HP Client Automation

Core and Satellite

Starter, Standard, and Enterprise Editions

for the Windows® operating systems

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Getting Started and Concepts Guide

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Contents

1 Introduction

At the end of this chapter, you will:

- Know the scope and content of this book.
- Be familiar with terminology associated with HP Client Automation (HPCA).

About this Guide

This guide provides a general understanding of HP Client Automation (HPCA) as well as instructions for installing and initially configuring the Core and Satellite servers. Additonally, this guide provides information to help you understand how HPCA fits into an existing enterprise environment by introducing, at a high-level, the HPCA components, their capabilities, and how they relate to one another.

For information about using the HPCA Console, refer to the Starter, Standard, or Enterprise edition of the *HP Client Automation Core and Satellite User Guide*. For more information about all the additional features and components available with HPCA, go to the HP Software support web site or the appropriate HPCA publication.

IMPORTANT NOTE:

The new **Core** and **Satellite** are available *only* to new customers and customers migrating from Core and Satellite versions 7.20, who use **Windows Servers** as their primary infrastructure platforms.

Existing customers, and new customers who require **UNIX** infrastructure support, should consult the *HP Client Automation Configuration Server, Portal, and Enterprise Manager Getting Started Guide* for information on alternative methods for installing, configuring, and using HP's **Client Automation** infrastructure.

Welcome to HP Client Automation

HPCA is available in three license editions, Starter, Standard, and Enterprise. This guide can be used to understand and install any one of these product editions. The features available through the HPCA Console will differ depending on the license installed. See Chapter 3 for details on all available features.

The remaining chapters of this book contain the following topics:

- Installing HPCA on page 17
  This chapter describes the installation process for HPCA Core and Satellite Servers.

- HPCA Features on page 59
  This chapter discusses the key features, main components, and additional components that support HPCA Enterprise.
- HPCA Architecture on page 77
  This chapter discusses how to use Core and Satellite servers to quickly set up and scale the infrastructure needed to support your managed-devices.
- HPCA Enterprise Functional Views on page 91
  This chapter describes some of the HPCA processes. It helps you gain an understanding of how HPCA works.

Terminology

The following terms are used frequently in this publication.

administrator

The person who uses the HP Client Automation (HPCA) Administrator to configure and maintain the HPCA environment.

agent computer

A computer (workstation or server) that has the HPCA agent software installed on it. It may also be referred to as a device.

desired state

The condition of a device as defined by the configuration parameters you set in the CSDB. These parameters include software, operating system, and policy.

device

A piece of hardware, such as a computer or ATM, that may be either a managed device or a target device.

HP Client Automation Administrator (Administrator)

A set of HP Client Automation Administrator tools (including the Agent Explorer, Packager, Publisher, CSDB Editor, Screen Painter, and the AMP Editor) that you use to manage the HPCA environment. The set installed onto a Core server does not include the Packager and Screen Painter, which should not be used on a Core server.

HPCA agent

The agent software (such as the Application Self-service Manager, Application Manager, Patch Manager, Inventory Manager and OS Manager) that runs on the managed device and communicates with the Configuration Server.

HPCA agent connect

The process by which a managed device communicates with the HPCA Configuration Server.

HPCA Configuration Server (Configuration Server)

In conjunction with the CSDB, a server that stores, manages, and distributes application package information, and manages policy relationships and information about managed devices. This server is mandatory in any HPCA environment; without it, the infrastructure will not function.

HPCA Configuration Server Database (CSDB)

An object-oriented database that stores all the information needed to manage assets on a device, including the software, patches, OS images and/or data that HPCA distributes, the policies that determine which users are entitled to which resources, and security and access rules for administrators. It has a hierarchical structure containing four levels: files, domains, classes, and instances.

HPCA Core

A critical server that maintains the authoritative data repository, policy entitlements and desired state configuration parameters for all resources being managed on clients. The Core server includes a complete set of Client Automation infrastructure necessary for authentication, centralized administration, reporting, configuration, resource deployment and satellite communications.

HPCA Satellite

A server that acts as an access point for HPCA agents' communications and resources. Satellite Servers are available for the Enterprise license edition, only.

managed device

A computer, ATM, or other piece of hardware, that is managed by HPCA.

package

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

policy

A designation of the services to which a subscriber, an agent computer, or a managed device is entitled.

resolution

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

service

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

target device

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

user or subscriber

The person who uses managed applications on a managed device.

HPCA Publications

While this book provides an overview of HPCA components and concepts and installation information for Core and Satellite servers, it is merely a starting point. More information is available on the HP Software support web site and the HPCA DVD media.

- After installing the HPCA Core and Satellite, depending on your license edition, you should refer next to:
  - HP Client Automation Core Starter User Guide
  - HP Client Automation Core Standard User Guide
  - HP Client Automation Core and Satellite Enterprise User Guide

  These guides provide all the information you'll need for using the HPCA Console as well as pointers to other guides in the HPCA Library, when necessary.

- Enterprise license users should refer to the *HPCA Publications* appendix for a list of additional relevant publications,

Be sure to periodically check the HP Software support web site for new and updated publications.

2 Installing HPCA

This chapter explains how to install and configure the HP Client Automation servers (Core and Satellite) and their components. The following sections contain pre-installation information and requirements, and installation instructions for the HPCA servers. It also details the optional, manual installation of the HPCA Administrator which, by default, is automatically installed with the HPCA Core server.

HPCA Server Pre-installation Information

The pre-installation information that is presented in this section should be reviewed before installing any HPCA product for which you have a license.

Core Servers

The **HPCA Core** server is the primary repository of data for an HP Client Automation environment. At least one Core server is necessary in order to establish a viable HPCA environment.

The Core server cannot be installed on a machine that already hosts an HPCA Satellite server. If this is attempted, an error message will result and the installation program will abort.

After the installation, you will have to use the HPCA administrative tools (such as the HPCA Configuration Server Database Editor [CSDB Editor] and Publisher) to prepare software applications for deployment throughout your enterprise.

The MySQL instance in the Core is an operational database that contains information on active and scheduled jobs, and user role assignments. It does not have any user-accessible elements, nor does it provide any extensibility; it is intentionally a locked down, fixed-purpose embedded database. It is, however, required in order to support GUI access to the Console and job scheduling, so it is configured to be accessible only via a special service account, to processes that are local to the Core—direct network access is not possible.

The HPCA Administrator

The HPCA Administrator is automatically installed as part of the Core server installation. It points to the Core server's Configuration Server Database and includes a set of administrative tools that can be used to configure and maintain an HPCA environment.

The Standard and Starter editions include a streamlined version of the HPCA Administrator—just the *HPCA Publisher* and *HPCA Agent Explorer*. The full HPCA Administrator can be manually installed, as described in Manually Installing the HPCA Administrator on page 55.

- For information on manually installing the HPCA Administrator, see Manually Installing the HPCA Administrator on page 55.
- To learn more about the features of the HPCA Administrator refer to the *HP Client Automation Administrator Guide*.

Satellite Servers

Satellite servers are available with the Enterprise license only.

The **HPCA Satellite** server is an access point to the HP Client Automation infrastructure for all HPCA agents. It is dependent on and subservient to the HPCA Core server, and functions as an intermediary between the Core and the HPCA agents.

The Satellite server cannot be installed on a machine that already hosts an HPCA Core server. If this is attempted, an error message will result and the installation program will abort.

Platform Support

For detailed information about supported platforms for HPCA servers and target devices, refer to the *Release Notes* document that accompanies this release.

System Requirements

This section details the system requirements for Core and Satellite server installations.

It is important to keep in mind that some of these requirements are for initial HPCA-environment set ups (program data only), and that as your HPCA environment grows, these space requirements will inherently grow as well, in order to accommodate database expansion and caching.

The recommended starting minimum is 20GB.

Core Servers

The following are the system requirements for Core servers.

- 2 GB RAM (minimum); 4 GB RAM (preferred)
- Dedicated server with dual-core processor
- 2 GHz CPU speed
- 3 GB free disk space

Satellite Servers

The following are the system requirements for Satellite servers.

Before installing a Satellite server, review the following additional Satellite server sections in this chapter.

- Unattended Configuration of HPCA Satellite Servers on page 38 describes how to pre-configure settings for a Satellite before it is installed.
- Configuring Satellites for Data Cache Preload on page 50 describes data cache steps that must be completed before a Satellite can be synchronized with an upstream host.

Full-service Mode

- 1GB RAM (minimum); 2 GB RAM (preferred)
- Dual-core processor

- 2 GHz CPU speed
- 2 GB free disk space

Streamlined Mode

- 512 MB RAM (minimum); 1 GB RAM (preferred)
- Dual-core processor
- 1.6 GHz CPU speed
- 2 GB free disk space

Web Browsers

The HPCA servers have Consoles through which various administrative and configuration tasks can be performed. For these Consoles, only the following web browsers and versions are supported.

- Microsoft® Internet Explorer®, versions 6.0 and 7.0.

  The browser's Security should be set no higher than **Medium**.

- Mozilla Firefox, version 2.0.0.20 and later.
  - HPCA Out of Band Management windows do not support Firefox.
  - Firefox, version 3 has a known issue with HPCA Enterprise Manager and the **+** character.

    This issue has been resolved in Firefox, version 3.1.

Monitor Settings

HP recommends the following minimum settings in order to ensure proper display of the HPCA Consoles.

- Screen Resolution: 1024x768
- Color Quality: Medium (16 bit)

HPCA Database

Prior to installing the Core server, you must create an ODBC-compliant database to be used by HPCA for management-reporting objects. This database can be either a Microsoft SQL Server Database or an Oracle Database. See Create the HPCA Database on page 26 for information about creating these databases specifically for the Core server.

- If you are licensed for the **Enterprise** edition of HPCA, the supporting database can be either **Microsoft SQL Server** or **Oracle**.
- If you are licensed for either the **Starter** and **Standard** editions of HPCA, you must use a **Microsoft SQL Server**.

Windows 2000 Operating System Note

If you are installing the HPCA server on a Windows 2000 operating system, version 2.8 of the **Microsoft® Data Access Components** (**MDAC**) must be installed in order to ensure remote access to the SQL Server. The media for this (`MDAC_TYP.EXE`) is available in the `Microsoft` folder of the `Setup-Core` directory.

- For more information, visit **http://www.microsoft.com**.
- For information on opening required ports for SQL Server, refer to Microsoft KnowledgeBase article **841251** at **http://support.microsoft.com/kb**.

Communications Ports

HPCA servers communicate with one another and their managed devices on the ports that are detailed in this section; these ports must be available. The system query that automatically runs at the start of the installation will verify the availability of these ports. If they are not available, the installation will fail.

If you are installing an HPCA server via the silent installation (see Silent Installation on page 46), the results of the pre-installation system query will be captured in the log.

If a firewall is in place on the HPCA server's host machine, these ports must be added to the firewall "exceptions" list.

Mandatory Ports

When SSL is not enabled, ports **3464** and **3466** are the primary ports used for Core and Satellite communications, so they must be enabled in order to ensure the necessary remote communications between HPCA devices. An HPCA environment will not function if these two ports are not enabled.

These ports can be automatically enabled with an option (**Modify Windows Firewall to allow communications through these ports**) in the HPCA server installation. If you select this option in the installation, no additional port configuration is required.

Some environments have specialized firewalls in place and prefer to not select this option. If this is the case, you must ensure that these two primary ports are excluded from any firewall filtering, otherwise HPCA will not function correctly—remote devices will not be able to communicate with HPCA servers.

HPCA Ports

- **TCP 3464**: This is the default port of the HPCA Configuration Server; it must be available for Core servers. It must also be available for Satellite servers that are set to the full-service mode.
- **TCP 3465**: This port is used by HPCA agents to receive incoming notify requests from Core servers.
- **TCP 3466**: This is the main HTTP port that this server will use for communications with other HPCA (Core and Satellite) servers, as well as HPCA agents. All unicast data downloads are handled on this port.
- **UDP 3466**: This port is needed only when the HPCA OS Manager is enabled on a Satellite (by default, it is disabled). It is used by the low-level PXE BootLoader to determine whether a device should be provisioned or re-provisioned.
- **UDP 9100**: This is the default port of the HPCA Multicast Server.
- **TCP 443** (SSL): This port is used for "secure HTTP" (**HTTPS**) communications.

- **TCP 444** (SSL): This port is used for "secure TCP" (**TCPS**) communications when the HPCA Configuration Server is enabled.

  This port must be available on all Core server host machines.

  This port must be available on all machines that host a full-service Satellite server.

Out of Band Management Ports

If you will be using Out of Band Management, the following additional ports must be available to allow for inbound and outbound traffic.

For OOB Management Console-to-vPro Device Communications

- **162**: For alert management. Note that port 162 is a standard SNMP port this will conflict if you are already running an SNMP receiver on the HPCA Core server.
- **9999**: The default starting port for communication between the SOL display applet and the server's web application. This is configurable using the **`ovconfchg`** command.
- **16692**: For web service traffic over TCP.
- **16693**: For web service traffic over TLS (with client authentication).
- **16694**: For SOL/IDE-R over TCP.
- **16695**: For SOL/IDE-R over TLS (with client authentication).

