

HP Client Automation Enterprise

Proxy Server

for the AIX, HP-UX, Linux, Solaris, and Windows® operating systems

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Installation and Configuration Guide

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Documentation Updates

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

- Software Version number, which indicates the software version.
 - The number before the period identifies the major release number.
 - The first number after the period identifies the minor release number.
 - The second number after the period represents the minor-minor release number.
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Table 1 lists new features added for the recent releases.

Table 1 New features added for 7.20 and 5.10

Chapter	Version	Changes
All	7.50	References to using the Portal for installing or administering the Proxy Server have been removed. As of Version 7.50, these tasks are performed using commands or the HPCA Enterprise Manager Console, as opposed to the Portal. Refer to the <i>HPCA Enterprise Manager User Guide</i> for additional information.

Chapter	Version	Changes
All	7.20	<p>Most HP OpenView Configuration Management products from Version 5.10 have been rebranded as HP Client Automation products in Version 7.20.</p> <ul style="list-style-type: none"> The Proxy Server (httpd) service display name is: HP Client Automation IntegrationServer The Enterprise Proxy Server (httpd-rps) service display name remains: HP OVCM Proxy Server Apache/2.2.4 (Win32)
Chapter 2	7.20 Aug 2008	Page 32, Windows System Requirements have changed, refer to the Release Notes document that accompanies this release for details on the supported platforms.
Chapter 4	7.50	Page 85, Proxy Server Administration . As of Version 7.50, the Proxy Server Administration tasks are performed using commands or the Enterprise Manager Console, as opposed to the Portal.
Chapter 5	7.50	Page 99, The Enterprise Proxy Server for Windows , revised the default installation path and the friendly service name for this release.
Chapter 5	5.10	Page 99, The Enterprise Proxy Server for Windows , new chapter explains how to install and uninstall the Enterprise Proxy Server, an Apache-based server.
Chapter 5	5.10 Apr 08	<p>Page 105, Preloading (or Synchronizing) the Data Cache, corrected the command used to preload the Enterprise Proxy Server. The corrected command is:</p> <p><code>http://proxy_host_or_IP_address:port/proc/rps/sync</code></p> <p>This same command is also used to preload the Proxy Server.</p>
Chapter 5	7.50	Page 107, Comparison Chart of Proxy Server and Enterprise Proxy Server, noted HTTPS support when Enterprise Proxy Server is installed as part of a Core or Satellite Server.

Chapter	Version	Changes
Appendix	7.20 Aug 2008	Removed previous <i>Appendix A: Name Changes</i> ; this is no longer needed due to the HP support self-solve search capabilities.

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1 About the HP Client Automation Proxy Server

At the end of this chapter, you will:

- Understand the role of the Proxy Server.
- Understand when to use a Proxy Server.
- Know how to use the Proxy Server.

Using this Guide with Core and Satellite Servers

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

Who this Guide is for

This book is for HP Client Automation system administrators who want to install the Proxy Server in their enterprise environments to cache data at a location between the HP Client Automation Configuration Server (Configuration Server) and their users. To use some of the features in this publication, you should be familiar with other HP Client Automation products, including the Portal, Configuration Server, Administrator CSDB Editor, and the HP Client Automation agents.

What this Guide is about

The *HP Client Automation Proxy Server Installation and Configuration Guide* describes two Proxy Server offerings available on the HP Client Automation media:

The Integration Server-based **Proxy Server** for Windows and Unix:

- what the Proxy Server is, and its static and dynamic cache processes.
- how to install and configure the Proxy Server:
 - as an agent when servicing Client Automation agents.
 - as a server when co-located with the Configuration Server for HTTP download support.
- how to implement the Proxy Server with your Configuration Server and agents.
- how to administer the Proxy Server.

The Apache-server based **Enterprise Proxy Server** for Windows:

- how to install, configure, and uninstall the Enterprise Proxy Server:

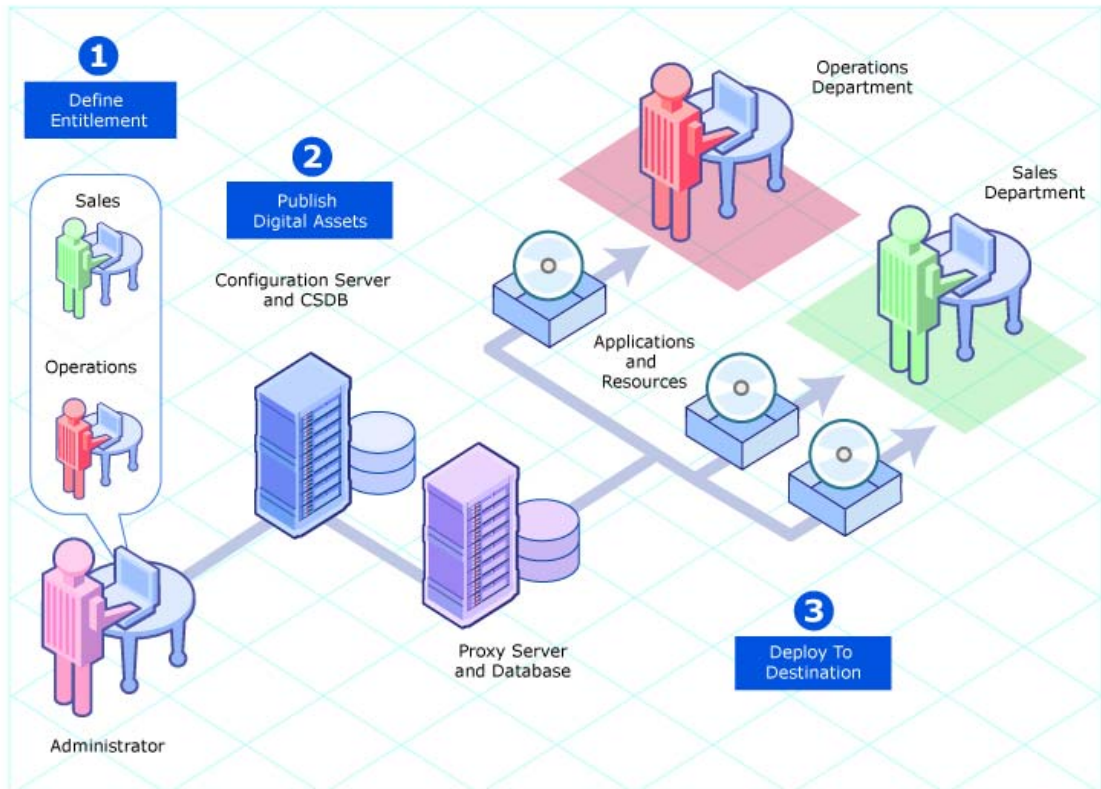
- as an agent when servicing Client Automation agents.
- as a server when co-located with the Configuration Server for HTTP download support.
- how to implement the Enterprise Proxy Server with your Configuration Server and Client Automation agents.

For more information, refer to [The Enterprise Proxy Server for Windows](#) on page 99 and the [Comparison Chart of Proxy Server and Enterprise Proxy Server](#) on page 107.

What is the Proxy Server?

When the Proxy Server is used, it is the primary repository for Client Automation agent data. Once the Client Automation agent determines the resources needed for its desired state, it can request those resources from the Proxy Server. Requests are made using either HTTP (recommended for all new installations) or TCP/IP. The Proxy Server has the ability to service multiple, concurrent Client Automation agent requests using both protocols simultaneously. [Figure 1](#) on page 16 depicts the Client Automation infrastructure using a Proxy Server to deploy applications to Client Automation agents.

Figure 1 Client Automation infrastructure using Proxy Server



When to use a Proxy Server

Proxy Servers are beneficial in your environment if you have many Client Automation agent computers requesting the same resources from the same location. When data is cached on the Proxy Server, the demand placed on the Configuration Server is decreased, allowing the Configuration Server to allocate more resources to other tasks.

Placing Proxy Servers at strategic points in your network increases the rate at which data is transferred. The connection between subscribers and the Proxy Server may be more efficient than the connection between the subscribers and the Configuration Server. The factors that determine the efficiency of a connection between a server and an agent computer include hardware capability, network bandwidth, workload on the servers, network traffic patterns, and the volume of software to be distributed.



The Proxy Server is not a generic proxy, but rather specifically designed to manage and distribute Client Automation resources.

This publication describes:

- HP Client Automation Proxy Server components and processes.
- The installation of the Proxy Server components.
- The configuration and implementation of the Proxy Server.
- The configuration of your Configuration Server Database and Client Automation agents for use with Proxy Servers.
- The administration of the Proxy Server.

Proxy Server Processing

The logical flow for a typical Client Automation agent request to a Proxy Server is as follows (assuming all components are enabled):


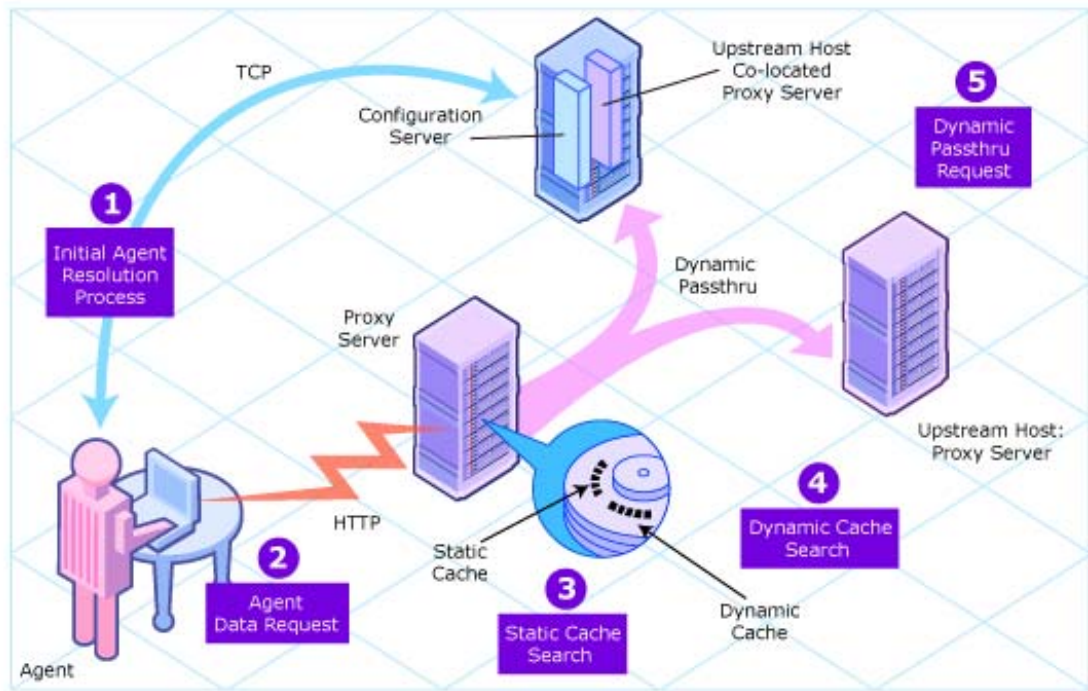
- 1 The Client Automation agent's resolution process indicates it needs resources, and it should request them from a Proxy Server.
- 2 The HPCA agent sends a request to the Proxy Server, which is received by the Proxy Server front-end protocol. The agent request is validated, and passed to the cache manager.
 -  The default (and recommended) protocol for HPCA agent communication with the Proxy Server is HTTP. Optionally, TCP is also available. A Proxy Server can service multiple, concurrent agent requests using both protocols simultaneously.
- 3 The local static cache is searched, and if the data is found, the request is satisfied and the data is sent to the HPCA agent.
- 4 If the data is not in the local static cache, the local dynamic cache is then searched. If the data is found, the request is satisfied.
- 5 If the file does not reside in the dynamic cache, Dynamic PassThru requests the file from the defined upstream host (typically, another Proxy Server) using HTTP. If there is a connection failure with the upstream host, and multiple upstream hosts were defined (for fail-over support), Dynamic PassThru tries the next host on the list. The original request is satisfied, and the file is stored in the dynamic cache for future requests.

Figure 2 on page 19 illustrates the Proxy Server process flow for handling HPCA agent requests.

Figure 2 Proxy Server process flow



Cache Definitions and Support

The Proxy Server supports two types of cache locations: static and dynamic.

Static Cache

The **static cache** is the primary cache location for the Proxy Server. The static cache can be configured to operate in one of two ways:

- **Static Type = Agent**
When set to agent, the static cache is populated by the Preloader. For performance efficiency, this static cache should be preloaded with all resources that are expected to be distributed by the Proxy Server to

Client Automation agents. The static cache is typically preloaded during off hours, so the required resources are available when requested by an HPCA agent. For a discussion of this process, see [Preloader Process](#) below.

- **Static Type = Server** (when co-located with the Configuration Server)
When set to server, the static cache points to a native Configuration Server Database on the same machine as the Proxy Server. This co-located (or co-resident) Proxy Server provides a means to download resources from the Configuration Server Database using HTTP. (The Configuration Server can only download resources using TCP/IP.) For details on when downloading resources from the Configuration Server Database using HTTP is required, see [What is a Co-Located Proxy Server?](#) on page 24.

In both cases, the Proxy Server views static cache as read only.

Preloader Process

The Preloader populates the static cache of a Proxy Server using a process that parallels the standard Client Automation agent resolution and deployment process. When the Preloader runs, it uses TCP to connect to the assigned Configuration Server for a resolution of the Proxy Server's predefined desired state. The required resources are then deployed to the Proxy Server's static cache. In addition, resources no longer included in the Proxy Server desired state are removed from the static cache.



As part of the Proxy Server installation, a small version of the HP Client Automation Application Manager is also installed. These components provide the functionality to support the Static Cache Preload process.

The preload resources can be deployed using TCP or HTTP. HTTP is available when the Configuration Server has a co-located Proxy Server.

Preloader and Desired-State Policy Resolution

The Preload process is an application of the usual Client Automation desired state policy resolution for Client Automation agents, with the following specific elements. Each element is illustrated in [Figure 3](#) on page 22.

1 Define Entitlement

The entitlement for Preloading a Proxy Server is defined in the POLICY Domain as follows:

- **User**
The machine identity of the Proxy Server being managed (or preloaded).
- **Applications**
The software that is being preloaded to the Proxy Server's static cache. This should include all applications normally requested by the set of Client Automation agents that will be assigned to the Proxy Server.

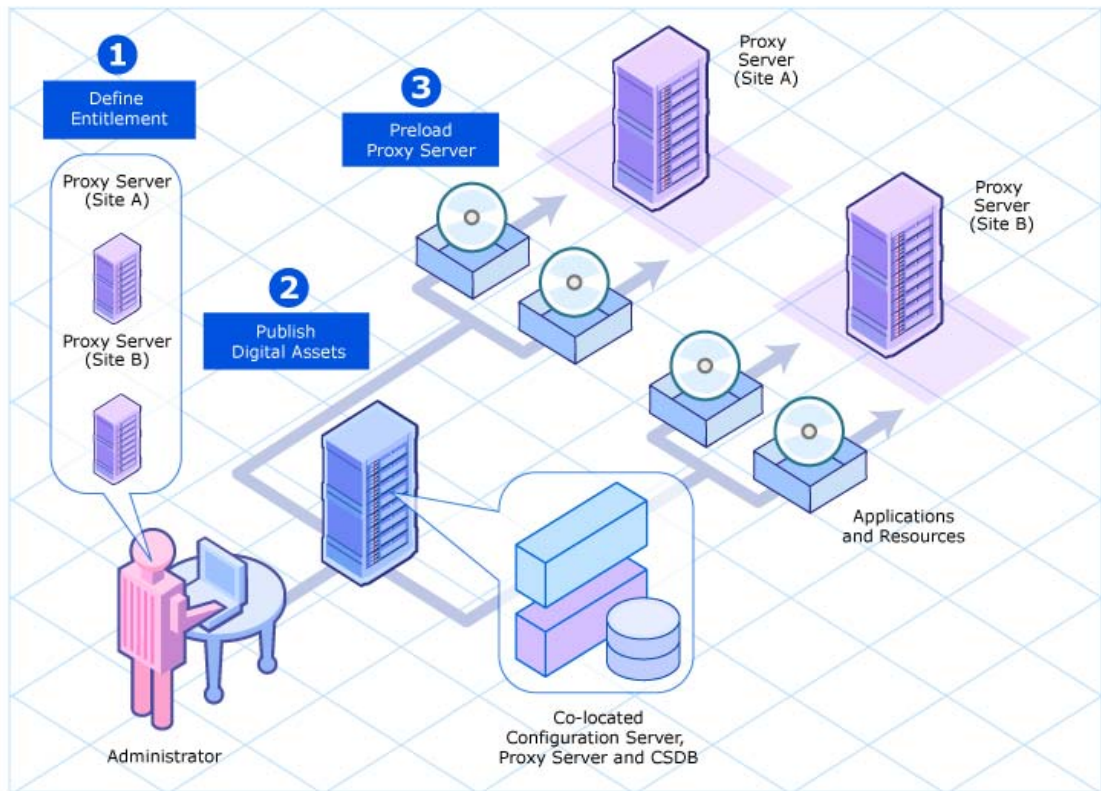
2 Publish Digital Assets

- **Application Files**
The components that make up the applications. When publishing MSI applications for distribution from a Proxy Server, use the techniques discussed in this guide to have the Administrator Control Point (ACP) preloaded to the Proxy Servers but not distributed to the Client Automation agents.

3 Preload Proxy Servers

- **Deployment Source and Protocol**
Resources to preload the Proxy Servers can come from the Configuration Server or another Proxy Server. Resources can be deployed using TCP or HTTP. Resources deployed from a Configuration Server using HTTP use the HTTP port of a co-located Proxy Server.
- **Deployment Destinations**
In this case, the Proxy Server's static cache location is the Preload deployment destination.

