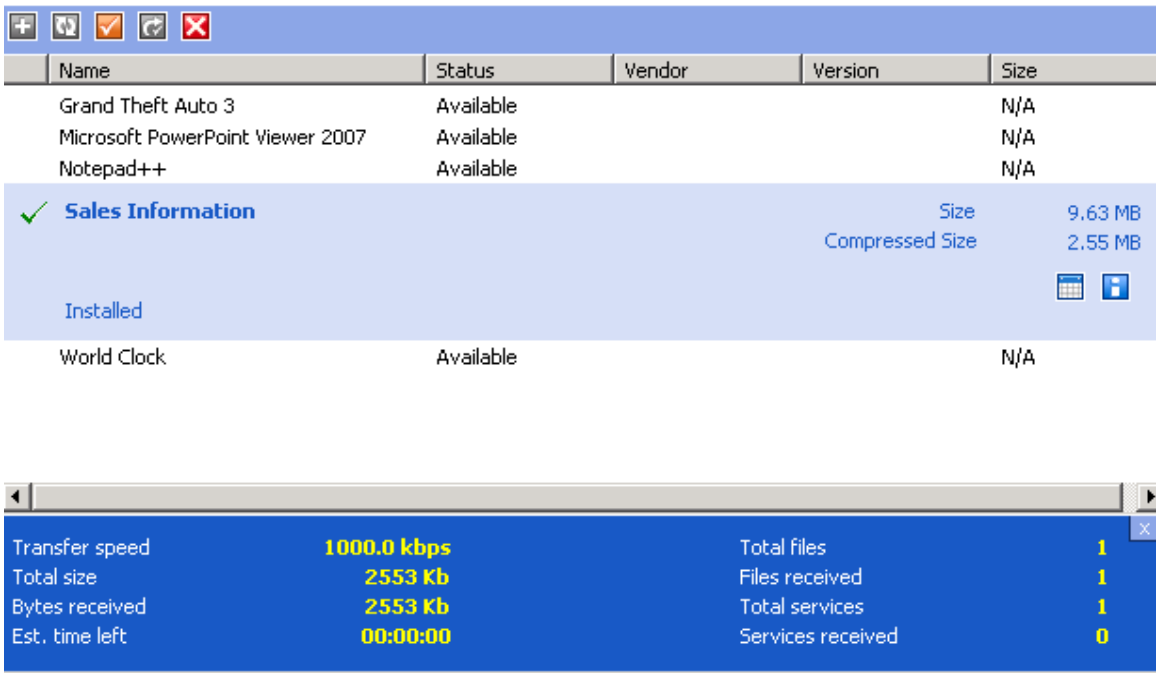
Click and drag the slider to increase or decrease the amount of bandwidth throttling desired.

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 1 Status



Docking and Undocking the Status Window

The Status window can be docked or un-docked from the HPCA Application Self-Service Manager. This enables you to position the Status window anywhere on your screen. The Status window is docked by default.

To undock 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 HPCA Application Self-Service Manager, enabling 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 Service 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 the Refresh button from the shortcut menu.

Virtual Catalogs

Virtual catalogs are subsets of the default catalog.

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 40 on page 96.

Table 39 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	Expands the selected service.

Table 39 Buttons in the Service List section

Button	Action	Description
	Collapse	Collapses the selected service
	Download Only (Advanced)	Downloads 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 90.
	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 of 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 90.

The buttons in the Service List section will appear inactive when they are not available for the selected application.

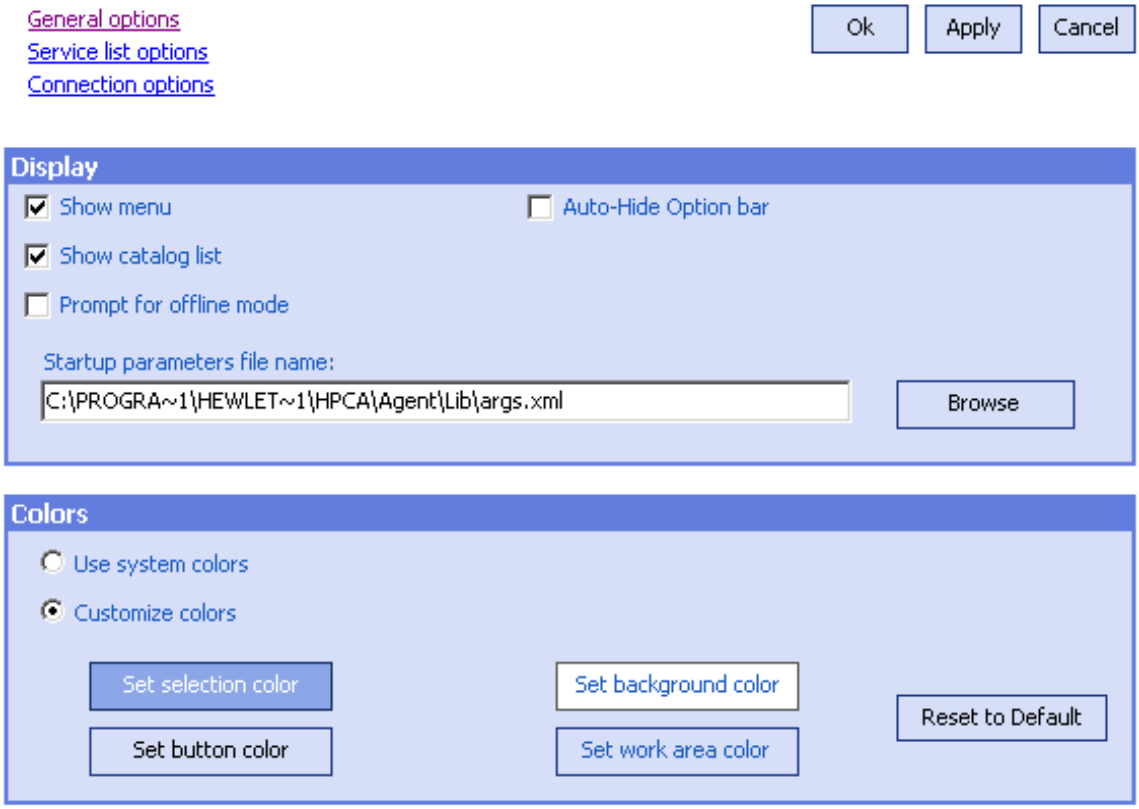
General Options

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.
2. Click **General options**, to display the General options as shown in the following figure.

Figure 2 General options



To modify the display

- To display the menu, select **Show menu** check box.
- To display the catalog list, select **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 **Prompt for offline mode** check box.
- To automatically hide the option bar, select **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

- To use the system colors, click **Use system colors**.
- 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.

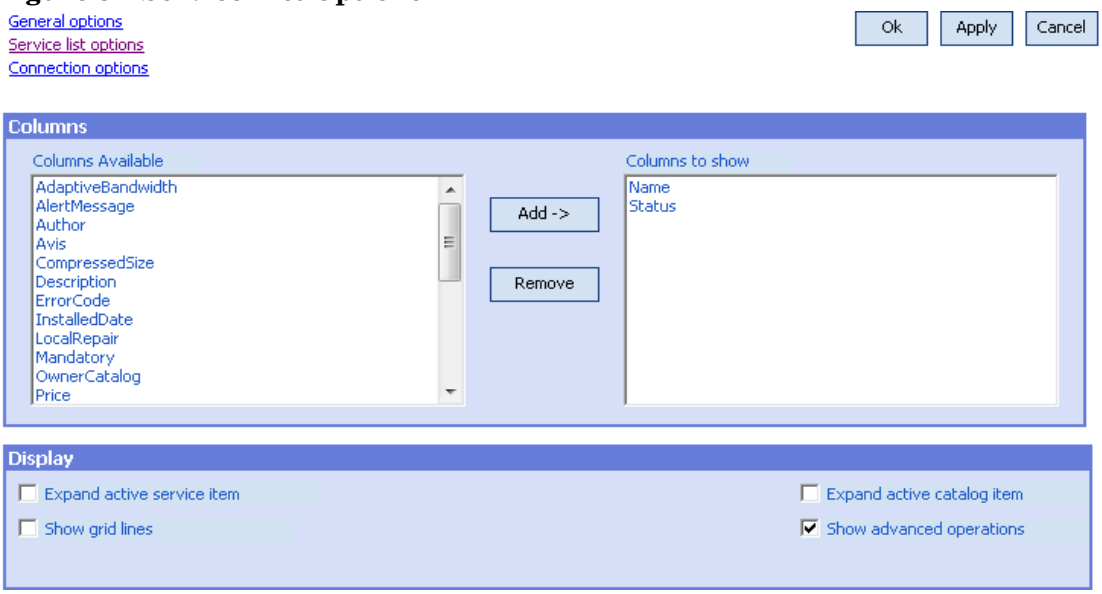
Service List Options

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 the following figure.

Figure 3 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 Columns to show section lists the column names currently displayed in your service list. For a description of each available column heading, see Table 40 on page 96.

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 **Expand active service item** check box to expand the current service item in the Service List.

- Select **Show grid lines** check box to display the Service List with grid lines separating each service.
- Select **Expand active catalog item** check box to expand the current catalog selected.
- Select **Show advanced operations** check box to display the **Download** and **Reconfigure** buttons in the Service List section.

Table 40 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.
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.

Based on the UIOPTMSI attribute the MSI applications deployed using the RadiaMsi will show the Microsoft Intsaller UI to the user. There are three levels:

`UIOPTMSI=FULL`: Full interface displayed A modal dialog box is displayed and allow the user to interact with the interface.

`UIOPTMSI=INFO`: Reduced interface displayed.A modal dialog box is displayed and the user will not be able to interact with the interface or cancel the installation. See the msi installer log files and the Windows Event Viewer logs for errors or warnings.

UIOPTMSI=NULL: No interface displayed.

For Vista and above the Microsoft Installer UI will not be displayed if the variable **ZSERVICE.ZSYSACCT = Y**

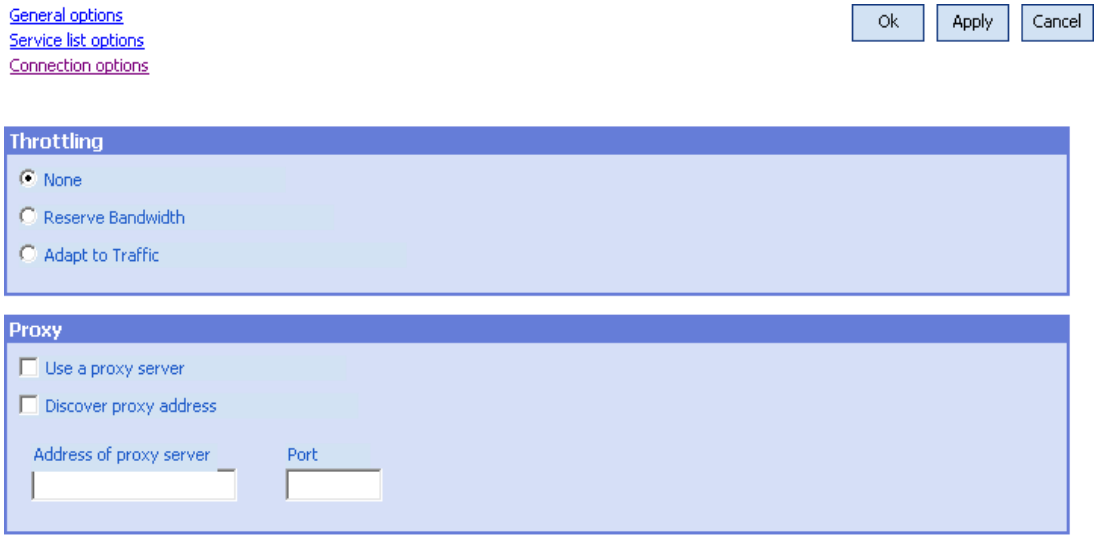
Connection Options

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:

1. Click **Preferences** on the Side Bar of the HPCA Application Self-Service Manager.
2. Click **Connection options**, to display the Service list options as shown in the following figure.

Figure 4 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 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 HPCA Application Self-Service Manager, set the proxy settings in the Connection section of Preferences.

Installing Software using HPCA Application Self-Service Manager 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, select 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 HPCA Application Self-Service Manager Interface Catalog

The catalog is refreshed whenever you log on to the HPCA Application Self-Service Manager interface. 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 HPCA Application Self-Service Manager 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 information

1 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**.

2 Click the corresponding **Cancel** button to return to the Service List.

Scheduling Timed Events

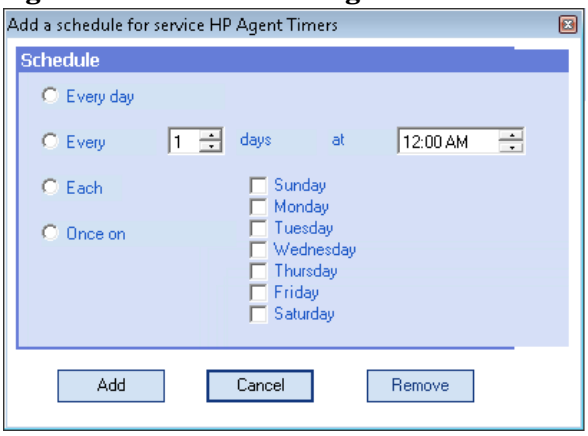
After selecting an installed service, in the expanded service box, click **Schedule Timed Events** to specify a schedule that will automatically update the applications that are installed on your computer. For example, you can schedule updates to occur during off-peak hours when there is less network traffic.

To schedule updates for an installed application

1 In HPCA Application Self-Service Manager interface, select an installed application.

2 Click **Schedule Timed Events**. The **Schedule** dialog box opens.

Figure 5 Schedule dialog box



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 on selected weekdays. You can select more than one day weekday.

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 enables 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. 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

- 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.
- 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.
- 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 on ACTMAINT, see Appendix B, HPCA Agent Settings Classes in CLIENT Domain (Client Operations Profiles)and for the mnt parameter, see Appendix C, RADSKMAN Command Line Parameters.

HP provides an updated PRDMAINT instance with each new maintenance pack. The customer is not required to apply all maintenance.

To deploy HPCA Agent 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 are 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 *HP Client Automation Enterprise Configuration Server*.
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**.

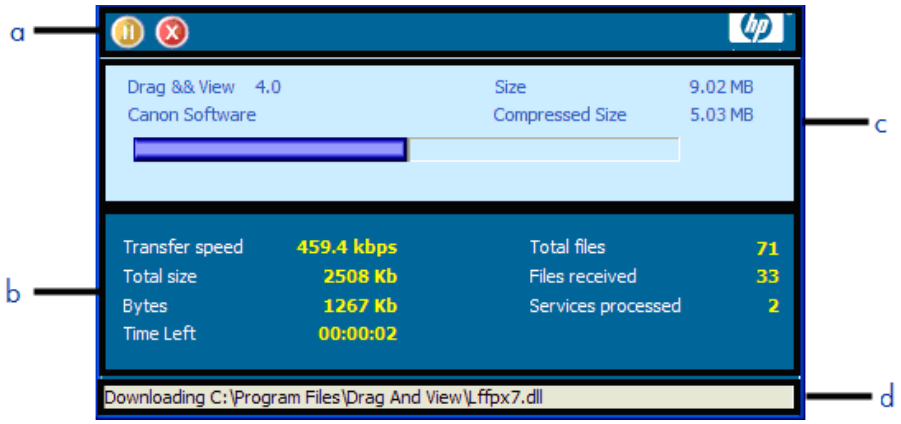
During catalog processing, the HPCA agent will process all services found in the PRDMAINT Domain, perform arbitration to determine appropriate maintenance, and deploy the maintenance to the maintenance staging directory. The default location for this is `C:\Program Files\Hewlett-Packard\HPCA\Agent\_Maint_`.