For Browser-to-Server Communications

- **9999**: For applet-to-server socket communications for SOL. This port must also be available on the client browser system as well.

For OOB Management Console-to-Local Agent Communications

- **9998**: For communications between the OOB Management Console and the local agent during Remote Configuration of vPro devices.

For OOB Management Console with DASH Devices

- **623**: For communications with DASH devices.

VMware Requirements

If installing HPCA to a VMware environment with a Windows XP Professional host operating system, the installation might hang. Disabling **Acceleration** in the VMware **Advanced Options** should allow the installation to continue. **Acceleration** can then be re-enabled after the installation completes.

HPCA installed to a VMware environment should be used for testing or evaluation purposes, only.

If you are installing HPCA to a WMware environment, the following requirements must be met.

- VMware, minimum version 6.02
- 2 GB Memory allocated
- 8 GB HDD space allocated (additional space might be required for migration)
- Host OS: Windows 2000 Server or Windows 2003 Server
- Guest OS: Windows 2000 Server or Windows 2003 Server
- Host system: dual processors (minimum 2 GHz CPU) so that VMware can set affinity to 1, if needed.
- See the System Requirements on page 20 for additional HPCA server requirements.

The HPCA Agent

The HPCA agent is the client machine-based HPCA component that gets installed on end-user machines. This component has several sub-features that enhance its capabilities. The HPCA agent can be deployed to end-user machines from the Core Console, as well as being manually installed on these machines.

Create the HPCA Database

Prior to installing the Core, you must create an ODBC-compliant database (either **Microsoft SQL Server** or **Oracle**) to be used by HPCA.

If you do not know how to create an ODBC-compliant database, contact your database administrator.

The following sections provide information on the pre-requisites and procedures for creating Microsoft SQL Server and Oracle databases.

- Create a SQL Server Database for the HPCA Core on page 27
- Create an Oracle Database for the HPCA Core on page 28

You must also define an ODBC DSN for each of these databases.

If you do not know how to create an ODBC DSN, contact your database administrator.

HPCA Patch Manager

If the HPCA Patch Manager is going to be enabled, you can, optionally, create an additional Patch Manager-specific database in which to store Patch Manager data.

HP recommends creating this additional Patch Manager-specific database in order to keep Patch Manager data separate from device, inventory, and application information. This can be done using the Configuration > Patch Management section of the Console.

- **MDAC Requirement**: Patch management requires that the **Microsoft Data Access Components** (**MDAC**) be installed on the Core server. The minimum required version is 2.8.

  The media for this (`MDAC_TYP.EXE`) is available in the `Microsoft` folder of the `Setup-Core` directory.

Create a SQL Server Database for the HPCA Core

Follow the instructions in this section to create a Microsoft SQL Server database for the reporting objects for the Core server. If you do not have security rights to create the database, contact your SQL database administrator.

SQL Server Database Prerequisites and Notes

- Microsoft SQL Server 2005 or Microsoft SQL Server 2008 must be locally installed or remotely accessible from the HPCA server.

  SQL Server Personal Edition is not recommended as a supporting database; it's use should be restricted to testing and demonstration only.

- SQL Server must be configured to use **mixed-mode authentication** and must have TCP/IP support enabled.

- **Windows 64-bit ODBC DSNs Require 32-bit Drivers**: HP Client Automation components that are running on Windows 64-bit operating systems run in **32-bit emulation mode**. So, when using ODBC drivers on a Windows 64-bit operating system, create the ODBC System DSN for the database using 32-bit drivers.

  On a 64-bit operating system, access the 32-bit ODBC Data Source Administrator by running `C:\Windows\SysWOW64\odbcad32.exe` to create or modify the System DSNs that are required by HPCA products.

- The "storage" sizes that are documented in this section are recommendations only. Customize these values based on the number of managed devices in your environment and the type of information that will be collected.

SQL Server Communications with HPCA

- If SQL Server is installed on a server other than that which houses the HPCA server, firewall rules might need to be added in order to enable communications between them. Refer to the Microsoft KnowledgeBase article **841251** at **http://support.microsoft.com/kb** for information on opening required ports for SQL Server.

- SQL Server must be configured to use static ports. For information on how to use static ports, refer to your SQL Server documentation.

To create a SQL Server database for the HPCA Core

If you do not know how to create a SQL Server database, contact your database administrator.

If you do not know how to create an ODBC DSN, contact your database administrator.

1 On the Microsoft SQL Server, create a database with the following recommended settings.

General tab	Name: a name of your choice, no blanks or underscores (for example, **HPCACORE**)
Data Files tab	Initial Size: 500 MB Select Autogrow by 20%
Transaction Log tab	Change initial size: 100 MB

2 Use SQL Server Authentication.

3 Change the default database to the database name that you used in step 1

The SQL Server name, admin user ID, and password are required during HPCA installation.

4 On the computer that will host the Core server, create an ODBC System DSN with a name of your choice (for example, **HPCAODBC**) and point it to the new Core database on the SQL Server.

The database is now attached and you can proceed with the installation of the HPCA server. It is documented in HPCA Server Installation on page 34.

Create an Oracle Database for the HPCA Core

Follow the instructions in this section to create an Oracle database for the reporting objects for the Core server. If you do not have security rights to create the database, contact your Oracle database administrator.

Oracle database support is limited to the Enterprise edition of HPCA.

Oracle Database Prerequisites and Notes

- HP recommends using the latest available patch set when using an Oracle database.
- You must use the Oracle Corporation's ODBC drivers that are specific to the Oracle version in your environment—not those that are supplied by Microsoft.
- Make sure that your Oracle server ODBC driver versions exactly match your Core server; the connection to an Oracle database can fail if ODBC driver versions are mismatched.

  For more information, contact your Oracle database administrator.
- The "storage" sizes that are documented in this section are recommendations only. Customize these values based on the number of managed devices in your environment and the type of information that will be collected.
- **Windows 64-bit ODBC DSNs Require 32-bit Drivers**: HP Client Automation components that are running on Windows 64-bit operating systems run in **32-bit emulation mode**. So, when using ODBC drivers on a Windows 64-bit operating system, create the ODBC System DSN for the database using 32-bit drivers.

  On a Windows 64-bit operating system, access the 32-bit ODBC Data Source Administrator by running `C:\Windows\SysWOW64\odbcad32.exe` to create or modify the System DSNs that are required by HPCA products.

To create an Oracle database for the HPCA Core

If you do not know how to create an Oracle database, contact your database administrator.

If you do not know how to create an ODBC DSN, contact your database administrator.

1 On the Oracle server, create a data tablespace with the following recommended settings.

Tablespace Name	A name of your choice (for example, **HPCACOREDATA**)
Status	Online
Type	Permanent
Datafile	Fully qualified path and name of the data file, such as `HPCACOREDATA.dbf`
Storage	Minimum Size 200 MB and Max size unlimited
Extent Management	Locally managed with automatic allocation
Segment Space Management	Automatic
Logging	No

2 Create a temporary tablespace with the following recommended settings.

Tablespace Name	A name of your choice (for example, **HPCACORETEMP**)
Status	Online
Type	Temporary
Datafile	Fully qualified path and name of the datafile, such as `HPCACORETEMP.dbf`
Storage	Size 1000 MB
Extent Management	Locally managed with automatic allocation
Segment Space Management	Automatic
Logging	No

3 Create a user; associate the data and temporary tablespaces with the user with a default profile.

Username	A name of your choice (for example, **HPCACORE**)
Password	Create one based on your enterprise's security recommendations
Default tablespace	HPCACOREDATA
Temporary tablespace	HPCACORETEMP
Profile	DEFAULT or a PROFILE NAME used for this schema
Roles	CONNECT and RESOURCE
System Privileges	CREATE ANY VIEW SELECT ANY TABLE UNLIMTED TABLESPACE UPDATE ANY TABLE

4 On the computer that will host the Core server, create an ODBC System DSN with a name of your choice (such as, **HPCAODBC**) that is pointing to the new Core database on the Oracle server.

The database is now attached and you can proceed with the installation of the HPCA server. It is documented in HPCA Server Installation on page 34.

Installing the HPCA Server

This section details the installation of the HPCA server via the HPCA Installer. This one basic HPCA server installation is the foundation for three possible product installations (listed below) which are determined by your HP-issued license.

- Starter
- Standard
- Enterprise

Additional Installation Information

This section details some additional information that should be reviewed before conducting the installation.

Installation Restrictions

The Core server cannot be installed on a machine that already hosts an HPCA Satellite server; the Satellite server cannot be installed on a machine that already hosts an HPCA Core server.

If either of these installations are attempted, an error message will result and the installation program will abort.

Directory Paths

HP recommends always specifying the fully qualified domain name when prompted for HPCA server names. This practice will ensure the proper mapping to the servers when “downstream” Satellites and HPCA agents are installed.

Database Setup

Before installing an HPCA server, you must set up your Microsoft SQL Server or Oracle database for the HPCA Core server. See the section, Create a SQL Server Database for the HPCA Core on page 27 or Create an Oracle Database for the HPCA Core on page 28, for database setup instructions.

GUI-based versus Silent Installation

The installation instructions that are presented in this section detail the GUI-based installation. The HPCA server can also be installed in a “silent” mode as detailed in the section, Silent Installation on page 46.

Default Installation Directories

The HPCA Core and Satellite servers' installations create the following directories by default; alternative directories for the server and data files can be selected during the installation.

The directories that are listed in this section are specific to English language-based operating systems. On non-English language-based operating systems, the HPCA server installation will create these directories in the appropriate default locations.

- The Core and Satellite server files are installed to `Hewlett-Packard\HPCA` in the default 32-bit `\Program Files` directory.
- The Core and Satellite server data files are installed to `Hewlett-Packard\HPCA\Data` in the default 32-bit `\Program Files` directory.
- The Core and Satellite server installations each spawn two log files, both of which are placed in the `Local Settings\Temp` directory of the user who ran the installation.
  - The file, `hpca-install.log`, is always created for both installations.
  - A server-specific log file (either `HPCACore_setup.log` or `HPCASatellite_setup.log`) will also be created—regardless of whether the installation was run with the `.msi` or `.exe` file.

Log File Considerations

- If `setup.exe` is used to run the installation, the location can be altered in `setup.ini` (with the `log.filename` entry in the `options` section) prior to the installation.
- If the installation is run in the silent mode via the `.msi` file, the name and location of the log file can be altered by using the **`/l msiexec`** command-line option. See Silent Installation on page 46.

Windows Services

After the Core and Satellite servers are installed, they will be running as Windows services. For additional information, see Windows Services on page 58.

Modifying Installation Files

Files used during the installation can be modified. For example, if newer versions of the files are available from an update, they can be included during the installation using the following procedure.

1. Copy the HPCA installation files to a new location.
2. Create new sub-directories.
   a. To modify installation files, create a new directory called `Updates` in the same directory as the `.msi` file.
   b. To apply additional export decks to the HPCA database after all other standard decks are applied, create a new directory called `Decks`.
3. Add any files you would like to be used during the installation. For example, if you want to run the Core installation with a different `em.war` file, create the following directory path:

   <*source dir*>\Updates\tomcat\webapps\em.war
4. Run the installation. The new files will be used.

HPCA Server Installation

Install the HPCA server to a dedicated server in your environment.

HP recommends always specifying the fully qualified domain name when prompted for HPCA server names. This practice will ensure the proper mapping to the servers when “downstream” Satellites and HPCA agents are installed.

To install the HPCA server

1. Insert the installation media and navigate to the `Setup-Core` directory to access the Core server installation files.

   Navigate to the `Setup-Satellite` directory to access the Satellite server installation files.
2. Double-click **setup.exe**. The HP Client Automation Welcome window opens.
3. Click **Next**. The HP Client Automation Software License Agreement window opens.

4 Select **I accept the license agreement** and click **Next**.

If the license agreement is not accepted, the installation program will terminate.

The HP Client Automation Installation Folder window opens.

5 The Installation Folder field displays the HPCA server files default directory (listed in Default Installation Directories on page 33).

— Accept the default location, or click **Browse** to select a different location.

Click **Next**. The HP Client Automation Data Folder window opens.

6 The Data Folder field displays the HPCA server data files default directory (listed in Default Installation Directories on page 33).

— Accept the default location, or click **Browse** to select a different location.

Click **Next**. The HP Client Automation Host Name window opens.

7 Select a name for this HPCA server and click **Next**. The HP Client Automation Server Ports window opens.

— Accept the default ports, or specify web server and Configuration Server ports.

The default ports cannot be changed in the Standard and Starter editions of HPCA.

— Optionally, select **Modify Windows Firewall to allow communications through these ports** if you want to automatically enable ports 3464 and 3466. For more information, see Mandatory Ports on page 23.

Click **Next**. The HP Client Automation Installation Confirmation window opens.

8 This is your last chance to review the values that were specified during the setup program, and which will be applied to this installation.

— Click **Back** to modify any of these values.

— Click **Next** to proceed.

The standard “transferring files” window will display. Note that the installation program runs a configuration script that can run for as long as 5 minutes.

9 When prompted, click **Finish**. The HP Client Automation server has been installed.

The HPCA Console will automatically open, and the login window will be displayed in your default browser.