Figure 3 Proxy Server Preload as a desired state policy resolution



Dynamic Cache

The **dynamic cache** is an optional, secondary cache location for the Proxy Server. When enabled, the dynamic cache is populated on demand by the Dynamic PassThru component of the Proxy Server using HTTP. When a requested resource is not found in the primary (static) cache, the dynamic cache is searched. If the requested resource is not found in the dynamic cache, the Dynamic PassThru process obtains the resource from an upstream host. The dynamic cache is viewed as a safety net for requests that fall through the static cache search.

Dynamic PassThru

When a Client Automation agent request is received for a resource that does not exist locally, the Proxy Server can request these resources from an upstream host, such as a Proxy Server co-located with the Configuration Server, or another Proxy Server. These resources are then returned to the requesting Client Automation agent, as well as stored locally in the dynamic cache for subsequent requests. Dynamic cache resources are transferred using HTTP.

For fail-over support, you can designate more than one upstream host for obtaining dynamic cache. If the Proxy Server fails to connect with the first host on the list, it attempts to connect with the second listed host, and so on, to obtain the dynamic cache resources.

Dynamic Cache Management

Dynamic PassThru also manages this cache, purging files that have not been requested in a previously configured number of days. (This avoids keeping files in the dynamic cache after they exist in the static cache.) To support the purge process, an index file is maintained to keep track of when files were last used. The purging of aged files will also run whenever the index file is saved. You can schedule the index file to be saved on a daily or more frequent basis. However, a scheduled save of the index file is skipped if dynamic cache resources were not used since the last save.

The dynamic cache can also be purged, as necessary, when a user-specified maximum file size is exceeded. The least-used files are deleted until the dynamic cache size is below the maximum file size. A "freespace" purge option allows you to purge down to a low-water mark, which is a certain percentage below the maximum file size. This "freespace" eliminates constant purging in an active dynamic cache environment.

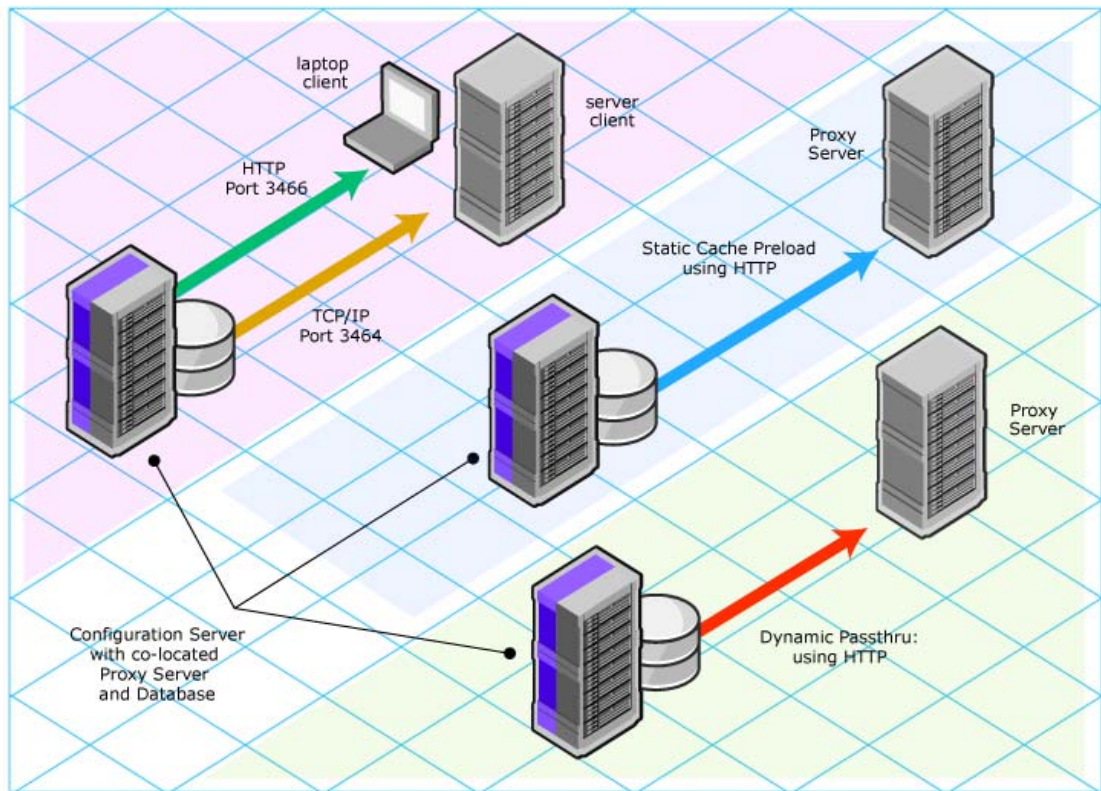
Another purge option allows you to define "large files", and then exempt these large files from the first pass of a size-based purge. If large files are purged and then later requested, an undue load could be placed on the network. Use the large file options to alleviate this load.

What is a Co-Located Proxy Server?

The Configuration Server communicates with other servers and Client Automation agents using TCP/IP. It no longer supports a native HTTP data download capability. To obtain HTTP download capability, you need to use a co-located Proxy Server.

A **co-located** Proxy Server is a Proxy Server placed on the same machine as the Configuration Server to provide a source for downloading CSDB resources to another Client Automation server or agents using HTTP. It is defined with a static cache type of *server*, instead of *agent*. It does not manage its own static cache, but merely points to the CSDB on the Configuration Server. Thus, it requires no preloading (or synchronization), and normally has its dynamic cache disabled. This is shown in [Figure 4](#) on page 25 on the left path.

Figure 4 Co-located Proxy Server enables HTTP downloads



For details on installing and configuring a co-located Proxy Server, see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

When to use a Co-located Proxy Server

You need a Proxy Server co-located with the Configuration Server for HTTP support in the following configurations:

- To support Client Automation agents configured to retrieve resources from the CSDB using HTTP (instead of TCP/IP).
- To support a subordinate, or downstream, Proxy Server that is obtaining its dynamic cache resources from the CSDB. Dynamic cache resources must be obtained using HTTP.

- To support preloading a subordinate, or downstream, Proxy Server using HTTP instead of TCP/IP.

Each configuration requiring a co-located Proxy Server is discussed below:

- **Client Automation agents using HTTP to obtain their resources**
Client Automation agents always obtain their policy resolution from the Configuration Server. By default, the Client Automation agents then obtain their resources from the CSDB using TCP/IP. To have Client Automation agents obtain their resources from the CSDB using HTTP, instead, you need to add a co-located Proxy Server with the Configuration Server, and then direct the Client Automation agents to obtain their resources from the co-located Proxy Server. For details on directing Client Automation agents to obtain their resources from a Proxy Server, see [Configuring Client Automation agents for Use with the Proxy Server](#) on page 78.
- **Preloading a Proxy Server from the CSDB using HTTP**
By default, a Proxy Server is preloaded from the CSDB using TCP/IP. Optionally, it can be preloaded from the CSDB using HTTP, instead. This configuration would also require a Proxy Server co-located with the Configuration Server for HTTP support, as shown in [Figure 4](#) on page 25 in the middle path. For details on using this option, see the topic [Preloading Deployment Options](#) on page 66.
- **Proxy Server using the Configuration Server as its dynamic cache upstream host**
Enabling the dynamic cache for a Proxy Server means that when an Client Automation agent requests resources from the Proxy Server, and the resources are not in the local cache, the Dynamic Cache PassThru process immediately requests the resources from its predefined upstream host using HTTP.

When a Proxy Server is enabled for dynamic caching, and is using the Configuration Server as the upstream host for obtaining its dynamic cache resources, you need to use a co-located Proxy Server for HTTP download support. This is because the Dynamic PassThru process uses HTTP exclusively. [Figure 4](#) on page 25 shows this configuration on the right-side path.

For details on specifying the dynamic cache and upstream host, see [Configuring the Dynamic Cache Parameters](#) on page 50.

Integration Server and the Proxy Server

The Proxy Server runs as a loaded module under the control of the Integration Server. The Integration Server is a base component for various Client Automation infrastructure modules.

The location of the Integration Server is the base installation directory of the Proxy Server. If the Integration Server is not currently present, it is installed with the Proxy Server.

Summary

- Proxy Servers enable an additional server to act as an extension of the Configuration Server. The Proxy Server stores a copy of the application software that Client Automation distributes, and delivers it to the Client Automation agent computers that are attached to the server.
- Each Client Automation agent will receive resources directly from the Proxy Server. The recommended protocol for agent communications is HTTP, although multiple, concurrent protocols are supported.
- A Proxy Server's static cache is preloaded with the applications defined for it in the CSDB. The preload process connects using TCP, but can have resources deployed using TCP or HTTP. HTTP is available when the Configuration Server has a co-located Proxy Server.
- A Proxy Server enabled for dynamic cache will request resources from a predefined upstream host when they are not currently available in its local static or dynamic cache. Multiple upstream may be defined to provide fail-over support after a connection error. Dynamic cache resources are downloaded to the Proxy Server using HTTP. The dynamic cache offers a number of purge options to remove old files and to keep it under a specified maximum size.
- A Proxy Server co-located with the Configuration Server is used whenever you need to obtain resources from the CSDB using HTTP. The Configuration Server no longer supports downloading resources using HTTP.
- The potential benefit of a Proxy Server must be evaluated individually for each server and its attached Client Automation agent computers.

2 Installing and Configuring the Proxy Server

At the end of this chapter, you will:

- Be able to install the Proxy Server software locally using installation media.
- Be able to access and apply any updates to bring the product to the latest level.
- Be able to configure the Proxy Server after installation for different options, including the use of the dynamic cache and several preload options.
- Understand how to configure the different Client Automation components for use with the Proxy Server.



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

Installation and Configuration Overview

Before you can use a Proxy Server, you must prepare your Client Automation environment. To configure your enterprise for using Proxy Servers, you will need to complete the following tasks:

- ❑ Install the Proxy Server on the designated server.
 - Read the topics on system requirements and installation notes, and then follow the steps to install the Proxy Server locally. Separate procedures are given local Windows and UNIX installations.
 - If you are installing the Proxy Server co-located with the Configuration Server (to provide a source for downloading resources from the CSDB using HTTP), see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.
 - Also visit the HP Technical Support web site to check for the latest available updates to the product, such as a Service Pack update.
- ❑ Review and modify the Proxy Server configuration parameters after installation. For example, edit the configuration file to enable and configure the dynamic cache.
See [Configuring the Proxy Server](#) on page 42.
- ❑ Create a distribution policy in the Configuration Server database for preloading the Proxy Server static cache.
See [Configuring the CSDB for the Static Cache Preload](#) on page 62.
- ❑ Preload the Proxy Server static cache.
See [Preloading Deployment Options](#) on page 66.
- ❑ Assign the appropriate subscribers to the Proxy Server.
See [Configuring Client Automation agents for Use with the Proxy Server](#) on page 78.

Proxy Server System Requirements

Hardware Requirements and Recommendations

- **Static Type of Agent**

In general, a Proxy Server with a static type of agent is most dependent on network bandwidth and disk I/O speed. Use the recommendations given in Table 2 below to obtain desired performance on your Proxy Servers. The Proxy Server will run on lesser machines, but performance will probably suffer under peak loads.

- **Static Type of Server**

A Proxy Server co-located with the Configuration Server for HTTP support has a static type of server. Most hardware requirements that satisfy the Configuration Server's needs more than accommodate the Proxy Server, especially the requirements for processor speed, memory, and disk drive speed. Refer to the *HPCA Configuration Server, Portal and Enterprise Manager Getting Started Guide* for specific requirements. For additional considerations, see Table 2 below.

Table 2 Proxy Server Hardware Recommendations

Component	Static Type = Agent	Static Type = Server
Overall	In general, the Proxy Server is most dependent on network bandwidth and disk I/O speed.	A machine sized for the Configuration Server more than accommodates a co-located Proxy Server.
Processor	A higher processor speed is more important than having multiple processors. Thus, we recommend as fast a processor as is practical (for example, 2 GHz).	Use the Configuration Server requirements for speed. However, multi-processors are strongly recommended for this configuration.
Memory	At least 512 MB. As with all systems, the more memory the better.	Configuration Server requirements are fine.
Disk Space	Provide at least double the anticipated total volume of resources to be housed (that is, your anticipated static and dynamic cache).	Configuration Server requirements are fine.

Component	Static Type = Agent	Static Type = Server
Disk Drive Speed	Fast access disk drives are highly advisable.	Configuration Server requirements are fine.
Network Interface Card (NIC)	A fast network card is a plus. Use a 1 GB NIC if your network supports it.	A second network card is helpful to address configurations where network volume becomes a constraining factor (large volume due to the size or number of resources to be transferred to Client Automation agents). When using two network cards, the Configuration Server is homed to one NIC IP address and the Proxy Server to the other.
Network Configuration	Minimize the number of router hops between Client Automation agent requesters and their respective Proxy Server to improve performance.	If servicing Client Automation agents, recommendation for a static type of Agent applies.

Windows System Requirements

- Connection to a computer running the Configuration Server.
- One of the following supported Windows operating systems, including x64 versions where applicable, *and the minimum Service Pack levels as identified in the release notes document that accompanies this release*:
 - Windows XP Professional
 - Windows Vista Business, Business Enterprise
 - Windows 2000 Server, 2003 Server, 2003 Server R2, 2008 Server

Platform Support

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

UNIX System Requirements

- Connection to the computer running the Configuration Server.
- One of the following supported UNIX platforms:
 - AIX operating system:
Version 5.2 or 5.3.
 - HP-UX operating system:
Version 11.0, 11.11, 11.23 or 11.31 on PA-RISC-2 architecture
Version 11.23 or 11.31 on Intel Itanium architecture
 - Red Hat Enterprise Linux, ES and AS:
Version 3 or 4 on x86 and AMD64/EM64T architectures
 - Red Hat Enterprise Linux Server:
Version 5 on x86 and AMD64/EM64T architectures
 - SUSE Linux Enterprise Server:
Version 9 or 10 on x86 and AMD64/EM64T architecture
 - Solaris operating system:
Version 8, 9, or 10 on SPARC; Version 9 or 10 on x86 architecture

Platform Support

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

Proxy Server Installation

- This topic covers installing the Proxy Server locally on a Windows or UNIX machine.

Windows and UNIX Installation Notes

- To complete the Proxy Server installation prompts, you need to understand the Proxy Server Preload process that resolves and loads the static cache. For details, see [Cache Definitions and Support](#) on page 19.

- Before you begin, locate your HP license file. You need this license file to install the products that you have purchased. If you need assistance, contact HP Technical Support.

During installation of the Proxy Server, the license file is renamed `license.nvd`, and is copied to the Integration Server's module directory.

- After installation, the Windows Proxy Server service is started automatically; but the UNIX Proxy Service does not.
- After installing the product from the Client Automation Enterprise media, check the HP Technical Support web site to see if a maintenance patch is needed to bring the product to the latest level. For details, see [Applying Product Updates](#) on page 42.
- To install the Proxy Server on a UNIX system, make sure the user who is installing the Proxy Server is logged in as root, and has adequate rights to create and update the target installation directory.



For the Proxy Server to operate correctly on Solaris platforms, the UNIX userID running the Proxy Server must include the directory `/usr/sbin` in the UNIX PATH environment variable setting. Contact your local system administrator if you need assistance.



In order for Client Automation to install correctly on HP-UX platforms, you must mount the Client Automation Enterprise media using `pfs_mount`.

The Client Automation Enterprise media is created using the Rock Ridge format. Since the HP-UX standard mount procedure is incompatible with the Rock Ridge file system type, HP has made available the PFS package (Portable File System) that allows their workstations to recognize this format. Specific instructions follow.

To mount the media placed on a DVD, insert it and type

```
/usr/sbin/pfs_mount -v -x unix /dvdrom/mnt
```

where:

`/dvdrom` is your physical media device.

To un-mount, type

```
/usr/sbin/pfs_umount /mnt
```

See your local UNIX systems administrator and UNIX man pages for more information.

Installing the Proxy Server to a Local Directory

This section describes how to install the Proxy Server to a local machine for both Windows and UNIX operating systems.

- Instructions for Windows begin below.
- Instructions for UNIX begin on page 38.

Following the installation, proceed with Configuring the Proxy Server on page 42.

Installing the Proxy Server Locally for Windows

This section describes how to install the Proxy Server to a local machine running Windows.

To install the Proxy Server locally for Windows

- 1 Double-click the `setup.exe` file from the Proxy Server installation source directory. The source directory is found on the media at the following path:
`Drive:\Infrastructure\extended_infrastructure\proxy_server\win32`

The Welcome window for the Proxy Server Setup program opens.

- 2 Click **Next**.

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

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

The Proxy Server directory window opens for you to select or enter the base directory for the Proxy Server install. This Proxy Server base directory specifies the location of the foundation Integration Server component. The default is `C:\Program Files\Hewlett-Packard\CM\IntegrationServer`.



If an instance of the Integration Server component [`httpd.tkd`] is already on the target machine, then the Proxy Server Directory window is bypassed and the Proxy Server is installed automatically to the existing Integration Server folder. Continue with step 6.

- 4 Type the name of the base directory in which to install the Proxy Server, accept the default directory shown in the text box, or click **Browse** and navigate to the directory in the Browse dialog box.



For each value requested during this installation procedure, press **Enter** to accept the default.

- 5 Click **Next**.

The License File window opens.

- 6 Browse to or type the name of your License File in the text box. You must enter a valid license file to continue the installation.

The license file will be copied to the `/modules` folder as `license.nvd` during the installation.

- 7 Click **Next**.

The HPCA Configuration Server Host IP Address window opens.

- 8 In the Server IP Address text box, type the IP Address or DNS name of the host Configuration Server. The Proxy Server connects to this host during the preload process to obtain its static cache resolution and static cache files. The default is `localhost`.