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 the three states depending on the HPCA agent's activity.

- **Idle**
  When the HPCA 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 the following figure.



a Button Bar
b Status Area
c Information Panel
d Status Message Area

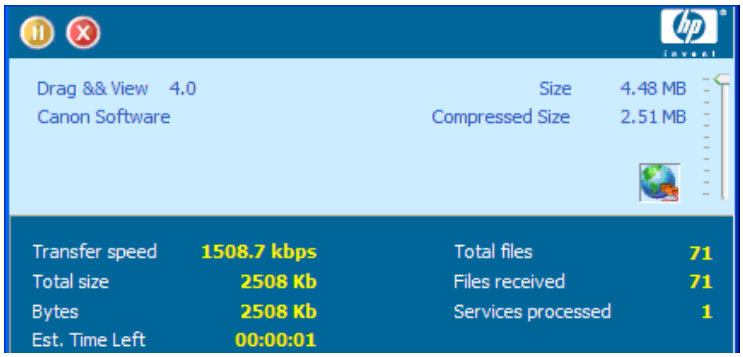
The Console View contains the following parts:

- **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 results in the bandwidth throttling value being changed.

  The bandwidth control shows when bandwidth throttling is available (based on the throttling type for the service, 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 HPCA Administrator CSDB Editor.

Figure 6 Bandwidth Control in the System Tray Console



User Actions for Mandatory Services

This section describes the user options available for Connect Deferral and Reboot Deferral.

Using Connect Deferral

The **Connect Deferral** (CDF) window enables 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 is 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—to a point where the actions will be performed automatically on the user’s 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 changes to display the number of seconds, and is refreshed every 5 seconds. If the counter reaches 0 (zero) and the user has taken no action, the “Allow” action will be forced.

If you run a connect to install user components of a service specifying **`context=u`** as a connect parameter in the command line, the CDF window is not displayed. For more information on the machine and user components of a service, see *Appendix D*, *Creating Services Using Advanced Capabilities* in *HP Client Automation Administrator Installation and User Guide*.

Connect Deferral for Service Groups

Service Groups are a group of services. They consist of a master service and one or more member services. The master service is the container or representative for the member services, that contain the resources to be deployed. CDF displays only the master service for a particular service group. For more information on Service Groups, see *HP Client Automation Administrator Installation and User Guide*.

Connect Deferral Options

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 the following table.

Table 41 Connect Deferral Window Columns

Column	Description
Service	This column displays the service name that requires user action.
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 values **Yes** or **No** based on the user action specified in the Action column for the service. For example, if a service with user action Install requires you to restart the computer after the installation process is complete, the Reboot column will display Yes.
Size (in MBs)	This column displays the size of the service.

A Connect Deferral window for Patch connects does not display individual services and actions required by services.

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 deferral interval.
  - **15 minutes** makes the current connection to the Configuration Server sleep for fifteen minutes; a ZTIMEQ object will not be created.
  - The other intervals will result in the creation of a ZTIMEQ object.

Using Reboot Deferral

The **Reboot Deferral** (**RDF**) feature enables an HPCA administrator to configure reboot operations on user machines. This feature lets users decide whether to reboot the machine immediately or defer the reboot to a more convenient time.

An HPCA administrator can specify two “deadline” type counters for the required actions.

- The “deferral” days remaining is 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 anadministrator—to a point where the actions will be performed automatically on the user’s 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 “Reboot” action forced. When the countdown reaches 1 minute, the timer changes to display the number of seconds, and is refreshed every 5 seconds. If the counter reaches 0 (zero) and the user has taken no action, the “Reboot” action will be forced.

Reboot Deferral User Actions

The user options for reboot are:

- **Reboot**: reboots the machine immediately..
- **Cancel**: cancels the reboot process for now; the reboot action however, remains pending.
- **Defer**: defers the reboot to a later time. This is used in conjunction with the drop-down list. The user can postpone the reboot operation by selecting a deferral interval.

Enabling Reboot Deferral

If enabled, the Reboot Deferral window is displayed in place of the basic Reboot panel. To enable the Reboot Deferral window, see Reboot Deferral Configuration (RBOOTCFG) on page 179.

Applications: Alert Messages and Deferrals

Use the HPCA Administrator 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 HPCA Application Self-Service Manager with the HPCA System Tray to manage a high priority service and an alert condition arises, the alert bubble will "pop" and the message is displayed 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 displayed. 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 checks the current bandwidth setting against the administrator-specified bandwidth threshold setting. A deferral message, asking whether the subscriber wants to defer the deployment, is 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 can configure "number-of-occurrences" and "last-deferral-date" application-deferral limits. If the number of deferrals or the deferral date is reached, the application is installed or updated without displaying a deferral message.

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 is skipped.

If an application has been configured for a deferral and all of the requirements that are listed below are met, the HPCA agent displays 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 is 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 is taken. For information on DA attribute, see DA on page 108.

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 a Deferral Instance

The Alert/Defer (ALERTDEF) Class has been added to the SOFTWARE Domain in the CSDB to facilitate the configuring of application alerts. 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 to **Start** menu and invoke HPCA Administrator CSDB Editor. The **Security Information** dialog box opens.

   The default user ID and password are:

   User ID: **`ADMIN`**

   Password: **`secret`**

2. If necessary, type a User ID and Password, and then click **OK**. The HPCA Administrator 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 a Deferral Instance

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 HPCA Administrator 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 the following table.

Table 42 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 is 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 is allowed before the DA (Deferral Action) action is 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 triggers the deferral. The default is **50000**. A deferral is 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 is 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 triggers the deferral. The default is **0**. A deferral is 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 is 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 displays; the default is **120**. After the timeout is reached, the DA (Action on timeout) action is taken.
DA	The action that is 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 is no longer available—the application is installed.

Table 42 Variables in the ALERTDEF Class

Variable	Description
DU	The threshold date (in YYYYMMDD format) after which the option to defer the application update is no longer available—the application is 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, 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 a Deferral Instance

Now that the Alert/Defer (ALERTDEF) Instance (SalesAlert) is created and configured, it must be connected to an Application (ZSERVICE) instance.

Use HPCA Administrator 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 HPCA Administrator CSDB Editor, see *HP Client Automation Administrator Installation and User Guide*.

7 HPCA Application Self-Service Manager Interface: Linux and Macintosh

This section describes how to use the HPCA Application Self-Service Manager interface. Although the users will be using the interface, you should be familiar with how it works.

Accessing HPCA Application Self-Service Manager Interface

> Before running the HPCA Application Self-Service Manager, make sure your DISPLAY environment variable is set. For more information, see Table 15 on page 42.

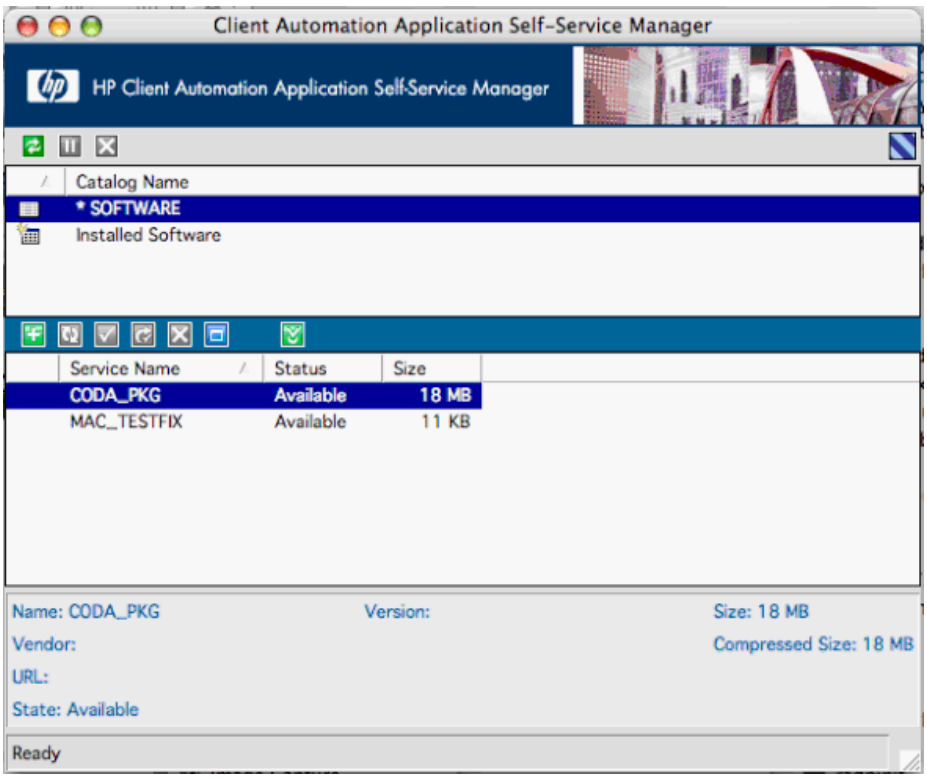
To access the user interface for Linux

1. Change your current working directory to the directory where you installed the HPCA Application Self-Service Manager. For Linux the default is `/opt/HP/CM/Agent/`.
2. Type **`./runrsm`**, and press **Enter**. The **Subscriber Security Information** dialog box opens.
3. If necessary, type your User ID and Password. If you do not know what these are, contact your network administrator.
4. Click **OK**. The HPCA Application Self-Service Manager interface opens. The interface for Linux looks very similar to the interface for Macintosh.

To access the user interface for Macintosh

1. In the Finder, navigate to where the HPCA Application Self-Service Manager was installed, default location is `/Applications/HP/CM/Agent` or use the alias on the desktop named HPCA Application Self Service Manager.
2. Type **`./radiui`**, and press **Enter**. The **Subscriber Security Information** dialog box opens.
3. If necessary, type your User ID and Password. If you do not know what these are, contact your network administrator.

4 Click **OK**. The HPCA Application Self-Service Manager interface opens.



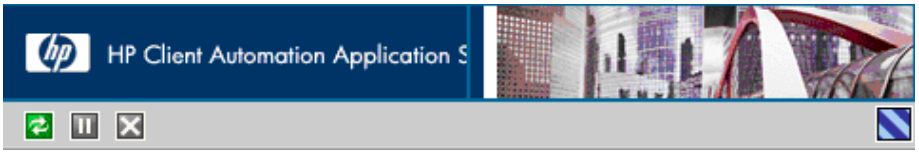
Using HPCA Application Self-Service Manager Interface

The HPCA Application Self-Service Manager interface has four main sections.

- **Global Toolbar**
  Enables you to refresh the catalog, pause the current action, or cancel the current action.
- **Catalog List**
  Lists the different software catalogs available.
- **Service List**
  Lists the applications that you are entitled to.
- **Application Self-Service Manager menu options**
  Each section contains specific Application Self-Service Manager options.

Global Toolbar

The Global Toolbar enables you to refresh the catalog, pause the current action, or cancel the current action. After 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 paused action by clicking the **Cancel** button.



Any time one of the buttons in the Global Toolbar is not available for the current action, they will appear grayed-out.

To Refresh the Catalog

Click **Refresh** on the Global Toolbar.

To Pause the Current Action

Click **Pause** on the Global Toolbar to pause the current action.

To Resume the Current Action

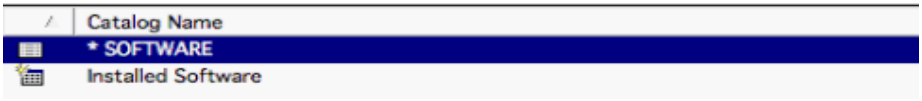
Click **Resume** to resume a paused action. The **Pause** button is replaced with this button after you pause an action.

To Cancel the Current Action

Click **Cancel** on the Global Toolbar to cancel the current action.

Catalog Name List

The Catalog Name list section lists the available software catalogs and any virtual catalogs.



To select a catalog

In the Catalog Name list, click on the Configuration Server catalog you would like to view in the Service List section. Refresh the catalog at any time by clicking the **Refresh** button in the Global Toolbar.

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

> The following example uses the HPCA Administrator CSDB Editor, that is available for 32-bit Windows platforms.

1. Navigate to **Start** → **Programs** → **HP Client Automation Administrator** → **HP Client Automation Administrator CSDB Editor**. The **HPCA Administrator CSDB Editor Security Information** dialog box opens.
2. If necessary, type a User ID and Password, and then click **OK**.

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

The HPCA Administrator CSDB Editor window opens.

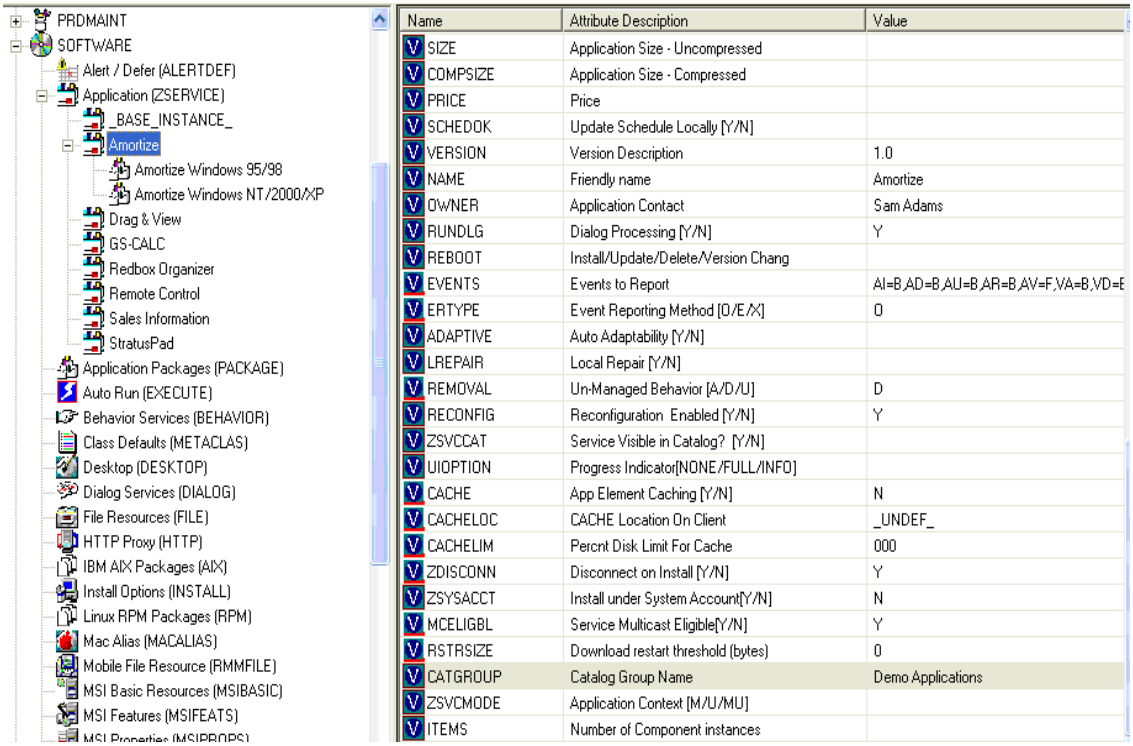
3 Double-click **PRIMARY**.

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 you would like to add the service to.

7 Click **OK**.



Service Name List

The Service Name list section lists the applications available to you. A check mark appears next to software that is already installed. The column headings displayed can be changed to suit your needs. For more information, see Preferences Select this option to access various display options, service list options, and connection options for the Application Self-Service Manager. on page 116.

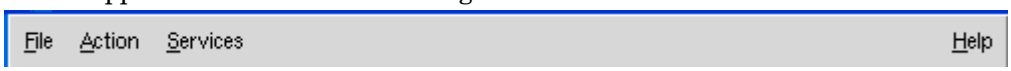
Table 43 Buttons in the Service Name list

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	Expands or collapses the selected service.
	Collapse	Collapses the selected service
	Download Only	Download selected service from catalog into local cache without installing.