10 At the login window, specify the default user name, password, and directory source, and click **Sign In**.

Satellite installations do not prompt for a directory source.

— The default user name is **`admin`** and the password is **`secret`**.

HP recommends changing the default user name and password. This can be done on the Configuration panel of the HPCA Console by selecting **Access Control** -> **Users**, and clicking the **Create New User** icon in the Users area.

— **Zone: HP** is the HPCA internal directory store in which internal users are stored. As additional directory services are added and configured for authentication, they will appear in this dropdown.

The value of Directory Source cannot be changed in the Starter and Standard editions of HPCA.

11 Click **Next** to begin the wizard.

The **First Time Setup Wizard** prompts you for initial configuration settings for your HPCA environment. As you work in HPCA, you can adjust these settings in the various panels of the HPCA Console.

Specify the fully qualified domain name when prompted for HPCA server names. This practice will ensure the proper mapping to the servers when “downstream” Satellites and HPCA agents are installed.

12 Copy and paste the contents of your HP-issued, product-specific license file into the License Data box; click **Next** to continue to the Database Source panel.

The HPCA Satellite installation program presents the Upstream Server window. The Upstream Host field accepts textual hostnames and IP addresses (in the standard IP-address format). Specify a valid upstream host, and click **Next** to continue to the License window, which should be populated with license information from the Satellite's upstream server.

13 Select whether to use an existing ODBC-database connection or create a new one. Click Next to continue to the Database Settings panel.

The second option, **Create and configure a new database**, is applicable to SQL Server database users only. Oracle users must use an existing ODBC-database connection.

14 Configure the database settings by specifying the appropriate values in the various mandatory fields; click **Next** to continue to the Services panel.

15 Select the HPCA services that this HPCA server will provide.

The services that are presented in this window are recommended for HPCA environments but they do not have to be enabled here. They can subsequently be enabled on the Configuration panel of the HPCA Console.

16 Click **Next**. The configuration selections are saved.

17 Click **Finish**.

For more information on configuring these services in the HPCA Console, refer to Chapter 7, Configuration, in the *HPCA Core and Satellite User Guide*.

HPCA Documentation

The HP Client Automation documentation that is available on the media is also installed during the Core installation. These documents are available as PDFs and can be accessed on the Core server using the Windows **Start** menu, the shortcut link on the desktop, and by using a browser from any device with access to the Core server machine at **`http://HPCA_Host:3466/docs`**, where *`HPCA_Host`* is the name of the server on which HPCA is installed.

Unattended Configuration of HPCA Satellite Servers

Satellite servers are available with the Enterprise license only.

The “unattended” configuration feature enables an HPCA administrator to capture configuration settings from a Satellite server installation and apply them to subsequent Satellite server installations. This enables an HPCA administrator to:

- Replicate configuration settings to multiple Satellite servers, rather than having to specify identical settings multiple times for multiple Satellites.
- Make minor changes that are targeted at specific Satellite servers without the changes affecting all Satellite installations.

Features of an Unattended Configuration

The unattended Satellite server configuration is done in an XML file, and it enables an administrator to specify various settings that will be applied to the server as part of its installation. With the XML file, an HPCA administrator can:

- Enable and disable HPCA services on the Satellite
- Configure LDAP settings for HPCA Policy Servers
- Configure upstream host and port settings
- Configure SSL server settings
- Increase the speed of installations

The XML File

The settings for the unattended configuration of Satellite server installations are contained in a pre-configured XML file, `unattended.xml`. In order to take advantage of this feature, you must:

1. Obtain the XML File
2. Customize the XML File
3. Apply the XML File

A sample of the XML file is presented in the section, Sample Configuration XML File on page 41.

Obtain the XML File

The XML file is not included on the HPCA media. It must be downloaded from a Satellite server after it has been installed. This section details how to obtain the XML file.

An alternative to the “obtain” method that is detailed in this section is to run a command that will get and set the configuration settings. This is documented in Command Line to GET and SET Configuration Settings on page 41.

This method prevents any customizations to the settings in the file. It automatically retrieves all of the configuration settings in the file, and automatically applies them to the Satellite as part of its installation.

To obtain the XML file from the HPCA server

1. Install the HPCA Satellite server (see HPCA Server Installation on page 34).
2. Complete the **First Time Setup Wizard** (see step 11 on page 36).
3. Open an internet browser and in the Address field, specify:
   - If you are on an HPCA server: **`localhost:3466/sm/config`**

   Use your preferred download utility, such as Wget, to download the XML file. This provides a write-accessible XML output of the configuration for the current Satellite, which can be copied and customized as needed.

The configuration file, `unattended.xml`, can be used to set configuration parameters for future Satellite server installations.

If you use an unattended configuration file for Satellite installations, you can bypass the First Time Setup Wizard because the settings for which it prompts are already specified in the configuration file.

This ability, however, must be set in the configuration file with the `servermanager` service name. For an example, see Sample Configuration XML File on page 41.

Customize the XML File

The XML file can be copied and customized in order to specify varying configuration parameters for the Satellites in your environment. For example, you can create multiple copies of the XML file (with individual, identifying names) that can be used for different Satellite installations.

To customize the XML file for the Satellite installation

1. Do a standard copy-paste action on `unattended.xml`.
2. Rename the copied file.
3. Open the copied file and customize the various configuration settings that are to be applied to subsequent Satellite installations.
4. Save and close the file.

Be sure to reference the correct `.xml` file (with the `UNATTENDEDFILE` property in `setup.ini`) when the Satellite installation is run. See the following section, Apply the XML File.

Apply the XML File

A customized XML file can be referenced in order to have specific configuration options applied to the Satellite installation.

To apply the XML file to the Satellite installation

1. Open `setup.ini`.
2. Locate the `UNATTENDEDFILE` property.
3. Specify the name of the `.xml` file that contains the configuration parameters for the Satellite server.

   If the `.xml` file is not in the same directory as `setup.exe`, specify the fully qualified path and file name.

4. Save and close the file.
5. Run `setup.exe` to trigger the installation.

   The installation will read `setup.ini` and, as a result, read in the settings from the configuration `.xml` file. It will apply the *upstream server* and *HPCA services* settings that were pre-configured for this Satellite.

Activity Log

After running the Satellite installation via the method that is described in this section, the `config.log` file in `Console\logs` can be used to troubleshoot any unexpected issues.

Command Line to GET and SET Configuration Settings

Use the following TCL command if you want to automatically retrieve and apply the settings that are in the XML file.

This is a hands-off, “retrieve-and-apply” action; the configuration settings cannot be customized.

If you want to customize the settings, you must use the three-step (obtain-customize-apply) procedure that is documented in The XML File on page 38.

```
exec ./nvdkit.exe "C:/Program Files/Hewlett-Packard/HPCA/
ApacheServer/apps/console/sm.kit/bin/config.tcl"
%XMLFILEPATH%
```

The XML input (**%***XMLFILEPATH***%**, in the above-listed command) is optional; it can be omitted for a GET request of the server configuration.

However, it is necessary to include this parameter if you want to also SET the server configuration.

Sample Configuration XML File

The following is a sample of the configuration XML file that you can get from the Satellite server. This sample configuration (or a subset of it) can be used specify the configuration settings of Satellite servers. Following the sample file, Table 1 on page 45 describes the file’s settings.

Sample Contents of Configuration XML File

```
<?xml version="1.0" encoding="UTF-8" ?>
<ServerManager>
  <configuration>
    <upstream>
     <server>upstream.local</server>
     <port>3466</port>
```

```
 <ssl>false</ssl>
</upstream>
<ssl>
 <enable>true</enable>
 <certificates>
  <server>-----BEGIN CERTIFICATE-----
  MIIC8DCCAlmgAwIBAgIBADANBgkqhkiG9w0BAQUFADBfMQswCQYDVQQGEw
  JVUzELMAkGA1UECBMCTkoxEDAOBgNVBAcTB1BhcmFtdXMxCzAJBgNVBAoT
  AkhQMQswCQYDVQQLEwJDQTEXMBUGA1UEAxMOZ2FsdmF0cm9udmlzdGEwHh
  cNMDgwODA4MTk0MTUzWhcNMzUxMjI0MTk0MTUzWjBfMQswCQYDVQQGEwJV
  UzELMAkGA1UECBMCTkoxEDAOBgNVBAcTB1BhcmFtdXMxCzAJBgNVBAoTAk
  hQMQswCQYDVQQLEwJDQTEXMBUGA1UEAxMOZ2FsdmF0cm9udmlzdGEwgZ8w
  DQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAL9rzRQu6GUH8qCm7xDzCzOiD0
  t2SfyoOU0ecpqtYULNjmYJVH99URaIVA92tpB5OQjuvzQi7A4FB2bLs+Eh
  YyGiKbIJCXzT8EvErS01aZEEdlXPUBHDbXda3mQgWskRyoRVJctLlo8eVS
  phX96uej4aI6/88Gpk0IriexcJCgrJAgMBAAGjgbswgbgwDAYDVR0TBAUw
  AwEB/zAdBgNVHQ4EFgQUe+EwtBZfpTl5GvYpfvW+mMxq9HcwgYgGA1UdIw
  SBgDB+gBR74TC0Fl+lOXka9il+9b6YzGr0d6FjpGEwXzELMAkGA1UEBhMC
  VVMxCzAJBgNVBAgTAk5KMRAwDgYDVQQHEwdQYXJhbXVzMQswCQYDVQQKEw
  JIUDELMAkGA1UECxMCQ0ExFzAVBgNVBAMTDmdhbHZhdHJvbnZpc3RhggEA
  MA0GCSqGSIb3DQEBBQUAA4GBAAlH2cIreSrAgLjNJqh90ITlp5DFJuEILv
  1RiCpEC3FpKWhZSf7mbHLpOOK8d1sAqV7NSe8Peg+tDEtncimzS7UCUrtm
  n4fwPeb9zIO9h6H8rsxM6J0hHSTYAhqFZQTpdskGXhyHZVNoRNR1pacSGQ
  I6/KPd825GnOx4CEv4K2mm
  -----END CERTIFICATE-----</server>
  <private>-----BEGIN RSA PRIVATE KEY-----
  MIICWwIBAAKBgQC/a80ULuhlB/Kgpu8Q8wszog9Ldkn8qDlNHnKarWFCzY
  5mCVR/fVEWiFQPdraQeTkI7r80IuwOBQdmy7PhIWMhoimyCQl80/BLxK0t
  NWmRBHZVz1ARw213Wt5kIFrJEcqEVSXLS5aPHlUqYV/erno+GiOv/PK0tB
  qZNCK4nsXCQoKyQIDAQABAoGADMFTLggeJjVMXpYhEgEP+wXOfRnJvlM7V
  j80Jcht1bS6y2PNxJ0GHTlCWLFxYtkhCs5V4VR+ZETDhH8IYnUGFOcUc+e
  c2PtMR/9IeMuO1usfGjAj4xg4Dun3StagzjefKbuDaYwaCneFLEYwqA/C1
  1ssY3ziiToqNDWQ9t9hh/ECQQDt1xm7NglZAotPdbgIq3jAjLm3OdDPWcD
  Goy9xKgGZRQkpLDaOoeqaw0JV2Dg0UW1b2v7htB2LqX9Ee59Afio9AkEAz
  glgqxt2SRXF4Ghm7ZHsxTr1TUCQjiATFRG2mB1Tbw+hlntOib6ecWscbm2
  qjmO5HjQisuNOY9Ne34bMlqLHfQJAMBFB3QkduISAHS4AZJgrDlcijXo8z
  jsob7y5MNi5e/1szYpm+EqW/HIr7OeG7GPsgxzuWDUrp3c5BmEpnUIiTQJ
  Aevuv/xKqXV+ouJW48o/LA8N4jr8+SgetPENReaTvm3h6HIfHzoLAsrSby
  PKe/tVZt0SpfZweu4l8tPIShsvtRQJANQXhHf3ci8WXLwHrFnOioaSvjjc
  nH6/wMUiUkcIZgN9Gu+1z5wKR6cxOCHhxSCfaho7WZF3bq55jc59VU/2hm
  w==
  -----END RSA PRIVATE KEY-----</private>
```

```
  <cacertificates>-----BEGIN CERTIFICATE-----
  MIIC8DCCAlmgAwIBAgIBADANBgkqhkiG9w0BAQUFADBfMQswCQYDVQQGEw
  JVUzELMAkGA1UECBMCTkoxEDAOBgNVBAcTB1BhcmFtdXMxCzAJBgNVBAoT
  AkhQMQswCQYDVQQLEwJDQTEXMBUGA1UEAxMOZ2FsdmF0cm9udmlzdGEwHh
  cNMDgwODA4MTk0MTUzWhcNMzUxMjI0MTk0MTUzWjBfMQswCQYDVQQGEwJV
  UzELMAkGA1UECBMCTkoxEDAOBgNVBAcTB1BhcmFtdXMxCzAJBgNVBAoTAk
  hQMQswCQYDVQQLEwJDQTEXMBUGA1UEAxMOZ2FsdmF0cm9udmlzdGEwgZ8w
  DQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAL9rzRQu6GUH8qCm7xDzCzOiD0
  t2SfyoOU0ecpqtYULNjmYJVH99URaIVA92tpB5OQjuvzQi7A4FB2bLs+Eh
  YyGiKbIJCXzT8EvErS01aZEEdlXPUBHDbXda3mQgWskRyoRVJctLlo8eVS
  phX96uej4aI6/88Gpk0IriexcJCgrJAgMBAAGjgbswgbgwDAYDVR0TBAUw
  AwEB/zAdBgNVHQ4EFgQUe+EwtBZfpTl5GvYpfvW+mMxq9HcwgYgGA1UdIw
  SBgDB+gBR74TC0Fl+lOXka9il+9b6YzGr0d6FjpGEwXzELMAkGA1UEBhMC
  VVMxCzAJBgNVBAgTAk5KMRAwDgYDVQQHEwdQYXJhbXVzMQswCQYDVQQKEw
  JIUDELMAkGA1UECxMCQ0ExFzAVBgNVBAMTDmdhbHZhdHJvbnZpc3RhggEA
  MA0GCSqGSIb3DQEBBQUAA4GBAAlH2cIreSrAgLjNJqh90ITlp5DFJuEILv
  1RiCpEC3FpKWhZSf7mbHLpOOK8d1sAqV7NSe8Peg+tDEtncimzS7UCUrtm
  n4fwPeb9zIO9h6H8rsxM6J0hHSTYAhqFZQTpdskGXhyHZVNoRNR1pacSGQ
  I6/KPd825GnOx4CEv4K2mm
  -----END CERTIFICATE-----</cacertificates>
 </certificates>
</ssl>
<license>
 <data>[MGR_LICENSE] ...</data>
</license>
<services>
 <service name="multicast">
   <enable>false</enable>
 </service>
 <service name="cs">
   <enable>true</enable>
 </service>
 <service name="osm">
   <enable>false</enable>
 </service>
 <service name="mms">
   <enable>false</enable>
 </service>
 <service name="tftp">
   <enable>false</enable>
 </service>
 <service name="pxe">
```

```
        <enable>false</enable>
      </service>
      <service name="cache">
        <enable>true</enable>
      </service>
      <service name="policy">
        <enable>false</enable>
          <database>
           <type>ldap</type>
           <server>hp.local</server>
           <port>389</port>
           <user>Administrator@hp.local</user>
           <password>{AES256}3gMlspmbrGbqVXNPDx8tWg==</password>
           <config>
            <attr name="basedn">dc=hp,dc=local</attr>
           </config>
          </database>
      </service>
      <service name="servermanager">
        <config>
          <attr name="already.configured">1</attr>
        </config>
      </service>
    </services>
  </configuration>
</ServerManager>
```