- Leave the default entry of `localhost` if you are co-locating this Proxy Server with a Configuration Server to enable HTTP download support. For additional details, see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.
- The Proxy Server Preload process must always connect to the host Configuration Server specified in the Server IP Address field for its static cache resolution. However, you can configure the Proxy Server to obtain the static cache files from another Proxy Server, if desired. For details, see [To change the deployment source or protocol for a preload to use HTTP](#) on page 67.

- 9 Click **Next**.

The HPCA Configuration Server Port window opens.

- 10 Accept or type the TCP port number of the Configuration Server to be used during the preload process for the static cache. The default port number is 3464.

- 11 Click **Next**.

The HPCA Configuration Server User ID window opens.

- 12 Specify the user ID that the Proxy Server will use to connect to the Configuration Server for its static cache preload resolution. The default is RPS.



The Client Automation user ID entered must correspond to an instance in the `Primary.Policy.User` class in the Configuration Server Database, where the static cache desired state policy for this Proxy Server is defined. See [Configuring the CSDB for the Static Cache Preload](#) on page 62.

- 13 Click **Next**.

The Installation Settings window opens.

- 14 Review the settings in the Installation Settings window. If you want to change any of these settings, click **Back**.
- 15 Click **Install** to begin the Proxy Server installation.

The Installation Progress window opens.

16 When the installation is finished, the Successful Installation window opens.

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

You have successfully installed the Proxy Server Windows to a local directory. The service for the Proxy Server is the HPCA Proxy Server, which is started.

- To apply any available product updates at this time, see [Applying Product Updates](#) on page 42.
- To complete the configuration of the Proxy Server for various options, see [Configuring the Proxy Server](#) on page 42.

Installing the Proxy Server Locally for UNIX

This section describes how to install the Proxy Server to a local site for UNIX.

Following installation, proceed with the topic [Configuring the Proxy Server](#) on page 42.

To install the Proxy Server locally for UNIX

- 1 The Proxy Server media is located on the Client Automation Enterprise media at the following location:

```
/Infrastructure/extended_infrastructure/proxy_server
```

Depending on your version of UNIX, change your current working directory to the correct `/proxy_server` subdirectory on the installation media.

Example: For HP-UX, type:

```
cd /dvdrom/Infrastructure/extended_infrastructure/  
proxy_server/hpux
```

- 2 At the command prompt, type `./setup`, and then press **Enter**.

The Welcome window for the Proxy Server Setup program opens.

- 3 Click **Next**.

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

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

The installation directory window opens for you to select or enter the base directory for the Proxy Server install.

The default Proxy Server install directory is:

```
/opt/HP/CM/IntegrationServer
```

- 5 Accept the default Proxy Server location, or type or browse to an alternate directory where you would like to install the Proxy Server.

This Proxy Server base directory specifies the location of the Integration Server component, installed with the product.

- 6 Click **Next**.

The License File window opens.

- 7 Type the location and name of your License File, or click **Browse** to select the file from the Browse dialog box.

- 8 Click **Next**.

The HPCA Configuration Server IP Address window opens.

- 9 Type the IP Address or hostname of the host Configuration Server the Proxy Server will connect to during a preload to obtain its static cache resolution and static cache files.



Leave the default entry of `localhost` if you are co-locating this Proxy Server with a Configuration Server to enable HTTP download support. For additional details, see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

The Proxy Server Preload process must always connect to the host Configuration Server specified in the Server IP Address field for its static cache resolution. However, you can configure the Proxy Server to obtain the static cache files from another Proxy Server, if desired. For details, see the procedure [To change the deployment source or protocol for a preload to use HTTP](#) on page 67.

- 10 Click **Next**.

The HPCA Configuration Server Port window opens.

- 11 Accept or type the TCP port number of the Configuration Server to be used to connect to the Proxy Server for the static cache Preload resolution. The default port number is 3464.

- 12 Click **Next**.

The HPCA Configuration Server User ID window opens.

- 13 Type the user ID that the Proxy Server will use to connect to the Configuration Server to obtain its static cache preload resolution. The default is RPS.



The user ID entered must correspond to an instance in the Primary.Policy.User class of the CSDB, where the static cache desired state policy for this Proxy Server is defined. See [Configuring the CSDB for the Static Cache Preload](#) on page 62.

- 14 Click **Next**.

The Installation Settings window opens.

- 15 Review the settings. If you want to change any of them, click **Back** until you reach the area of the installation you would like to change, and then click Next until you return to the Installation Settings window again.

- 16 Click **Install** to begin the Proxy Server installation.

The Installation Progress window opens.

- 17 When the installation is finished, the Successful Installation window opens.

- 18 Click **Finish** to exit the installation program.

You have successfully installed the Proxy Server locally for UNIX.


- To apply Product Updates at this time, see [Applying Product Updates](#) on page 42.
- To complete the configuration of the Proxy Server for various options, see [Configuring the Proxy Server](#) on page 42.
- To start or stop the Proxy Server for UNIX, use the commands discussed in the next topic, [Starting and Stopping the Proxy Server for UNIX](#).

Starting and Stopping the Proxy Server for UNIX

To start the Proxy Server for UNIX

- 1 Change your current directory to the directory where you installed the Proxy Server (`/opt/HP/CM/IntegrationServer` by default).
- 2 Type `./nvdkit httpd.tkd`
- 3 Press **Enter**.
- 4 The Proxy Server is started on your computer.

To stop the Proxy Server for UNIX

 The following are general guidelines and the commands are examples that may vary slightly depending on the UNIX type you are using.

- 1 Obtain the process ID for the Proxy Server by listing all the UNIX processes and extracting the process ID for `nvdkit`.

```
ps -f | grep nvdkit | sed /grep/d | awk '{ print $2 }'
```
- 2 Run the following command.

```
kill <PID>
```

The Proxy Server is stopped on your computer.

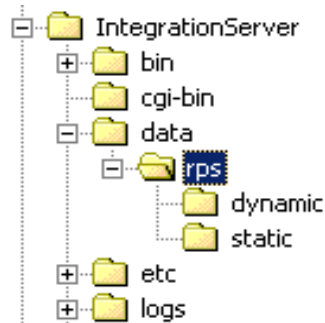
Proxy Server Directory Structure

The Proxy Server is installed, by default, into the following folders:

- For Windows, `Drive:\Program Files\Hewlett-Packard\CM\IntegrationServer`.
- For UNIX, `/opt/HP/CM/IntegrationServer`

Installing the Proxy Server adds the following subdirectories to the `IntegrationServer\data` folder, which store the Proxy Server's dynamic and static cache.

Figure 5 Proxy Server directory structure



Applying Product Updates

Product updates for licensed users of the Proxy Server are available for download from the [HP Support](#) web site.

- Check this site after installing the product from the infrastructure media to see if later software patch updates are available to bring the product to the latest level.
- Check this site on a regular basis to learn about available product maintenance.

Configuring the Proxy Server

Proxy Server Configuration File Overview

The Proxy Server installation creates a configuration file, `rps.cfg`, located in the `/etc` folder of the Proxy Server base installation directory. Following a local install, review the configuration parameters and make modifications to the `rps::init` section for the front-end communications protocol or the static or dynamic cache. [Table 3](#) on page 45 defines all parameters in the `rps.cfg` file and their default values.

Sample rps.cfg File After an Installation

The code below shows a sample `rps.cfg` file after product installation. Your `rps.cfg` file may show additional entries.

```
rps::init {  
  
    -httpd                1  
    -httpd-prefix         "/RESOURCE"  
  
    -static-root           "C:/Program~/Hewlett-Packard/CM/IntegrationServer/  
data/rps/static"  
    -static-trace          0  
    -static-type           agent  
    -static-host           localhost  
    -static-port           3464  
    -static-user           RPS  
    -static-ssl            0  
  
    -dynamic               0  
    -dynamic-root          "C:/Program~/Hewlett-Packard/CM /IntegrationServer/  
data/rps/dynamic"  
    -dynamic-prefix        "/RESOURCE"  
    -dynamic-url           "http://upstream:3466"  
    -dynamic-trace         0  
    -dynamic-maxsizeMB     0  
    -dynamic-makeidx       1  
}  
#  
# END OF CONFIG  
#  
# DO NOT REMOVE  
#  
rps::start
```

By default, after the installation:

- 1 Http front-end protocol is enabled; Stager front-end protocol (for TCP) is disabled.
- 2 Static cache is configured with entries from the install. The `-static-root` entry defines the data store location, and the `-static-host`, `-static-port` and `-static-user` entries define the static cache preload operation.
- 3 Dynamic cache operations are disabled.

Refer to the following topics to configure your `rps.cfg` file:

- [RPS.CFG Configuration Parameters Table](#), on page 44. This defines all of the configuration parameters available in this release.

- [Configuring the Dynamic Cache Parameters](#) on page 50.
- [Configuring the Proxy Server for an Internet Proxy \(Firewall\) Environment](#) on page 56.
- [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

RPS.CFG Configuration Parameters Table

[Table 3](#) on page 45 summarizes the parameters in the `rps.cfg` file and their default values. Parameters are listed in alphabetical order.

The configuration parameters in the `rps.cfg` file fall into three categories:

- **Front-end Client Automation agent communication options: -httpd (http) or -stager (TCP/IP)**

By default, the Proxy Server is configured with the `-httpd` front end enabled. This uses the HTTP front end protocol to communicate with Client Automation agents. When needed, the `-stager` front-end option is also available to communicate with agents using TCP/IP; for details, see [Using TCP/IP for Client Automation Agent Communication](#) on page 80.

- **Static cache settings**

The group of `-static*` parameters configure the static cache and its TCP connection to the Configuration Server to obtain a preload resolution. Modify the `-static*` parameters in the `rps.cfg` file to change the values set during the installation or to set additional options, such as tracing.



To configure a Proxy Server co-located with the Configuration Server, you need to modify the static cache parameters after installation. See the topic [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

- **Dynamic cache settings**

The dynamic cache is not configured during the install. You must manually enable it (that is, change `-dynamic` from 0 to 1 in `rps.cfg`) and specify its options by editing the `rps.cfg` file. For details, see [Configuring the Dynamic Cache Parameters](#) on page 50.

Table 3 Configuration file rps.cfg parameters

Parameter	Default	Description
-dynamic	0	When set to 1, the dynamic cache is enabled and an entry in <code>-dynamic-url</code> is required to specify the upstream host. When set to 0, the dynamic cache is disabled, and all <code>-dynamic*</code> parameters are disregarded.
-dynamic-allow-shared-resource-purge	0	When set to 0, safeguards against purging dynamic cache from a CSDB. Recommend keeping at 0. Set to 1 to remove the safeguard.
-dynamic-defdmn		HTTP upstream URL (Configuration Server's) domain.
-dynamic-defcls		HTTP upstream URL (Configuration Server's) class.
-dynamic-freespace	10	A percentage of the <code>-dynamic-maxsizeMB</code> to be left as free disk space after executing a size-based purge. The default is 10 %. When a size-based purge is triggered, the purge will delete files until the cache file size is reduced by this percentage below the maximum size. Used with <code>-dynamic-maxsizeMB</code> .
-dynamic-largefile-mindays	0	Specifies the minimum days a 'large file' should be retained (during a size-based purge). Disabled when set to 0 (default). Used with <code>-dynamic-maxsizeMB</code> and <code>-dynamic-largefile-size</code> .
-dynamic-largefile-size	0	Specifies the size of a 'large file' in bytes. To specify the size in MB, enclose in quotation marks, such as: "250 mb". When not equal to 0, files of this size or greater are excluded from deletion during the first pass of a size-based purge. Disabled when set to 0 (default). Used with <code>-dynamic-maxsizeMB</code> .

Parameter	Default	Description
-dynamic-maxdays	7	<p>The number of days to keep un-requested resources in the dynamic cache (if a file is regularly requested, it would never be deleted). Defines "aged" files for dynamic cache cleanup.</p> <p>Files that have not been requested for longer than this period are deleted from the cache whenever the dynamic index file is saved. (See <i>-dynamic-savetod</i> and <i>-dynamic-savefreq</i> for frequency.)</p>
-dynamic-maxsizeMB	0	Maximum size of dynamic cache. 0 indicates no maximum. To set a maximum size, enter the number of MB, such as 200 for 200 MB.
-dynamic-makeidx	1	When set to 0, turns off making the dynamic cache idx file (no purge). A date-based purge of aged files is performed whenever the index file is saved. (See <i>-dynamic-maxdays</i>).
-dynamic-prefix	"/RESOURCE"	HTTP upstream URL prefix (append <code>Domain.Class.OID</code>).
-dynamic-proxy-host	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Dynamic Cache Upstream Host machine, enter the Internet proxy's hostname or IP address.
-dynamic-proxy-pass	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Dynamic Cache upstream host machine, enter the connecting User's password.
-dynamic-proxy-port	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Dynamic Cache Upstream Host machine, enter the Internet Proxy port number to use.
-dynamic-proxy-user	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Dynamic Cache Upstream Host machine, enter the connecting User name.

Parameter	Default	Description
-dynamic-root	See description.	The fully-qualified location to store the dynamic cache. For example: "C:/Program Files/Hewlett-Packard/CM/IntegrationServer/data/rps/dynamic"
-dynamic-savefreq	90	When -dynamic-savetod is disabled (-1), specifies how often (in minutes) to save index file and cleanup cache. The save index file process is skipped when there are no changes to be applied.
-dynamic-savetod	-1	Specifies time of day (hh:mm:ss) to save dynamic index file and cleanup cache each day. Overrides -dynamic-savefreq. Disabled when set to -1. The save index file process is skipped when there are no changes to be applied.
-dynamic-ssl	0	When set to 1, enables the SSL protocol for use with an Internet proxy.
-dynamic-trace	0	When set to 1, information is recorded for diagnostic tracing.
-dynamic-url	"http://upstream:3466"	HTTP upstream URL (append <code>prefix</code>). Replace <i>upstream</i> with the upstream host the Proxy Server makes a connection with for obtaining dynamic cache. The upstream host can be Proxy Server co-located with the Configuration Server, or another Proxy Server. To change the default port (3466) modify the PORT setting in the <code>httpd.rc</code> file located in the <code>/etc</code> directory where you installed the Proxy Server. Optionally, define multiple upstream hosts for fail-over support. Enclose all entries in one set of quotation marks. Space-separate each upstream host. For example: "http://upstream1:3466 http://upstream2:3466"

Parameter	Default	Description
-httpd	1	When set to 1, HTTP front end is enabled, supporting HTTP communication with Client Automation agents. Do not change.
-httpd-prefix	"/RESOURCE"	The URL prefix registered to Integration Server. Do not change.
-httpd-trace	0	This parameter is reserved for future use.
-stager	0	Staging on or off. When set to 1, the stager (native TCP/IP) front end is enabled. Not recommended for use with current agents. Typically used to transition only from older agents.
-stager-addr	0.0.0.0	Restricts IP address used by Proxy Server (if using multiple IP addresses on one computer).
-stager-port	3461	Listening port used by the stager front end.
-stager-trace	0	When set to 1, information is recorded for diagnostic tracing.
-static-host	localhost	Agent upstream host (example, Configuration Server). Used for initiating the Preloader connect. Replace with IP address of the upstream host.
-static-logsize	1000000	Specifies the size of the Preloader connect.log file in bytes. Connect.log is in the Integration Server's /logs/rps folder. When the logsize is reached, a backup file (.BAK) is created. By default, this file is connect.bak. If a backup file already exists, it will be overwritten.
-static-port	3464	Agent upstream TCP port. Used during preload.

Parameter	Default	Description
-static-proxy-host	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Agent upstream host during Preload, enter the Internet proxy's hostname or IP address.
-static-proxy-pass	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Agent upstream host during the Preload, enter the connecting User's password.
-static-proxy-port	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Agent upstream host during the Preload, enter the Internet Proxy port number.
-static-proxy-user	""	To pass through an Internet proxy machine or a Firewall proxy when connecting to the Agent upstream host during the Preload, enter the connecting User name.
-static-root	<i>See description</i>	The fully qualified location of the Preloader's data store (IDMDATA). For example: "C:/Program Files/Hewlett-Packard/CM/IntegrationServer/data/rps/static"
-static-type	agent	When set to agent, the static cache is populated by the Preloader. Set to server to point the cache to a native CSDB (where the Proxy Server is installed on the same computer as the Configuration Server).
-static-ssl	0	When set to 1, indicates the Preloader is to use SSL.
-static-trace	0	When set to 1, information is recorded for diagnostic tracing.
-static-user	RPS	Agent upstream identity on the CSDB in Primary.Policy.User (ZUSERID). Used during preloading. The services connected to this user ID will be preloaded into the static cache on the Proxy Server.

Editing the RPS.CFG File

To edit the RPS.CFG File

Before modifying the `rps.cfg` file, stop the service for the Proxy Server. See [Starting and Stopping the Proxy Server for Windows](#) on page 86 or [Starting and Stopping the Proxy Server for UNIX](#) on page 41.

- 1 Make your modifications to the `rps::init` section of the `rps.cfg` file.
- 2 After making your modifications, restart the service.

Syntax Notes

- When the following parameters are disabled (that is, set to 0), all other options related to the parameter are disregarded:

- dynamic
 - httpd
 - stager

For example, if `-dynamic` is 0, the entire set of `-dynamic*` parameters are disregarded.