The buttons in the Service List section will be gray when they are not available for the selected application.

HPCA Application Self-Service Manager Menu Options

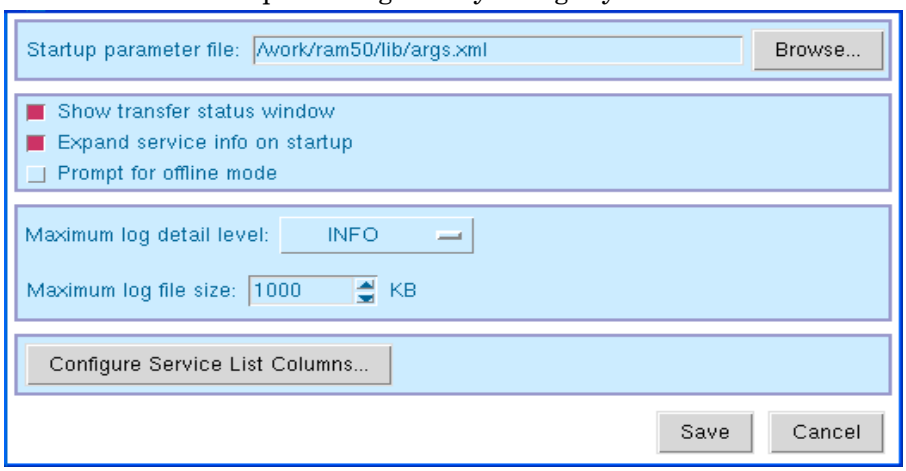
Use HPCA Application Self-Service Manager Menu options to configure and customize the HPCA Application Self-Service Manager.



The following sections explain each option in the HPCA Application Self-Service Manager menu in detail.

- **File**
  Use the **File** menu option to exit the HPCA Application Self-Service Manager.
- **Action**
  Use the **Action** menu option to navigate between software catalogs, refresh the catalog, or view history or preference options.
  - **Home**
    Click **Home** to return to the main Service List, displaying all available services in the Configuration Server Database.
  - **My Software**
    Select this option to display only services that you have installed.
  - **Refresh Catalog**
    Select this option to refresh the catalog, and check for updates to any available Services.
  - **Preferences**
    Select this option to access various display options, service list options, and connection options for the Application Self-Service Manager.

    At any point you can click **Save**, or **Cancel** in the bottom right corner of the Preferences section to keep or disregard any changes you make.



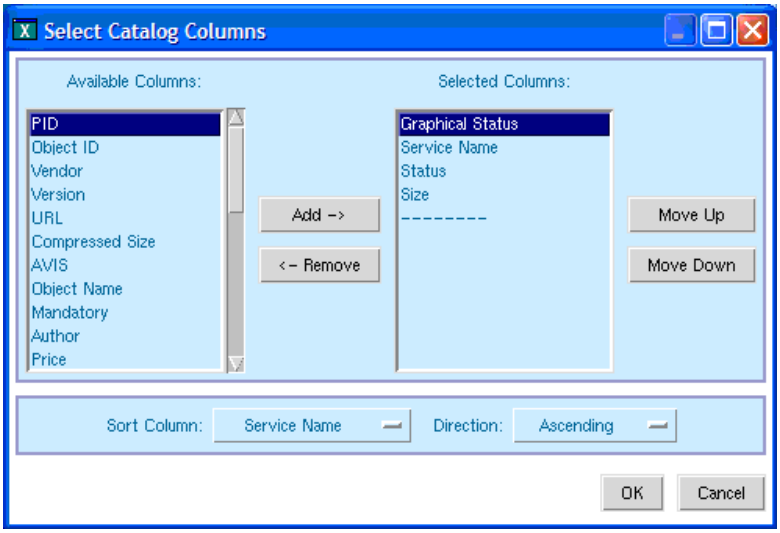
  - **Startup parameter file**
    Enter the name and location of your Startup parameter file, by default: `/opt/HP/CM/Agent/lib/args.xml`. Click **Browse** button to manually locate the file.
  - **Show transfer status window**
    Select this check box to display the transfer status window at the bottom of the Service List.
  - **Expand service info on startup**
    Select this check box to display the Service info at the bottom of the service list for the selected service.

– **Prompt for offline mode**
Select this check box if you would like to be prompted to work offline if a connection to the Configuration Server is not available.

– **Maximum log detail level**
Select the Log detail level you would like: ERROR, WARNING, INFO, DEBUG, or TRACE.

– **Maximum log file size**
Select the maximum log file size using the up and down arrows or by typing the log size into the text box.

– **Configure Service List Options**
Click **Configure Service List Columns** button to modify the appearance of the Service List.



– **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 44 on page 118.

To add columns to the Service List

1 In the **Available Columns** list box, select the column name you would like to add.

2 Click **Add**. The selected column is listed in the **Selected Columns** list box.

3 To change the order of the columns in the **Selected Columns** list, use the Move Up and Move Down buttons.

4 To set the default order of Services in the Service List, use the Sort Column and Direction buttons.

5 Click **OK** to return to the **Preferences** menu.

6 Click **Save** to keep your changes and return to the HPCA Application Self-Service Manager.

To remove columns from the Service List

1 In the **Selected Columns** list box, select the column you would like to remove.

2 Click **Remove**. The selected column is removed from the **Selected Columns** list box and returned to Available Columns.

3 Click **OK** to return to the **Preferences** menu.

4 Click **Save** to keep your changes and return to the HPCA Application Self-Service Manager.

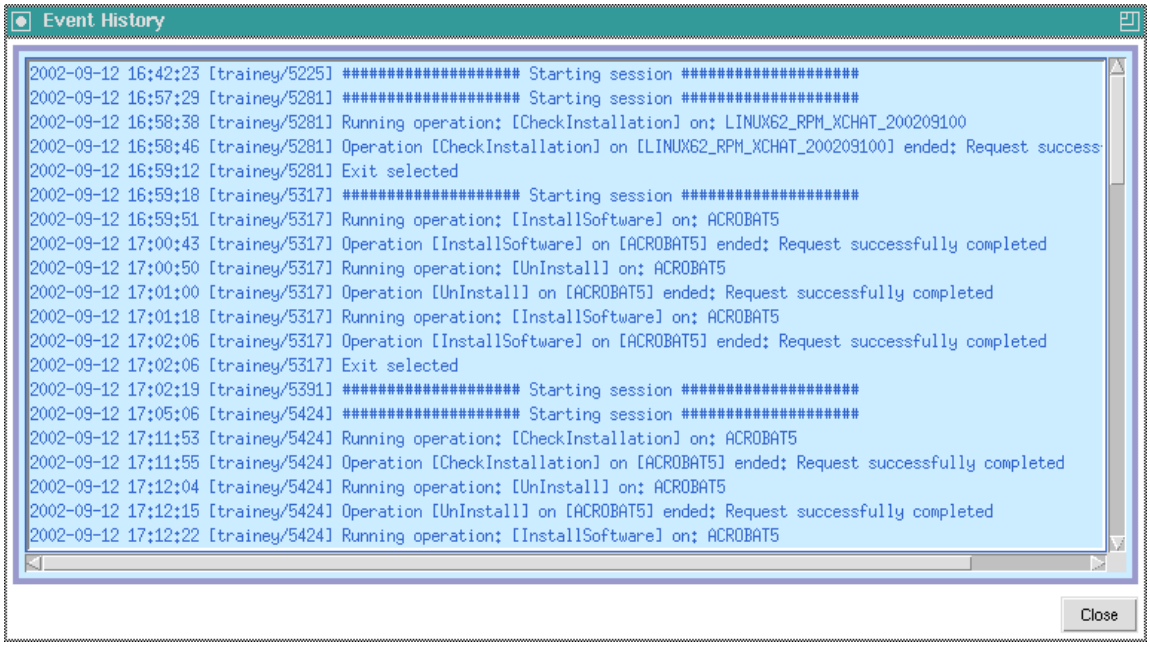
Table 44 Column Headings Available for the Service List

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 the service was installed on your computer.
LocalRepair	If data is repairable locally (cached on your computer).
Mandatory	The Mandatory or Optional flags are displayed.
OwnerCatalog	The originating application domain name.
Price	Price of the service.
PublishedDate	The date the service was published to the catalog.
RepublishedDate	The date the service was republished to the catalog.
Service Name	Name of the Service (cannot be removed from the column display).
Size	The size of the service (bytes). Note: You need this amount of free space on your computer to successfully install the service.
Status	Current status of the software • Available • Installed • Update Available • Broken
UpgradedDate	The date the service was upgraded.
Url	The software vendor's url.

Table 44 Column Headings Available for the Service List

Column Heading	Description
Vendor	The software vendor who supplied the service.
VerifiedDate	The date the service was last verified.
Version	The version of the service.

– **History**
Select this option to display a history of the current session.



- **Services**
The Services menu options are:
  - Install
  - Download
  - Update
  - Verify
  - Repair
  - Remove
  - Information
  - Schedule

Each Service option can be accessed by selecting a Service in the Service List and selecting the Service option from the Services menu. You can alternatively use the Service List buttons to perform these actions as well. The Service options are explained in detail in the following section.

Installing Software Using HPCA Application Self-Service Manager 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 may display a set of dialog boxes. If so, follow the instructions. Otherwise, the installation begins immediately.

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.

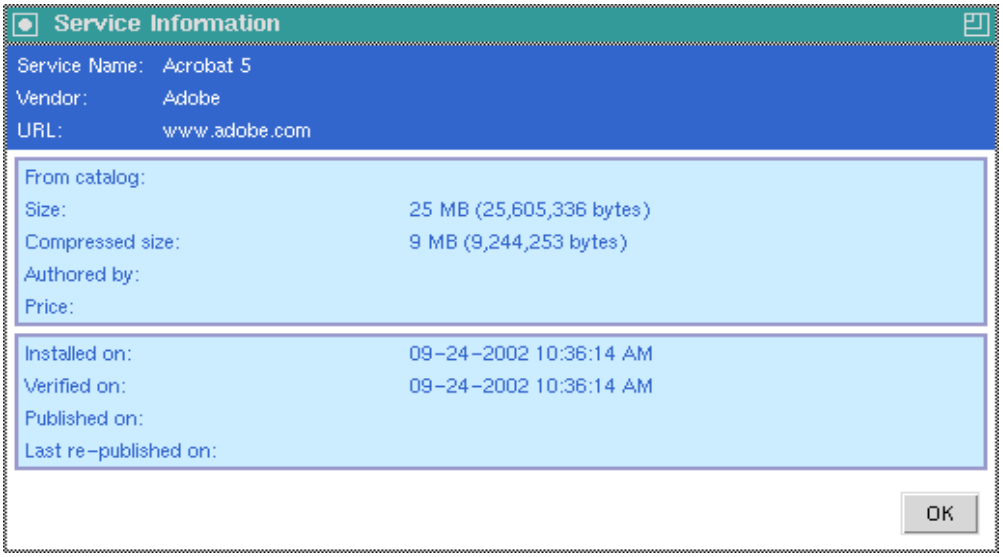
Refreshing HPCA Application Self-Service Manager Interface Catalog

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.

Viewing Information in HPCA Application Self-Service Manager Interface

You may 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 double-click the selected service.

Click **OK** to close the Service Information window.



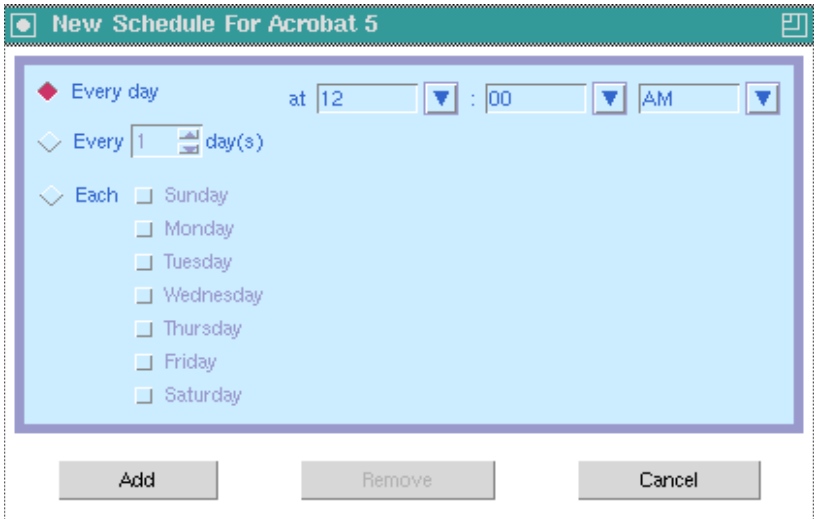
Scheduling Timed Events

After selecting an installed service, select **Schedule** from the Services menu 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 non-business hours, when you are not using your computer and network traffic is slower.

> The **Scheduling** dialog box is only enabled when an Application Service (ZSERVICE) has the SCHEDOK attribute set to **Y**, indicating the Administrator authorized local scheduling capabilities on the selected service.

To schedule updates for an installed application

1. In HPCA Application Self-Service Manager interface, select an installed application.
2. Select **Schedule** from the **Services** menu. The **Scheduling** 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 may 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.

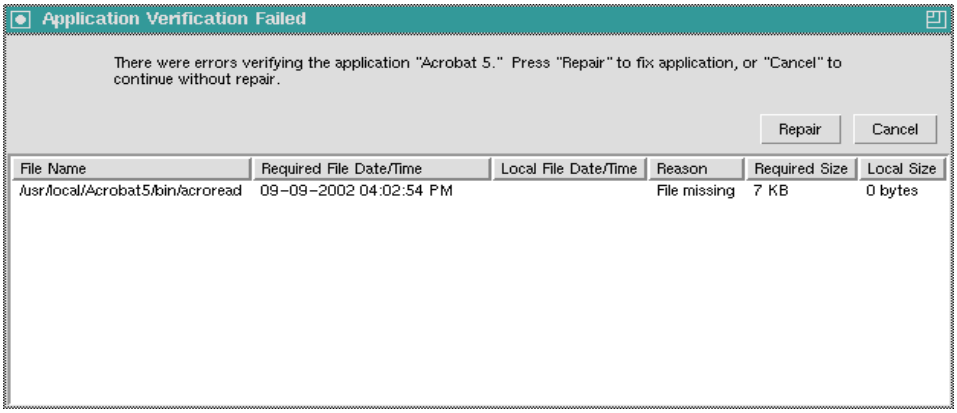
Verifying Software

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**.

— 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, a Verification Failed window will open displaying the problem with the application. Broken will appear in the Status column in the Service List.



3 To repair the software, either click **Repair** in the Verification Failed window, or click **Repair** in the Service List.

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).

2 Click **Repair**. HPCA retrieves the files needed to fix the application.

Removing Software

Use the **Remove** button 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.

HPCA Agent Self-maintenance

Maintenance for the agents is available from Technical Support. The maintenance will include import decks for the Configuration Server Database. New instances are created in the PRDMAINT Class in the PRDMAINT Domain. There will be one PRDMAINT instance for each PRODUCT_PLATFORM_RELEASE combination. These instances will be connected based on the agent's platform and current product level. After you have decided to roll out the maintenance to the agent devices, you can add the service to the user's entitlements.

Usage Notes

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.

The first REQUIRES connection is reserved for any possible hot fix, a fix 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.

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 *only* runs when the mnt parameter of radskman is set to **Y**. See ACTMAINT on page 39 for more information. For details on radskman, refer to the previous chapter, Deploying Services.

We will provide an updated PRDMAINT instance with each new maintenance pack. The customer is not required to apply all maintenance.