Table 1 on page 45 describes the settings of the XML Satellite-configuration file.

Table 1 XML File Settings

Setting	Description
`attr name`	The parameter with which to specify any additional configuration settings that do not apply to other areas of this XML file.
`certificates`	Indicates the area in which this Satellite server's SSL certificates information (server, private, and cacertificate) is listed. For more information on the various types of certificates and their function, refer to the *HP Client Automation SSL Implementation Guide*.
`config`	Indicates the start of a generic container area in which to specify configuration settings that are not covered by a parent type.
`configuration`	The start of the customizable configuration settings.
`data`	The license string text as read in from the HPCA Configuration Server `edmprof` file.
`database`	Indicates the start of the area in which to specify database settings.
`enable`	The on-off switch for the feature or HPCA service under which it is listed. Valid values are **`true`** and **`false`**.
`license`	Indicates the start of the area in which to specify HPCA product license settings.
`password`	The password that is associated with the user ID (**`user`** tag) that it follows.
`port`	The port on which this Satellite will communicate with its upstream HPCA server.
`server`	This Satellite's upstream HPCA server on which the HPCA database resides.

Table 1 XML File Settings

Setting	Description
`service name`	The name of an HPCA service. Note: Use the `servermanager` service with an `attr name` of **`already.configured`** and a value of **`1`** to bypass the First Time Setup Wizard in unattended Satellite installations.
`services`	Indicates the start of the area in which to specify and enable/disable additional HPCA services.
`ssl`	The on-off switch for SSL-based communications with this Satellite's upstream HPCA server. Valid values are **`true`** and **`false`**. Also, the start of the area in which SSL configuration options are set.
`type`	The type of database. Valid values are **`sql`** and **`ldap`**.
`upstream`	Indicates the start of the area in which to specify configuration settings for this Satellite's upstream server that houses an HPCA database.
`user`	The name of the user that has access to the server.

Silent Installation

This section details the silent installation of the HPCA server, including the Syntax on page 46, and an Example on page 48.

Syntax

The syntax for the Core silent installation is:

```
msiexec.exe /I "fully qualified path to Core MSI file" /
lv* "fully qualified path to installation log repository"
LICENSEFILE="" INSTALLDIR="" DATADIR="" /qn
```

The syntax for the Satellite silent installation is:

```
msiexec.exe /I "fully qualified path to Satellite MSI
file" /lv* "fully qualified path to installation log
repository" LICENSEFILE="" INSTALLDIR="" DATADIR=""
UPSTREAMHOST="" UPSTREAMPORT="" /qn
```

Syntax Notes

- The keywords and values for this syntax are case-sensitive.

  Be sure to specify the keywords in UPPERCASE (as shown), and the values in the appropriate case.

- The directory paths to the Core and Satellite installation media and the installation log repository must be fully qualified.

  If there are any spaces in the directory path, the entire path must be enclosed in quotation marks.

- If a non-existent installation-log directory path is specified, the installation will fail.

- The **qn** in the syntax is the instruction for a silent installation.

  To initiate the GUI installation from a command line, replace **qn** with **qb** in the syntax.

Syntax Parameters Descriptions

The silent installation syntax parameters are described below.

- **LICENSEFILE**: To ensure the correct operation of the Core, provide the fully qualified path to your HP-issued license.nvd file.
- **INSTALLDIR** (optional): By default, the Core will be installed to `C:\Program Files\Hewlett-Packard\HPCA`; an alternate installation directory can be specified.

- **DATADIR** (optional): By default, the Core's data files (proxy cache and HPCA Configuration Server Database) will be installed to `C:\Documents and Settings\All Users\Application Data\Hewlett-Packard\HPCA\Data`; an alternate directory can be specified.

  The data cache directory can become quite large so, by default, it differs from the installation directory.

  To use the same directory as the code, specify identical values for **INSTALLDIR** and **DATADIR**.

- **UPSTREAMHOST** (Satellite installation only): Specify either the hostname or IP address of the upstream Core server (or Satellite) from which this Satellite will receive its data. For example, **coreserver.domain.com**.
- **UPSTREAMPORT** (optional, Satellite installation only): By default, this Satellite server will listen on port 3466 for communications with its upstream host; an alternate port can be specified.

Example

The following is a valid, sample silent-installation command for a Core server.

```
msiexec.exe /i "Setup-Core\HPCACore.msi" /lv* "C:\Program
Files\Hewlett-Packard\HPCA\install.log" LICENSEFILE="
c:\license.nvd" DATADIR="C:\Program Files\Hewlett-
Packard\HPCA\Data" /qn
```

Notice that **INSTALLDIR** was not specified; its default value will be used.

The path to the Satellite server installation (MSI) file is **Setup-Satellite\HPCASatellite.msi**.

Results

The silent installation command that is presented in the Example section will install:

- The Core server to the default location, `C:\Program Files\Hewlett-Packard\HPCA`.
- The data files to `C:\Program Files\Hewlett-Packard\HPCA\Data`.
- The installation log to `C:\Program Files\Hewlett-Packard\HPCA`.

Setup.exe File

The Core and Satellite servers can also be silently installed by using the `setup.exe` file. This file can be customized, then run, as described in this section.

To run the installation with the setup.exe file

1. Copy all of the HPCA installation files from the HPCA media to your hard drive.
2. Open, edit, and save the `setup.ini` file.
3. Run `setup.exe`.

Removing HPCA

Use the HPCA installation program to remove HPCA from your server.

If you use the Windows Control Panel applet **Add/Remove Programs** to remove HPCA, some files and folders (for example, the directory `C:\Novadigm` and any files that were added or changed since the initial installation) will be left on the server and will have to be manually removed.

To remove HPCA

1. On the HPCA media, double-click **HPCACore.msi**.
2. Select **Remove the HP Client Automation Core from this computer** and click **Next**.

   If you are removing a Satellite server, the references to "Core" in steps 1 and 2 will be replaced with "Satellite."

3. At the Removal Confirmation message click **Next**.

HPCA is removed from your server.

Repairing HPCA

Use the HPCA installation program to repair HPCA on your server.

To repair HPCA

1 On the HPCA media, double-click **HPCACore.msi**.

2 Select **Repair the HP Client Automation Core files, registry values, and shortcuts on this computer** and click **Next**.

> If you are repairing a Satellite server, the references to "Core" in steps 1 and 2 will be replaced with "Satellite."

3 At the Repair Confirmation message click **Next**.

HPCA is repaired on your server.

Configuring Satellites for Data Cache Preload

> Satellite servers are available with the Enterprise license only.

The Satellites in your environment, by default, are assigned an identity of `RPS_satellite_hostname`. This allows an administrator to establish a Core server database entitlement policy that defines the data resources that are to be distributed (**preloaded**) to the Satellite. A preload is triggered whenever the Satellite is synchronized with its upstream host.

A Satellite's preload entitlement policy defines:

- The data resources that are to be loaded into the Satellite's cache location when the synchronization runs.
- The location from which the resources should be distributed. (By default, this is the upstream host server.)

Use the Core CSDB to create a Satellite cache desired-state policy entitlement for each Satellite that is to be preloaded. This can be done before or after the Satellites are installed and configured.

The section that follows, Satellite Identity on page 51, details how to change a Satellite server's identity. This information will be useful in the subsequent section, Creating the Entitlement Policy for a Data Cache Preload on page 52.

After Satellites are installed and configured, you can create synchronization jobs to schedule the synchronization of data, configuration, or both. Refer to the chapter, *Managing the Enterprise* in the *HP Client Automation Enterprise User Guide* or the HPCA Console help, for details.

Satellite Identity

All Satellites are installed with the same default identity of `RPS_satellite_hostname`. The identity of `RPS_satellite_hostname` can be customized to accommodate different naming conventions.

To customize a Satellite's identity

1. Stop the Satellite service (`HPCA Satellite`) or the `HPCA Apache Server` service. This disables the Satellite Console and ensures that no modifications can be made at the Console while the configuration file is being modified.
2. Navigate to `InstallDir\ApacheServer\apps\proxy\etc`, and use a text editor to open the Satellite server's configuration file, `proxy.cfg`.
3. Locate the line:

   ```
   <cms-identity>RPS_satellite_hostname</cms-identity>
   ```

4. Change the value of `RPS_satellite_hostname` to an identity of your choice, as in:

   ```
   <cms-identity>RPS_PARISSAT3_EN</cms-identity>
   ```

   IMPORTANT NOTE

   Do not use a period (dot) in the identify value; it is a restricted character in the CSDB. Use only those characters that are valid for creating instance names in the CSDB.

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

5. Save the changes and close `proxy.cfg`.
6. Restart the HPCA service that was stopped in step 1. This will ensure that the changes take effect.

Follow Up

Add this new Satellite identity to the POLICY.USER Domain in the Core server's CSDB. Now you can entitle (directly or indirectly) the new POLICY.USER Instance to applications, as discussed in the section that follows.

This is also detailed in the Implementing Entitlement Policy chapter of the *Application Manager and Application Self-service Manager Guide*.

Creating the Entitlement Policy for a Data Cache Preload

The tasks that are detailed in this section are performed on the Core server and require a basic understanding of the HPCA Admin CSDB Editor, which can be accessed:

- From the **Start** menu, by selecting **Programs** > **HP Client Automation Administrator** > **Client Automation Administrator CSDB Editor**.

  In the tree-view (left panel), double-click the tier-structure icons to access the structure below them.

The HPCA Admin CSDB Editor tasks in this section are:

- To create the entitlement policy for the preload of the data cache
- To configure a WORKGROUP Instance to preload all database applications
- To connect a POLICY.USER RPS Instance to a POLICY.WORKGROUP Instance

For special considerations related to preloading Windows Installation applications on a Satellite, refer to the Preloading Windows Installation Applications topic in the *HP Client Automation Proxy Server Installation and Configuration Guide* (*Proxy Server Guide*).

To create the entitlement policy for the preload of the data cache

It is recommended that you review the information in the preceding section, Satellite Identity, before continuing with the procedures in this section.

This task requires a basic understanding of how to create an entitlement policy. This is covered in the Implementing Entitlement Policy chapter of the Application Manager and Application Self-service Manager Guide.

1 Open the HPCA Admin CSDB Editor and create a PRIMARY.POLICY.USER Instance that matches the identity of the Satellites.

   All Satellites have the default identity of `RPS_satellite_hostname`. This can be customized (as described in the previous section, Satellite Identity on page 51) to in order to accommodate different entitlement policies.

2 Connect the POLICY.USER Instance to the set of applications that are to be preloaded to the Satellite's data cache.

   If necessary, refer to the Implementing Entitlement Policy chapter of the *Application Manager and Application Self-service Manager Guide*.

