



Windchill Info*Engine® Installation and Configuration Guide

Windchill® 8.0

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lpng120.zip - PNG image library version 1.2.0. <http://www.ijg.org/>; Provided pursuant to: <http://www.libpng.org/pub/png/src/libpng-LICENSE.txt>.

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Change Record

This section details major changes applied to this guide.

Table 1 Changes for 8.0 M040

Chapter	Description
Installing and Configuring Aphelion SSL Software	Removed chapter; the use of Aphelion SSL software is not supported. If you need SSL, contact technical support.
Chapter 2, Installation Planning Requirements	Removed RetrievalWare information as using this search engine is no longer supported for Windchill.
Chapter 4, Installing Java 2 Platform, Standard Edition Software Development Kit	In the Installing J2SE Software Development Kit (SDK) section, added note to fix Java bug.
Chapter 7, Installing Aphelion Directory 8.0	Added Checking Anti-virus Software Settings section. In the Testing Aphelion Directory Installation section, updated path in step 1.
Chapter 11, Starting and Stopping the Aphelion Directory	In the Starting the LDAP Browser section, updated path.
Chapter 13, Installing Info*Engine	Added the PTC customer agreement step to the Installing Info*Engine , Reconfiguration for Apache , and Reconfiguration for Tomcat sections.
Chapter 15, Configuring IIS and Tomcat	Added a note in the Putting IIS in IIS 5 Isolation Mode section about placement of the Tomcat filter.
Chapter 16, Configuring WebSphere on AIX	Added new chapter to support WebSphere.

Table 2 Changes for 8.0 M010

Chapter	Description
Chapter 6, Installing and Configuring a Web Server and Servlet Engine	<p>In the Installing Tomcat section, updated step 4.</p> <p>In the Apache for HP-UX section, updated step 3.</p> <p>In the Apache for Non HP-UX Platforms section, updated step 7.</p> <p>In the Configuring Apache section, updated step 6 for non-default ports.</p>
Chapter 17, Configuring Apache and Tomcat With Other Options	Corrected ant script in Specifying a Bind DN for the LDAP URL section.

Table 3 Changes for 8.0

Chapter	Description
Configuring Sun ONE Application Server chapter	Removed because Sun ONE Application Server is not supported.
Chapter 2, Installation Planning Requirements	Updated for Windchill 8.0 which now includes information about multi-instance support.
Chapter 3, About Installing Windchill Products	<p>Updated for Windchill 8.0.</p> <p>Removed the Running Windchill Installers from Windows 2003 section and removed corresponding notes in other chapters because workaround is no longer needed.</p>
Chapter 4, Installing Java 2 Platform, Standard Edition Software Development Kit	Updated to reflect updated name of SDK. Name changed from Java 2 Software Development Kit (SDK). SDK to Java 2 Platform, Standard Edition (J2SE) Software Development Kit (SDK).
Chapter 5, Installing Web Browsers and Java Plug-in	Removed Netscape information from the chapter; Netscape is no longer a supported Web browser.

Chapter	Description
Chapter 6, Installing and Configuring a Web Server and Servlet Engine	<p>Throughout the chapter, changed the default Tomcat port numbers to 8010 and 8006.</p> <p>In the Before You Begin section, added restrictions on user names.</p> <p>In the Installing Tomcat section, updated installer path information, added shutdown port information, and documented new Ant script for setting heap size.</p> <p>In the Starting and Stopping Tomcat section, updated the instructions on stopping Tomcat.</p> <p>In the Installing Apache section, added host name format information, updated installer path information, and corrected typing errors.</p> <p>In the Apache for HP-UX section, updated the procedure steps.</p>
Chapter 7, Installing Aphelion Directory 8.0	Updated the chapter to describe the installation of the newly supported Aphelion Directory 8.0. This chapter replaces chapters 7 through 11 of the 7.0 guide.
Chapter 9, Installing Additional LDAP Browsers	Updated the installation information and procedure for installing additional LDAP browsers.
Chapter 13, Installing and Configuring Aphelion SSL Software	Added new chapter for Aphelion SSL software information.