To deploy HPCA Agent maintenance packages

1. A maintenance package is made available on the HP 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's `bin` directory.
4. Import the files using the ZEDMAMS utility. For detailed information on the use of this utility, see *HP Client Automation Configuration Server Reference Guide*.

   For example, if you were given two files, `MAINT_RAM_40_RC3.XPI` and `MAINT_RAM_40_RC3.XPR`. You might use the following two 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 may vary depending on a number of factors. For detailed information on the use of this utility, see *HP Client Automation Configuration Server Reference 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 agent connect process, the mnt parameter of the radskman command line, must be set to **Y**.

During catalog processing, the agent will first process all services found in the PRDMAINT Domain, perform arbitration to determine appropriate maintenance, and deploy the maintenance to the maintenance staging directory.

Applications: Alert Messages and Deferrals

When an application is deployed, an administrator can display a deferral message based on the network threshold, the data download size, a specified date setting, or a deferral count. When an application has data that needs to be downloaded to the agent device, the agent will check if the application is configured for deferral. If it is, the agent will check the current bandwidth setting against the administrator specified bandwidth threshold setting. If the current network speed is less than the Network Threshold (DT) value, a deferral message will be displayed asking the subscriber if he wants to defer the deployment.

The administrator can configure the number of times an application can be deferred, the date an application can be deferred until, or a minimum byte count to alert on. If the number of deferrals or the deferral date has been reached, the application will be installed or updated without displaying a deferral message. If the size of the data is less than the minimum byte count, the alert panel will be skipped.

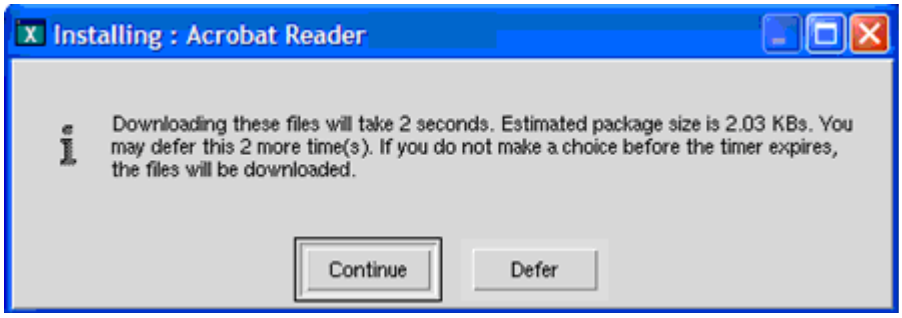
If the application has been configured for a deferral, and all of the requirements listed below are met, the agent will display the deferral dialog box.

- The Alert Mode (DM) is configured for the current operation: Install, Update, or Both.
- The current network speed is lower than Network Threshold Speed (DT).
- The UIOPTION attribute in the ZSERVICE instance is not set to NONE.
- The data to be downloaded is greater than the administrator specified minimum byte count, (DBT) and lower than the specified maximum byte count (DAT).
- 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 HPCA Application Self-Service Manager, you will be prompted to continue or defer.



The approximate amount of time required for the download process is displayed on the download alert dialog box. In order to show an accurate download time, the SAPPING attribute under the CLIENT.SETTINGS.Default Core Settings class must be set to Y.

The subscriber can choose to defer the action or to continue with it.

If the timeout value is exceeded, the action will be taken that is identified in the DA (Action on Timeout Cont/Defer) attribute.

To implement an Application Deferral, you will need to create an instance in the Alert/Defer (ALERTDEF) Class, and connect that instance to the appropriate Application (ZSERVICE) instance.

Creating a Deferral Instance

The Alert/Defer (ALERTDEF) class has been added to the SOFTWARE Domain in the Configuration Server Database to configure application alerts. In order to configure an alert, you will need to create an instance in the Alert/Defer (ALERTDEF) Class.

To create an instance of the Alert/Defer (ALERTDEF) Class

1. Navigate to **Start** → **Programs** → **HP Client Automation Administrator** → **HP Client Automation Administrator CSDB Editor**. The **HPCA Administrator CSDB Editor Security Information** dialog box opens.
2. If necessary, type a User ID and Password, and then click **OK**.

   The default user ID and password are:

   User ID: **`ADMIN`**

   Password: **`secret`**

   The HPCA Administrator CSDB Editor window opens.
3. Double-click **PRIMARY**.
4. Double-click **SOFTWARE**.
5. Right-click **Alert/Defer (ALERTDEF)**. A shortcut menu opens.
6. Click **New Instance**. The **Create Instance** dialog box opens.
7. Type in a name for the new instance. In our example, we create an instance called SalesDefer.
8. Click **OK**.

The new instance is created.

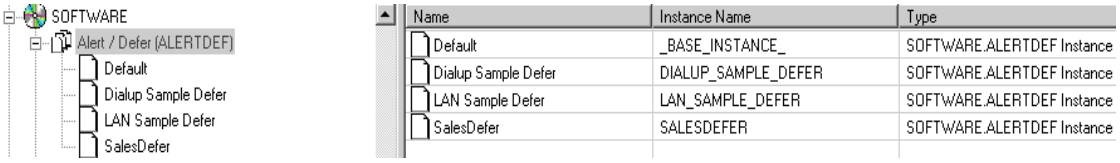
Configuring a Deferral Instance

After the instance is created, it must be configured. The Alert/Deferral (ALERTDEF) class includes two sample instances, Dial Up Sample Defer, and LAN Sample Defer.

To configure an Alert/Deferral (ALERTDEF) instance

1. Use the HPCA Administrator CSDB Editor to navigate to the Alert/Defer (ALERTDEF) instance you want to edit.

2 Double-click the instance. In this example, we are editing the SalesDefer instance.



3 Double-click the variable you want to edit. The following table describes the attributes for this class.

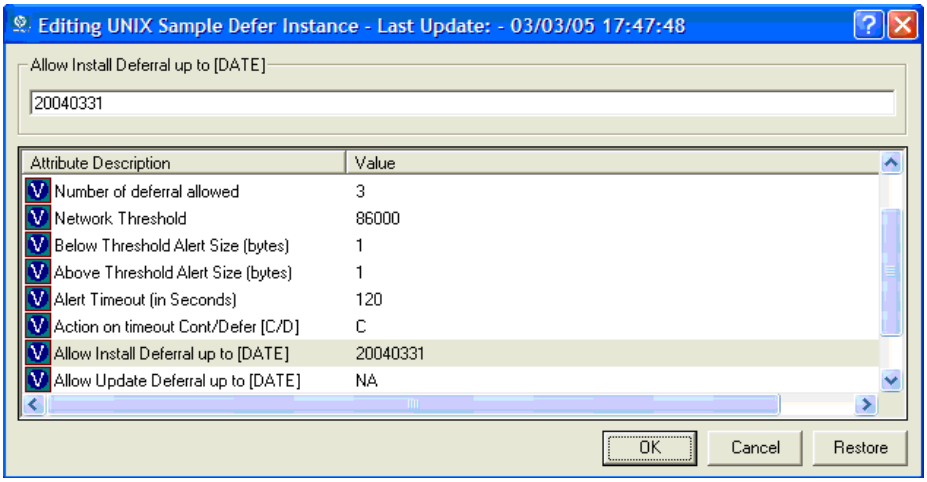
Table 45 Attributes in the ALERTDEF Class

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.

Table 45 Attributes in the ALERTDEF Class

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 example, we want to add an install deferral date. To do this, double-click the DI variable in the list view.



4 Enter the date up to which you will allow the application installation to be deferred.

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 changes are made to the Alert/Defer (ALERTDEF) instance.

After the Alert/Defer (ALERTDEF) instance is created, you need to connect the Alert/Defer (ALERTDEF) instance to an Application (ZSERVICE) instance. To do this, use HPCA Administrator CSDB Editor to click and drag the Alert/Defer (ALERTDEF) instance to the

appropriate Application (ZSERVICE) instance. For additional information on HPCA Administrator CSDB Editor, see *HP Client Automation Administrator Installation and User Guide*.

Now that you are familiar with how your subscribers will manage their software, you may want to see how you can gather information about the agent device, the subscriber, or the results of a subscriber's activity. For more information, see Chapter 5, HPCA Agent Directories, Objects and Logs: Linux and Macintosh.

8 HPCA Windows Management Instrumentation Provider

HPCA Windows Management Instrumentation (WMI) Provider

The HPCA WMI (Windows Management Instrumentation) Provider provides all the necessary methods to create, delete, read, and update HPCA objects as well as query HPCA path settings and the number of instances in an object. Through WMI's use of DCOM (Distributed-COM), a program can easily access objects on a remote machine as well as a local machine. The primary goal of the HPCA WMI Provider is to allow administrators to write scripts in any language to access HPCA objects. For example, a person who is comfortable using VB Script can continue writing scripts to perform methods in VB Script rather than having to learn REXX. The WMI provider interface is available to any language that can create WMI objects

VBScript Example - How to retrieve HPCA Agent root path using HPCA WMI provider:

```
set WshShell = CreateObject("Wscript.Shell")
set wshenv = WshShell.Environment("Process")
set process = GetObject("winmgmts://./root/novadigm:NVD_Agent")
set method = process.Methods_ ("GetLocation")
set inParameters = method.inParameters.SpawnInstance_()
inParameters.Properties_.Item("Location").Value = "System"
set OutParameters = process.ExecMethod_ ("GetLocation", inParameters)
valueLocation = outparameters.Path
WScript.StdOut.Write "HPCA Agent root path is " & valueLocation.
```

In the lockdown mode, a user will be provided with the appropriate folder paths only - based on the context of the calling user.

Table 1 HPCA WMI Provider Functions

Function	Description
Sint32 AddInstance Add an instance to an object.	IN] string Path, [OUT] sint32 Index, [OUT] sint32 InstanceCount, [OUT] string ReturnMessage
Sint32 DeleteInstance Remove specified instance from an object.	[IN] string Path, [IN] stint32 Index (Default= -1) [OUT] sint32 InstanceCount, [OUT] string ReturnMessage
Sint32 DeleteProperty version 3.1 only	Delete a property from an object [IN] string Path [IN] string Property [OUT] string ReturnMessage
Sint32 DeleteProperties version 3.1 only	Delete an array of properties from an object [IN] string Path [IN] string Property[] [OUT] string ReturnMessage
Sint32 GetLocation Get path to specified location.	[IN] string Location, [OUT] string Path, [OUT] string ReturnMessage
Sint32 GetValue Get specified value from object	[IN] string Path (Default = ZMASTER), [IN] sint32 Index (Default = 0), [IN] string Property, [OUT] string Value, [OUT] string ReturnMessage

Table 1 HPCA WMI Provider Functions

Function	Description
Sint32 GetValue Get all variables and values from object	[IN] string Path (Default = ZMASTER), [IN] sint32 Index (Default = 0), [OUT] string Property[], [OUT] string Value[], [OUT] string ReturnMessage
Sint32 NumberOfInstances Returns number of instances in object	[IN] string Path, [OUT] sint32 InstanceCount, [OUT] string ReturnMessage
Sint32 SetValue Sets value in object	[IN] string Path, [IN] sint32 Index (Default = 0), [IN] string Property, [IN] string Value, [OUT] string ReturnMessage
Sing32 SetValues Sets and array of properties	[IN] string Path, [IN] sint32 Index (Default = 0), [IN] string Property[], [IN] string Value[], [OUT] string ReturnMess

Result on a Windows 2003 server machine with 'joe' logged in:

HPCA Agent root path is `C:\Documents and Settings\joe\Local Settings\Application Data\HPCA\Agent\`

Results on the same Windows 2003 server machine when the script is run in system context:

HPCA Agent root path is `C:\Program Files\Hewlett-Packard\HPCA\Agent\Lib\`

9 HPCA 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 enables you to define 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 to Lockdown mode is less disruptive to the SYSTEM 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 mode 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 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.

For an application, with ZSERVICE.ZSYSACCT=Y, to work successfully in lockdown mode it must be entitled to both, the USER and MACHINE.

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**: HPCA agent in Lockdown Mode 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.

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. The following table lists the variables of `MACHDEF.EDM` along with their description and values.

Table 2 MACHFDEF 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 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.

Installing HPCA Agent in Lockdown Mode

To install the HPCA agent in Lockdown Mode, you need to manually add the Lockdown properties to the [Properties] section of `Install.ini` file. For more information on the [Properties] section of `Install.ini` file, see Preparing Install.ini on page 15.

Following are the Lockdown properties:

Table 3 Lockdown Properties

Properties	Description
LOCKDOWN	Specify **`Y`** to install the HPCA agent in Lockdown Mode. Specify **`N`**, 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. Make sure that the customized file is in the same directory as `Install.ini` and `setup.exe`.

[Properties]

`LOCKDOWN=Y`

`LOCKDOWNSCRIPT=`<*Customized script*>

Customized script is the script you create using the sample `setacls.bat` file.

Access Control Lists (ACLs)

To enable Lockdown Mode, 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 implementation of security permissions is the responsibility of the HPCA Administrator. Sample processing script `setacls.bat` file can be used to create a customized script to set ACLs that isolate USERs from the SYSTEM and other USERs.

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 sample `setacls.bat` file contains statements that 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 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 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`

The following table describes the access levels for the new directories, along with the applicable mnemonic from `Nvd.ini` file.

- 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 4 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\`

Table 4 New Directory Access Levels

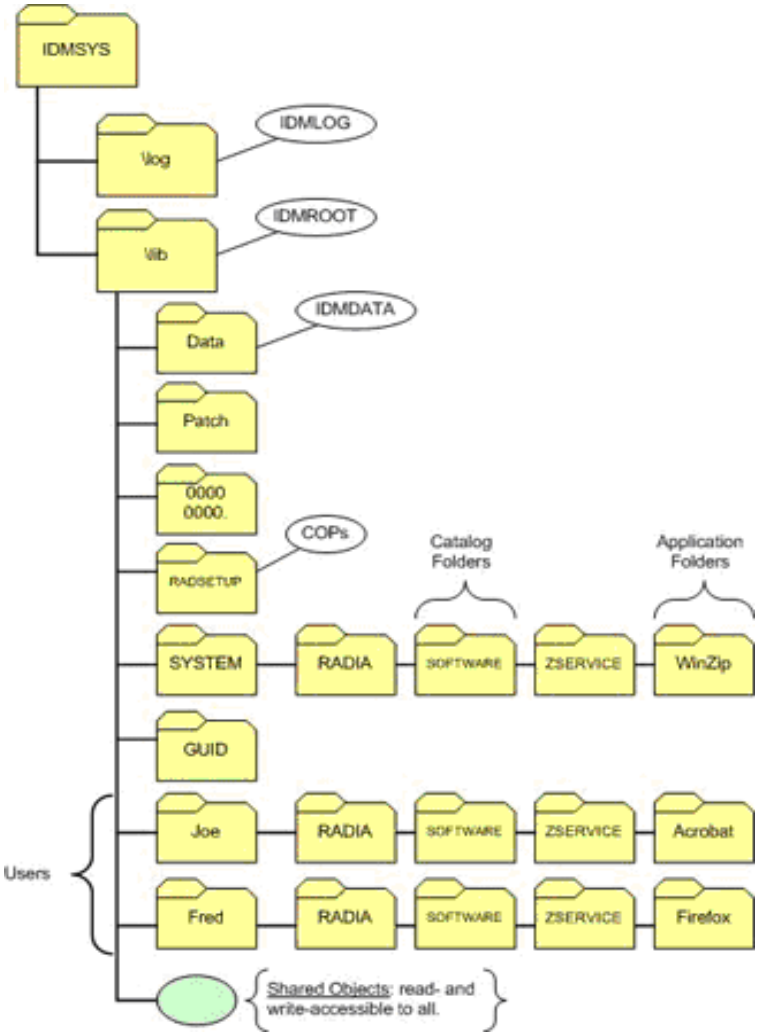
Mnemonic	User Access	Example
IDMDATA	N	C:\PROGRA~1\HEWLET~1\HPCA\Agent\Lib\Data\
NONE-CACertificates	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\CACertificates\
NONE-DEFAULTS	R	C:\PROGRA~1\HEWLET~1\HPCA\Agent\DEFAULTS\
NONE-Language specific folders	R	• C:\PROGRA~1\HEWLET~1\HPCA\Agent\de • C:\PROGRA~1\HEWLET~1\HPCA\Agent\es • C:\PROGRA~1\HEWLET~1\HPCA\Agent\fr • C:\PROGRA~1\HEWLET~1\HPCA\Agent\it • C:\PROGRA~1\HEWLET~1\HPCA\Agent\ja • C:\PROGRA~1\HEWLET~1\HPCA\Agent\pt • C:\PROGRA~1\HEWLET~1\HPCA\Agent\zh-CHS
NONE-Architecture based folders	R	• C:\PROGRA~1\HEWLET~1\HPCA\Agent\amd64 • C:\PROGRA~1\HEWLET~1\HPCA\Agent\x86
NONE-Other folders	R	• C:\PROGRA~1\HEWLET~1\HPCA\Agent\etc • C:\PROGRA~1\HEWLET~1\HPCA\Agent\Help