If multiple Satellites require that the same set of applications be preloaded, a "workgroup" instance that contains all of the applications can be created. This is detailed next in To configure a WORKGROUP Instance to preload all database applications.

To configure a WORKGROUP Instance to preload all database applications

This example uses a POLICY.WORKGRP Instance to preload the Satellite with all available applications. Your preload WORKGRP Instance should specify the set of applications that are normally required by the HPCA agents that are assigned to that Satellite.

1 Open the HPCA Admin CSDB Editor and create a new WORKGRP instance in the PRIMARY.POLICY domain.

   a Right-click **WORKGRP** and select **New Instance** from the pop-up menu.

   The Create Instance dialog box appears. The display name defaults to the instance name if left blank.

   b In the Instance Name field type a name such as **HPCA_SAT_PRELOAD_APPS**, and click **OK**.

The HPCA_ prefix of this instance is now displayed in the tree view and the full name of the instance is displayed in the list view.

2 Edit the instance to manually add an _ALWAYS_ Offers field value to preload all applications onto the Satellite server:

   a Click the **Workgroups (WORKGRP)** Class in the tree view.

   b Double-click **HPCA_Sat_Preload_Apps** in the list view.

   c Double-click the top _ALWAYS_ attribute in the list view.

   d In the Edit Instance dialog box, type the following Offers value:

   `SOFTWARE.ZSERVICE.*`

   e Click **OK**.

3 Connect the PRIMARY.POLICY.USER Instance for the Satellite servers to this PRIMARY.POLICY.WORKGRP Instance, as described in the next section, To connect a POLICY.USER RPS Instance to a POLICY.WORKGROUP Instance.

Refer to the Implementing Entitlement Policy chapter of the *Application Manager and Application Self-service Manager Guide* for comprehensive information on assigning users to groups.

To connect a POLICY.USER RPS Instance to a POLICY.WORKGROUP Instance

1 Open the HPCA Admin CSDB Editor and navigate to the PRIMARY.POLICY.USER Class.

2 Double-click **USER** to view the class instances.

3 Right-click on the **RPS**_*satellite_hostname* USER Instance that is to be connected to the WORKGRP Instance and from the pop-menu, click Show Connections.

4 In the POLICY.CONNECTIONS dialog box, double-click the **Workgroups** listing.

HPCA_Sat_Preload_Apps should be in the CSDB Editor list view of all Workgroup Instances, and the POLICY.USER Class should be open in the tree view.

5 From the list view (right panel), drag the HPCA_Sat_Preload_Apps WORKGRP Instance icon to the selected `RPS_satellite_hostname` USER Instance in the tree view.

Your cursor will change to a paperclip when it is placed on the selected USER.RPS_*satellite_hostname* Instance. The paperclip indicates a valid connection.

6 Complete the connection by "dropping" (release the mouse button) the HPCA_Sat_Preload_Apps icon on the `RPS_satellite_hostname` Instance.

The Select Connection dialog opens, indicating a connection will be made between the selected instances.

7 Click **Copy** on the Select Connection dialog box to complete the _ALWAYS connection.

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

To test the preload, use the Satellite Console synchronization option. The cache size on the Operations page will change after the preload occurs.

Manually Installing the HPCA Administrator

To install the HPCA Administrator on a machine other than that which hosts the Core server, you will need to manually install it. The manual installation can be done by using either of the methods that are described in the sections:

- To install the HPCA Administrator using the installation program on page 55
- To install the HPCA Administrator using the Software Publisher service (Starter and Standard users) on page 56

To install the HPCA Administrator using the installation program

1 On the device on which you want to install the HPCA Administrator, open the HPCA media to the `RadAdmin` directory and double-click **setup.exe** (or the `.msi` file).

The Welcome window opens.

2 Click **Next** to begin the installation. The End-User License Agreement window opens.

3 Read and accept the License Agreement, and click **Next.**

4 Select the installation directory and click **Next**.

5 Enter the IP address or hostname of your HPCA Core server. The default port 3464 should not be changed.

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

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

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

To install the HPCA Administrator using the Software Publisher service (Starter and Standard users)

1 Manage the target device by deploying the Management Agent.

2 Entitle the Software Publisher service to the device. First add the device to a group and assign entitlement.

3 Deploy the Software Publisher service that is available in the HPCA Software Library.

After it is deployed, you can use the Software Publisher service to publish software, HP Softpaqs, BIOS settings, and OS image services.

Using HPCA to Deploy Operating System Images

If you will be using HPCA to capture and deploy Windows operating system images, review the following sections for important deployment information.

Windows Vista OS Images

If you will be using HPCA to capture and deploy Microsoft® Windows® Vista™ operating system images, you will need to copy two utilities to the HPCA server. The two utilities are:

- The **bootsect.exe** utility is a command-line utility that repairs the boot sector of a Windows Vista partition. It can be found on the Windows Vista installation media.
- The **imagex.exe** is a command-line utility that is used to capture, modify, and apply file-based disk images for deployment in a corporate environment. It can be found in the default installation directory of the **Windows Automated Installation Kit** (**WAIK**).

The WAIK is not included in the standard Windows Vista installation; it is available from the Microsoft Download Center, **http://www.microsoft.com/downloads/**.

Copy these utilities to the HPCA server as described below.

a. In `C:\Novadigm\OSManagerServer\OSM\SOS\winpe\` create a new directory, `\utilities\Program Files`.

b. On the Windows Vista media, in `\boot`, locate `bootsect.exe` and copy it to the new directory that you created in step a.

c. In `C:\Program Files\Windows AIK\Tools\x86`, locate `imagex.exe` and copy it to the new directory that you created in step a.

Out of Band Management

If HPCA OOBM is going to be enabled and used, review the following notes.

- If you are uninstalling or upgrading an HPCA server and want to retain the OOBM configuration and data files for later use, you must use the migration scripts for the backup and restore of files.

  For more information on migration and restore, refer to the *HP Client Automation Starter and Standard Migration Guide* that is available on the distribution media under `Docs\migrate`.

- In order for vPro devices to work correctly with HPCA OOBM, you must install and configure the Intel™ AMT **Setup and Configuration Service** (**SCS**).

  — The **SCS** is supported on Windows 2003 Server (32-bit) operating systems only, and can be installed on a machine other than that which houses the HPCA components.

— If the HPCA components are installed on any Windows 2008 Server platform, the **SCS** must be installed on a separate server.

— If you choose to integrate HPCA OOBM features with Active Directory, the Active Directory domain controller must be installed on Windows 2003 Server (32-bit) operating systems.

For additional information, refer to the *HPCA Out of Band Management User Guide* and the most recent Intel™ SCS documentation.

Windows Services

After the installation, the HPCA Core service will be listed in the Windows services as `HPCA Core`; its start mode will be set to "Automatic." As this service is an internal part of the HPCA Core, it should not be stopped while the Core is running.

If the HPCA Satellite server is installed, its service, `HPCA Satellite`, will be listed in the Windows services also; its start mode will be set to "Automatic." As this service is an internal part of the HPCA Satellite, it should not be stopped while the Satellite is running.

In addition to the HPCA services, several sub-services are automatically installed with the HPCA server. These are easily identified in Windows services because they are labeled "HPCA." The start mode for these sub-services is "Manual."

HP recommends using only the Console to stop and start these sub-services because of cross-service dependencies. If the HPCA Core or Satellite service is stopped, the sub-services will automatically stop as well.

3 HPCA Features

At the end of this chapter, you will understand the following HPCA features and components:

HP Client Automation Core

The **HP Client Automation Core** (the **Core**) server is the primary repository of data for an HP Client Automation environment. It is the authoritative source of all configuration information and managed content.

The Core server contains enterprise-console capabilities, content-acquisition subsystems, and security and vulnerability capabilities. It is also the point of integration for third-party systems. The Core provides a central administration point for all of its subservient ("downstream") components, as well as offering reporting information on their configuration and status.

The Core has the following downstream components:

- **Satellite servers (Enterprise license editions)**
  Installed on server machines throughout the environment and communicate with the Core via HTTP. Satellites are subservient to the Core, but assist it in managing the downstream HP Client Automation agents (see HP Client Automation Satellite (Enterprise license) on page 64).
- **Infrastructure Servers (Starter and Standard license editions)**
  Installed on devices throughout the environment to provide data caching services for managed devices.
- **Agent**
  Installed on user devices throughout the environment thereby bringing those devices under the control of the HP Client Automation architecture and allowing their configuration and status to be managed by the Core.

The Core can be directly connected to downstream agents or serve them via a Satellite.

Although the Core can directly serve its downstream HP Client Automation agents, Hewlett-Packard does not recommend this practice, except in very small business environments. HP recommends that you always use at least one Satellite when in the HPCA Enterprise license environment.

The Core in the HP Client Automation Environment

A corporate computing infrastructure can function with either:

- One Core server directly connected to and servicing the agents (not recommended for a large enterprise environment, e.g., with the Enterprise license).
- One Core server connected to multiple downstream Satellite or Infrastructure servers which (acting as intermediaries) service the agents.

The server-to-agent construct should be based on the size and needs of the infrastructure. However, the first scenario (Core directly servicing the agents) is not recommended.

Functions of the Core

On the front-end, the Core hosts the user interface console as part of its relationship with Satellites and agents. The Core's back-end functionality includes interactions with external and third-party systems.

Core Communications

HP Client Automation Cores communicate downstream with either Satellite servers, Infrastructure Servers, or HPCA agents. The types and purposes of these communications are varied and consist of:

- Synchronization of data caches with downstream servers.
- Synchronization of HP Client Automation Configuration Server Databases (CSDBs) with downstream servers.
- Requests for policy resolution.
- Requests for OS device status.
- Informational messages that provide the status of activities among the servers and its agents.

For more detailed information about a Core's required and default ports, see Communications Ports on page 22.

HPCA Core Server Components

The Core server installation program installs all of the HPCA components that are listed below, by default. These components are preconfigured; minimal information is required during or after the installation.

HP recommends not modifying any Core or component configuration other than those specifically documented in this guide.

Components Unique to a Core Server

The following components are unique to a Core server; they are not installed on Satellite servers.

- Enterprise Manager
- Messaging Server
- Patch Manager Server
- Portal
- Reporting Server

Satellite servers are available for Enterprise license editions, only.

HPCA Core Server Components

The following table lists the HPCA components that are automatically installed on a Core server. The main function of each component is also described.

Table 2 HPCA Core components and essential function

Core component	Function
Configuration Server	Configures and maintains desired-state information for your devices.
Configuration Server Database (*authoritative repository*)	Stores the desired-state configuration in a hierarchical structure. The master CSDB on a Core server is the authoritative repository source for replicated CDSBs on Satellite servers.
Distributed Configuration Server (Source)	On a Core server, defines the source for downstream replications of the CSDB to a target Satellite CSDB.
Enterprise Manager	A web-based, agent-management tool that enables you to view the status of your enterprise. You can also manage software, patches, and inventory and administer policy for devices in your environment.
Proxy Server	Use cache management over HTTP (and TCP/IP) to store and dynamically transmit application data.
Messaging Server	Routes and posts data that is reported by HPCA agents to the appropriate reporting database or server (such as Inventory, Portal, Patch Manager, Risk Management, Inventory and Application Management Profile data).
Multicast Server	Simultaneously sends a single data stream to multiple HPCA agents.
OS Manager Server	Provision and manage operating systems on HPCA agent devices.
Patch Manager Server	Acquires, publishes, and deploys (Microsoft) vendors' security patches and bulletins.
Policy Server	Use directory services to implement policy.

Table 2 HPCA Core components and essential function

Core component	Function
Portal	Web-services that are used to deploy agents and manage infrastructure through a web browser, and for OS Manager Administration.
Reporting Server	A web-based reporting tool that accesses data from multiple SQL databases for consolidated reporting. It is used to provide reports for Patch Manager, Inventory Manager, Application Management Profiles, and Risk Management.
Thin Client Server	Manage agents on Windows CE thin clients.

HP Client Automation Satellite (Enterprise license)

The **HP Client Automation Satellite** (the **Satellite**) is available for Enterprise license editions, only, and acts as an access point to the HP Client Automation infrastructure for all HP Client Automation agents. The Satellite is dependent on and subservient to the Core server (see HP Client Automation Core on page 60).

The Satellite is an intermediary between the Core and the agents. In a typical corporate computing environment it is located in "network proximity" to the agents that it serves in order to enhance their performance and minimize the impact on the **Wide Area Network** (**WAN**). There are no restrictions or limitations on how many Satellites can be used; their use is determined by an administrator and should be based on necessity—the size, scope, and topography of the infrastructure.

Satellites synchronize with an upstream Core which enables administrators to devise efficient multi-tiered environments.

The Satellite provides the following services to its agents.

- Agent Maintenance
- Data Delivery
- Service Catalog

- Service Delivery
- Service Reporting

Satellites contain *recoverable* information only. They can, therefore, be rebuilt and recovered at any time by being synchronized with a Core server or an upstream Satellite.