- Use quotation marks to enclose entries that include special characters or spaces. For example, the following `-dynamic-root` entry uses quotation marks to enclose the fully-qualified location of the dynamic cache store.

- ```
-dynamic-root "C:/Program Files/Hewlett-Packard/CM/IntegrationServer/data/rps/dynamic"
```

- Use slashes [/] to specify the paths for the `-dynamic-root` and `-static-root` parameters in both Windows and UNIX environments. For example:

- ```
-dynamic-root "C:/Program Files/Hewlett-Packard/CM/IntegrationServer/data/rps/dynamic"
```

Configuring the Dynamic Cache Parameters

When dynamic caching is enabled, agent requested resources not available on the Proxy Server's local cache would be requested on demand from a designated upstream host. The resources are downloaded from the upstream host using HTTP, placed in the dynamic cache of the Proxy Server, and provided to the Client Automation agent.



Dynamic cache use is never recommended for a Proxy Server co-located with a Configuration Server. For details, please see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

The minimal `rps.cfg` entries required for dynamic caching are simply the `-dynamic` and `-dynamic-url` parameters, which enable the dynamic cache and define the upstream URL for obtaining the requested files. (The `-dynamic-root` location is set during the install.)

```
rps::init {  
...  
    -dynamic 1  
    -dynamic-url http://<upstream>:3466  
...  
}
```

The balance of the dynamic cache entries are optional. If absent from the `rps::init` section, the default values are assumed. Use Table 4 as a guide to configuring the dynamic cache for your environment.



See [Table 3](#) on page 45 for complete definitions of each parameter listed in [Table 4](#) below.

Table 4 Dynamic Cache parameter summary

Objective	RMS.CFG Parameters to Use
Specify an upstream host and http port; either a Configuration Server enabled for HTTP downloads, or another Proxy Server. Specify multiple hosts for fail-over support. Required.	<code>-dynamic 1</code> <code>-dynamic-url "http://upstream:3466"</code> or <code>-dynamic-url "http://upstream:3466 http://upstream2:3466 http://upstreamN:3466"</code>
Specify where to store the dynamic cache on the Proxy Server.	<code>-dynamic-root</code>

Objective	RMS.CFG Parameters to Use
<p>Save the index file that is used to track when files were last requested. A save also purges "aged" dynamic cache files not requested in a specific number of days. Schedule the index file save daily or every <i>nn</i> minutes.</p> <p>Note: A scheduled index file save (and thus the data-based purge) is skipped if there are no changes in the index file at that time.</p>	<p>-dynamic-maxdays -dynamic-makeidx -dynamic-savefreq -dynamic-savetod</p>
<p>Set a maximum cache size. If the maximum cache size is exceeded, the least recently used files are deleted until the maximum size is reached.</p> <p>Options:</p> <ol style="list-style-type: none"> 1 Set a low-water mark (freespace) for a size-based purge. 2 Define 'large files' to be exempt during the first pass of the size-based delete. 	<p>-dynamic-freespace -dynamic-maxsizeMB -dynamic-largefile-size -dynamic-largefile-mindays</p>
<p>Revise the safeguard against purging the dynamic cache stored on a shared resource, such as the Configuration Server.</p>	<p>-dynamic-allow-shared-resource-purge</p>
<p>Set diagnostic tracing.</p>	<p>-dynamic-trace</p>
<p>Provide server, port, user, and password information to pass through an Internet Proxy or Firewall required to connect to the upstream host. Also, enable SSL protocol.</p>	<p>-dynamic-proxy-host -dynamic-proxy-port -dynamic-proxy-user -dynamic-proxy-pass -dynamic-ssl</p>

Objective	RMS.CFG Parameters to Use
Override the default prefix.domain, and class OID for obtaining resources from the upstream URL. Not normally needed.	-dynamic-prefix -dynamic-defdmn -dynamic-defcls

Coding Multiple Upstream Hosts for Dynamic Cache Fail-over Support

When dynamic cache is enabled, the upstream host and port are defined in the `-dynamic-url` parameter of the `rps.cfg` configuration parameter. Multiple hosts may now be specified in the `-dynamic-url` parameter, using a blank separated list, to provide for a second, third, or more, upstream host with which to attempt to connect if a connection with the previously listed host fails. If all defined hosts in the list fail, an error will be returned to the Proxy Server user.

For example, if you code the `-dynamic-url` as:

```
-dynamic-url "http://111.111.111.11:3466 http://upstream2:3466 http://upstream3:3466"
```

the Proxy Server will first attempt to connect to **http://111.111.111.11** on port 3466 to obtain its dynamic cache. If that connection fails, it will attempt to connect to the second upstream host in the list, **http://upstream2** on port 3466. If the second connection fails, it will attempt the third entry, **http://upstream3** on port 3466. If the third connection fails, an error message is generated.



Use one set of quotation marks to enclose the entire list of upstream hosts. Otherwise, you will receive a syntax error.

The Date-Based Purge of the Dynamic Cache

Every time a file is requested from the Dynamic Cache, the request date is recorded and maintained. If a file has not been requested in a pre-defined maximum number of days, it is deleted whenever a date-based purge occurs. Use the `-dynamic-maxdays` parameter in `rps.cfg` to specify the maximum number of days to keep unrequested files in the dynamic cache. The default is 7 days.

A date-based purge can be triggered whenever the dynamic cache index file is saved. For details, see the following topic, [Saving the Index File](#).

Saving the Index File

An index file is maintained to keep track of when files in the Dynamic Cache were last used. Every so often this index file is saved to update the “last-used” date in the dynamic cache files. Whenever the index file is saved, a date-based purge of the dynamic cache also takes place to cleanup “aged” files.

The schedule for saving the index file is established using either the `-dynamic-savetod` or `-dynamic-savefreq` parameters. Use the `-dynamic-savefreq` parameter to schedule the index file save process every *nn* minutes.



For a date-based purge to occur, the index file save process must run. The index file save process is skipped when there are no changes to be applied to it. Therefore, if a dynamic cache has had no resources requested of it or added to it since a previous save, the index file save is skipped and the date-based purge is also skipped.

To use either of these options, first ensure the following dynamic cache parameters are specified:

```
-dynamic                1
-dynamic-makeidx        1
-dynamic-maxdays       <max days to hold unrequested files>
```

- Use the `-dynamic-savetod` parameter to set a daily schedule for saving the dynamic index and purging the dynamic cache. A `-dynamic-savetod` entry overrides a `-dynamic-savefreq` entry. Valid values are `-1` (disabled) or `hh:mm:ss`. Seconds may be omitted.

Example: To set a time-of-day for the purge to occur daily, use the `-dynamic-savetod` parameter with the time specified in the format `hh:mm:ss`. For example, the following set of parameters will automatically run a purge of the dynamic cache each day at 3:00 AM to delete files that have not been requested for seven days.

```
-dynamic                1
-dynamic-makeidx        1
-dynamic-maxdays       7
-dynamic-savetod        3:00
```

- If `-dynamic-savetod` is not specified, use the `-dynamic-savefreq` parameter to specify how often (in minutes) to save the index file and purge the dynamic cache.

Example: The following set of parameters automatically runs a purge of the dynamic cache every 120 minutes for files unrequested for seven days.

```
-dynamic 1
-dynamic-makeidx 1
-dynamic-maxdays 7
-dynamic-savefreq 120
```

Specifying a Size-Based Purge of the Dynamic Cache

Use the following options to automatically have files deleted from the dynamic cache to keep its size in check.

- Automatically run a size-based purge when the maximum size is exceeded.

The maximum size of the dynamic cache is specified in the `-dynamic-maxsizeMB` parameter in `rps.cfg`. When this maximum size is exceeded, a size-based purge of the dynamic cache will run automatically, purging the least recently used files until the target size is reached.

For example, the following entries specify an automatic purge of the least recently used files if the dynamic cache exceeds 300 MB. The purge process deletes the least recently used files until the cache is below the maximum size, or, to the size required by the new `-dynamic-freespace` parameter (next feature).

```
-dynamic 1
-dynamic-maxsizeMB 300
```

- Define a "freespace" amount to be available after a size-based dynamic cache purge

When a size-based purge is triggered, you may specify a `-dynamic-freespace` option to purge the dynamic cache down to a low-water mark (as a percentage of the maximum file size). This allows you to bring the cache size down to a predefined manageable size whenever it reaches the maximum file size. Use this option to eliminate repetitive calls to the purge process if upstream downloads occur frequently.

To specify the `-dynamic-freespace` parameter, define a percentage of free space required upon completion of a size-based purge. For example: the following options will trigger a purge of the dynamic cache when it

reaches 300 MB, and will purge the least recently used files until the dynamic cache size is more than 10% below 300, or under 270 MB.

```
-dynamic 1
-dynamic-maxsizeMB 300
-dynamic-freespace 10 <percentage below the maxsizeMB
after the purge>
```

- Exempt large files from the first-pass of a size-based purge

Normally, when a size-based purge takes place, the least recently used files are purged from the dynamic cache first. If large files are purged and then later requested, an undue load could be placed on the network. Use the following two "large file" parameters to allow the purge process to skip over the files that meet these large file criteria during an initial purge.

```
-dynamic-largefile-size <defines minimum large file size,
in bytes>
-dynamic-largefile-mindays <defines minimum days large files
stay in cache>
```

Example: The following entries define large files as "25 MB" and the minimum number of days to remain in the cache as 15. So, the first pass of the purge will exempt files 25 MB or larger that have remained in the cache less than 15 days, even if they meet the normal "least recently used" criteria.

```
-dynamic 1
-dynamic-maxsizeMB 300
-dynamic-freespace 10
-dynamic-largefile-size "25 MB"
-dynamic-largefile-mindays 15
```

If, after purging the non-large files, the desired (reduced) cache size is not achieved, then the purge process will be repeated without regard to the large file settings.

Configuring the Proxy Server for an Internet Proxy (Firewall) Environment

The following examples illustrate how to use the set of `-static-proxy*` and `-dynamic-proxy*` configuration parameters that provide support for environments with an Internet proxy or firewall server. Use these parameters to define the host, port, user name and passwords needed to pass through the firewall or Internet proxy for a static cache preload or a dynamic cache request.

Examples of TCP Parameters for Static Cache Preloader

The static cache Preloader uses TCP to connect to the Configuration Server for the initial resolution. In the examples below, 443 is defined in order to get through a firewall, which typically opens ports 80 and 443.

- **Simple Connection**

```
-static-host      "<RCS IP Address or hostname">
-static-port      3464
```

- **Connection through Web Proxy**

```
-static-proxy-host  "<Web-Proxy IP address or Hostname">"
-static-proxy-port  8080
-static-host        "<RCS IP Address or Hostname">"
-static-port        443
```

- **Connection through Web Proxy performing Basic User Authentication**

```
-static-proxy-host  "<Web-Proxy IP address or Hostname">"
-static-proxy-port  8080
-static-proxy-user  "<Web-Proxy Username">"
-static-proxy-pass  "<Web-Proxy Password">"
-static-host        "<RCS IP Address or Hostname">"
-static-port        443
```

Examples of HTTP Parameters for Dynamic Cache PassThru

The dynamic cache uses an HTTP port to connect to a Configuration Server enabled for HTTP-download support, or another Proxy Server. Additional dynamic cache parameters are available to pass through an Internet or Firewall Proxy, with or without basic user authentication. The following examples illustrate how to use these Firewall Proxy parameters.

- **Simple Connection to upstream HTTP host and port**

```
-dynamic          1
-dynamic-url      http://upstream:3466
```

- **Connection through Web Proxy**

```
-dynamic          1
-dynamic-url      http://upstream:3466
-dynamic-proxy-host  "<Web-Proxy IP Address or Hostname">"
-dynamic-proxy-port  8080
```

- **Connection through Web Proxy performing Basic User Authentication**

```
-dynamic 1
-dynamic-url http://upstream:3466
-dynamic-proxy-host "Web-Proxy IP address or Hostname"
-dynamic-proxy-port 8080
-dynamic-proxy-user "Web-Proxy-username"
-dynamic-proxy-pass "Web-Proxy-Password"
```

Co-Locating a Proxy Server with a Configuration Server for HTTP Support

The Configuration Server does not provide native HTTP download capability. When you use a Client Automation configuration that requires obtaining resources from the CSDB using HTTP, you need to co-locate a Proxy Server on the same machine as the Configuration Server. The co-located Proxy Server is defined with a static type of server, instead of agent. This means it does not store its own static cache, but merely points to that of the CSDB. It does not need to be preloaded.

Configurations that Require a Co-located Proxy Server

You need a Proxy Server co-located with the Configuration Server to provide HTTP download support in the following configurations:

- To support Client Automation agents configured to obtain their resources from the CSDB using HTTP, instead of TCP/IP.
- To support a subordinate, or downstream, Proxy Server, configured to obtain its dynamic cache from the CSDB.
- To preload a subordinate, or downstream, Proxy Server from the CSDB using HTTP, instead of TCP/IP.

For details on each of these configurations, see [When to use a Co-located Proxy Server](#) on page 25.

Once you co-locate a Proxy Server on the Configuration Server, you can use its IP address and port number (generally: 3466) to obtain the CSDB resources using HTTP.

Installing and Configuring a Co-located Proxy Server

Use these procedures to establish a co-located Proxy Server with your Configuration Server in order to service HTTP requests for resources to be downloaded from the CSDB.



The ability to service HTTP requests was previously provided through ZHTTPMGR, which is no longer supported. A co-located Proxy Server provides improved performance and scalability over ZHTTPMGR for enabling the Configuration Server for HTTP communications. Steps to remove ZHTTPMGR begin on page 61.

To install and configure a co-located Proxy Server

- 1 Install the Proxy Server on the same machine as the Configuration Server. Accept the default values throughout the install prompts.
For details, see [Proxy Server Installation](#) topics on page 33.
- 2 For Windows, stop the HP Client Automation IntegrationServer service (which starts automatically after the Proxy Service is installed).
- 3 Modify the following `rps.cfg` file parameters using the guidelines given in [Table 5](#) below. The `rps.cfg` file is located in the `/etc` folder of the base install directory.



See [Table 3](#) on page 45 for a complete listing of `rps.cfg` parameters.

Table 5 Configuring the RPS.CFG file for a co-located Proxy Server

Parameter	Default	Set to this Value	Description
-static-root	See description	See description	The fully qualified location of the Preloader's data store. Enter the location of the CSDB. Use slashes (/) as delimiters in the entry for Windows as well as UNIX. By default, this location is: Windows: C:/Program Files/Hewlett-Packard/CM/ConfigurationServer/DB UNIX: /opt/HP/CM/ConfigurationServer/DB

Parameter	Default	Set to this Value	Description
-static-type	agent	server	Set to server to point the static cache to a native CSDB.
-dynamic	0	0	Use of the dynamic cache is NOT RECOMMENDED for a co-located Proxy Server. For details, see Safeguarding the CSDB from a Dynamic Cache Purge on page 61.

Here's a sample `rps.cfg` file configured for a Proxy Server co-located with the Configuration Server.

```
rps::init {
    -httpd 1
    -httpd-prefix "/RESOURCE"
    -static-root "C:/Program Files/Hewlett-Packard/CM/
ConfigurationServer/DB"
    -static-type server
    -static-trace 0
    -static-host <leave default>
    -static-port 3464
    -static-user RPS
    -static-ssl 0
    -dynamic 0
    -dynamic-root <leave default>
    -dynamic-url http://upstream:3466 <leave default>
    -dynamic-trace 0
    -dynamic-maxsizeMB 0
    -dynamic-makeidx 0
}
#
# END OF CONFIG
#
# DO NOT REMOVE
#
rps::start
```

- 4 Restart the co-located Proxy Server.
- 5 If necessary, switch the dynamic cache upstream port number (specified in the `-dynamic-url` parameter of `rps.cfg`) for any Proxy Servers that were previously pointing to the Configuration Server port as its upstream

host. These Proxy Servers should now point to the co-located Proxy Server port (3466) as their upstream port.

Safeguarding the CSDB from a Dynamic Cache Purge

The recommended approach for configuring a Proxy Server co-located with the Configuration Server is to point the static cache at the CSDB, set the `-static-type` to "server", and disable the dynamic cache.

The Proxy Server includes automatic protection to guard against purging files from the CSDB in the event that a co-located Proxy Server's dynamic cache is enabled. The `-dynamic-allow-shared-resource-purge` parameter, when set to 0 (default), prevents CSDB files from being deleted during any dynamic cache purge process. This might occur when a co-located Proxy Server is unusually configured (against recommendation) as follows:

- dynamic cache is enabled
- dynamic cache root points to the CSDB.

Using the default (`-dynamic-allow-shared-resource-purge` set to 0) protects your CSDB from any dynamic cache purges.

Setting the parameter to 1 removes the safeguard and allows a purge of dynamic-cache files from the CSDB.

Removing the Use of ZHTTPMGR for HTTP Support

If you previously used ZHTTPMGR to enable your Configuration Server for HTTP, you should remove that support and replace it with a co-located Proxy Server.

To remove ZHTTPMGR support from a Configuration Server

- 1 Locate the Configuration Server Settings file, EDMPROF. The specific EDMPROF file name and location for Unix and Windows are listed below:
 - On UNIX operating systems, it is `.edmprof`, located on the home directory of the UNIX user ID that installs, starts, stops, and maintains the Configuration Server.
 - On Windows operating systems, it is `edmprof.dat`, located in the `bin` folder of the Configuration Server directory.

If a Configuration Server was enabled for HTTP support through the use of ZHTTPMGR, the EDMPROF file will have the following entries in the MGR_ATTACH_LIST and MGR_HTTP sections:

```
[MGR_ATTACH_LIST]
CMD_LINE=(zhttpmgr ADDR=RCS_IP_Addr, PORT=8080) RESTART=YES

[MGR_HTTP]
HTTP_PORT=8080
```

- 2 In the [MGR_ATTACH_LIST] section, comment out the CMD_LINE entry for zhttpmgr.
- 3 In the [MGR_HTTP] section, comment out the HTTP_PORT entry.

Configuring the CSDB for the Static Cache Preload

Each Proxy Server whose static type is set to agent (that is, not a Proxy Server co-located with the Configuration Server) requires a Preload entitlement policy defined in the CSDB.