Directory Structure

Directory Structure in Non-Lockdown Mode

The following figure illustrates the directory structure in a non-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 1 HPCA Agent Directory Structure in non-Lockdown Mode



Directory Structure in Lockdown Mode

For administrators who are enabling HPCA 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 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 XP and Windows 2003 Server:

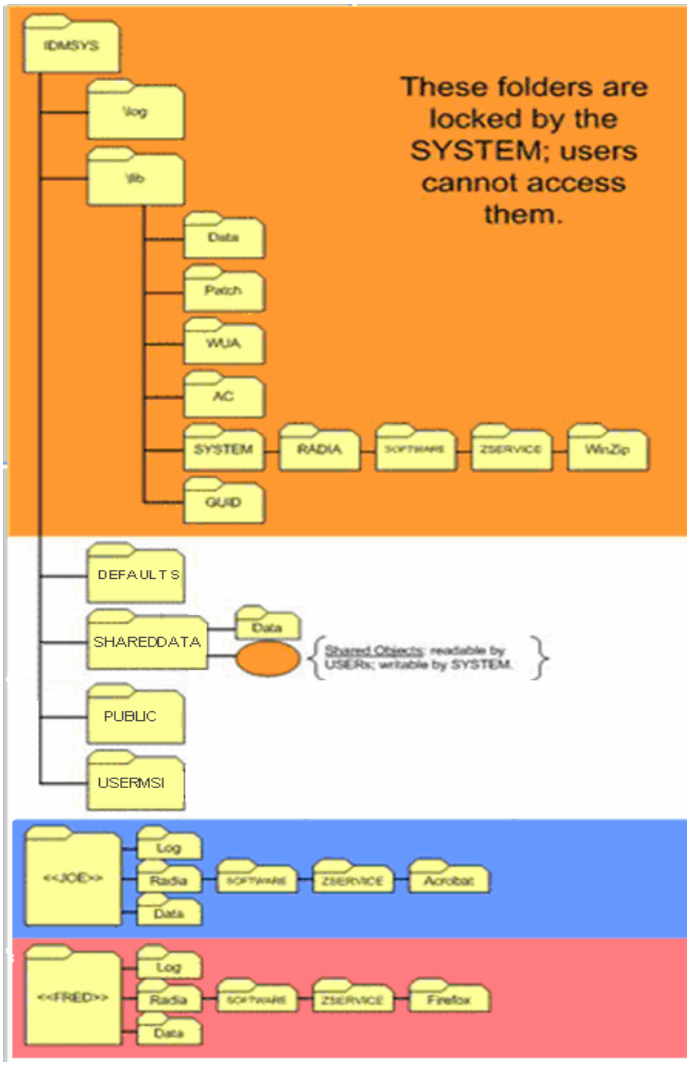
  ```
  C:\Documents and Settings\<username>\Local Settings\Application
  Data\HPCA\Agent
  ```

- Windows Vista, Windows 7 and Windows 2008 Server:

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

The following figure illustrates the HPCA agent directory structure in 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 2 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` file of `IDMUSR=CSIDL_LOCAL_APPDATA\HPCA\Agent`. For example, for user JOE, this location would be:

- On Windows XP and Windows 2003 Server:

  `CSIDL_LOCAL_APPDATA` is replaced with `C:\Documents and Settings\Joe\Local Settings\Application Data\HPCA Agent.`

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

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

Features

- 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 use the sample script, `setacls.bat`, to create a customized script. The customized script can be used to set access permissions after installation of the HPCA agent.
- SYSTEM's `Log` and `Data` directories cannot be accessed by USERs.
- `IDMSYS\DEFAULTS` stores the priming objects that are needed to run an HPCA agent.
- **`ZSYSACCT=Y`** applications will be 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, that are entirely owned by the SYSTEM, will keep working without any changes.
- USER MSI files will be stored in a separate directory.
- SYSTEM MSI files will not be accessible to USER.

Known Limitations

Following are the known limitations of Lockdown Mode.

> 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.

10 Troubleshooting

This chapter describes common problems in the HPCA Application Manager and Application Self-Service Manager and the possible resolution to these problems.

HPCA Agent maintenance fails on Windows Vista operating system

Issue
The HPCA Agent maintenance fails when it is run using the HPCA Application Self-Service Manager on Windows Vista operating system.

Possible Resolution
Run the HPCA Agent Maintenance through the HPCA Application Manager by using the Notify scheduled connect or a logon script.

HPCA Agent upgrade displays message box indicating a .tmp file is in use.

Issue
When the HPCA Application Self-Service Manager is used to upgrade the HPCA Agent on Windows Vista operating system, a message box indicating a `.tmp` file is in use is displayed.

Possible Resolution
During the HPCA Agent upgrade, close the message box by clicking **Ignore** or **OK**.

A HPCA Agent: Messages and Codes

This section is aimed to increase an administrator's understanding of the messages that might be generated by the HP Client Automation (HPCA) agent connect process. It also offers some probable causes for errors, as well as remedial actions that can be taken.

This section contains the following information:

- Numbers and descriptions of the HPCA messages and codes that are produced during the connect process.
- Possible causes of an error, and the steps that you need to take to troubleshoot and correct a problem.

HPCA Agent Connect

A connection between the HPCA agent and the Configuration Server—which houses the HP Client Automation Configuration Server Database (Configuration Server Database, CSDB)—can be initiated in either of the following ways:

- **Manual Connect**
  The subscriber visits the HP web page.
- **Notify**
  The HPCA Console sends a message to the HPCA agent, which initiates a connect.
- **Timed Connection**
  A timer running on the HPCA agent host machine expires and initiates a connect.

The connect process consists of a number of steps. Each of these steps executes one or more programs on the HPCA agent. These programs exchange information with the Configuration Server over a communications link.

Conditions

For the connect process to complete, the following conditions must be met:

- The Configuration Server must be running.
- The Configuration Server Database must be configured for the user and for managing the user's software applications.
- On the user's computer there must be sufficient available resources for the programs that are associated with the connect process, and for the management of the subscriber's software applications.
- Hardware and communications links must be properly operating.

Even with these conditions met during the connect process, other conditions can exist or events (such as the inadvertent deletion of needed files) can arise that prevent a successful completion. When this happens, HPCA produces informational messages. These messages are enumerated and described in the sections that follow.

Message Categories

The messages that HPCA can produce during the connect process are organized into the following categories:

- API Errors
- Catalog Processing
- Client Processing
- External Data Download Codes
- Client Automation Internal Errors
- Invalid Data Errors
- Method Execution Errors
- SAP Errors
- Server Errors
- SSL Errors
- Transmission Errors
- User Exceptions
- User Interface Errors
- Verification Errors

These categories are high-level indicators of which part of the connect process is active when the message is produced.

Message Types

There are two types of messages:

- **Note messages** provide information about a condition that allows the connect process to continue.
- **Error messages** describe a condition that prevents the connect process from proceeding to a successful completion.

Message Details

The connect process issues messages in dialog boxes. The appearance of the dialog boxes will vary slightly, depending on whether the message is a **Note** or an **Error**.

- **Note messages** have a button, **Details**, which you can click in order to view additional information for the condition that triggered the message.
- **Error messages** also have a **Details** button. When it is selected, the message box expands to display the message number or the error code, the severity code, and the logs that should be checked for additional information.

Message Logs

When a message is issued, its number and text are recorded in the appropriate log on the user's computer. The log files are located in the `log` subdirectory of the directory in which the HPCA agent was installed. The default directories for log files are listed below.

- For Windows: `C:\Program Files\Hewlett-Packard\HPCA\Agent\log`
- For Linux and Macintosh: `opt/HP/HPCA/Agent/log`

The messages are written in the following three files:

- `RADPINIT.LOG`
- `RADCONCT.LOG`
- `RADAPI.LOG`

If the cause of an error is not immediately apparent, note the steps that were taken immediately before the message appeared.

Do not do anything with HPCA until the log files are copied to a backup location. This will preserve information that might prove valuable in resolving the issue.

Troubleshooting

The first step in troubleshooting is to determine the cause of the error. To determine the cause, consider the four conditions listed in Conditions on page 143 as the basis of this inquiry.

- *Was the Configuration Server running during the entire connect process?*
  There might have been a power failure, or a software or hardware problem on the Configuration Server computer. A call to the operators of the Configuration Server's computer can determine this.
- *Is the Configuration Server Database correctly configured for the subscriber, and for managing the subscriber's software applications?*
  The administrator of Client Automation is responsible for configuring the Configuration Server Database, and should be consulted to verify that the subscriber and the software applications that are being managed by Client Automation are properly configured for the subscriber's computer.
- *On the user's computer, are there sufficient resources for the programs that are associated with the connect process, and for managing the user's software applications? Are the hardware and communication links operating properly?*
  Check the resources on the user's computer. Is there enough memory and free disk space? Run **`scandisk`** to verify the file system. Check the system and device settings in the Control Panel and verify that the computer is properly configured and all devices are properly functioning.

Once the cause has been determined, evaluate the consequences. Usually, the primary consequence is that HPCA-managed software applications are not installed or configured properly on the user's computer. If the cause was transient, such as the Configuration Server being unavailable or the communications link being severed, remedial action could be as simple as re-trying the connect. Less transient error causes, such as lack of free disk space and hardware failure, need to be fixed before a connect can occur.

The section, Messages and Codes on page 146, contains tables that offer:

- Probable causes for the Client Automation messages, and

- Suggested remedial actions.

Messages and Codes

Receiving a Message

All HPCA messages are numbered. The numbering is divided into groups, each of which is associated with a different phase in the connect process.

This section contains the HPCA messages in tables based on the connect-process phases.

Catalog Processing Messages

Catalog-processing messages can be produced as the HPCA agent attempts to create and populate the Service List, from which the user can select applications to install, verify, and uninstall. Except as noted in Table 5, the probable cause is corruption of the Service List either on the subscriber's desktop or in the Configuration Server Database.

Consult your Configuration Server Database administrator.

Table 5 Catalog processing messages

Number	Text	Type	Additional Information
100	Error obtaining catalog from manager. Verify UserID and retry request.	Error	Select **Refresh Catalog** and verify the user ID.
101	Unique Identifier missing from this item in catalog.	Error	
102	Name missing from this item in catalog.	Error	An application that lacks a name is configured in the software catalog.
103	Description missing from this item in catalog.	Error	
104	Unable to create a directory to store catalogs from this Manager.	Error	Possible problem with security rights.
105	Unable to create a directory for this catalog.	Error	Contact your system administrator for assistance.
106	Unable to locate directory where catalogs are stored for this Manager.	Error	
107	Unable to locate directory for this catalog.	Error	
108	Unable to locate catalog	Error	Contact your system administrator for assistance.

Table 5 Catalog processing messages

Number	Text	Type	Additional Information
109	No services available, empty catalog	Note	Probable CSDB configuration problem. There are no software applications configured for this subscriber in the CSDB.
110	Force service to be displayed in catalog.	Error	
111	The requested application does not exist in the catalog.	Error	

Transmission Error Messages

Transmission errors indicate that there is a problem establishing or maintaining the communications link with the Configuration Server. The Configuration Server might not be running, or there could be a problem with its host. Contact the operator of the Configuration Server computer to determine if it is running.

Another potential cause is lack of connectivity to the Configuration Server computer. Verify that the HPCA agent has connectivity to it by running the PING program from an MS-DOS session. Type

`PING` <*ip address*>

on the command line, where *ip address* is the IP address of the Configuration Server host machine. If the connectivity is good, a line will be displayed in the MS-DOS session window indicating the transmission time for each successful packet that was exchanged.

Table 6 Transmission error messages

Number	Text	Type	
200	Unable to perform request - connection to manager failed.	Error	Configuration Server not running or stopped running during the connect process.
201	Invalid record received from Manager.	Error	
202	Template not received from Manager.	Error	
203	Instance not received from Manager.	Error	
204	Data not received from Manager.	Error	
205	Requested object not found.	Error	
206	Error sending data to server.	Error	Contact your system administrator for assistance.
207	Error receiving data from server.	Error	

Table 6 Transmission error messages

Number	Text	Type	
208	Received patch from Manager instead of full file.	Error	
209	Error transferring physical application files from server.	Error	HPCA agent failed to get files. Contact your system administrator for assistance.
210	Expected files not found on server.	Error	
211	HPCA could not connect through the proxy server.	Error	

External Data-Download Return Codes (Multicast and Staging Requestor)

Table 7 External data-download return codes

Number	Text	Type
240	No error, all data files successfully downloaded from the requested source.	Note
241	Not all data files could be downloaded from the requested source.	Error
242	Not all data files found at the requested source, do not try alternate sources.	Error
243	The data files will be downloaded at a later time using multicast.	Note
244	The Internet Explorer is set to work offline.	Error

User Exception Messages

Table 8 User exception messages

Number	Text	Type	Additonal Information
319	Sign-on failed - invalid user ID-password combination.	Error	Verify user ID and password. Click **Refresh** to retry.
320	Sign-on panel cancelled.	Note	User clicked **Cancel** in the **Logon** dialog box.
321	Cancelled at user's request.	Note	Cancels the entire process.
322	Versioning not available.	Note	Versioning is a feature of HPCA Application Manager; it is not installed on the computer.
323	User could not be authenticated on the proxy server.	Error	
324	Cancelled service at user's request.	Note	Cancels only this service, but will continue the installation of additional services.
325	Bootstrap method has decided to abort the connect process.	Error	
326	The user opted to defer the current request.	Note	

Invalid Data Errors

Invalid data errors indicate probable corruption in the Configuration Server Database.

Contact your CSDB administrator and preserve the log files for further analysis.

Table 9 Invalid data error messages

Number	Text
450	Missing ZRSCSIZE variable.
451	Invalid object id.
452	Missing ZOBJID variable.
453	Missing ZOBJDATE variable.
454	Missing ZOBJTIME variable.
455	Missing ZOBJCRC variable.
456	Error fetching path information.
457	Missing ZRSCCFIL variable.
458	Variable is empty.
459	Local object instance name missing.
460	'More Info' URL missing from service.
461	Catalog is either incompatible or corrupted.
462	Missing variable.
463	Invalid ownership specified in database.
464	The application package contains path that cannot be resolved.
465	Missing COMPxxx for product.
466	Attempted invalid operation on service group.

HPCA Agent Processing Error Messages

HPCA agent processing errors are usually caused by a malfunction, incorrect configuration, or misuse of the user's desktop. Possibilities include:

- Incomplete HPCA agent self-maintenance that has resulted in HPCA modules of different release levels attempting to interact on the desktop;
- Lack of necessary system resources or available memory on the desktop;

- Conflicting concurrent processes, such as deleting files or running a disk re-organization program, on the desktop.