Chapter	Description
Chapter 14, Installing Info*Engine	<p>In the Before You Begin section, added host name format information.</p> <p>In the Installing Info*Engine section, updated installer path information, added note about no longer setting WT_HOME, added additional information about the Web Application Context Root, and documented new default for the distinguished name of the top subtree LDAP entry under which Info*Engine component LDAP entries will reside.</p> <p>Removed the "Verifying You Info*Engine Configuration" section as it is no longer needed and caused confusion when Windchill is installed.</p>
Chapter 15, Configuring Sun ONE Java Enterprise System Web Server	Added new chapter to support Sun ONE JES Web Server.
Chapter 16, Configuring IIS and Tomcat	Added new chapter to support IIS and Tomcat combination.
Chapter 17, Configuring Apache and Tomcat With Other Options	Added the Running Tomcat in Development Mode section.
Appendix A, Troubleshooting the Installation	Updated for Windchill 8.0.

Table 4 Changes for 7.0 M020

Chapter	Description
Chapter 3, Running Windchill Installers from Windows 2003	Added new section for Windows 2003.
Chapter 4, Installing Web Browsers and Java Plug-in	Added information about double authentication for Internet Explorer and Mozilla.
Chapter 5, Apache Log Files	Added information about activating the HP-UX access_log file.
Chapter 5, Apache for Non HP-UX Platforms	Added note about consequences of installing Apache as a root user.

Chapter	Description
Chapter 17, Installation Summary	Added note about removing examples from a production system.
Chapter 19, Apache and Info*Engine Installed With Different Users	Added language about root and non-root users.

Table 5 Changes for 7.0 M010

Change	Description
Installing Apache for Non HP-UX Platforms	Added steps and note to back up and restore conf files when installing over an existing Windchill 7.0 Apache installation.
Installing Mozilla	Updated Mozilla URL.
PTC Document Reference Web Site	Updated to new URL.
Installing Apache for HP-UX	Added note regarding using altroot to move an existing HP Apache installation.
Starting and Stopping the Aphelion Directory	Added note regarding changing file permissions and starting Aphelion processes.

Table 6 Changes for 7.0

Change	Description
Section dividers	Added section dividers to separate information groups. For example, the Aphelion section is composed of multiple chapters and this group of chapters is preceded by an Aphelion section page.
Wildfire	Wildfire is not support for Windchill 7.0, the text was removed.
Replaced PTC.Setup installation procedures with InstallAnywhere.	InstallAnywhere replaces PTC.Setup as the installation utility for the Windchill products.

Change	Description
Updated all Windchill property file edits to use xconfmanager utility.	xconfmanager is the new utility to manage the Windchill property files.

About This Guide

The *Windchill Info*Engine Installation and Configuration Guide* provides the instructions to the install Web browsers, Web servers, servlet engines, the Aphelion Directory, and Info*Engine.

This document assumes you have the following knowledge and skills:

- Knowledge of the existing system data structures at your site
- Knowledge of the Web architecture used at your site
- Knowledge of Java Server Page (JSP) capabilities
- Knowledge of World Wide Web browser operation
- UNIX system administration skills (if you are installing on a UNIX system)
- Windows system administration skills (if you are installing on a Windows system)

Read This First

The Read This First for Windchill 8.0 provides information related to known problems, documentation omissions, and notes and cautions. A printed copy of the RTF is shipped with your product or, for your convenience, a version with the most up-to-date information is available online at:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

This URL directs you to the PTC Online Support Web page for reference documents. For your document search criteria, select your product from the product drop-down list.

Windchill Installation Overview

The *Windchill Installation Overview* contains a basic set of steps that you can use as an overview for installing Info*Engine, Windchill, and all required third party products.

You can find this document in the root directory of the Third Party Software CD. For your convenience, the most up-to-date version of this document is also available online at:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

This URL directs you to the PTC Online Support Web page for reference documents. For your document search criteria, select your product from the product drop-down list.

Related Documentation

After your installation is complete, read the following documents to learn more about Info*Engine:

*Windchill Info*Engine Administration and Implementation Guide*

*Info*Engine User's Guide*

You can install these guides on your system when you install Info*Engine or you can copy them from the Info*Engine CD.

Technical Support

Contact PTC Technical Support via the PTC Web site, phone, fax, or e-mail if you encounter problems using Windchill.

For complete details, refer to Contacting Technical Support in the *PTC Customer Service Guide* enclosed with your shipment. This guide can also be found under the Support Bulletins section of the PTC Web site at:

<http://www.ptc.com/support/index.htm>

The PTC Web site also provides a search facility that allows you to locate Technical Support technical documentation of particular interest. To access this page, use the following link:

<http://www.ptc.com/support/support.htm>

You must have a Service Contract Number (SCN) before you can receive technical support. If you do not have an SCN, contact PTC License Management using the instructions found in your *PTC Customer Service Guide* under Contacting License Management.