Satellites can be configured as:

- **Full-service Mode**
  in which they are able to provide configuration services (HP Client Automation Configuration Server), in addition to high-volume data-distribution services via unicast and multicast.
- **Streamlined Mode**
  in which they are able to provide the high-volume data services, as well as the OS-configuration services that are required for OS provisioning. They do not provide configuration services; rather they refer agents to an upstream Satellite or Core that is configured to satisfy those requests.

Best Practices Note

HP recommends that HP Client Automation administrators *do not* make changes to the CSDB that is located *on a Satellite server*. (Database changes include HP Client Automation Administrator CSDB Editor administrative functions and publishing.)

A Satellite server's CSDB is a replication of its upstream server's metadata (either a Core or another Satellite) and any database changes at this level will be lost on the next synchronization with that upstream server.

Satellite Communications

Satellites communicate upstream with either Core servers or other Satellite servers. The types and purposes of these communications are varied and consist of:

- Synchronization of data caches.
- Synchronization of CSDBs.
- Requests for policy resolution.
- Requests for OS device status.

- Informational messages that provide the status of activities between the Satellite and its HP Client Automation agents.

For more detailed information about a Satellite's required and default ports, see Communications Ports on page 22.

HPCA Satellite Server Components

The Satellite server installation program installs all of the HPCA components that are listed below, by default. These components are preconfigured; minimal information is required during or after the installation.

HP recommends not modifying any component configuration other than those specifically documented in this guide.

HPCA Satellite Server Components

The following table lists the additional HPCA components that are automatically installed on a Satellite server. The main function of each component is also described.

Table 3 HPCA Satellite components and essential functions

Component	Use
Configuration Server	Configure and maintain the desired state for your enterprise devices and agent computers.
Configuration Server Database (CSDB) (*replicated*)	Stores the desired state configuration in a hierarchical structure. Satellite CDSBs are always replicated from an upstream Core or Satellite server. Note: Do not make changes to the HPCA CSDB that is located on a Satellite server because it is a replication of its upstream server's (on either a Core or another Satellite) and any database changes at this level will be lost on the next synchronization with that upstream server.
Distributed Configuration Server (Source and Destination)	As a target, replicates the Core CSDB to this Satellite's CSDB. As a source, replicates this Satellite's CSDB to a downstream Satellite CSDB.

Table 3 HPCA Satellite components and essential functions

Component	Use
Enterprise Proxy Server	Use cache management over HTTP to store and dynamically transmit application data.
Multicast Server	Simultaneously sends a single data stream to multiple HPCA agents.
OS Manager Server	Provisions and manages operating systems on HPCA agent devices.
Policy Server	Use existing, non-HPCA directory services to implement policy.
Thin Client	Manage agents on Windows CE thin clients.

HPCA Server Communications Ports

This section details the ports that are used by the HPCA Servers for communications with other HPCA products. These ports are only used locally on a machine; an implementation detail that is private to the server.

HPCA Servers have default listening ports that are required for viable communications with other HPCA products, but they can be configured to listen on other ports also, depending on their configuration and function. The default ports on which the servers communicate with other HPCA products are listed in the table, below.

Table entries that have **bold** face applied indicate address-port combinations that are specific to Core servers.

Table 4 HPCA Servers Communications Ports

IP Address and Port	Port Type	HPCA Product
127.0.0.1:3461	TCP	HPCA Messaging Server (`nvdkit-hpca-ms.exe`)
0.0.0.0:3464	TCP	HPCA Configuration Server (ZTOPTASK, `ZTopTask.exe`)
0.0.0.0:3466	TCP	HPCA Apache Server (`httpd.exe`)

IP Address and Port	Port Type	HPCA Product
127.0.0.1:3467	**TCP**	**HPCA Patch Server** (`nvdkit-hpca-patch.exe`)
127.0.0.1:3468	TCP	HPCA Policy Manager (`nvdkit-hpca-pm.exe`)
127.0.0.1:3469	TCP	HPCA OS Manager (`nvdkit-hpca-osm.exe`)
0.0.0.0:3466	UDP	HPCA OS Manager (`nvdkit-hpca-osm.exe`)
127.0.0.1:3470	TCP	HPCA Mobile Messaging Server (`nvdkit-hpca-mms.exe`)
127.0.0.1:3471	**TCP**	**HPCA Portal** (`nvdkit-hpca-rmp.exe`)
127.0.0.1:3472	TCP	HPCA Multicast Server (`nvdkit-hpca-mcast.exe`)
2xx.0.0.0:9100	UDP	HPCA Multicast Server (`nvdkit-hpca-mcast.exe`)
127.0.0.1:3473	TCP	HPCA Distributed Configuration Server (`nvdkit-hpca-dcs.exe`)
127.0.0.1:3474	**TCP**	**HPCA DS** (`slapd.exe`)
127.0.0.1:3476	TCP	HPCA (`hpca.exe`)
127.0.0.1:3477	**TCP**	**HPCA Tomcat** (`tomcat.exe`)
127.0.0.1:3478	**TCP**	**HPCA Tomcat** (`tomcat.exe`)
127.0.0.1:3479	**TCP**	**HPCA Database** (`mysqld-nt.exe`)

HP Client Automation Features

The features available with HP Client Automation vary depending on the license edition you are using: Starter, Standard, and Enterprise.

Table 5 HPCA Comparison of Capabilities by License

HPCA Feature	Starter	Standard	Enterprise
Task-based automation	x	x	
Policy-based, desired-state continuous automation			x
Remotely control devices	x	x	x
Assest information (hardware and software inventory)	x	x	x
HP hardware management	x	x	x
HP hardware alerts	x	x	x
HP Softpaq acquisition and deployment	x	x	x
OS image deployment	thin client only	x	x
User settings migration	x	x	x
Software distribution	thin client only	x	x
Software usage metering		x	x
OS patch management, verification & repair		x	x
HP ProtectTools management (TPM)	x	x	x
Out-of-band Management (Intel vPro(R) and DASH)	x	x	x
Compliance & Vulnerability Scanning and Dashboards			x
HP Live Network (subscription service)			x
Integration with HP Operations Orchestration for Workflow Automation			x
Application Management Profiles			x

Table 5 HPCA Comparison of Capabilities by License

HPCA Feature	Starter	Standard	Enterprise
Scalability	<10,000	<10,000	>100,00
Client OS Platforms supported (desktops, notebooks, blades)	Windows	Windows	Windows, Linux, MacOS
HP Thin Client OS platforms (Windows CE, Windows XPe, HP ThinConnect, HP ThinPro, debian Linux)	x	x	x
Migration path to HPCA Enterprise	x	x	N/A

The following sections describe some of the features available with HPCA and the table that follows provides an overview of which features are available with each license edition.

- **Inventory collection of hardware and software**
  Available for managed HP devices, including BIOS configuration information. The inventory information collected on devices is viewed through a central console. Reporting tools present the data in detailed or graphic views that can be easily filtered to show devices matching specific criteria.
- **Thin client management**You can deploy operating systems and software to HP thin client devices running Windows XPE, CE, and embedded Linux. Thin client devices are client computers that depend primarily on a central server for processing activities. HP provides many thin client device models.
- **Remote content management**
  To better facilitate remote offices, the Standard license provides the ability to deploy infrastructure servers to deliver resources. This allows client devices to get their resources from a more local source instead of pulling resources over slower wide area network connections.
- **Hardware alert reporting**
  Devices managed by the Starter license can be configured centrally to report hardware alerts, such as fan failure or chassis opening, on the client device or to the central console. Using the HP **Client Management Interface** (**CMI**), an administrator can target a system for repairs before other hardware components are affected.

- **Softpaq management**
  The Starter license allows you to automatically acquire applicable Softpaqs for devices in an environment, determine whether or not a device requires a Softpaq to update the BIOS, device drivers, or HP provided applications, and deploy the Softpaqs to the device, all from a central console. The reporting area of the console provides information on which acquired and applicable Softpaqs have or have not yet been applied to a device.
- **BIOS management**
  This feature allows you to apply a password to protect the BIOS, adjust boot order on a device, enable Wake-on-LAN, or adjust other BIOS configuration settings. HP Client Automation can determine current BIOS settings for HP devices in the environment and update the BIOS settings to the desired configuration.
- **ProtectTools management**
  allows you to configure ProtectTools security settings.
- **Remote management**
  Administrators can take control of problem devices with integrated remote control capabilities in the console. Beyond remote control, administrators have additional power management capabilities built into the console, such as the ability to power down or reboot devices, and Wake-On-LAN.
- **Out of Band Management**
  Out of Band Management (OOB Management) is Web-based, remote management that allows you to perform out of band management operations on devices regardless of system power or operating system state. For additional details and usage instructions, refer to the *Out of Band Management User Guide* or the online help included with the HPCA Console.
- **Personality Backup and Restore**
  Back up user files and settings from a source computer and restore them to a destination computer.
- **Inventory collection**
  This feature allows you to collect information about the hardware in your environment.

- **Software deployment**
  Deploy packaged software to managed devices in an environment. Software can be distributed to locally or remotely connected PCs. If a device is on the network, but not powered on when the deployment job is run, it can be powered on as part of the deployment process.
- **OS deployment**
  Deploy supported Windows operating systems to PC client devices. Operating systems can be deployed to bare metal devices (no existing operating system) or to devices currently running an existing supported Windows operating system.
- **Microsoft patch management**
  HP Client Automation Standard provides the ability to manage Microsoft patches in an environment. Patches are automatically acquired from Microsoft. After acquisition, managed devices determine patch compliance, and patches can be deployed to devices. After patches are deployed, they are periodically verified to ensure that the device is protected against the security threat addressed by the patch.
- **Software usage collection**
  This feature allows you to collect software usage information. Usage information can be used to determine license compliance or determine which software licenses are required in an environment. Administrators can determine if they have too many or not enough software licenses with HP Client Automation's usage management tracking and reporting capabilities.

HP Client Automation Components

The following sections contain summary information about HP Client Automation components.

- HP Client Automation Console on page 73
- HP Client Automation Agent on page 73
- HP Client Automation Administrator on page 73
- Image Preparation Wizard on page 75

HP Client Automation Console

The **HP Client Automation Console** (the **Console**) is the web interface that an HPCA administrator will use to manage devices, software, operating systems, and patches, as well as create and view reports based on those managed devices.

The features and tabs available on the console depend on the HPCA license edition installed and the Role Group the console user belongs to.

The tabs of the Console have varying layouts because of the different administrative tasks that can be performed at each. For example, on the Reporting tab, Search and Display options appear on the left and the report query results are displayed in the workspace on the right. The following figure shows an example Reporting tab window.

HP Client Automation Agent

The HP Client Automation agent is the a managed device that provides activity-specific plug-ins such as inventory reporting, service deployment, patch management, and usage monitoring; it is not included in the Core and Satellite installations.

The HPCA agent gets installed on downstream, client-level devices that an HPCA administrator wants to manage with HP Client Automation. The installation brings the target machine under the control of the HPCA environment, thereby making it a **managed device**. An administrator deploys the HPCA agent to a device, and then entitles and installs software and patches directly to that device or to the device's group.

HP Client Automation Administrator

The HP Client Automation Administrator contains tools you can use to package and publish software into the CSDB as well as navigate your Core database.

The HPCA Administrator is installed along with the HPCA Core Server.

You can install the Administrator to another location by deploying the Administrator service or by using the installation file included on the HPCA media.

The Starter and Standard licenses allow you access to the Agent Explorer and the Publisher. In addition to these two features, the Enterprise license gives you access to the CSDB Editor, Packager, Screen Painter, and the AMP Editor.

Agent Explorer

The Agent Explorer is a component of the HP Client Automation Administrator and is installed along with the Publisher. Use it to troubleshoot and resolve problems. Do *not* use it without direct instructions from HP Support.

Publisher

The Publisher allows you to use Component Select Mode to create a package and to then add that package to the CSDB. When you use this method, you select each component that you want to add to the package.

CSDB Editor

The Configuration Server Database Editor (CSDB Editor) allows you to inspect and manipulate the contents of the CSDB (only available with the Enterprise license).

Packager

The Packager allows you to use a packaging method called Installation Monitor Mode when you are not familiar with all the components that should be part of a package. This method performs a scan before and after you install the software. The difference between the two scans becomes the contents of the package (only available with the Enterprise license).

Screen Painter

The Screen Painter allows you to design and create dialog boxes (only available with the Enterprise license).

AMP Editor

The AMP Editor allows you to rapidly deploy and manage software products that are typically required on desktop clients, such as Microsoft Office 2007, Symantec Antivirus, and Citrix Presentation Agent among others. Refer to the *HP Client Automation Application Management Profiles User Guide* for more information (only available with the Enterprise license).

Image Preparation Wizard

The Image Preparation Wizard prepares and captures operating systems locally on a device. The wizard is part of the Image Preparation Wizard CD ISO that is available on the HP Client Automation media.

Refer to the *HPCA OS Manager System Administrator Guide* or for detailed instructions.

4 HPCA Architecture

At the end of this chapter you will:

- Know about the main components needed to create any HP Client Automation environment: Core Server, Satellite Servers, and Agents.
- Understand the distinct roles played by the Core and Satellite Servers.
- Be aware of the various deployment architectures that are available to scale support for large or disperse enterprises.