Table 10 HPCA agent processing error messages

Number	Text	Type	Additional Information
500	Error opening file.	Error	
501	Error writing data to file.	Error	
502	This application could not be repaired locally; connect to the Manager to fix it.	Error	
503	Error reopening file, for checkpoint restart.	Error	
505	Error decompressing data.	Error	
506	Insufficient disk space to install application.	Error	Free up additional disk space and re-try the connect.
507	Error creating directory.	Error	
508	Incomplete file path.	Error	The location for a file to be deployed on the user's desktop is incorrectly configured in the CSDB, or was incorrectly specified by the user in the **Set Installation Directory** dialog box.
509	Error getting drive statistics.	Error	
510	Missing file from temp directory.	Error	A file that was downloaded from the Configuration Server was deleted before it could be deployed to the proper location on the user's desktop.
511	Error deleting file.	Error	
512	Error deleting directory.	Error	
513	Error applying patch.	Error	
514	Error setting file date/time.	Error	
515	Error setting file attributes.	Error	
516	Error in versioning.	Error	Error activating a version either because a method failed or there is insufficient disk space.

Table 10 HPCA agent processing error messages

Number	Text	Type	Additional Information
517	Agent not authorized to change versions.	Note	See the CONTROL variable in the VGROUP class, which indicates whether the Configuration Server or the HPCA agent controls version activation. The user is attempting to activate a version, which is under control of the Configuration Server, or the reverse.
518	Error deactivating version.	Error	The active version could not be deactivated because one of the methods to delete a file or link is missing.
519	Error setting file ownership.	Error	
520	Application cannot be installed because drive/file system cannot be accessed.	Error	

User Interface Errors

Table 11 User interface error messages

Number	Text
550	Invalid message header received.
551	Error receiving response to a dialog from UI.
552	Error in XML Parser.
553	Error in building UI message.
554	Error sending message to UI.
555	Error receiving message from UI.
556	Error connecting to UI Server.
557	Error connect process still has not finished.
558	Error connecting to remote notify daemon.
559	Error sending data to remote notify daemon.
560	Error executing program from HPCA UI Agent.
561	Entity not supported.
562	Entity not opened.
563	Error creating UI socket.
564	End of entity, no more data.
565	Error reading entity.
566	Error writing entity.

Verification Error Messages

Verification errors occur when the user attempts to verify files on the user's desktop, according to the verification settings configured for those files in the Configuration Server Database. These errors can indicate damage to the file on the subscriber's desktop or incorrect configuration of the verification option settings for the file in the CSDB.

You can correct the former by having HPCA repair the software application. To correct the latter, consult your CSDB administrator.

Table 12 Verification error messages

Number	Text	Type
600	Verification of resources failed for one or more Applications.	Error
601	Resource CRC does not match.	Error
602	Resource size does not match.	Error

Table 12 Verification error messages

Number	Text	Type
603	Desktop file is newer.	Error
604	Desktop file is older.	Error
605	Missing file.	Error
606	Missing directory.	Error
607	Environment has changed. Application needs to be updated.	Note
608	Environment has changed and some resources failed verification. Application needs to be updated.	Error
609	Some of the data files are missing from temporary storage.	Error
610	Resource internal version does not match.	Error
611	File is maintained by the Windows File Protection system.	Error
612	Desktop file has wrong UID.	Error
613	Desktop file has wrong GID.	Error
614	Desktop file has wrong permissions.	Error
615	Missing link.	Error
616	File is maintained by the Desktop DNA.	Note

Server Errors

Table 13 Server error messages

Number	Text
650	Server stopped application configuration.
651	Server does not contain a license for Agent's operating system.
652	Server is at task limit and will not accept connections.
653	Server is down for maintenance, updating database.
654	Server has disabled Agent connections.

Method Execution Errors

Methods are programs that run on the subscriber's desktop as part of the connect process. The methods can be supplied by HP or by the subscriber. Method-execution errors indicate that a problem occurred while running one of these methods. Typical problems include misspelling the method name, resulting in a "File not found" condition, coding invalid

parameters on the method's command line, and lack of needed system resources or memory to run the method. Usually, the cause is incorrect configuration of an instance in the Configuration Server Database.

Contact the CSDB administrator for assistance and preserve the logs for further analysis.

If the error occurred in a method that was not supplied by HP, contact HP support.

Table 14 Method execution error messages

Number	Text
701	Lock method failed.
702	Init method failed.
703	Create method failed.
704	Delete method failed.
705	Update method failed.
706	Unable to install downloaded resources. The programs/ methods that are used to install the resources could not be found.
707	Internal error in method.
708	Unable to install downloaded resources. The programs/ methods that are used to install the resources could not be executed.
709	Installation of a component failed. The program/method used to install the component returned an error.

SSL Errors

Table 15 SSL error messages

Number	Text
750	Unable to get CA certificate from server.
751	Unable to get certificate from server.
752	Not yet valid CA certificate.
753	Not yet valid certificate.
754	Expired CA certificate.
755	Expired certificate.
756	Missing certificate revocation list.
757	Error decrypting CA certificate.
758	Error decrypting CA certificate
759	Error decrypting CRL.
760	Error decoding CA public key.
761	Error decoding public key.
762	Error in CA certificate signature.
763	Error in certificate signature.
764	Error in certificate revocation list signature.
765	Expired CRL.
766	Time stamp error in CRL.
767	Self-signed certificate found at depth 0.
768	Self-signed certificate found in certificate chain.
769	Missing local CA certificate.
770	Missing local certificate.
771	Error verifying leaf certificate signature.
772	Verify chain too long.
773	CA certificate has been revoked.
774	Certificate has been revoked.
775	Invalid or corrupt local CA certificate.
776	Invalid or corrupt local certificate.
777	Expired CA Certificate
778	Expired Certificate
779	Internal error in Secure Sockets Layer interface.

Table 15 SSL error messages

Number	Text
780	Missing Private Key file.
781	Password not supplied for private key
782	Bad password supplied for private key
783	Invalid private key.
784	Certificate required to connect to server.

HPCA Internal Error Messages

Internal errors occur when HPCA encounters an unexpected condition. Possible causes include corruption of HPCA desktop objects, incompletely applied HPCA self-maintenance, and conflicting processes running concurrently on the desktop. HPCA desktop objects can be inspected and modified, if necessary, using the HPCA Administrator Agent Explorer. For more information on HPCA Administrator Agent Explorer, see *HP Client Automation Administrator Installation and User Guide*.

Preserve the logs for further analysis and contact technical support.

Table 16 HPCA internal error messages

Number	Text	Type	Additional Information
800	Internal error	Error	
801	Error allocating RAM.	Error	
802	Null object pointer.	Error	
803	Invalid arguments to function.	Error	
804	Error getting template.	Error	
805	Error getting instance.	Error	
806	Insufficient buffer size.	Error	
807	Empty object.	Error	
808	Invalid heap number	Error	
809	Invalid password.	Error	
810	Reboot required to complete request.	Note	
811	Machine is being rebooted to complete request.	Note	The user confirmed the restart request to complete the installation.
812	No configuration changes required.	Note	
813	Invalid template.	Error	

Table 16 HPCA internal error messages

Number	Text	Type	Additional Information
814	Failed to start graphical progress indicator	Note	
815	Error occurred trying to save local information	Error	
816	Error adding heap to local object.	Error	
817	Unable to process request - could not read local information.	Error	
818	Null pointer.	Error	
819	Unable to find folder containing local objects (`IDMLIB`). Check settings.	Error	
820	Unable to find folder containing executable files (`IDMSYS`). Check settings.	Error	
821	Buffer too small.	Error	
822	Serialization error occurred. Process aborted?	Error	
823	Serialization error occurred. Process aborted?	Error	
824	Invalid operation.	Note	
825	Unable to create directory for Service information. Installation cannot continue.	Error	
826	Invalid mode	Error	
827	Version mismatch between `RADAPI.DLL` & `RADIA.DLL`. Incompatible HPCA subscriber components found on desktop.	Error	Probable incomplete HPCA agent self-maintenance. Install HPCA agent again from installation media and retry to connect to the Configuration Server.
828	Invalid Request.	Error	
829	Error copying self-maintenance.	Note	
831	Error creating directory for this user.	Error	
832	Unable to determine User ID.	Error	
833	Error uninstalling service	Error	
834	Error sending previous error information to Administrator.	Error	

Table 16 HPCA internal error messages

Number	Text	Type	Additional Information
835	Error occurred during configuration determination; configuration information may be missing or inaccurate.	Error	
836	Failed to select service version	Error	
837	Failed to activate service	Error	
838	Client failed to execute program, after application installation.	Error	
839	Unsupported operating system	Error	
840	Dialog REXX method failed	Error	
841	Missing reference object.	Error	
842	Error loading reference object.	Error	
843	Error opening HPCA object.	Error	
844	Missing instance.	Error	
845	Unregistered HPCA agent.	Note	
846	Missing version group instance.	Error	A non-existent version group instance was specified to the version-activation function.
847	Missing version instance.	Error	The specification of the version to activate within a version group is invalid. Likely, the INITIAL field in the VGROUP instance indicates a non-existent VERSION instance.
848	Error copying file	Error	
849	Error getting a variable value from instance	Error	
850	Error setting a variable value	Error	
851	Error saving an object. Check disk space.	Error	
852	Instance is corrupted, may be missing key variables.	Error	
853	Remote Execution Failure	Error	Contact your system administrator for assistance.
854	Failed to create a backup of a file that was to be updated.	Error	
855	Invalid Variable Name.	Error	

Table 16 HPCA internal error messages

Number	Text	Type	Additional Information
856	Invalid Variable Value.	Error	
857	Application wasn't installed completely.	Error	
858	Application wasn't installed completely. Reboot needed.	Error	
859	Installation is not complete (phased install process).	Error	
860	Current process has timed out	Error	
861	Server rejected Agent identity (Invalid license).	Error	
880	Client is ready to apply maintenance immediately.	Error	
881	RADIA_ERROR_INSTALL_INPROGRESS_AND_REBOOT	Error	Restart pending for the application's installation

API Errors

Table 17 API error messages

Number	Text
901	Missing the registry settings.
902	Update engine has already been installed.
903	SDK settings could not be initialized.
904	Incompatible version of HPCA Application Management SDK.

SAP Error Messages

Table 18 SAP error messages

Number	Text	Type
000	Request successfully completed.	Note
920	SAP is not accessible.	Error
940	System is shutting down.	Error
996	Application has been skipped as part of processing.	Error
997	Application should be ignored as part of processing.	Error

B HPCA Agent Settings Classes in CLIENT Domain (Client Operations Profiles)

The following classes in the CLIENT Domain can be used for various configurations and diagnostic purposes as described within.

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

Server Access Profiles (SAPs) which reside in the CLIENT domain are configured using the satellite management capabilities in the main HPCA console. For more information on Satellite Management and SAPs, refer to the *HP Client Automation Core and Satellite Enterprise Edition User Guide*.

Alert Management (RADALERT)

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

Table 19 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.

Table 19 Attributes of the RADALERT Class

Attribute	Description
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)

An administrator can use the Connect deferral function to configure options for downloading and installing mandatory service-related actions. It gives you control to defer the service-related actions.Use the CDFCFG class in the HPCA Administrator CSDB Editor to configure the user-facing Connect Deferral dialog box. For more information on Connect Deferral, see User Actions for Mandatory Services on page 103.

Table 20 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.
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...".

Table 20 Attributes of the CDFCFG Class

Attribute	Description
DOMAINS	The Domains attribute uses a comma-delimited list of domains for Connect Deferral. The default value is SOFTWARE,PATCHMGR,OS. For example, if **SOFTWARE**,**OS** is specified, the PATCHMGR connects are not deferred. You can also add custom domains to the Domains attribute. This enables you to defer services in the custom domains and associate them to a single display name. For example, if you have custom domain names such as, CUS_DOMAIN1, CUS_DOMAIN2, PATCH1, and so on, you can categorize and associate these to any domain and define the Domains attribute value as: **SOFTWARE(CUS_DOMAIN1,CUS_DOMAIN2),PATCHMGR(PATCH1),OS**. The display name for any service deferred from the CUS_DOMAIN1 will be SOFTWARE. You can also add filters to the domain names. For example, if the specified Domains attribute value is **SOFTWARE(CUS*),PATCHMGR(PATCH*),OS**, the display name for all domains starting with CUS and PATCH will be SOFTWARE and PATCHMGR respectively. Formatting rules for the Domains attribute are: • Every opening parenthesis must have a matching closing parenthesis and also in the reverse order. For example, **SOFTWARE(CUS_DOMAIN1,CUS_DOMAIN2),PATCHMGR(PATCH1** is invalid. • Use filters for domain names inside the parenthesis. You cannot use filters for domain display names. For example, **SOFTWARE(CUS_*),PATCHMGR(PATCH1),OS** is valid, **SOFT*(CUS_DOMAIN1,CUS_DOMAIN2),PATCHMGR(PATCH1),OS(OS1, OS2)** is invalid. • Domain names must be comma-delimited and all mapping of domains must be done within parenthesis. • The maximum character length of the Domains attribute is 255. • The Domains attribute is case insensitive. Valid usage example for the Domains attribute is, **SOFTWARE(CUS_DOMAIN1,CUS_DOMAIN2),PATCHMGR(PATCH1),OS**. Note: Make sure you follow the formatting rules for the Domains attribute. If an incorrect value is used, Connect Deferral may not function in the desired way.
TIMEOUT	Specify the length of time (in minutes) for the Connect Deferral dialog to wait before automatically triggering the pending action.

Table 20 Attributes of the CDFCFG Class

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 value is **SOFTWARE** if dname is not specified.
VRFYONLY	Specify Y to display the connect deferral dialog on verify only connect. The default value of this variable is N.
DEFAULT	Specify the maximum number of days that a user can defer a connect for domains not specified in the CDFCFG class. For example, when a connect is run for any domain that is not specified in the CDFCFG class, Connect Deferral reads the DEFAULT attribute value as the number of days for deferral.

Table 20 Attributes of the CDFCFG Class

Attribute	Description
ABTNTXT	Specifies an alternative text for the Allow button. By default, this button is labeled 'Allow'. This option should only be used for the special case where prior customized dialogs used different verbiage for connect deferral actions.
CBTNTXT	Specifies an alternative text for the Cancel button. By default, this button is labeled 'Cancel'. This option should only be used for the special case where prior customized dialogs used different verbiage for connect deferral actions.
DBTNTXT	Specifies an alternative text for the Defer button. By default, this button is labeled 'Defer'. This option should only be used for the special case where prior customized dialogs used different verbiage for connect deferral actions.

Core Settings (SETTINGS)

Use an instance in the SETTINGS Class to define defaults for Server Access Profiles defined as part of satellite management. These defaults could be overwritten based on configuration defined as part of Satellite management in the Core console. SETTINGS can also define scripts you want to use in pre-configuration processing, and to set other global parameters.

Table 21 Attributes of the SETTINGS Class

Attribute	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.

Table 21 Attributes of the SETTINGS Class

Attribute	Description
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.
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 *HP Client Automation Administrator Installation and User Guide*, Appendix D, Creating Services Using Advanced Capabilities.
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.

Table 21 Attributes of the SETTINGS Class

Attribute	Description
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.
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.

Table 21 Attributes of the SETTINGS Class

Attribute	Description
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 HPCA 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.
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.

Table 21 Attributes of the SETTINGS Class

Attribute	Description
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: HPCA Application Self-Service Manager users will receive a **Needs To Be Updated** dialog box offering an **OK** button only. HPCA 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, run **radsksman req="Self Maintenance"** or run UPGRDMAINT directly using a timer or other method. • Specify **P** to prompt HPCA Application Self-Service Manager users (only). A 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 HPCA Application Self-Service Manager interface. Note: This is the same as **I** for HPCA 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.