This Preload entitlement policy defines:

- The resources to be loaded onto the Proxy Server's static cache when the Preload runs.
- Where the resources should be distributed from and under which protocol. By default, the resources are distributed from the host Configuration Server using TCP.

The following additional preload configuration options are available, and discussed in the topic [Preloading Deployment Options](#) on page 66:

- Preload using HTTP from a co-located, or another, Proxy Server
- Preload using a Secure Socket Transfer (SSL) protocol
- Preload using multicast from a Configuration Server or another Proxy Server that has a co-located Multicast Server
- For Windows Installer Enabled Applications, the ACP resources to be loaded onto the Proxy Server, but not distributed to the Client Automation agents. See [Preloading Windows Installer Enabled Applications](#) on page 76.

Use the following procedures to create a static cache desired-state policy entitlement in the CSDB for each Proxy Server to be preloaded. This can be done before or after the Proxy Servers are installed and configured.

Creating the Entitlement Policy for a Static Cache Preload

To create the entitlement policy for the Preload of the Static Cache



This task requires a basic understanding of the CSDB and how to create an entitlement policy. This topic is covered in the Implementing Entitlement Policy chapter of the *Client Automation Enterprise Application Manager and Application Self-service Manager Installation and Configuration Guide*.

- 1 Create a POLICY.USER instance in the CSDB that matches the User ID entered during the Proxy Server install, or later specified in the `--static-user` parameter in the `/etc/rps.cfg` file. The User ID default is RPS. However, the User ID is often set to: `RPS_machine_name`.
- 2 Connect the POLICY.USER instance to the set of applications to be preloaded to the Proxy Server's static cache.



Alternatively, if multiple Proxy Servers require the same set of applications to be preloaded, create a PRIMARY.POLICY.WORKGRP instance to define the set of applications to be preloaded, and then connect each PRIMARY.POLICY.USER instance to the PRIMARY.POLICY.WORKGRP instance. For details, see [To configure a Proxy Server Workgroup to preload all database applications](#) below.

For details on how to entitle a PRIMARY.POLICY.USER instance to application services, refer to the Implementing Entitlement Policy chapter of the *Application Manager and Application Self-service Manager Guide*.

To configure a Proxy Server Workgroup to preload all database applications

The following steps serve as one example of defining the applications to preload on a Proxy Server. This example preloads the Proxy Server with all available applications using a POLICY.WORKGRP instance. Your preload should specify the set of applications normally required by the Client Automation agents assigned to that Proxy Server.

- 1 Use the Admin CSDB Editor to create a PRIMARY.POLICY.WORKGRP instance called CM_PROXY_PRELOAD_APPS.
 - a From the Start menu, select **Programs → HP Client Automation Administrator → CSDB Editor → Client Automation Admin CSDB Editor**.

- b In the tree-view, double-click on the following icons to open them:
PRIMARY → POLICY → WORKGRP.

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

The Create Instance dialog box appears, allowing you to type a display name and an instance name. The display name defaults to the instance name if left blank.

- d Tab to the second text entry field below Create a new Workgroups (WORKGRP) instance named:.

- e Type a name for the instance, for example:
HPCA_PROXY_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 Proxy Server. Details follow:

- a Click on the **Workgroups (WORKGRP)** class entry in the tree view.

- b Double-click on the **HPCA_Proxy_Preload_Apps** entry in the list view.

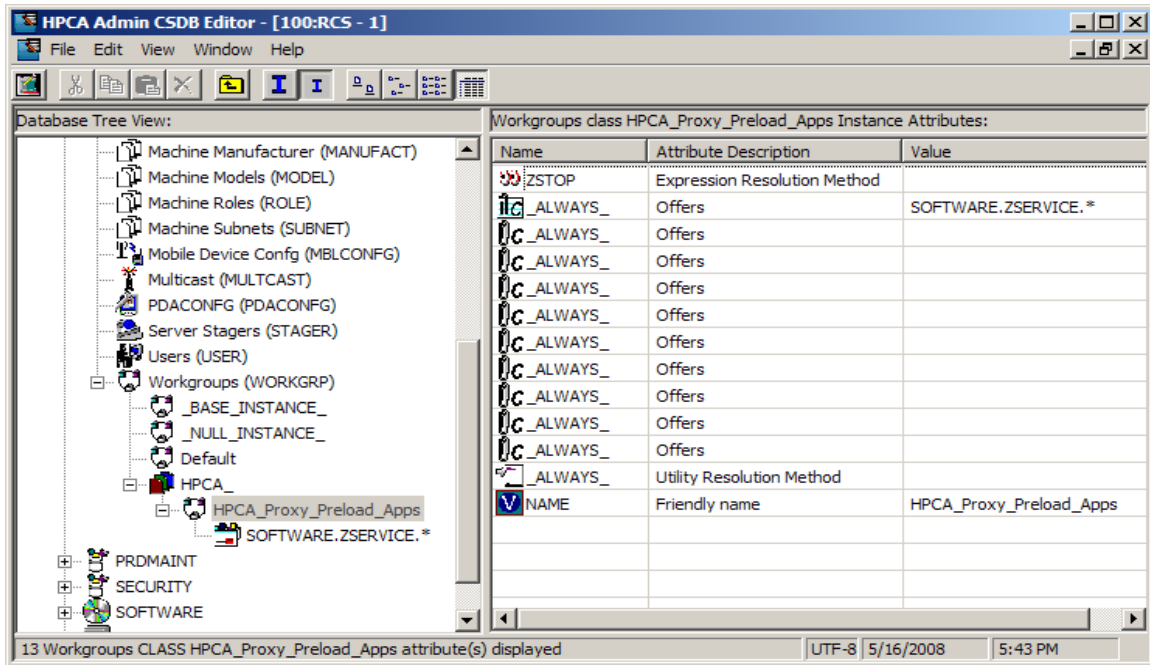
- c Double-click on the top _ALWAYS attribute in the list view.

- d In the edit instance dialog box, type the following Offers value:

SOFTWARE.ZSERVICE.*

- e Click **OK**.

The following figure shows the _ALWAYS entry added to preload all applications.



- 3 Connect the PRIMARY.POLICY.USER instance for the Proxy Server(s) with this PRIMARY.POLICY.WORKGRP instance. Details on making this connection follow.



Refer to the Implementing Entitlement Policy chapter of the *Client Automation Enterprise Application Manager and Application Self-service Manager Installation and Configuration Guide* for comprehensive information on how to assign users to groups.

To connect a Policy User RPS instance to a Policy Workgroup instance

- 1 In the Admin CSDB Editor tree view, navigate to the PRIMARY.POLICY.USER class.
- 2 Double-click **Users** to expand the class instances.
- 3 Right-click on the **RPS** user instance that is to be connected to the Workgroup instance, and from the pop-menu that appears, click **Show Connections**.
- 4 In the resulting POLICY.CONNECTIONS dialog box, double-click the Class listing for **Workgroups**.

Now, HPCA_Proxy_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 Starting from the list view, use your mouse to drag the icon for the HPCA_Proxy_Preload_Apps workgroup instance over the selected RPS user instance in the tree view.



Your mouse icon changes to a paper-clip when you place it on the selected User.RPS instance. This indicates that the connection is allowed.

- 6 Complete the connection by dropping the HPCA_Proxy_Preload_Apps icon (by releasing the left mouse button) on the RPS user instance.

The Select Connection dialog opens, indicating a connection will be made between the selected User.RPS instance and the Workgroups.HPCA_Proxy_Preload_Apps instance.

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

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

The User.RPS instance is connected to the Workgroups.HPCA_Proxy_Preload_Apps instance.

- 9 To test the preload, open a web browser window and type the following command:

```
http://proxy_machine_name:3466/proc/rps/sync
```

For more information on using this command and where to check for the preloaded data files, see [Performing or Testing the Proxy Server Preload](#) on page 94.

Preloading Deployment Options

A Proxy Server's preload resolution is always performed on the host Configuration Server. However, there are several ways to configure the actual deployment of the static cache resources in a Client Automation environment. These deployment options are set the same way that Client Automation agents are configured to obtain their resources from the Proxy Server. For HTTP or HTTPS, this means associating a pre-configured STAGER instance with the Proxy Server's User instance in the CSDB. For multicast, this means associating a pre-configured MULTICAST instance with a Proxy Server User or Workgroup instance in the CSDB.

The configuration options for preloading the Proxy Server Static Cache include:

- [Preloading Using HTTP](#)
- [Preloading Using SSL \(TCPS or HTTPS\)](#)
- [Preloading Using Multicast](#)

These configuration options are discussed in the following topics.

Preloading Using HTTP

By default, a Proxy Server's static cache is preloaded from the resources on the host Configuration Server using TCP. Use the following configuration steps to preload the static cache from the HTTP port of a co-located Proxy Server or another, pre-loaded, Proxy Server.

[To change the deployment source or protocol for a preload to use HTTP](#)

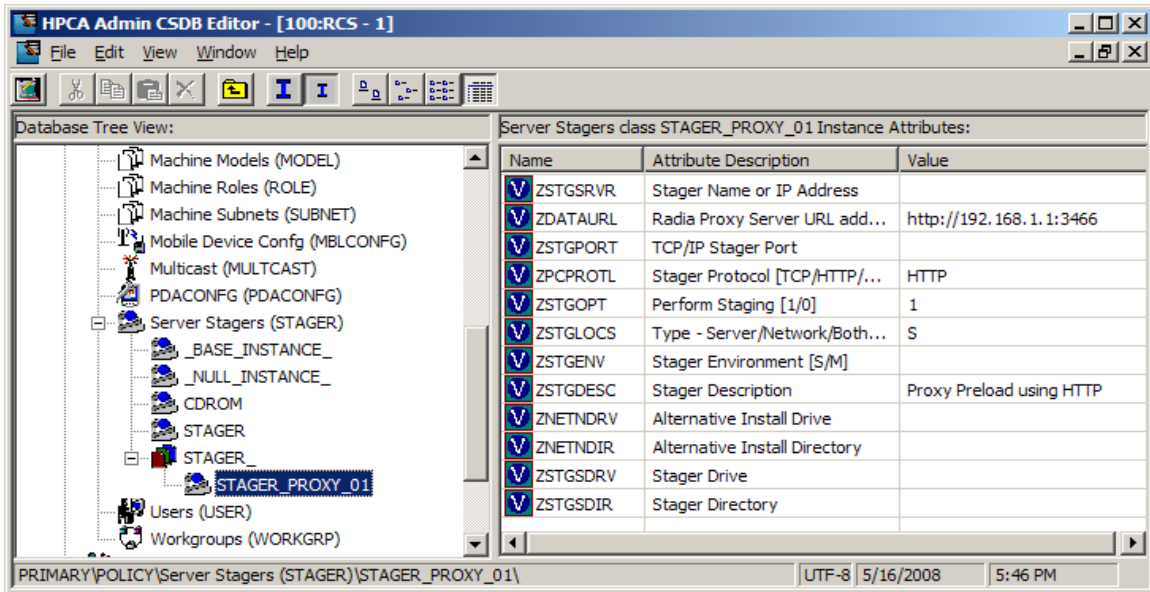
- 1 Using the Admin CSDB Editor, create a STAGER instance to be used to preload the Proxy Server from another Proxy Server, or to preload using the HTTP port of a co-located Proxy Server.
- 2 Set the **ZPCPROTL** and **ZDATAURL** attributes for the Stager instance to the values given in Table 6 below.

Table 6 shows the Stager instance attributes that are needed to preload a Proxy from a co-located or remote Proxy Server using HTTP.

Table 6 Stager Instance Attributes

Stager Attribute	Set to this Value
ZPCPROTL	HTTP
ZDATAURL	<code>http://<Your RPS IP Addr or Hostname>:3466</code> Replace <code><Your RPS IP Addr or Hostname></code> with the IP address or Hostname of the Proxy Server to be used to obtain the static cache Preload files, in lieu of the Configuration Server. For a co-located Proxy Server, this will be the same address as the Configuration Server.

The following figure shows the STAGER instance STAGER_PROXY_01 configured to preload using HTTP.



- 3 Locate the POLICY.USER instance for the Proxy Server that is to receive its preload using HTTP. This is usually named `RPS_machine_name`.
- 4 Associate the PRIMARY.POLICY.USER `RPS_machine_name` instance with the PRIMARY.POLICY.STAGER instance configured for a preload using HTTP.

When a Proxy Server connects to the Configuration Server for its Preload, its Preload distribution is resolved using the entries defined in its POLICY.USER instance. The connection to the STAGER_PROXY_01 instance means the Preload is deployed using HTTP from the Proxy Server URL specified in the STAGER instance.

Preloading Using SSL (TCPS or HTTPS)

The preload for a Proxy Server static cache can be obtained over a Secure Socket Layer (SSL) from a secured Configuration Server (this uses a secure TCP protocol, or TCPS) or from another, secured Proxy Server (this uses a secure HTTP protocol, or HTTPS).

Specific tasks related to using SSL to secure your Proxy Server preloads follow.

To preload using TCPS

Use these steps to enable Proxy Servers currently receiving their preloads from a Configuration Server using TCP to now use TCP over SSL (TCPS).

- 1 Refer to the *HP Client Automation SSL Implementation Guide* for these SSL-related tasks:
 - Ensure the Configuration Server is configured for TCPS support.
 - Locate the required Certificate Authority files for SSL support on the Proxy Server.

- 2 On the Proxy Server machine receiving the preload, use a text editor to modify the `rps.cfg` file located in the `IntegrationServer\etc` directory. Establish the following settings:

```
rps::init {  
    -stager          0  
    -static-ssl      1  
    -static-port     <SSL port>
```

Where `<SSL port>` is the SSL port number on the secure Configuration Server. The default SSL port number is 443.

- 3 To apply these new `rps.cfg` file settings, restart the HP Client Automation IntegrationServer service for the Proxy Server.
- 4 Execute the Proxy Preload using either of the following methods:
 - To manually run the proxy preload, open a web browser window and type the following command:

`http://proxy_machine_name:3466/proc/rps/sync`

For more information on using this command and where to check for the preloaded data files, see [Performing or Testing the Proxy Server Preload](#) on page 94.

To verify the preload used a secure TCP protocol (TCPS), review the entries in the Proxy Server's preload log, `connect.log`. This log is located in the `IntegrationServer\logs\rps` directory. Look for the following entries:

```
Verified Certificate [C:\Program~\Hewlett~\CM\INTEGR~2\bin\rps\  
CACertificates\cacert.pem]
```

```
SSL Manager = <Configuration Server host or IP address>
```

```
SSL Port = 443
```

To Preload using HTTPS

Use these steps to enable Proxy Servers currently receiving their preloads from the HTTP port of another Proxy Server to now receive them using HTTP over SSL (HTTPS). The same steps apply whether or not the Proxy Server sending the preload resources is co-located with a Configuration Server or not.



See earlier topics in this guide for tasks related to:

- [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.
- [Preloading Using HTTP](#) on page 67.

- 1 Establish a secured Proxy Server that is the upstream source of your Proxy Server's preload using HTTP. Refer to the *HP Client Automation SSL Implementation Guide* for full details on how to setup an SSL-secured Proxy Server. The tasks will include:
 - Locating the required Certificate Authority files for SSL support.
 - Verifying the Integration Server (for the Proxy Server) is configured for HTTPS support.
- 2 On a Proxy Server machine receiving the preload, use a text editor to modify the `rps.cfg` file located in the `IntegrationServer\etc` directory. Include a `-static-ssl` parameter set it to `1`, and make sure the `-stager` parameter is set to `0`.

```
rps::init {  
    -stager          0  
    -static-ssl      1  
    -static-port     <SSL port>  
}
```

Where `<SSL port>` is the SSL port number on the secured Proxy Server established in Step 1 above. The default SSL port number is 443.

- 3 To apply the new `rps.cfg` file settings, restart the HPCA Integration Server service for the Proxy Server receiving the preload.
- 4 Establish a PRIMARY.POLICY.STAGER instance as discussed in [Preloading Using HTTP](#) on page 67; however, use the values for ZPCPROTL and ZDATAURL given in [Table 7](#) on page 71. This table shows the Stager instance attributes needed to preload a Proxy Server using HTTPS.

Table 7 Stager Instance Attributes

Stager Attribute	Set to this Value
ZPCPROTL	HTTPS
ZDATAURL	<code>https://<RPS Source IP address>:<SSL_port></code> where <SSL port> is the SSL port number on the secured Proxy Server (see Step 1 on page 70). The default SSL port number is 443.

- 5 For each Proxy Server to be preloaded using HTTPS, associate its PRIMARY.POLICY.USER instance with this PRIMARY.POLICY.STAGER instance.
- 6 Execute the Proxy Preload as usual.

Preloading Using Multicast

A set of Proxy Servers can obtain their static cache preloads from an HP Client Automation Multicast Server. In this configuration, the Proxy Servers receiving their preload resources are configured the same way that Client Automation agents are configured to receive resources from a multicast server.

The Proxy Server preloads can also receive their resources using the dynamic windows feature of a multicast server, as discussed on page 74.

To preload Proxy Servers using Multicast



HP recommends that administrators become thoroughly familiar with the operation of the Multicast Server before using it for a Proxy Server Preload. The Multicast Server is fully documented in the *Client Automation Enterprise Multicast Server Installation and Configuration Guide (Multicast Server Guide)*.

- 1 For each Proxy Server to participate in the preload, use the Admin CSDB Editor to create a POLICY.USER instance in the CSDB that matches the User ID entered during the Proxy Server install, or later specified in the `--static-user` parameter in the `/etc/rps.cfg` file. The User ID default is RPS. However, the User ID is often set to: `RPS_machine_name`.
- 2 Using the Admin CSDB Editor, create a POLICY.WORKGROUP instance for the Proxy Servers to specify their desired state for the Preload of the Static Cache (as discussed on page 63). The procedure: [To configure a](#)

[Proxy Server Workgroup to preload all database applications](#), shows an example using the friendly name Proxy Preload Apps.