Streamlined HPCA Framework

The Core and Satellite servers, first introduced in the 7.20 release, offer a very simple and flexible framework for building and expanding a Client Automation environment to meet the needs of any number of HPCA Agents in your environment. Because the Core and Satellite servers have fixed roles, there are three main components required to build your Client Automation Enterprise environment:

- Core
- Satellites (available for Enterprise edition, only)
- Agents

A Client Automation Starter or Standard Environment consists of:

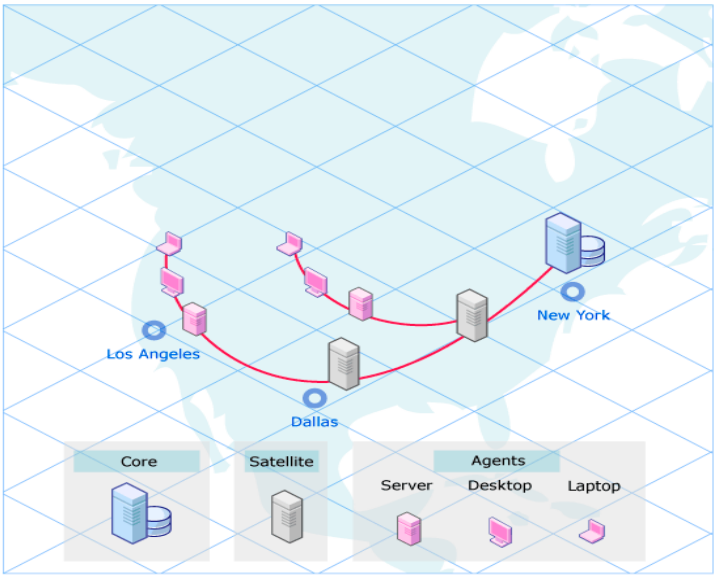
- Core
- Infratructure Servers
- Agents

To use a body metaphor for your HPCA environment:

- The Core represents the “head” and “brain” of HPCA with its embedded intelligence; it is a precious resource that stores the authoritative configuration respository, the consolidated reporting database, and hosts the interfaces with external acquisition sources for Patch and Vulnerability Management.
- The Satellites and Infrastructure Servers represent “limbs” used to extend the reach of the Core and perform activities—if given authority; depending on how they are sized and configured, they provide local sources for Agent resolution, data, or OS images (Satellite Servers, only).
- The Agents act as the “fingers” that touch and interact with the managed devices.

These basic ‘building blocks’ of an HPCA environment are illustrated in the following figure.

Figure 1 A typical HPCA Enterprise environment



Consolidated Installations, Ports, and Services

When you install a Core server or Satellite server, you install a consolidated set of infrastructure services, consoles, and engines that are needed for that server's role. Post-installation configurations applied through the consoles establish connections to the desired internal or external databases and directory services. These consolidated server installations:

- Minimize the time it takes to install and configure the components.
- Require only a few exposed port numbers – individual component port numbers are internal.
- Enterprise edition: Allow for easy scaling by adding, configuring, or removing Satellite servers.

Infrastructure Servers provide data caching services to alleviate some of the load on a Starter or Standard Core Server.

The Core server is installed with a full set of HPCA infrastructure (including those installed with a Satellite Server), but its distinct role is that it is the primary and authoritative repository source for configuring and managing Agent-content across the enterprise.

All of the component infrastructure services installed on a Core or Satellite run under the control of either the *HPCA Core service*, or the *HPCA Satellite service*.

The following table identifies a sample set of infrastructure component services installed onto a Core server and Satellite server; note that very few components are unique to a Core server.

Table 6 Sample services on Core and Satellites

Service	Core	Satellite (Enterprise edition, only)
Data	X	
Configuration	X	X
Enterprise Manager	X	
Multicast	X	X
Messaging	X	X
OS	X	X
Patch	X	
Policy	X	X
Thin Client	X	X
Vulnerability	X	
Data Cache		X

The SQL Core and Patch Databases, used for consolidated Dashboards and reporting, reside only on the Core.

In small environments, it is possible to install only one Core server and use it to manage a limited number of HP Client Automation Agents. However, in most Enterprise license environments, adding Satellite servers will optimize performance in managing Agents. A Satellite is always recommended for OS Manager support.

Core Functions Summary

The **HP Client Automation Enterprise Core** (**HPCA Core**) is the critical *authoritative repository* that maintains all configuration parameters, policy entitlements and data resources (from applications to patches to OS images) used to manage your clients; it provides an aggregated administration point for reporting activities and for all related Satellite servers. The Core contains all content acquisition sub-systems: such as Patch acquisition and the Vulnerability Management acquisition of OVAL security and vulnerability definitions. The Core is also the point of integration with any third-party systems from HP, ISV's, or a customer's own environment. A customer may have only one Core server, or many, depending on their requirements.

The set of components bundled into the Core installation include those needed to:

- Maintain desired state information
- Store data packages
- Automate software management activities
- Host and populate the consolidated reporting database
- Communicate with external directories, such as your own Policy Active Directory (AD or LDAP directory, and external networks used to acquire content to be managed, such as HP Live Network and Microsoft's site for downloading bulletins and patches.
- Communicate with downstream Satellites
- Administer your environment

Authoritative Configuration Repository

The vital role of the Core is to host the authoritative configuration repository. This is the CSDB that contains the configuration information for the software, patches, and OS images that are being managed through HP Client Automation. The Core CSDB is the source for all downstream Satellite CSDBs.

For more information on the Configuration Server and the CSDB refer to the *HP Client Automation Configuration Server User Guide (Configuration Server Guide)*..

Satellite Functions Summary

The **HP Client Automation Enterprise Satellites (HPCA Satellites)** are available for Enterprise license editions, only, and are the access points to the Agents in your enterprise. The Satellites contain *recoverable* information only because their content is always replicated from the authoritative source on the Core. Satellites can, therefore, be rebuilt or recovered at any time by synchronizing the Satellite with the Core or upstream Satellite.

Numerous Satellites are typically used to increase the scalability of your HPCA environment. Satellites are placed in "network proximity" to the Client Automation agents that they serve in order to enhance their performance and minimize the impact on the **Wide Area Network** (**WAN**).

Satellites are not "masters" of any stable information and can, therefore, be rebuilt and recovered at any time by synchronizing it with a Core server or an upstream Satellite.

HP Client Automation Satellites can be configured as:

- **Full-service Mode**
  these are able to provide configuration services (Configuration Server), in addition to high-volume data-distribution services via unicast and multicast.
- **Streamlined Mode**
  these are able to provide the high-volume data services, as well as the OS-configuration services that are required for OS provisioning. They do not provide configuration services; rather your service access points should refer Client Automation agents to an upstream full-service Satellite or a Core server to satisfy those requests.

HPCA Satellites communicate upstream with either other Satellites or **Core servers**. The types and purpose of these communications are varied and consist of:

- Synchronization of partial or full data caches
- Synchronization of CSDBs
- Requests for policy resolution
- Requests for OS device status
- Informational messages for reporting the status of management activities by the Satellite and its Client Automation agents.

Flexible Configuration Options

Both the Core and Satellite Servers offer a Console that makes it easy to customize or reconfigure the component services. For example, you may want to designate specific Satellites as dedicated OS Manager Servers, and disable unneeded services on those Satellites.

Satellite Deployment Models (Enterprise)

Satellites can be installed throughout the enterprise to offer the Agents as many points of access as needed. In smaller environments with a limited number of agents, only a single Satellite may be needed. In larger or more diverse environments, several or many Satellite servers may be needed in order to meet the performance, capacity, and availability needs of your Agents.

- The HPCA Satellite is an *access point* for Client Automation agents.
- Its *network proximity* to Client Automation agents alleviates the workload on the WAN, and facilitates faster and more reliable data transfer.
- The HPCA Satellite can be configured in one of two modes:
  - *Full-service*: offering configuration services as well as data services and OS configuration services to the Client Automation agents that it serves, or
  - *Streamlined*: offering high-volume data services and/or OS configuration services to the Client Automation agents that it serves.

- HPCA Satellites *communicate upstream* to other HPCA Satellites and the HPCA Core.

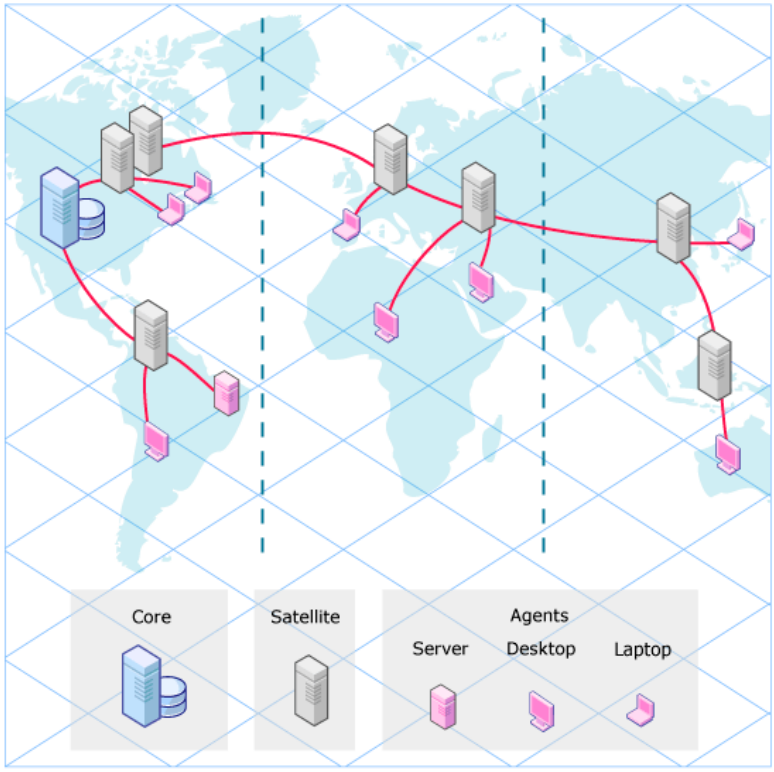
Locating Satellites in the Enterprise

Place Satellites at network locations that are strategic to your managed Agents. Satellites can be added and stacked either horizontally or vertically, as needed, to optimize overall performance. Factors that may influence where and how many Satellites you add to your environment include:

- Capacity – Add Satellite farms to scale support for large numbers of Agents.
- Availability – Add Satellites to ensure server availability.
- Network Proximity – Add Satellites to optimize network performance. For example, if some branches or sites in your enterprise have limited bandwidth, place additional Satellites in strategic locations to make the most efficient use of the available bandwidth.

In larger environments, Satellites can be scaled vertically, stacking multiple tiers of Satellites beneath a Core.

Figure 2 Satellites scaled horizontally and vertically



Satellites can be added or removed at will; their repository contents are all replicated from the Core and all of their data services are a subset of those available on the Core. The larger or more disperse your environment, the more Satellite servers you will want to consider.

Following installation, Satellites can be configured as full service or streamlined satellites.

Configuring Full or Streamlined Satellites

Full service Satellites have the ability to handle nearly all Agent requests on their own, without having to forward the request to an upstream Core. They have all services that are available to them enabled. These will include:

- Configuration Services:
  Configuration services include replicated versions of the Configuration Server and CSDB. This enables the Satellites to resolve the desired-state of Agents that connect to them. Policy Services enable an external policy directory, such as an Active Directory, to be accessed from the Satellite, for Agent resolution.
- Policy Services:
  Most customers have an existing LDAP directory they want to utilize for storing HPCA policy entitlements. Policy Services enables an external policy directory, such as an Active Directory, to be accessed directly from the Satellite, for Agent resolution.
- Messaging Service:
  Automatically route Agent-reported data back to the upstream server. This service is always enabled and cannot be disabled.
- Data Cache Services:
  Data Cache services store local caches of software, patch and OS image resource data for content delivery to Agents. Data cache services include the ability to distribute content using unicast or multicast. Multicast requires that service to be enabled.
- OS Manager services:
  OS Manager services store local caches of OS images for deployment to managed devices.
- Thin Client services:
  Service required to manage Agents on Windows CE thin clients.
- Multicast services:
  Enables the simultaneous distribution of data resources to multiple Agents. Used to distribute OS Manager images.

Steamlined satellites have one or more functions disabled, which means that the Agent requests they cannot fulfill locally will be directed to an upstream full-service Satellite or Core. For example, a streamlined satellite:

- May be primarily used to cache and deploy software and patch content to the Agents. This streamlined Satellite has a much smaller footprint than a full-service Satellite.
- May have Configuration Services disabled. Without a local Configuration service enabled, the Satellites forward Agent requests for desired-state resolution to an upstream Core or full service Satellite.

- May have the OS Manager, Thin Client, and Multicast services enabled or disabled.

Synchronizing the Core and Satellite Metadata and Data

After the Core's CSDB is populated with the configuration model and policy entitlements for the agents, the Core metadata and data need to be loaded onto the Satellite servers. The *Synchronize* task on a Satellite console is used to bring down the Core configuration (metadata) and resource data to the Satellites throughout your enterprise.

If there are multiple tiers of Satellite in your environment, the Satellites using the Core server as their upstream host are considered the first-tier Satellites. Use the Synchronize task from a first-tier Satellite to synchronize its contents with the Core. Then use the Synchronize task on the next tier Satellite to synchronize its contents with its upstream satellite host. Synchronize your Satellites throughout the enterprise using this method for any additional Satellite tiers in your enterprise.