Table 21 Attributes of the SETTINGS Class

Attribute	Description
NETSPEED	Specify the method to be used to check the speed of the HPCA agent's Internet Control Message Protocol (ICMP) 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**.

Table 21 Attributes of the SETTINGS Class

Attribute	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.
NATVHTTP	Specify this attribute to enable the HPCA Agent to use Windows WinHTTP library for HTTP communication. Specify **Y** to use Windows WinHTTP library. Specify **N** (the default) to use HPCA HTTP library. **Note**: If NATVHTTP is set to Y (Enable WinHTTP) and SSL is enabled, make sure that a valid certificate is deployed into Microsoft Certificate Store on the local computer.
SALVAGE	Allows the agent to restamp and reuse resources that have the same signature but different date and time stamp. The **checksig=Y** parameter added to the RADSKMAN command line instructs the agent to verify the resources' signatures. The packages do not need to be published in a special way to use this flag. This flag is for the agent only, the salvage is always on for staging clients. This will provide savings for packages that have resources with the same signature but different date/time stamps. The salvage flag can only be set in the CSDB Editor.

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, RADSTATE (Diagnostic Module) on page 72.

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 22 Attributes of the DIAGS Class

Attribute	Description
NAME	The friendly name of the instance.

Table 22 Attributes of the DIAGS Class

Attribute	Description
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*.
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 ZHDWPA0n attribute will be reported in ZCONFIG.

Table 23 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.

Table 23 Attributes of the RADHWCFG Class

Attribute	Description
PRINTER	Specify **Y** to scan for printers. ZCONFIG attributes: ZHDWPA00, ZHDWPA01, ZHDWPPRN.
HAL_VER	Specify **Y** to scan for the Hardware Abstraction Layer (HAL) 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).
WMISCAN	Specify **Y** to perform the scan using Windows Management Instrumentation (WMI).
DSCAN00*n*	Specify **Y** to use the dynamic scan variable. See Dynamic Scanning on page 175.
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 (DSCAN00*n*) 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.

Listed below are some examples.

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)

Notify is a protocol used to remotely run an HPCA agent connect. The administrator can use HPCA Console to initiate a Notify job from HPCA Configuration Server. The agent computer's Notify Daemon, RADEXECD, receives the notify request and initiates the agent connect. If the user ID and password is defined for the agent computer, the verification of these credentials is done before any action is performed.

The administrator can configure additional security options to control the actions performed using Notify. These options are defined in the Notify Security (NTFYSEC) configuration class as part of Client Operations Profile (COP).

Table 24 Attributes of the NTFYSEC _BASE_INSTANCE_

Attribute	Description
ZNTFYSEC	Enables notify security. Valid values are **Y** (Yes), **N** (No), and **L** (Lock). The default is **Y**. Set **Y** to restrict execution of the notify request to programs residing in the agent's IDMSYS directory. Set **L** to further limit execution to the agent's main execution modules RADSKMAN, RADPINIT, RADCONCT, and UPGRDMAINT. Set **N**, to issue the notify request from wherever it resides.
ZVRFYUID	Enables user ID verification. Valid values are **Y** (Yes) and **N** (No). The default is **N**. Set **Y** to verify that the user ID sent by the Notify command matches the ZUSERID field found in an agent's ZMASTER object.
ZVRFYPWD	Enables password verification. Valid values are **Y** (Yes) and **N** (No). The default is **N**. Set **Y** to verify that the password sent by the Notify command matches the ZPWD field found in an agent's ZMASTER object. Note: The ZPWD attribute is encrypted and is not visible in clear text.
ZEXTSEC	Enables extended security. Valid values are **Y** (Yes) and **N** (No). The default is **N**. For more information, see HPCA Extended Security.
ZIGNRURI	This anti-spoofing attribute lets you to enable RCSURI stripping (the notify daemon strips out the value before the command is run). Valid values are **Y** (Yes) and **N** (No). The default is **N**.
ZIGNDURI	This anti-spoofing attribute lets you to enable DATAURI stripping (the notify daemon strips out the value before the command is run). Valid values are **Y** (Yes) and **N** (No). The default is **N**.

HPCA Extended Security

Extended security runs pre-defined command tokens to additionally limit Notify. The command tokens are defined to represent a full command line that is run on the agent computer. To enable extended security set **ZEXTSEC=Y**. Once enabled, the Notify daemon requires an additional control object called ZNFYXSEC in the IDMROOT directory before any command is run. If the ZNFYXSEC object is not found in the directory no command is run on the agent computer. The ZNFYXSEC object contains a set of authorized command tokens and corresponding commands for an agent. The object contains one instance for each of the command tokens.

When the Notify daemon receives a Notify job request with extended security enabled, the first parameter in the command line is matched with the value of one of the ZNFYXSEC.NFYNAME variables in each of the ZNFYXSEC instances. If a matching ZNFYNAME is found, the daemon compares the received password with the value of ZNFYPWD attribute of that instance. If the password matches, the daemon initiates the command that is specified by the value of ZNFYCMDL of that instance. If ZNFOPTOK=**Y**, then any parameters received from the server are appended to the value of ZNFYCMDL before the command is run.

The following table describes the variables of the ZNFYXSEC object on HPCA agent computer.

Table 25 Variables of ZNFYXSEC object

Variable	Description
ZNFYNAME	Specifies the key to locate or identify the heap. This will correspond to the user ID parameter on the sender's command line.
ZNFYPWD	This value is validated against the incoming password field.
ZNFYGRP	For future use in potential group-notification design.
ZNFYCMDL	Specifies the command line that is run on the agent computer.
ZNFOPTOK	Specify **Y** to indicate that a parameter can be appended to the command line found in ZNFYCMDL.

Restricting Notify to Self Notify Only

When HPCA agent connects in a System context, it uses a self notify process. The Notify Daemon accepts an optional command-line argument, **/L**. This argument restricts the daemon to self notify only and rejects any remote notify requests. It also restricts any requests to the main agent execution modules such as RADSKMAN, RADPINIT, RADCONCT, and UPGRDMAINT.

When the Notify daemon receives a new request and **/L** parameter is used, the daemon checks the IP address of the source and the command requested. If the source IP address is different from the localhost address, 127.0.0.1, the connection is rejected. Also, the request is rejected if the command is not one of the main agent execution modules. The date and time of the rejected request is logged in the daemon's log files.

For Linux, the optional command line argument is -L. Also, L is case sensitive.

Usage Note

Changes to the notify-security settings will not be immediately effective; 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.

Reboot Deferral Configuration (RBOOTCFG)

An administrator can use the Reboot deferral function to configure options for a reboot operation. It gives you control to defer a reboot. Use the RBOOTCFG class in the HPCA Administrator CSDB Editor to configure the user-facing Reboot Deferral (RDF) dialog box. For more information on Reboot Deferral, see Using Reboot Deferral on page 105.

Table 26 Attributes of RBOOTCFG Class

Attribute	Desciption
NAME	The friendly name of the instance.
ENABLE	Specify Y to enable the RDF function. The default value is N.
DESCTEXT and DESCTEXT2	Specify customized replacement text for the descriptive text that is at the top of the RDF dialog. • DESCTEXT replaces the first two sentences of text. • DESCTXT2 replaces the text “To continue with these actions...”.

Table 26 Attributes of RBOOTCFG Class

Attribute	Desciption
TIMEOUT	Specify the length of time (in minutes) for the RDF dialog to wait before automatically triggering the reboot.
MAXDAYS	Specify the maximum number of days for which the reboot operation can be deferred. Reboot deferral is not allowed when the MAXDAYS value is zero or empty. Example, if MAXDAYS is set to 3, the user can defer a reboot for a maximum of 3 days; after that, the **Defer** button becomes inactive and reboot will be forced on the user's machine. 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 you can defer the reboot.

Table 26 Attributes of RBOOTCFG Class

Attribute	Desciption
MAXCANCL	Specify the maximum number of times the reboot operation can be cancelled. Reboot cancel is not allowed when the MAXCANCL value is zero. MAXCANCL value -1 signifies that you can cancel the reboot any number of times. Notes: • You cannot cancel the reboot if the maximum number of days (MAXDAYS) for reboot defer are exhausted. • On the right side of the window, a message will indicate the remaining number of days that you can cancel the reboot.

Setting User Interface Properties (RADUICFG)

RADSKMAN Client Operations Profiles Parameters

Use the RADUICFG Class to specify settings for HPCA Application Self-Service Manager interface.

You must be licensed for HPCA Application Self-Service Manager to use this class.

Table 27 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.

Table 27 Attributes of the RADUICFG Class

Attribute	Description
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.
STRTFILE	Specify the filename for the startup parameters found in 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 HPCA 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.

Table 27 Attributes of the RADUICFG Class

Attribute	Description
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`.
CUSTURL	Specify a URL that the HPCA agent computer's default internet browser will open to if the user 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 HPCA 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.

Table 27 Attributes of the RADUICFG Class

Attribute	Description
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 and Reconfigure 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.
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.
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.

Table 27 Attributes of the RADUICFG Class

Attribute	Description
SHWSCHEV	Specify `Y` to show the Scheduled Event button when a service item is expanded. This button looks like a clock.
TMNUTXT*n*	Create a custom menu for the HPCA System Tray. This menu will be available when you right-click the System Tray icon. In the attribute name, *n* is any value ranging from 0 to 9. To create a separator bar, type SEPARATOR as the menu text.
TMNUCMD*n*	Create a custom menu item for the HPCA System Tray. In the attribute name, *n* is any value ranging from 0 to 9. Specify a command to run when TMNUTXT*n* is clicked in the System Tray. The command must be available from the `IDMSYS` directory.
NAME	Friendly name of the instance.

C RADSKMAN Command Line Parameters

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

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 28 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 default for HPCA Application Manager is **prompt**. The default for HPCA Application Self-Service Manager 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 **RADIA**. However, if preload=y, the default is **RADSTAGE**."
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**.

Table 28 RADSKMAN Core Parameters

Parameter	Explanation
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: **$USER** (if started in a user context, **`context=u`**); **SYSTEM** (if started in machine context, **`context=m`**). Note: HPCA Application Self-Service Manager does not pass a context by default.
uid	The identification that is used to identify the current session. Note: HP recommends specifying **`startdir`** on the command line if **`uid`** has been specified on the command line. If **`startdir`** is not specified, it will be set to the same value as **`uid`**. • **`uid=$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 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 29 RADSKMAN Operations Parameters

Parameter	Explanation
ask	• Set **ask=y** to prompt the user 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 HPCA 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 HPCA 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. • Specify **hreboot=n** to override any reboot settings defined for a service. 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 suppress the alert. The default for HPCA Application Manager and Application Self-Service Manager is **Y**.
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 objects as JOBID. The defaults for both HPCA agents are: **UserConnect** (if started in a user context); **MachineConnect** (if started in machine context).

Table 29 RADSKMAN Operations Parameters

Parameter	Explanation
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 30 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 default for HPCA Application Manager is **prompt**. The default for HPCA Application Self-Service Manager 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 default for HPCA Application Manager is: **u** if started with a user logged on; **m** if no user is logged on. There is no default for HPCA Application Self-Service Manager; all components are processed.

Table 30 RADSKMAN Machine/User Parameters

Parameter	Explanation
flushu	If **`local=y`** (see local): • 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 can be used to limit the number of HPCA machine connects on an HPCA agent computer. This is a global setting and is valid only if **`context=m`**. If **`machfreq=0`**, the HPCA agent connect will run on every restart of the HPCA agent computer. If machfreq is set to an integer (*n*), a machine connect will run only if it has been n number of hours since the last connect. For example, if **`machfreq=1`**, the machine connect will run after one hour of the last agent connect. However, if a connect runs the installation of a service that requires a restart of the computer, followed by a connect to complete the installation, the machfreq value is ignored and the connect is run. Once the connect is completed, the machfreq value is taken into consideration for all subsequent connects. For example, this reduces the OS Manager commits on a Windows Thin Client agent computer by limiting the number of connects.

Table 30 RADSKMAN Machine/User Parameters

Parameter	Explanation
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 default for HPCA Application Manager is **N**. The default for HPCA Application Self-Service Manager is **Y**.
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 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`**. • If **`userfreq=0`**, a user connect will run only if the previous connect was a system connect. Agent uses the USEREXEC and USERSID variables in RADUSERS.EDM object to analyze whether the previous connect was a user or system connect and the ISOTIME variable to determine how much time elapsed since the last connect. System connect is run using Notify or Timer

Client Operations Profiles

These parameters are used for specifying how to use Client Operations Profiles.

Table 31 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 103.
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.
rcsuri	Add **`rcsuri`** (in the URI format) to the RADSKMAN command line to override the use of the SAP object for the RCS type.

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 32 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 `IDMDATA` directory that is specified in `NVD.INI`. Otherwise, specify the location of a directory into which the files will be copied.

Table 32 RADSKMAN Process Parameters

Parameter	Explanation
process	Used to run a specific process based on the command line argument called "process". This is called as staccato processing. If the process argument contains any of the following variables then the application will enable the staccato processing. **COMMIT**: commits the changes from the differencing which involves invoking the methods and moving the files from cache to live location. **DIFF**: enables tree differencing, where the client differences the local object with the new objects coming from the Configuration Server. **REPT**: sends reporting objects to finish the connect process. **VER**: verifies the objects. Acts as a precursor to DIFF and COMMIT. If it is used before commit, it validates if all data has been downloaded before activating the state machine. **XFER**: downloads data for all the objects that require data from different sources into IDMDATA.
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 host name 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 444).
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, before 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 `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 system connect:

System connect is used if elevated privileges are required during an Agent connect. All connects launched via Notify or Timer are system connects.

On a local machine, the 'notify client' module **Radntfyc** can be used to invoke a System connect:

```
Radntfyc localhost radskman ip=10.10.10.15, port=3464, uid=$machine,
startdir=system, cat=prompt,ulogon=n, 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
  ```

- Perform verification, differencing and stop the connect.

  ```
  RADSKMAN PROCESS="VER,DIFF",ip=NOVARCS, port=3464
  ```

  Use comma (,) as the delimiter between the directives and enclose the directives in the double quotes (" ").

- Validate that all the data has been downloaded, run the state machine, and send the reporting object to the configuration server.

  ```
  RADSKMAN PROCESS="VER,COMMIT,REPT",ip=NOVARCS, port=3464
  ```

  Use comma (,) as the delimiter between the directives and enclose the directives in the double quotes (" ").

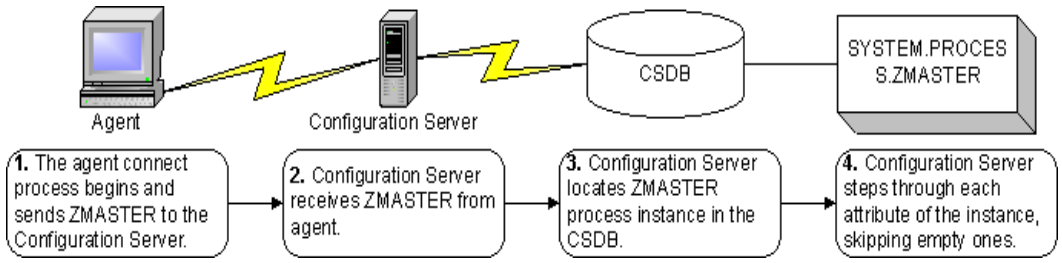
- Download data.

  ```
  RADSKMAN PROCESS="XFER",ip=NOVARCS, port=3464
  ```

D Resolution Process

The Configuration Server uses the **resolution process** to accomplish 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 request. In other words, what the Client Automation infrastructure does depends on what information is stored in its CSDB and what information accompanies the request for Client Automation to perform some action. For example, the agent connect submits service requests to the Configuration Server, and the Configuration Server performs a resolution in response to each request.