- 3 Install and configure a Multicast Server. The Multicast Server can be co-located with the Configuration Server or co-located with another Proxy Server.

For detailed Multicast installation and configuration information, refer to the *Multicast Server Guide*.

- 4 Using the Admin CSDB Editor, also create a multicast policy instance just for Proxy Preloads. For example, follow these steps to create an instance named PRIMARY.POLICY.MULTICAST.MCPRELOAD.

- 5 Edit the MCPRELOAD instance attribute values.

- Set ALTADDRM to the IP address of where the Multicast Server is installed.
- Set CGMTDATE and CGMTTIME to specify a multicast session start date and time, in Greenwich Mean Time (GMT), so that the session will be active when the proxy preload command is to be executed.



The hours for the collection start time, CGMTTIME, are specified using a 24-hour (military) format.

- Also refer to the *Multicast Server Guide* for detailed information on the MULTICAST instance attributes and how to set their values.

The following figure illustrates an MCPRELOAD instance with CGMTDATE and CGMTTIME entries that will initiate a multicast session for the Proxy Preload on November 4, 2005 at 2 p.m. GMT.



The Proxy Preload command must be issued at the same time or shortly after the multicast collection session starts.

Database Tree View:		Multicast class MCPRELOAD Instance Attributes:		
		Name	Attribute Description	Value
CLIENT		DOMAIN	Domain Name	%{ZOBJDOMN}
MACHINE		CLASS	Class Name	%{ZOBJCLAS}
NOVADIGM		INSTANCE	Instance Name	%{ZOBJNAME}
OS		MCAST	Enable Multicast [Y/N]	Y
PATCH		MODE	Broadcast or Multicast [M/B]	M
PATCHMGR		MCORDER	Service Installation Order [B/A/S]	S
POLICY		ADDRESS	Broadcast or Multicast Address	229.0.0.0
Country / Region (COUN)		PORT	Broadcast or Multicast UDP port	9512
Departments (DEPT)		DELAYFP	Delay After First Packet (mil sec)	40
Machine Manufacturer (M)		DELAYBP	Delay Between Packets (mil sec)	40
Machine Models (MODEL)		RESENDS	Number of Resends	1
Machine Roles (ROLE)		STORE	Backup Packets to Store for Resend	20
Machine Subnets (SUBNI)		CGMTDATE	Collection Start Date (YYYYMMDD)	20051104
Mobile Device Config (MB)		CGMTTIME	Collection Start Time GMT(HH:MM:SS)	14:00:00
Multicast (MULTICAST)		CWINDOW	Duration of Collection Window (min)	45
_BASE_INSTANCE_		MDELAY	Delay Before Multicast Start (min)	2
MCDWPRELOAD		MWINDOW	Duration of Multicast Window (min)	60
MCPRELOAD		TTL	Number of Router Hops	3
NJMAH		BYPASCON	User to Prime Multicast Server	
PDACONFIG (PDACONF)		ALTADDRM	Multicast Server IP	208.119.233.106
Server Stagers (STAGER)		ALTPORTM	Multicast Server Port	3463
Users (USER)		MINREF	Minimum Num Clients Requesting File	1
Workgroups (WORKGRP)		MINSIZE	Minimum File Size for Multicast	1024
PRDMAINT		ALWAYS_	Manager REXX Method	SYSTEM.ZMETHOD.MULTICAST
SOFTWARE				
SYSTEM				
USAGE				

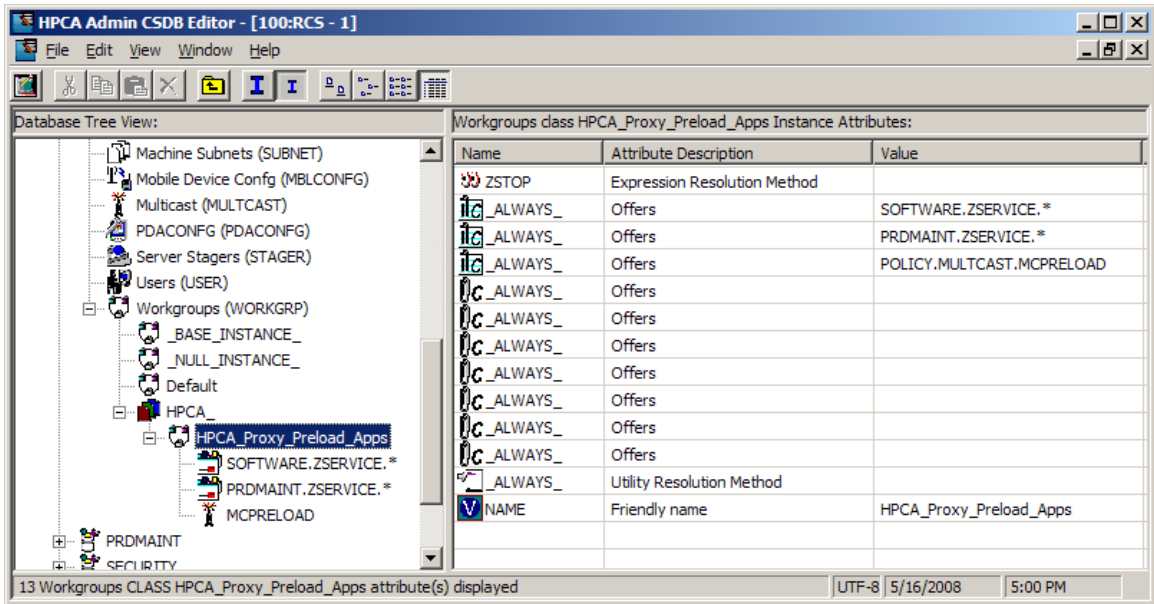
As specified in the previous figure, the collection phase (CWINDOW) will last 45 minutes, at which time the Multicast Server stops the collection process.

There will be a 2-minute delay (MDELAY) before the transmission begins. At the designated multicast start-time (CGMTTIME + CWINDOW + MDELAY = 14:47:00 GMT), the Multicast Server (specified by ALTADDRM) starts multicasting the files that are on the list is compiled from the various eligible Client Automation agents.



Refer to the chapter Configuring a Multicast Server Environment in the *Multicast Server Guide* for additional information.

- 6 Connect the Workgroup Policy instance for the Proxy Preload Application to the POLICY.MULTICAST.MCPRELOAD instance as shown in the following figure. For details on making this connection, refer to the topics in the *Multicast Server Guide*.



- 7 Issue the Proxy Preload command when the CGMTTIME and CGMTDATE apply.



For information on viewing the results of the multicast session, see [Session Logs for a Preload Using Multicast](#) on page 75.

Preloading using Multicast with Dynamic Windows

The Multicast Server offers the ability to configure dynamic (collection and transmission) windows. This means for a group of Proxy Servers being preloaded, multiple multicast distributions can be active concurrently.

This topic gives three sample configurations for using the multicast dynamic windows feature to preload Proxy Servers. Only three MULTICAST instance attributes are used to implement dynamic windows: ADDRESS, CGMTDATE, and CGMTTIME.



Before using this feature, please review the Multicast Dynamic Windows topic in the *Multicast Server Guide*.

Preload using Multicast with Dynamic Windows Example

The following MULTICAST instance values can be used to initiate a multicast session (using up to 22 dynamic windows) that will start at 05:01:00 GMT

each day. The empty value of CGMTDATE is used to specify a multicast session that will be run once a day.



A Proxy Server preload must also be scheduled for this same time each day for it to participate in the multicast session.

```
ADDRESS      = 235.0.0.000-021
CGMTDATE     = empty
CGMTTIME     = 05:01:00

CWINDOW      = 45
MDELAY       = 2
ALTADDRM     = <multicast_server_IP>
```

During this daily multicast session, the multicast server can issue IP addresses from 235.0.0.000 through 235.0.0.021. The addresses in this range will be used sequentially to accommodate overlapping windows for a group. When a given multicast session completes its transmission, the IP address is removed from the in-use list and is available once again.

The CWINDOW value of 45 specifies a collection window of 45 minutes.

Session Logs for a Preload Using Multicast

On a Proxy Server receiving a Preload from a Multicast Server, the preload session logs are found in the directory:

```
<IntegrationServer>\logs\rps
```

The following logs trace the activity of the collection, requests, and received items in a multicast session:

```
connect.log
radreqst.log
radcrecv.log
```



The `connect.log` for a Proxy Server Preload includes the collection information found in the `radcollect.log` of an Client Automation agent multicast session.

For details on the contents of these multicast session logs, refer to the Troubleshooting topic in the *Multicast Server Guide*.

Preloading Windows Installer Enabled Applications

There are two packages associated with each Windows Installer enabled application, the MSI package that includes the list of MSI Features, and the Administrator Control Point (ACP) package.

► An Administrative Control Point (ACP) is also known as a Windows Installer Administrative Installation Point (AIP).

The ACP package instance contains all of the file resources that are required by a Windows Installer product. If you are using Proxy Servers or Staging Servers, the ACP package needs to be deployed to these servers but not installed on the Client Automation agent computers. Only the MSI package needs to be installed on the Client Automation agent computers. There are two models for doing this.

Model 1: Create one Application (ZSERVICE) that includes a ZSTOP expression on the ACP Package

Create one Application (ZSERVICE) instance for both the MSI and ACP packages. Include a ZSTOP expression on the ACP package to prevent the Client Automation agent computers from downloading it. Staging Servers and Proxy Servers ignore expressions, and will download the ACP package.

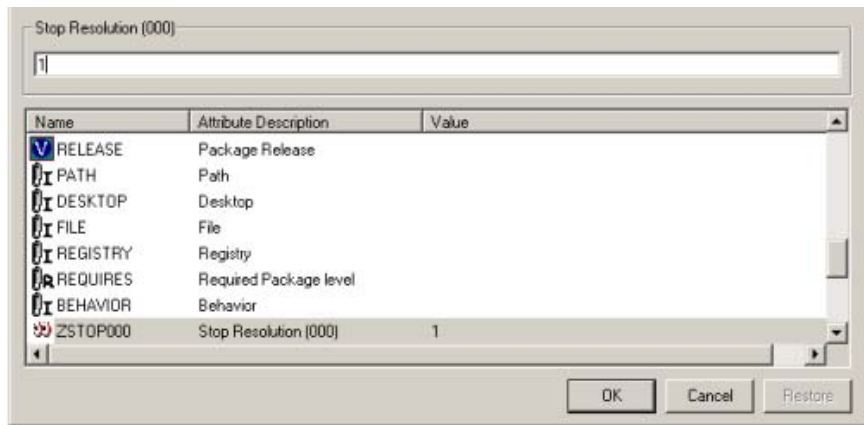
► This model is considered the best practice and is applied automatically when you publish Windows Installer Applications using the Advanced publishing mode of the Admin Publisher and apply the default Admin Install Point (AIP) options. For more information on publishing Windows Installer Enabled applications, refer to the *HP Client Automation Enterprise Administrator User Guide*.

Use the procedure below if you need to apply the ZSTOP expression to an ACP package manually.

To enable an ACP package for preloading only

- 1 Use the Admin CSDB Editor to navigate to the ACP package that you want to preload.
- 2 Right-click on the ACP package and choose **Edit Instance** from the shortcut menu.
- 3 Click **ZSTOP000 Stop Resolution (000)** and type a value of 1.

Typing a value of 1 will prevent Client Automation agent computers from resolving the ACP package, but will allow the Proxy Server or Staging Server to preload the ACP package.



- 4 Click **OK**.
- 5 Click **Yes** to confirm the change.
- 6 Connect the ACP package and the MSI package to the same service.

Model 2: Create separate Applications (ZSERVICES) for MSI Packages and ACP Packages

An alternative model is to create separate Application (ZSERVICE) instances for the MSI Package and the ACP Package. Deploy the MSI Package to the Client Automation agent computers and the ACP Package to the Staging Server and Proxy Servers.



HP does *not* recommend naming ACP packages with a common suffix for the purpose of connecting *all* of the ACP packages to a single service and deploying this service to your Staging Servers and Proxy Servers. This method presents unnecessary overload on your infrastructure.

Configuring Client Automation agents for Use with the Proxy Server

The Proxy Server functions as an extension of the Configuration Server. When used, the Proxy Server becomes the primary repository for Client Automation agent data. Once a Client Automation agent determines which resources it needs to achieve its 'desired state', it can request the resources from the Proxy Server.

After installing a Proxy Server, configure the desired set of Client Automation agents to request their needed resources from the Proxy Server instead of the Configuration Server. This is done in the POLICY Domain of the Configuration Server's database.

Using HTTP for Client Automation Agent Communication

When the Proxy Server front-end protocol is HTTP, use these steps to configure your Client Automation agents in the CSDB. The HTTP front-end is enabled by default in the `rps.cfg` file (that is: `-httpd` is set to 1).



Although Client Automation agent requests can be made using HTTP or TCP/IP, HTTP is the recommended protocol for communication with the Proxy Server. To use TCP/IP, see [Using TCP/IP for Client Automation Agent Communication](#) on page 80.

To configure Client Automation agents for a Proxy Server using HTTP

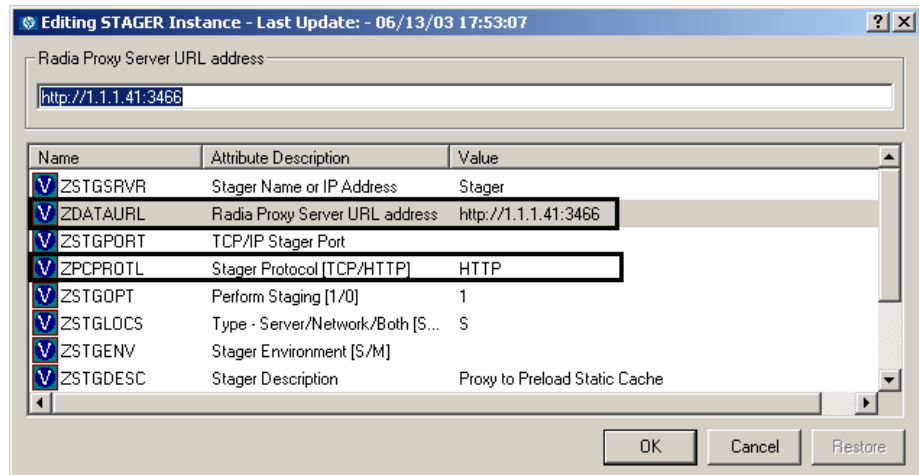
- 1 Use the Admin CSDB Editor to create and edit a POLICY.STAGER instance to define the Proxy Server as the deployment source for subscribers.
- 2 Update the following STAGER Class attributes to specify the Proxy Server information, as follows.
 - ZPCPROTL — Set the value of ZPCPROTL to indicate HTTP is the protocol the Client Automation agents are to use for communicating with the Proxy Server.
 - ZDATAURL — When using HTTP, set the ZDATAURL field to store the URL and port for the Proxy Server. Storing the Proxy Server URL in the CSDB allows the Proxy Server IP address or Hostname to be centrally controlled. Anytime this IP address or Hostname changes, the ZDATAURL field must be updated.

Thus, the recommended settings for enabling Client Automation agents to request data from a Proxy Server using HTTP are:

ZPCPROTL = HTTP

ZDATAURL = `http://Proxy_Svr:3466`

Replace *Proxy_Svr* with the IP address or Hostname of your Proxy Server.



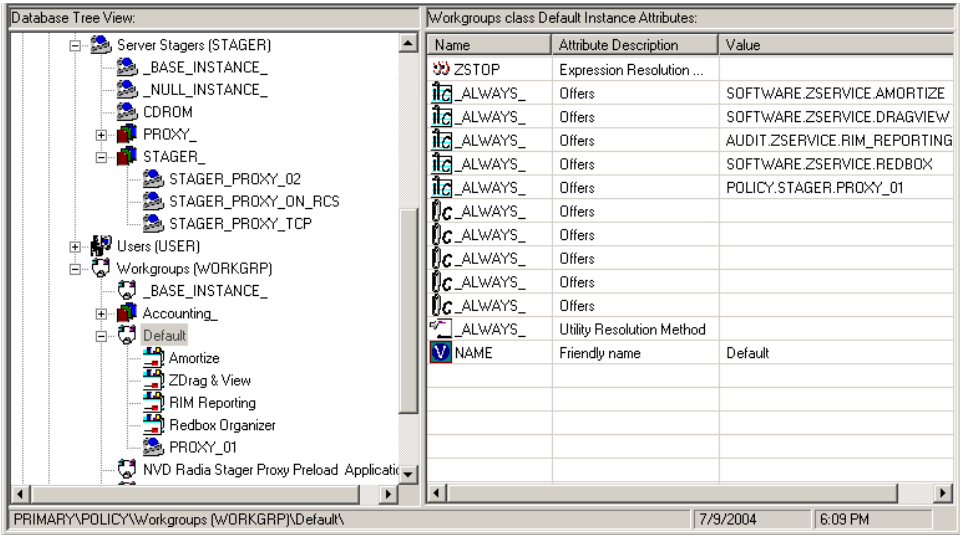
- 3 Connect the configured STAGER instance to the POLICY instances that represent the set of Client Automation agents that will use this Proxy Server. This is usually one or more workgroups or departments.

To connect a STAGER instance to a Workgroups instance

In the following example, we connect the Default Workgroup to a pre-configured STAGER instance so that *all* subscribers will receive applications from the Proxy Server.

- 1 Open the Admin CSDB Editor, and navigate to the PRIMARY.POLICY.STAGER class.
- 2 Double-click the **Server Stagers (STAGER)** to see the STAGER instances.
- 3 Double-click the **Workgroups (WORKGRP)** to see the WORKGRP instances.
- 4 Connect the predefined STAGER instance to the appropriate WORKGRP instance (Default, in our example).