Following the synchronization (sync) operation:

- The Core and Full-Service Satellites share the same metadata – or information about configuration, policies and managed data.
- The Core and Streamlined Satellites share the same resource cache for managed data (software, patches and OS images).

Tiered Architecture Example

The following example shows how to set up an HPCA Enterprise environment to handle substantial numbers of Agents in multiple regions, and:

- Manage mandatory data using the Application Manager Agent.
- Discover and report on security vulnerabilities using the HPCA Console.
- Analyze and manage vendor software patches with the Patch Manager HPCA Agent feature.
- Create policy entitlements using your existing external LDAP directory service.

- Use Satellites to distribute the configuration management of the devices across your enterprise.
- Place Streamlined Satellites in network locations that are strategic to your target devices.

You could easily use a Core Server with two tiers of Satellite servers to support this distributed environment.

1. Install a Core server. This automatically installs the needed Configuration Management and CSDB, Enterprise Manager, Patch Manager, Messaging, Reporting, and Policy Server components.

   Use the Core Console Configuration Tab to configure:

   — Messaging and Patch: The ODBC connections for Core and Patch DSNs. (Note: After the ODBC DSNs are configured, the Core server automatically initializes the SQL database tables for Core and Patch, as well as synchronizes the Patch tables with the CSDB.

   — Policy: The connection to an external Active Directory used to define your policy entitlements.

   Following the Core Console configuration steps, continue by using the Patch Manager Administrator console to setup the non-infrastructure configuration and acquisition items required for acquiring Microsoft or Linux patches.

   Also use the HPCA Console to complete the configuration of HP Live Network. HP Live Network is used to automatically acquire OVAL definitions for Vulnerability Management.

2. Install Satellite Servers to distribute the configuration management of the devices across your network:

   — Specify the Core as their upstream server.

   — Keep these Satellites fully enabled for Configuration services and Data caching services.

   — To access your existing external LDAP directory services for Policy information, also configure the Satellite to access this external directory for Policy.

3. Install additional Satellites close to the devices to be managed by HPCA:

   — Specify the full service Satellite as their upstream server.

— Configure these Satellites to disable the Configuration service and any OS Manager service.

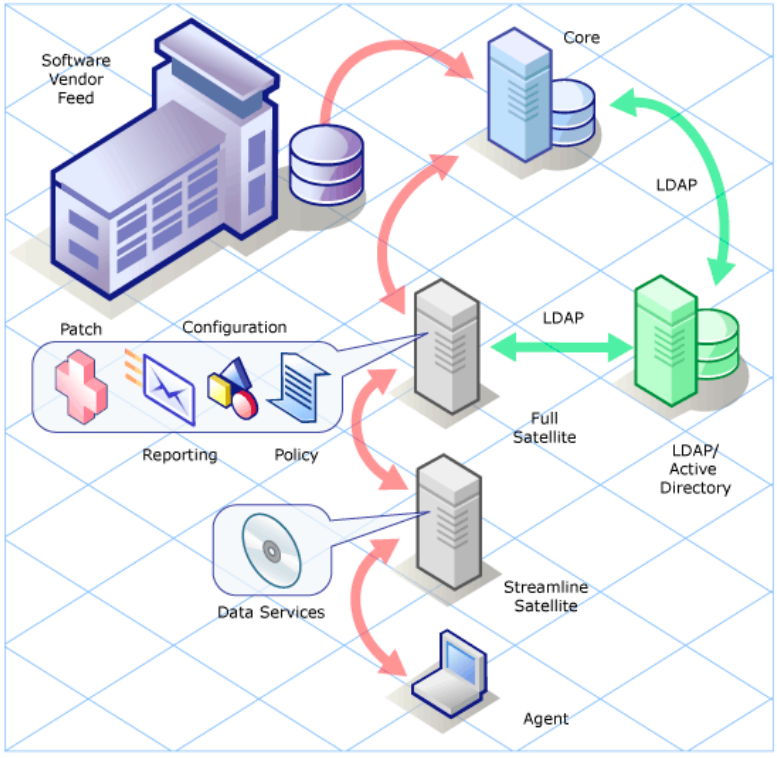
— Leave Data Resources enabled.

4 Deploy Agents with the Application Manager and Patch Manager plug-ins to the devices in your enterprise.

5 Define Client Operation Profiles to direct the agents to connect to the appropriate Satellites in your environment.

6 A diagram of your network might be similar to the figure below.

Figure 3 Application and Patch management environment



At this stage, all of the architecture pieces are in place.

Software Publishing and Patch and Vulnerability Acquisition

The next steps are to:

1. Use the Administrator Publisher to package and publish the software to be managed to the Core CSDB.
2. Use the Patch Manager Administrator to run an acquisition to publish the patches to be managed to the Core CDSB.
3. Use the Enterprise Manager to acquire OVAL definitions using HP Live Network. These definitions are automatically published to the Core CSDB in the Security domain as Vulnerability Discovery services. Refer to the *Enterprise Manager User Guide* for more information.

Adding Policy Entitlements

1. Use the Admin CSDB Editor to add configuration information to build the desired state.
2. Use Enterprise Manager to add policy that entitles the software, patches, and the vulnerability discovery services to the agent devices.

Synchronize Satellites with their Upstream Host

1. Run the Satellite Synchronize Operation from the first tier, Full Service Satellite(s).
2. Run the Satellite Synchronize Operation from the second tier, Streamlined Satellite(s).

Agent Connections

Initiate agent connections through a Schedule, a Notify, or the HPCA Self-service Manager application. For information on these topics, refer to the *HP Client Automation Enterprise Manager User Guide* or the *HP Client Automation Application Manager and Application Self-service Manager Installation and Configuration Guide*.

5 HPCA Enterprise Functional Views

At the end of this chapter, you will:

- Know the components and information flow for Vulnerability Management.
- Know the components and information flow for managing patches.
- Know about the components and processes used to capture, deploy and manage OS images.

Vulnerability Management View

HP Client Automation offers a vulnerability management solution for the Enterprise License edition that enables you to detect security vulnerabilities on managed clients in your enterprise and quickly assess the severity and scope of the related risk. You can then take steps to remediate these vulnerabilities.

HPCA is integrated with the HP Live Network, a subscription service that tracks, triages, and analyzes the latest security vulnerability information available. You can configure HPCA to automatically download new security vulnerability content from the HP Live Network on a periodic basis, rather than depend on a manual process. This content includes a vulnerability scanner for clients and detailed information about individual vulnerabilities, including descriptions, disclosure dates, severity levels, and suggested remediation solutions.

The HP Live Network content is then published to the Core Server's Configuration Server Database (CSDB), and managed clients can be subsequently scanned for vulnerabilities according to the schedule that you specify.

The HPCA Console provides a Vulnerability Management dashboard that shows the security vulnerability status of your enterprise at a glance. It also provides a Patch Management dashboard to help you quickly assess patch policy compliance across the enterprise and an HPCA Operations dashboard to show you the number and type of operations HPCA has performed over time.

For more information on providing Vulnerability Management for the managed agents in your enterprise, refer to the *HP Client Automation Enterprise Manager User Guide*.

Figure 4 Vulnerability Management in HPCA

Legend:

1 Updated vulnerabilities are downloaded and analyzed by the HP Live Network team.

2 Updated vulnerabilities and scanner are downloaded by HPCA from HP Live Network.

3 Managed clients are scanned for vulnerabilities by HPCA.

Patch Management View

The Patch Manager Server and Patch Publisher on the Core server provide for automated patch acquisition and publishing of security bulletins and service packs.

The Patch Management architecture and processes require a Patch Manager SQL Database for storing and reporting on patch vulnerabilities.

Patch Management relies on the Patch Manager Server that is only installed on the Core Server. The Patch Manager Server is responsible for:

- Acquiring patches from vendors' web sites.
- Publishing patches to the PRIMARY.PATCHMGR Domain.
- Synchronizing patch information with the Patch Manager SQL Database.
- Automatically acquiring, publishing and deploying Patch Manager Agent updates.

For complete information on how to use HPCA to provide Patch Management for the managed agents in your environment, refer to the *HP Client Automation Patch Manager Installation and Configuration Guide*.

Patch Acquisition and Publishing

During the acquisition, the following happens:

1. The vendor's web site is contacted to prepare for the acquisition of bulletins.
2. Information about the security bulletins and service packs and (optionally) the actual patch files is downloaded. The information that is downloaded contains detailed data about each patch, such as supersedence, reboot requirements, and probe information.
3. An XML file is created for each security bulletin that is acquired and is put in that vendor's folder within the Patch Manager Server directory. These files are called **patch descriptor files**.
4. The PRIMARY.PATCHMGR Domain on the Core CSDB is populated with this information.
5. Services are created in the PRIMARY.PATCHMGR Domain for each of the acquired bulletins.

6 The PATCHMGR Domain is synchronized with your Patch Manager SQL database.

If you have already performed an acquisition, only instances that are different are updated.

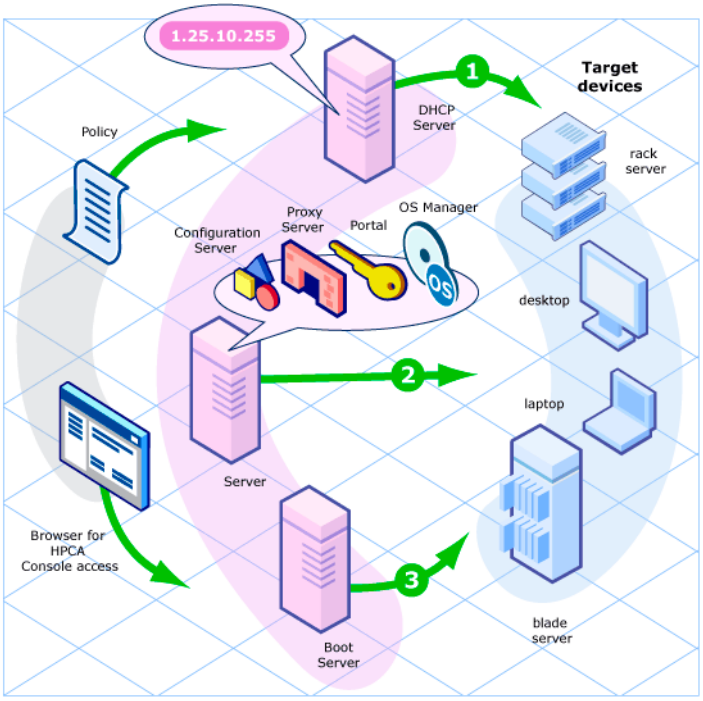
Patch Manager Agent Maintenance

When you run a patch acquisition, you can also elect to have any available Agent Updates downloaded and automatically published and distributed to the Patch Manager Agents in your enterprise.

OS Management View

OS Manager's functional view adds a Boot Server and DHCP server to capture and deploy OS images to the managed devices in your Core and Satellite environment.

Figure 5 OS Manager deployment architecture in HPCA



A HPCA Enterprise Guides

Table 7 on page 97 lists the various publications in the HPCA library that have additional configuration information for the components that are installed with the Enterprise license edition of Core and Satellite servers.

The information in this guide supersedes all installation and configuration information in the guides that are listed in this appendix.

HP recommends not modifying any component's configuration unless explicitly documented in this guide.

In addition to this table, check the HP Software support web site for new publications and updates to current publications.

Table 7 Client Automation products and publications

Product	Related Publications
HPCA Agents	
Application Management Profiles	*Application Management Profiles Guide*
Application Manager and Application Self-service Manager	*Application Manager and Application Self-service Manager Guide* *Application Management Profiles Guide* *Management Applications Messages and Codes Guide* *REXX Programming Guide*

Table 7 Client Automation products and publications

Product	Related Publications
Inventory Manager	*Inventory Manager Guide* *Management Applications Messages and Codes Guide* *Messaging Server Guide* *Reporting Server Guide*
OS Manager	*OS Manager Guide*
Patch Manager	*Patch Manager Guide* *Messaging Server Guide* *Reporting Server Guide*
HPCA Server Components	
Batch Publisher	*Batch Publisher Guide*
Configuration Server	*Getting Started Guide* *Configuration Server User Guide* *Configuration Server Messages Guide* *Configuration Server Database Reference Guide* *REXX Programming Guide*
Distributed Configuration Server	*Distributed Configuration Server Guide*
Enterprise Manager	*Getting Started Guide* *Enterprise Manager Guide*
Multicast Server	*Multicast Server Guide*
Out of Band Management	*Out of Band Management User Guide*
OS Manager	*OS Manager System Administrator User Guide* *OS Manager Hardware Configuration Management Guide*

Table 7 Client Automation products and publications

Product	Related Publications
Patch Manager	*Patch Manager Guide* *Messaging Server Guide* *Reporting Server Guide*
Policy Server	*Policy Server Guide* *Enterprise Manager Guide* *Portal Guide*
Portal	*Getting Started Guide* *Portal Guide*
(Proxy) Cache Management Server	*Proxy Server Guide* (see Enterprise Proxy Server)

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