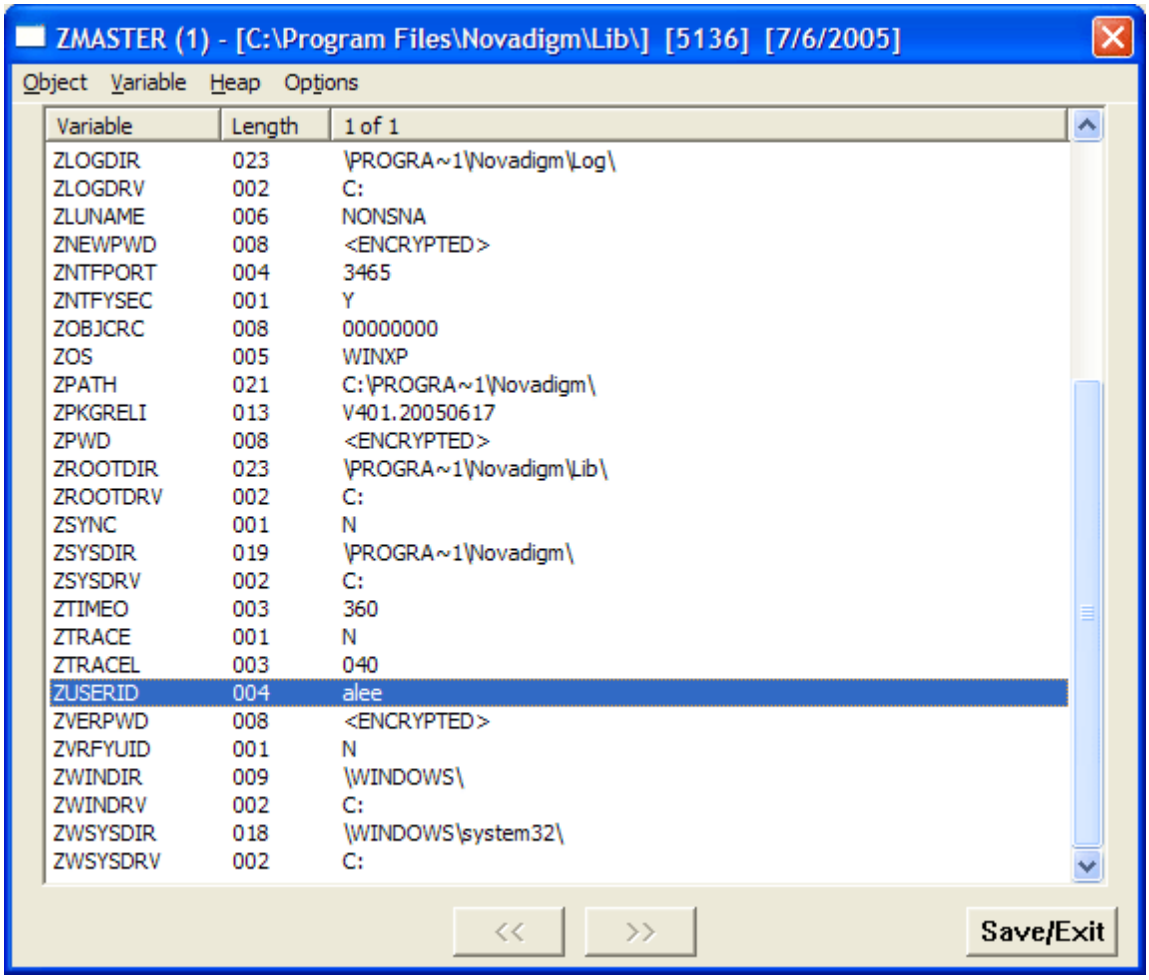
Figure 3 Configuration Server performs resolution



The ZMASTER object is sent to the Configuration Server during the agent connect. The ZMASTER object contains information about the agent computer that is needed to run Client Automation, such as the identity of the subscriber and the IP address of the agent computer.

The Configuration Server stores the ZMASTER object in **global memory**. Global memory is a temporary storage area in the Configuration Server. The Configuration Server maintains global memory's contents for the duration of the resolution process.

Figure 4 Subscriber's local ZMASTER object



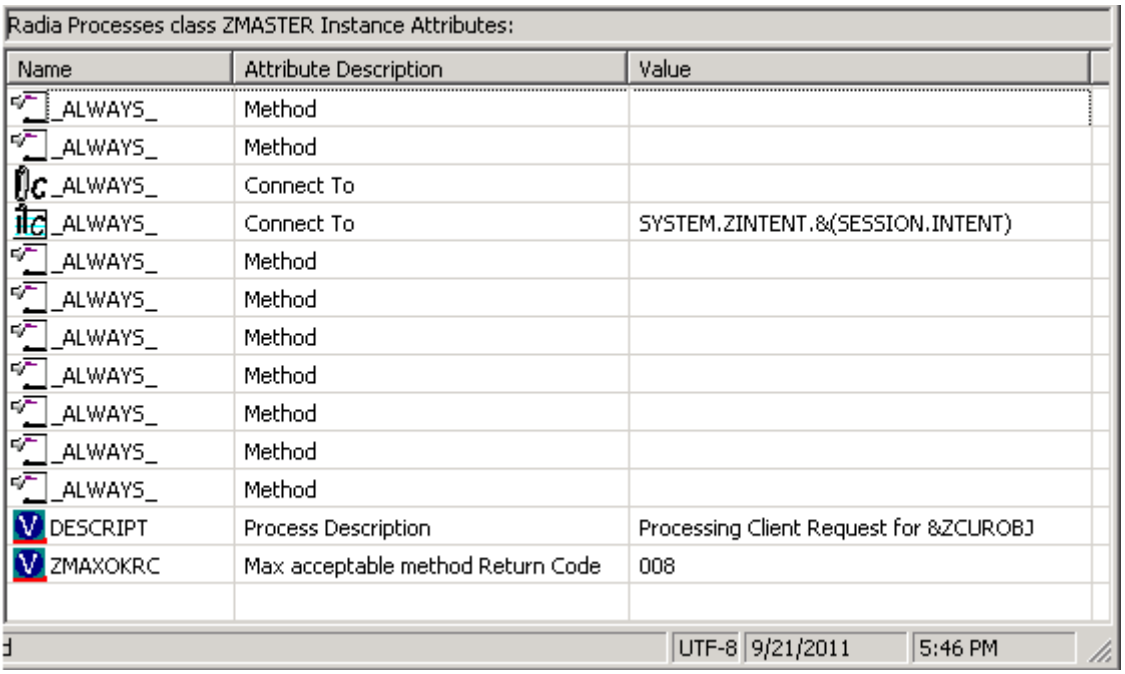
After storing ZMASTER in global memory, the Configuration Server finds the Process instance for the ZMASTER. This is the **process entry point.** Its location is SYSTEM.PROCESS.ZMASTER.

The Configuration Server reads each attribute of SYSTEM.PROCESS.ZMASTER. Based on an attribute's value, the Configuration Server may:

- Set variable values.
- Evaluate an expression.
- Execute a method.
- Connect to other instances

If there is a connection to another instance, the Configuration Server processes the connected instance. Then the resolution process resumes in the referring instance at the next attribute after the connection attribute. For example, in Figure 5 on page 203, the first connection instance links to SYSTEM.ZINTENT.&(SESSION.INTENT). After processing this connection instance, the resolution process will return to PRIMARY.SYSTEM.PROCESS.ZMASTER.

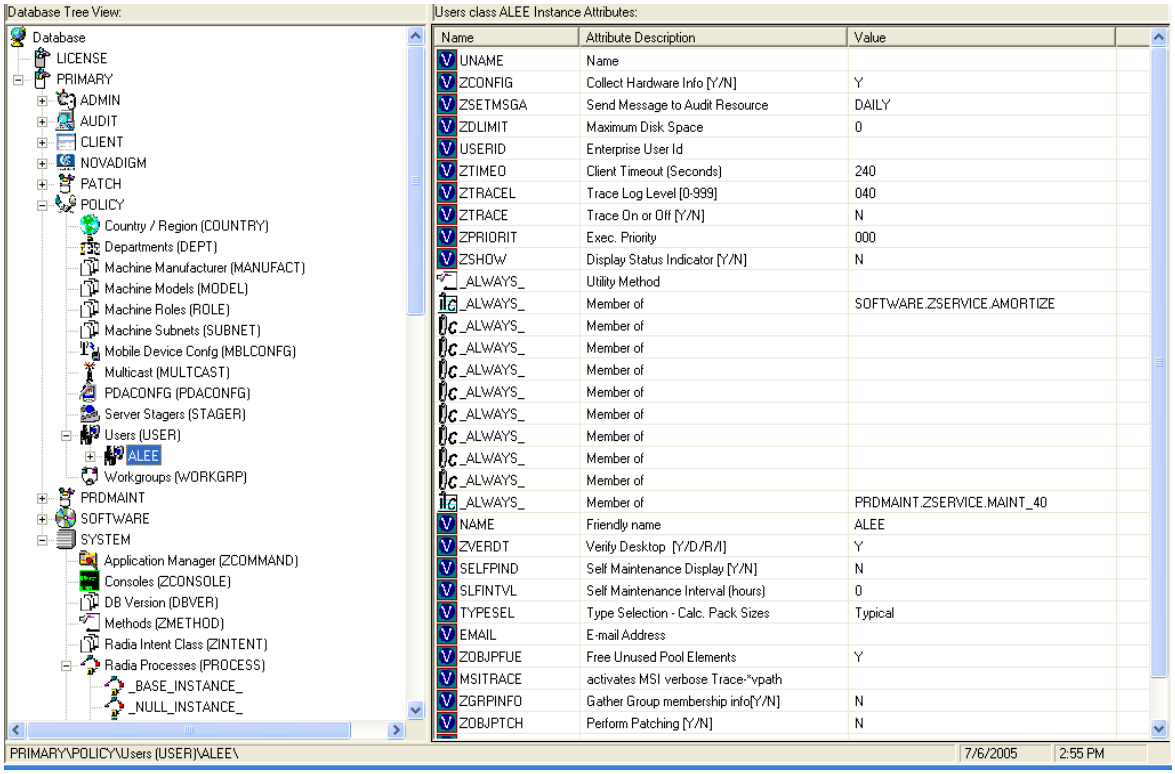
Figure 5 PRIMARY.SYSTEM.PROCESS.ZMASTER instance



During resolution the Configuration Server performs symbolic substitution to set values and to connect to other instances. For example, in SYSTEM.PROCESS.ZMASTER there is a connection to SYSTEM.ZINTENT.&(SESSION.INTENT). The Configuration Server substitutes the value of the INTENT from the SESSION object that is in global memory. If the INTENT is CATALOG_RESO, the resolution process will connect to SYSTEM.ZINTENT.CATALOG_RESO and resolve that instance. In the SYSTEM.ZINTENT.CATALOG_RESO instance, there is a connection to SYSTEM.ZPRODUCT.&(PREFACE.ZDOMNAME). The Configuration Server substitutes the value of the ZDOMNAME from the PREFACE object that is in global memory. If the ZDOMNAME is SOFTWARE, the resolution process will connect to SYSTEM.ZPRODUCT.SOFTWARE and resolve that instance. In SYSTEM.ZPRODUCT.SOFTWARE there is a connection to POLICY.USER.&(ZMASTER.ZUSERID). The Configuration Server substitutes the value of the ZUSERID from the ZMASTER object that is in global memory.

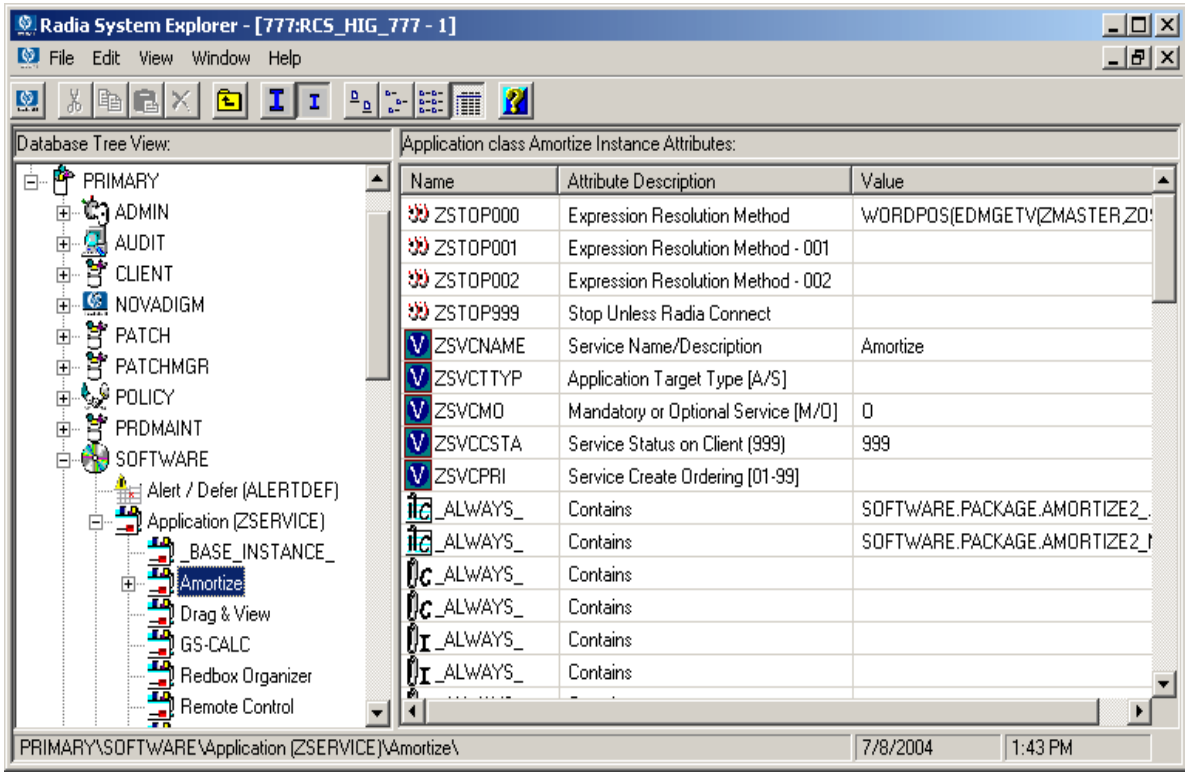
In Figure 4 on page 202, the value of ZUSERID is alee. Therefore, the resolution process will connect to POLICY.USER.ALEE, and resolve that instance.

Figure 6 POLICY.USER.ALEE instance



In Figure 6 above, after setting a number of variables, the first connection attribute is to SOFTWARE.ZSERVICE.AMORTIZE. In your implementation, the POLICY instance may connect to a workgroup that connects to a service.

Figure 7 ZSERVICE.AMORTIZE instance



A Service instance links to packages. Figure 7 above begins with a ZSTOP expression variable. An expression variable contains statements that, if evaluated to “true,” stop the resolution of the current instance. An expression allows alternative paths to be taken during resolution based on variable data. In this case, the expression checks to be sure that the operating system of the agent computer is authorized for the Amortize software.

If the agent computer’s operating system is Windows 2003, Windows XP, or Windows Vista, the resolution process continues with this instance, connecting the file instances, registry entries, path instances, and shortcuts. If the agent has an operating system other than one of the four that were previously mentioned, resolution returns to SOFTWARE

.ZSERVICE.AMORTIZE, and to the next connection instance.

Eventually, the resolution process will return to the User instance, finish resolving it, and return to the process entry point, SYSTEM.ZPROCESS.ZMASTER.

After processing all attributes in the SYSTEM.PROCESS.ZMASTER instance, resolution terminates.

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