In this example, all Client Automation agents that are members of the Default Workgroup will request their resources from the Proxy Server named in the STAGER instance Proxy_01 using HTTP communication.



Using TCP/IP for Client Automation Agent Communication

► HTTP is the recommended protocol for Client Automation agent communication with the Proxy Server. This topic discusses using the alternative TCP/IP protocol, when necessary.

Under certain circumstances, you may need to use the TCP/IP protocol to communicate with your Client Automation agents.

To have the Proxy Server communicate with Client Automation agents using TCP/IP, you must enable the -stager front-end in the Proxy Server Configuration file, `rps.cfg`. Set `-stager` to 1. By default, the `-stager-port` listening port is set to 3461. For details, refer to the `-stager*` parameters in [Table 3](#) on page 45.

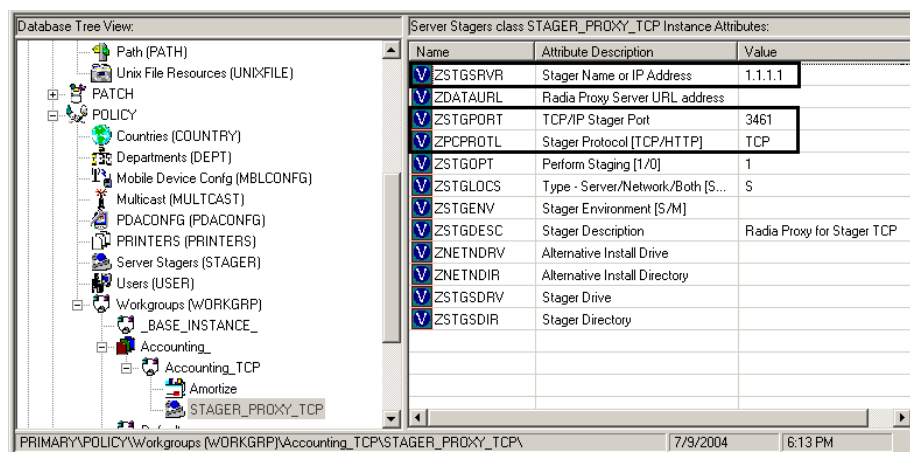
- To have the Client Automation agents communicate with this Proxy Server using TCP/IP, create a `POLICY.STAGER` instance in the CSDB that sets the following definitions for the STAGER Class attributes:

```
ZSTGSRVR = <Proxy Server IP Address or Hostname>  
ZDATAURL = leave blank  
ZSTGPORT = 3461 (the default Proxy Server TCP/IP Port)  
ZPCPROTL = TCP
```


- If you are currently using TCP/IP to communicate between Client Automation agents and Staging Servers, and would like to continue using TCP/IP with the Proxy Server, you need only change the IP address and port number of the Staging Server to the IP address and port number of the Proxy Server within Policy class. The policy instances will be unaffected.
 - Update the ZSTGSRVR attribute with the IP address of your Proxy Server.
 - Update the ZSTGPORT attribute with the port number of your Proxy Server for TCP, normally 3461.

Figure 6 below is a view of the Admin CSDB Editor screen showing the Stager instance attributes for Proxy Server serving Client Automation agents using TCP.

Figure 6 STAGER instance attributes in Admin CSDB Editor



Additional Configuration Topics

Enabling the Configuration Server for HTTP Support

The Configuration Server no longer supports downloading resources from the CSDB using the HTTP protocol. Previously, this was provided through the ZHTTPMGR method. To obtain database resources from the CSDB using HTTP, use a Proxy Server co-located with the Configuration Server.

For details, see [Co-Locating a Proxy Server with a Configuration Server for HTTP Support](#) on page 58.

Summary

- You can install the Proxy Server locally or remotely.
- The Proxy Server component must be installed separately on each server to be used as a Proxy Server.
- The Integration Server is a foundation component of the Proxy Server. Start or stop the HP Client Automation IntegrationServer service to start or stop the Proxy Server.
- Review the `rps.cfg` in the `/etc` folder of the Proxy Server install directory after an installation. Modify the parameters to set options, such as enabling and configuring the dynamic cache.
- The Configuration Server does not support the HTTP protocol. When you need to obtain resources from the CSDB using HTTP, install a Proxy Server co-located with your Configuration Server. The co-located Proxy Server and port become the source for downloading resources from the CSDB using HTTP.
- Create a preload distribution policy in the CSDB for each Proxy Server in your infrastructure installed remotely from the Configuration Server.
- The Client Automation agents must be configured to communicate with the Proxy Server. The default and recommended protocol is HTTP. TCP/IP is also supported.

3 Proxy Server Administration

At the end of this chapter, you will:

- Know how to start and stop the Proxy Server.
- Know how to preload the Proxy Server.
- Know how to purge the Proxy Server dynamic cache.

There may be special circumstances involved in your Proxy Server implementation. This chapter explores these possible situations:

- Starting and stopping the Proxy Server.
- Populating the Proxy Server before any Client Automation agents try to install software (preloading).

Starting and Stopping the Proxy Server for Windows

Since the Proxy Server is a loaded module under the control of the Integration Server, in order to start and stop the Proxy Server, start and stop the HP Client Automation IntegrationServer service on your computer. To do so, use the Service Control Manager window, as you would with any other Windows services. The HP Client Automation IntegrationServer service is started automatically after the Proxy Server is installed on Windows platforms.

On UNIX platforms, the HP Client Automation IntegrationServer service is not started automatically after installation; it must be started manually after the installation program is finished. See [Starting and Stopping the Proxy Server for UNIX](#) on page 41 for instructions.

For this example, we are using Windows 2000 Server.

To start the Proxy Server service

- 1 From your Windows Desktop, click **Start** → **Control Panel** → **Administrative Tools** → **Services**.

The Service Control Manager window opens.

- 2 Right-click on the service **HP Client Automation IntegrationServer** service and select **Start** from the shortcut menu that opens.

The Proxy Server is now running on your computer.

To stop the Proxy Server service

- 1 From your Windows desktop, click **Start** → **Programs** → **Control Panel** → **Administrative Tools** → **Services**.
- 2 The Service Control Manager window opens.
- 3 Right-click on the service **HP Client Automation IntegrationServer** and then select **Stop** from the shortcut menu that opens.

The Proxy Server has been stopped.

Preloading the Proxy Server Static Cache

To preload the Proxy Server static cache, see [Performing or Testing the Proxy Server Preload](#) on page 94.

Purging the Proxy Server Dynamic Cache

Several configuration parameters will automatically result in a purge of the Proxy Server dynamic cache. See these earlier topics:

- [The Date-Based Purge of the Dynamic Cache](#) on page 53
- [Saving the Index File](#) on page 54
- [Specifying a Size-Based Purge of the Dynamic Cache](#) on page 55

Summary

- You can start and stop the Proxy Server locally.
- You can preload the Proxy Server's static cache.
- You can purge the Proxy Server's dynamic cache.

4 Troubleshooting

At the end of this chapter, you will:

- Be familiar with the Proxy Server log files.
- Be familiar with troubleshooting the most common error messages.
- Know how to collect the required files and version information when working with HP Technical Support.
- Know how to preload the Proxy Server manually, from any web browser.



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

Proxy Server Installation Directory

By default, the Proxy Server is installed into the following directories:

Windows: `SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer`

UNIX: `/opt/HP/CM/IntegrationServer`

About the Log Files

The Proxy Server writes several logs, which can be used to track progress and diagnose problems. The log files are stored in the logs subdirectory of the Proxy Server installation directory.

The log files are:

- `httpd-port.log`
Replace *port* with your port number, for example, `httpd-3466.log`. Logs the Proxy Server activities of the TCL web server that it runs on. Can be found in the logs subdirectory of the Proxy Server installation directory.
- `httpd-port.YY.MM.DD.log`
This log contains the web server activity for each day. If the log is empty, it means that there was no activity that day.
- `httpd-3466.error.txt`
This log contains messages written to any logs that contain the prefix **ERROR**. This allows you to view all errors in a single location.
- `CONNECT.LOG`
Log created in the `\logs\rps` subdirectory of the Proxy Server installation directory when the Proxy Server connects to the Configuration Server to preload the static cache. Displays information related to the preload and the modules involved, such as **RADCONCT**.

Each time you start the web server a new log is written. The old log is saved as `httpd-port.nn.log`.

Changing the Logging Level

By default the trace level is set to 3, which is the informational tracing level. This displays INFO, WARNING, and ERROR messages.

To change the log level, you can either run the following at a command prompt from the Proxy Server installation directory:

```
nvdkit httpd.tkd -log_level 4
```

or

modify the log level in the *httpd.rc* configuration file found in the *\etc* folder of the Proxy Server install directory. Use the following procedures.

To change the log level in the *httpd.rc* file

- 1 Stop the foundation service for the Proxy Server; this is the HP Client Automation IntegrationServer service.
- 2 Open the *httpd.rc* file, which is located in the *\etc* directory of where the Proxy Server was installed. For Windows, the default location of the file is:

SystemDrive:\Program Files\Hewlett-Packard\CM\IntegrationServer\etc\httpd.rc. The following is an excerpt from the *httpd.rc* file.

```
# Config Array
# Element                Default
# =====
# HOST                    [info hostname]
# PORT                    3466
# HTTPS_HOST              [info hostname]
# HTTPS_PORT              443
# DEBUG                   0
# DOCROOT                 [file join $home htdocs]
# IPADDR                  0.0.0.0
# HTTPS_IPADDR            0.0.0.0
# WEBMASTER               support.mail@hp.com
# UID                     50
# GID                     100
# NAME                    $tcl_service
# LOG_LEVEL               3
# LOG_LIMIT               7
# AUX_LOG_LINES           5000
#
Overrides Config {
    PORT          3466
    LOG_LEVEL     4
```

```

    }
    #
    # (Re)Initialize Logging
    #
    Log_Init

```

- 3 Locate the `Overrides Config` entry below the `Config Array` list of elements and default values.
- 4 Within the `Overrides Config` starting and ending brackets { }, type **LOG_LEVEL** and the appropriate trace level, space delimited, Select the appropriate trace level from [Table 8](#) below.

Table 8 Trace Levels

Trace Level	Description
0	No logging.
1	Logs errors only.
2	Logs warnings and errors.
3	Logs informational messages, warnings, and errors. <i>Recommended trace level setting for customers.</i>
4	Logs all debug information. <i>Recommended for experienced customers only.</i>
5-9	Full trace <i>Not recommended for customer use.</i>

- 5 Save the file changes.
- 6 Restart the HP Client Automation IntegrationServer service.

Common Problems and Solutions

Performance Problems

Anti-virus software can reset `IRPStackSize` to a non-recommended, low value, causing performance issues for HPCA Integration Server-based products. If you are experiencing performance problems in a Windows environment, check that the `IRPStackSize` in the Windows Registry is set to an adequate value for your operating system. If `IRPStackSize` is set too low, it may severely impair your Integration Server's network performance, especially under heavy load situations. On the Proxy Server, for example, if

IRPStackSize is set below the normal range for the operating system, application deployment will be slowed considerably.

To check for an adequate IRPStackSize value

Use your operating system's registry editor to check if the value of IRPStackSize is set too low. If it is, back up the Windows Registry and then increase the IRPStackSize value to be within the recommended range.

The IRPStackSize setting can be found in the following registry location:

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\LanmanServer\Parameters]
```



For Windows 2000 Server and Server 2003, the IRPStackSize value is not created during installation. If there is no value for it at the above location, the default value is used—which is no problem. If IRPStackSize is found at the above registry location, verify that it falls within the recommended values.

To obtain the recommended values for IRPStackSize as well as detailed instructions of how to change the IRPStackSize value, see the following Symantec and Microsoft documents:

- [*How to Change the IRPStackSize for Computers registry value*](#)
- [*IRPStackSize Parameter in Windows 2000 and Windows 2003*](#)
- [*Antivirus Software May Cause Event ID 2011*](#)

These links were active as of this writing.

Errors and Solutions

These topics address some of the errors you may find when analyzing a Proxy Server log.

- If you receive the following error, you are not properly licensed for the Proxy Server (or the license expired) and will need to obtain the correct license file through Tech Support in order to run this product.

```
ERROR: "C:/Program~/Hewlett-Packard/CM/CM Integration  
Server/modules/rps.tkd", Not licensed for this product
```

- If you receive the following error in the `CONNECT.LOG` during preload, you must check the Configuration Server log. The '650' error means something went wrong on the server side and the application was not delivered correctly.

```
[17:10:21 [RADCONCT / 000005a4] SYSTEM --- RADCONCT exit
status [650]

[17:10:21 [RADCONCT / 000005a4] SYSTEM --- RADCONCT [Server
stopped application configuration.]

NVD000010A [radconnect_term] 17:10:21 [RADCONCT / 000005a4]
SYSTEM --- RADCONCT Return Code [650]

NVD000005E [radconct_cleanu] 17:10:21 [RADCONCT / 000005a4]
SYSTEM --! RADCONCT Exit code [650]
```

- If you receive the following error in the `CONNECT.LOG` during preload, you have not assigned any services/applications to the default RPS user instance. (Services will be preloaded whether they are Mandatory or Optional. Stop Expressions are also ignored.)

```
13:43:36 Warning: RPS/Static: sync: Radskman rc:[109]
[Presently there are no applications available in the software
catalog. Please contact your system administrator for
assistance.] (CHILSTATUS -1 109)
```

If additional logging is need, you may be asked to increase the log level. You can change the log level at the command prompt by running `nvdkit httpd.tkd -log_level 4`, or by adding the log level to the `httpd.rc` configuration file found in the `/etc` folder.

Performing or Testing the Proxy Server Preload

Use the following command to manually perform a Proxy Server preload distribution. This is often used in a test environment, but can also be used in a production environment, if desired.

To manually perform the Preload from a web browser

You can manually perform a Proxy Server's preload by typing the following command into a web browser:

```
http://proxy_machine_name:3466/proc/rps/sync
```

You will not get any feedback from the process—just a blank screen.

Check the Proxy Server machine for activity and check the following Proxy Server directory for data files.

```
Integration_Server\DATA\RPS\STATIC\000D\
```

where: *Integration_Server* represents the base installation directory where the Proxy Server is installed. By default, this is: `C:\Program`

Files\Hewlett-Packard\CM\IntegrationServer for Windows, and
/opt/HP/CM/IntegrationServer for UNIX.

Troubleshooting Questions

To expedite a solution, you should be prepared to answer the following questions before you contact technical support. This will expedite the solution.

- What has changed in your environment?
- What are the build numbers of your RPS.TKD, NVDKIT, and HTTPD.TKD modules? See [Collecting Information for HP Technical Support](#) below.
- What error messages were received?
- What actions was the Proxy Server performing when the problem occurred? For example, was the RPS serving files or preloading data?
- If you use HTTP, can you download existing data from the Proxy Server?

To test this, open an Internet Explorer browser session and type:

http://host:port/RESOURCE/SOFTWARE/FILE/*<an existing resourceID in static or dynamic cache>*

Collecting Information for HP Technical Support

If you need to contact HP Technical Support for assistance, be sure to collect the following information:

- 1 Version information for nvdkit, httpd.tkd and rps.tkd. For details, see, [How to Obtain Version Information](#) on page 96 .
- 2 The logs directory including all subdirectories, stored by default in the following locations:

Windows: `Drive:\Program Files\Hewlett-Packard\CM\IntegrationServer\logs`
UNIX: `/opt/HP/CM/IntegrationServer/logs`
- 3 The etc directory files (no subdirectories), stored by default in the following locations:

Windows: *Drive:\Program Files\Hewlett-Packard\CM\IntegrationServer\etc*

UNIX: */opt/HP/CM/IntegrationServer/etc*

- 4 For preload problems, also collect the Proxy Server lib directory and contents (except any 000D compressed data subdirectory), stored by default in the following locations:

Windows: *Drive:\Program Files\Hewlett-Packard\CM\IntegrationServer\etc\rps*

UNIX: */opt/HP/CM/IntegrationServer/etc/rps*

How to Obtain Version Information

To gather the version information for RPS.TKD, NVDKIT, and HTTPD.TKD

- 1 From a command prompt, navigate to where the Proxy Server was installed; this is the location for *nvdkit.exe*.
Your license file (*license.nvd*) needs to be copied to this folder.
- 2 Type the NVDKIT commands for each of the components, as given in the following table.

Table 9 Proxy Server - Version and Build

Component	Location	Command to Obtain Version Number
RPS.TKD	<i><RPS-Install>/modules</i>	NVDKIT VERSION MODULES RPS.TKD
NVDKIT	<i><RPS-Install></i>	NVDKIT VERSION
HTTPD.TKD	<i><RPS-Install></i>	NVDKIT VERSION HTTPD.TKD

The following figure shows an example of obtaining the version information.


```

C:\WINDOWS\system32\cmd.exe
C:/Program Files/Hewlett-Packard/CM/IntegrationServer/modules/modules:
C:/Program Files/Hewlett-Packard/CM/IntegrationServer/modules/rps.tkd:
module rps          version 2.1          build 34          20050621 14:57:11 U
ST
C:\Program Files\Hewlett-Packard\CM\IntegrationServer\modules>cd ..
C:\Program Files\Hewlett-Packard\CM\IntegrationServer>nvdkit version
Kit Version:      8.4.13
Kit Build:       456
Kit Encoding:    cpl252

Build Date:      20080410 15:09:18 UST
Build Platform:  Windows NT 5.2
Build Machine:   intel
Build Host:      QANJ119
Build User:      Administrator

C:/Program Files/Hewlett-Packard/CM/IntegrationServer/nvdkit.exe:
module nvdkit      build 456          20080410 15:07:39 UST
module bin/unzip    version 5.52      20080410 15:09:18 UST
module bin/zip      version 2.31      20080410 15:09:18 UST
module lib/itcl     version 3.3      20080410 15:09:18 UST
module lib/ldap     version 3.4      20080410 15:09:18 UST
module lib/mk       version 2.4.9.5   20080410 15:09:18 UST
module lib/nvdbase  version 3.0      20080410 15:09:18 UST
module lib/nvdkit   version 8.4.13.456 20080410 15:09:17 UST
module lib/openldap version 2.3.39   20080410 15:09:18 UST
module lib/tbcload  version 1.4      20080410 15:09:18 UST
module lib/tcl8.4   version 8.4.13   20080410 15:09:17 UST
module lib/tclodbc  version 3.0      20080410 15:09:18 UST
module lib/tclx     version 8.4      20080410 15:09:18 UST
module lib/tcltk    version 8.4.1    20080410 15:09:18 UST
module lib/thread   version 2.6.2    20080410 15:09:18 UST
module lib/tnc      version 0.3      20080410 15:09:18 UST
module lib/trf      version 2.1      20080410 15:09:18 UST
module lib/udp       version 1.1      20080410 15:09:18 UST
module lib/vfs       version 1.3      20080410 15:09:18 UST
module lib/zlib      version 1.2.3    20080410 15:09:18 UST

C:\Program Files\Hewlett-Packard\CM\IntegrationServer>nvdkit version httpd.tkd
Kit Version:      8.4.13
Kit Build:       456
Kit Encoding:    cpl252

Build Date:      20080410 15:09:18 UST
Build Platform:  Windows NT 5.2
Build Machine:   intel
Build Host:      QANJ119
Build User:      Administrator

C:/Program Files/Hewlett-Packard/CM/IntegrationServer/httpd.tkd:
module httpd      build 326          20080509 16:31:22 UST

C:\Program Files\Hewlett-Packard\CM\IntegrationServer>

```

3 Collect this output for HP Technical Support.

Reporting a Problem for a Proxy Server

Once you have exhausted the options laid out in this topic and reviewed your logs for typical errors, go to the HP Support web site to report or resolve the problem.

Whenever you contact HP Technical Support for assistance regarding a Proxy Server, be prepared to collect the items discussed in the topic [Collecting Information for HP Technical Support](#) on page 95. At a minimum, collect your HTTPD:3466.log plus an output showing the versions of your RPS, NVDKIT, and HTTPD.TKD modules available.

Summary

- Review the `HTTP-port.log` files and the `CONNECT.LOG` files to troubleshoot Proxy Server errors.
- Review the common error messages and solutions given in this topic.
- Collect the version information, required log files, and other relevant directories and files before contacting HP Technical Support or submitting a support case.
- You can enter a command from any web browser to manually preload a Proxy Server.

5 The Enterprise Proxy Server for Windows

At the end of this chapter, you will:

- Be familiar with the system requirements for the Enterprise Proxy Server on Windows.
- Know how to install the Enterprise Proxy Server.
- Know how to remove the Enterprise Proxy Server.



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

Platform Support


The Enterprise Proxy Server is an Apache-based server that is supported on Windows platforms only.

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

System Requirements

Secured Network Requirement

The Enterprise Proxy Server must be installed in a secured network environment, such as behind a firewall. This version does not support SSL communications.

- 
- If the Enterprise Proxy Server is installed behind a firewall, and you will be accessing it from outside the firewall, make sure that the firewall allows incoming network connections on port 8080. If not, you will not be able to access the Enterprise Proxy Server from outside of the firewall.

Infrastructure Requirements

Before installing the Enterprise Proxy Server, you will need to have the following installed in your enterprise. If the following are already installed, you will need to identify which ones will be used by the Enterprise Proxy Server.

Co-located Enterprise Proxy Server Requirements

- Configuration Server (Windows only)

Caching Enterprise Proxy Server Requirements

- Configuration Server *for catalog resolution*

- Upstream server for *Client Automation managed-services data source*

An upstream server can be any of the following:

- Co-located Proxy Server on AIX, HP-UX, Linux, Solaris, or Windows
- Co-located Enterprise Proxy Server on Windows
- Proxy Server (in a multi-tier environment) running on AIX, HP-UX, Linux, Solaris, or Windows
- Enterprise Proxy Server (in a multi-tiered environment) running on Windows

Installation Tasks

You will need to complete the following tasks to use all the features of the Enterprise Proxy Server. Be sure to have the IP address, hostname, and port for your Configuration Server or other upstream Proxy Server available.

Server Installation when Co-located with the Configuration Server

Be sure to have the IP address, hostname, and port for your Configuration Server or other upstream Proxy Server available.

To install an Enterprise Proxy Server co-located with a Configuration Server

- 1 Prepare the Configuration Server Environment by disabling any existing Proxy Server (rps) module loaded in an Integration Server.
 - a Prior to installing an Enterprise Proxy Server co-located with a Configuration Server, check to see if an HP OVCM Integration Server or an HP Client Automation Integration Server was previously installed on the machine. If so, comment out this line in the `\IntegrationServer\etc\httpd.rc` file:


```
Load Proxy Server
#module load rps
```
 - b Restart the Integration Server service if it will continue to host other modules, such as the Policy Server or Usage Manager.
- 2 From the installation media, navigate to the `\Infrastructure\extended_infrastructure\proxy_server\apache\win32` directory.

- 3 Double-click the installation executable: `rps.msi`.
- 4 Follow the prompts and provide the appropriate answers using the guidelines below:
 - The default installation directory is:


```
<drive:>\Program Files\Hewlett-Packard\HPCA\ProxyServer
```

If your Configuration Server is located at a different root directory, browse to the root directory of your Configuration Server and append the folder name `\ProxyServer`.
 - Choose the Proxy Type of **Co-located with Configuration Server**.
 - Choose a Server Port that is not currently in use.
- 5 After installation, Windows Services will display the following friendly service name and description on the local computer:

HPCA Proxy Server	Apache/2.2.11 (Win32)
--------------------------	------------------------------

The installed service is `httpd-rps`.

Server Installation for Data Caching

Be sure to have the IP address, hostname, and port for your Configuration Server and upstream server available. See [Caching Enterprise Proxy Server Requirements](#) on page 100 for the list of supported upstream servers.



Modifying the upstream server after installation is not supported on the Enterprise Enterprise Proxy Server. For more information, refer to [About the Configuration File: httpd.conf](#) on page 103.

To install a caching Enterprise Proxy Server

- 1 From the installation media, navigate to the `\Infrastructure\extended_infrastructure\proxy_server\apache\win32` directory.
- 2 Double-click the installation executable `rps.msi`.
- 3 The installation process will check for adequate disk space and other requirements.
- 4 Follow the prompts and provide the appropriate answers.
 - The default installation directory is:


```
<drive:>\Program Files\Hewlett-Packard\HPCA\ProxyServer
```

- Choose the Proxy Type of **Caching Proxy Server**
 - Choose a Server Port that is not currently in use. The default is 3466.
- 5 After installation, the following two Windows Services will be installed and running on the local computer:
- Service: `httpd-rps` (Proxy Server)
This is the Apache 2.2 http-server for the Enterprise Proxy Server.
 - Service: `httpd-rps-cache` (Proxy Server Cache Purge)
This is the service that purges the cache every 30 minutes to keep it under the maximum size, as specified during the installation.

Stopping and Starting the Enterprise Proxy Server

To stop the Enterprise Proxy Server service

To stop the service, use Windows Services and stop the service for Proxy Server. Alternatively, type the following from a command prompt:

```
net stop httpd-rps
```

To start the Enterprise Proxy Server service

To start the service, use Windows Services and start the service for Proxy Server. Alternatively, type the following from a command prompt:

```
net start httpd-rps
```

About the Configuration File: `httpd.conf`

After running the MSI program, a configuration file, `httpd.conf`, is located in the `conf` directory of where the Enterprise Proxy Server was installed. By default, this location is:

```
<drive:>\Program Files\Hewlett-Packard\HPCA\ProxyServer\conf
```

The `httpd.conf` file can be used to reset the log level. Refer to [Resetting the Log Level](#) on page 104.

Do not adjust the other directives configured through the MSI program, unless directed to do so by HP customer support.



Customers familiar with the Integration Server-based Proxy Server may be accustomed to modifying the configuration file, `rps.cfg`, after installation. However, HP does not support adjusting entries in the `httpd.conf` file after the Enterprise Proxy Server is installed using `rps.msi`. The only exception to this rule is [Resetting the Log Level](#), as discussed below.

For more information on the directives placed in the `httpd.conf` file, refer to the following Apache Directive Index web-page:

<http://httpd.apache.org/docs/2.2/mod/directives.html>

Resetting the Log Level

If HP support directs you to change the Log Level for troubleshooting, use the steps below to modify the `LogLevel` value in `httpd.conf` configuration file and restart the HP OVCM or HPCA Proxy Server service:

- 1 Refer to the following web-page for latest available LogLevel values:
<http://httpd.apache.org/docs/2.2/mod/core.html#loglevel>
- 2 Backup the existing `httpd.conf` file, located in the `\conf` folder of where you installed the Enterprise Proxy Server.
- 3 Open the `httpd.conf` file using a text editor.
- 4 Locate the `LogLevel` directive, and modify the value. For example, from:

```
#
LogLevel warn

to

#
LogLevel debug
```

- 5 Save your changes and restart the `httpd-rps` service (Proxy Server).

Following installation, refer to the following topics:

- [Data Cache Management](#) on page 105.
- [Preloading \(or Synchronizing\) the Data Cache](#) on page 105.
- [Automatic Purge of Cache above Max Size](#) on page 106.
- [Comparison Chart of Proxy Server and Enterprise Proxy Server](#) on page 107.

Removing the Enterprise Proxy Server

Use the task below to remove the Enterprise Proxy Server service.

To remove the Proxy Server

- 1 Double-click the `rps.msi` installation executable, located on the 7.50 media at the directory:
`\Infrastructure\extended_infrastructure\proxy_server\apache\win32.`
- 2 When the Enterprise Proxy Server is already installed on the current computer, the Application Maintenance dialog opens. Click Remove to uninstall the Proxy Server.
- 3 Follow the prompts to finish uninstalling the Enterprise Proxy Server from the computer.

Data Cache Management

The Enterprise Proxy Server manages a single cache that is located in the `\cache` folder of where the Enterprise Proxy Server was installed. By default, this is:

`C:\Program Files\Hewlett-Packard\HPCA\ProxyServer\cache`

The `\cache` directory is organized differently than the entries in a `\dynamic` or `\static` cache of previous Integration Server-based Proxy Servers; see [Table 10](#) on page 107 for more information.

Preloading (or Synchronizing) the Data Cache

To preload the Enterprise Proxy Server:

- 1 Use the Identity entered during the installation of the Enterprise Proxy Server to entitle it to services that are to be preloaded.
- 2 Open a web-page and issue the same command used to preload the Proxy Server:

```
http://proxy_host_or_IP_address:port/proc/rps/sync
```

For example, if you entered an Identity of PROXY_ALL during the installation, first entitle the Primary.Policy.User.PROXY_ALL instance to the appropriate services, then run the /proc/rps/sync command named above.

Automatic Purge of Cache above Max Size

The Enterprise Proxy Server runs a service every 30 minutes to purge the data cache if it exceeds the **Max Size** entered during the `rps.msi` install.

Comparison Chart of Proxy Server and Enterprise Proxy Server

Table 10 below identifies similarities and differences between the Proxy Server and the Enterprise Proxy Server for this release.

Table 10 Proxy Server vs. Enterprise Proxy Server

Proxy Server	Enterprise Proxy Server
HTTP server: Integration Server	HTTP server: Apache server
Platform support: Windows Servers and UNIX	Currently Windows Servers only
Installation: <ul style="list-style-type: none">• Setup.exe• Co-located setup requires post-install configuration	Installation: <ul style="list-style-type: none">• MSI Install• Supports co-located install (new)
Two cache locations: Static and Dynamic <ul style="list-style-type: none">• Data structure reflects CSDB (FDCI)	Single cache location named: "Cache" <ul style="list-style-type: none">• Data structure independent of CSDB (not FDCI)
Downloads data both HTTP and TCP	Downloads HTTP only
Includes embedded Client Automation agent code	Includes embedded Client Automation agent code
Supports Preload, Dynamic Cache Purge and Migration	Supports Preload and Dynamic Cache Purge
Supports HTTPS	No HTTPS support in a classic HPCA environment. Note: Supports HTTPS when installed as part of the Core or Satellite Server. Refer to the <i>HPCA Core and Satellite Getting Started and Concepts Guide</i> for details.

Glossary

applications

Also called software, data, or services.

Applications are one type of content that Client Automation can manage on user computers. Use the Admin Publisher to create packages of data to be managed on your subscribers' computers.

attribute

Also called *field*, *variable*, or *property*.

An attribute is a single, descriptive data item in a class. The class template contains a definition (e.g., the name, data type, description, and length) for each attribute that makes up the class. Class instances contain a set of attributes and each attribute contains a value.

attribute property

An attribute property controls some aspect of how an attribute is processed on the Configuration Server and Client Automation agent computer. Each attribute defined in a class template has a set of Configuration Server properties and a set of Client Automation agent properties.

Admin Agent Explorer

The Admin Agent Explorer can be used to view or edit local objects, or create new objects. You can also use the Admin Agent Explorer to view objects located on a file server or on other computers to which you are connected via a local area network (LAN).

Client Automation agent computer

A Client Automation agent computer is a user's computer that has the Client Automation agent software installed on it.

Application Manager

The Application Manager is the Client Automation agent that manages mandatory services. The systems administrator uses the Admin CSDB Editor to specify the services that the Application Manager manages on the subscriber's computer. No user interface is available.

Application Self-service Manager

The Application Self-service Manager is the Client Automation agent used to manage optional services. The systems administrator uses the Admin CSDB Editor to specify the services that are available to the user.

The user installs and manages services that are available from the Application Self-Service Manager user interface (Service List).

Configuration Server

The Configuration Server distributes applications to Client Automation agent computers. It maintains the CSDB, which stores information that the Configuration Server needs to manage digital assets for distribution to Client Automation agent computers.

Configuration Server DB

The CSDB stores all of the information necessary to manage digital assets on a Client Automation agent computer, including:

- The software and data that Client Automation distributes.
- The "desired state" of each HPCA agent computer with respect to the managed content.
- The policies determining which users can subscribe to which packages.
- Security and access rules for administrators.

Use the Admin CSDB Editor to manipulate the CSDB.

Portal

The Portal is a core Client Automation engine hosting an OpenLDAP Zone directory, used to manage many different Client Automation assets. The Portal Zone directory is made available to the HPCA Core Console and HPCA Enterprise Manager Console.

Service

Also called a software application, application, or software.

A service is a group of related packages representing the set of digital assets managed by Client Automation as a unit.

dynamic cache

The dynamic cache is the Proxy Server's secondary cache populated through Dynamic PassThru. When Client Automation agents request data that is not available in the static cache, Dynamic PassThru sends a request to an upstream host, either a Proxy Server co-located with a Configuration Server, or another Proxy Server, to satisfy the request. Multiple upstream hosts may be defined for fail-over support: if the first named host fails to connect, Dynamic PassThru sends the request to the next upstream host on the list.

Admin CSDB Editor

The Admin CSDB Editor is used to manipulate the contents of the CSDB.

Dynamic PassThru

The HTTP process used to populate the dynamic cache. When Client Automation agents request data that is not available in the static cache or existing dynamic cache, Dynamic PassThru sends a request to an upstream host, either a Proxy Server co-located with a Configuration Server or another Proxy Server, to satisfy the request. Multiple upstream hosts may be defined for fail-over support: if the first named host fails to connect, Dynamic PassThru sends the request to the next upstream host on the list.

instance

Also called *class instance*.

An instance is a CSDB object containing a specific occurrence of a class. This is analogous to a row in a relational data table or a record in a traditional flat file. The attributes of an instance contain the data describing one specific entity of that class.

method

A method is a program that performs functions that are meaningful in the context from which they are called.

Methods can be written in REXX or in a language that produces an executable that can validly run on the platform where it is invoked. The HP-supplied REXX run-time environment interprets REXX methods.

Agent methods, also known as Client methods, run on the subscriber's computer, while Configuration Server methods run on the Configuration Server computer.

object

An object is a data structure containing variables stored in a file with an `.EDM` suffix on the Client Automation agent computer. An object can consist of one or more instances. Each instance contains the same set of variables. The values held in the variables can vary from instance to instance.

Use the Admin CSDB Editor to view, edit, or create objects.

preloading

Preloading is the process of loading the application to be distributed before any Client Automation agents request the software. It requires a resolution of the Proxy Server's desired state on the Configuration Server before the applications can be loaded, either directly from the Configuration Server, or indirectly from another Proxy Server. The preload resolution is performed using TCP. The files may be deployed using TCP or HTTP, or a Multicast Server.

resource

Also called *file*.

A resource is a single component that is bundled into a package. Examples of resources are files, desktop links, and sets of registry keys.

REXX

REXX is an interpreted language that provides a simple way to customize various aspects of Client Automation processing.

STAGER instance

The STAGER instance in the PRIMARY.POLICY Domain of the CSDB contains information necessary for the Client Automation agent to connect to the Proxy Server to obtain its needed resources. A STAGER instance can also specify the protocol and deployment source used to preload a Proxy Server.

static cache

The static cache is the Proxy Server's primary cache, managed by the Preloader. After installing the Proxy Server, this cache is preloaded with services as defined in the CSDB as its desired state. The services may be deployed from the Configuration Server or another Proxy Server.

variable

A variable is a piece of named storage that contains a changing value. The variable's value forms a part of the Client Automation agent's resolved desired-state and can influence the resolution process through messaging or symbolic substitution.

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