Documentation for PTC Products

PTC provides documentation in the following forms:

- Help topics
- PDF books

To view and print PDF books, you must have the Adobe Acrobat Reader installed.

The Windchill Info*Engine installation documentation is included on the CD in the Docs directory. In addition, books updated after release (for example, to support a hardware platform certification) are available from the Reference Documents section of the PTC Web site at the following URL:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

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Documentation Conventions

Info*Engine documentation uses the following conventions:

Convention	Item	Example
Bold	Names of elements in the user interface such as buttons, menu paths, and dialog box titles. Required elements and keywords or characters in syntax formats.	Click OK . Select File > Save . License File dialog box -outputFile <i><file_name></i>
<i>Italic</i>	Variable and user-defined elements in syntax formats. Angle brackets (< and >) enclose individual elements when <> does not conflict with the code.	create_<tablename>.sql <i>instance:dbuser:passwd</i>
Monospace	Examples Messages	<code>http://localhost/Windchill/...</code> <code>Processing completed.</code>
"Quotation marks"	Strings	<code>"codebase\infoengine.jsp"</code>

Convention	Item	Example
<Product>	Represents a product installation directory (loadpoint). <i>Product</i> is replaced with the actual product name.	<p><Info*Engine></p> <p>For additional clarification, a where clause may be included:</p> <p>Where <Info*Engine> is the directory where Info*Engine is installed.</p>
	The CAUTION symbol indicates potentially unsafe situations which may result in minor injury, machine damage or downtime, or corruption or loss of software or data.	Warning for Windows users. An installation of Apache on or under a Windows drive letter obtained by using the Windows Map Network Drive utility (for example, Windows Explorer > Tools) is not supported.

Third-Party Products

Examples in this guide referencing third-party products are intended for demonstration purposes only. For additional information about third-party products, contact individual product vendors.

Code Examples

Some code examples in this guide have been reformatted for presentation purposes and, therefore, may contain hidden editing characters (such as tabs and end-of-line characters) and extraneous spaces. If you cut and paste code from this manual, check for these characters and remove them before attempting to use the example in your application.

I

General Information About Installing Info*Engine Section

1

Architectural Overview

This chapter provides an overview of the Info*Engine architecture.

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Identifying the Info*Engine Components	1-2
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Identifying the Info*Engine Components

The following components make up the Info*Engine architecture:

- The *Info*Engine Servlet* provides an interface between the Web server and Info*Engine.
- The *Info*Engine Server* provides a mechanism for retrieving and manipulating the data that users or custom applications want to view or receive.
- The *Naming Service* is the software that supports the operation of Info*Engine components. In the Info*Engine Naming Service, you can identify the LDAP directory servers where entries for the network addresses of Info*Engine components and entries for configuration properties reside.
- The *Info*Engine Service Access Kit (SAK)* is an application program interface (API) that facilitates the development of Java applications, including JSP pages, that directly utilize the functions and features of Info*Engine. For example, high-level Info*Engine components such as the Info*Engine Servlet, the Info*Engine server, and the E-Mail Broker use the SAK to invoke tasks and individual webobjects.
- The *native adapters* provide a direct interface between Info*Engine and information systems.
- The *non-native adapters* provide an indirect interface between Info*Engine and information systems. These adapters use a different protocol from the protocol used by Info*Engine and therefore cannot connect directly to Info*Engine.
- *Gateways* provide an interface between Info*Engine and non-native adapters.
- The *Info*Engine SOAP RPC Servlet* catches and processes Info*Engine SOAP requests that are made over the Web. SOAP (Simple Object Access Protocol) is a lightweight protocol that can be used by third-party applications. By using this protocol, third-party applications can send requests to execute Info*Engine code and return the output that is generated.
- The *E-Mail Broker* provides a process by which users can e-mail Info*Engine requests to a mailbox. Using the SAK, the messages in the mailbox are then passed on to the Info*Engine server for processing.

The remainder of the chapter describes the relationships among the components.

Identifying Basic Configurations

Info*Engine components can be used in many different software and hardware configurations to meet your business requirements for accessing, managing, and presenting data from many different information systems.

Setting up your Info*Engine environment can be accomplished by:

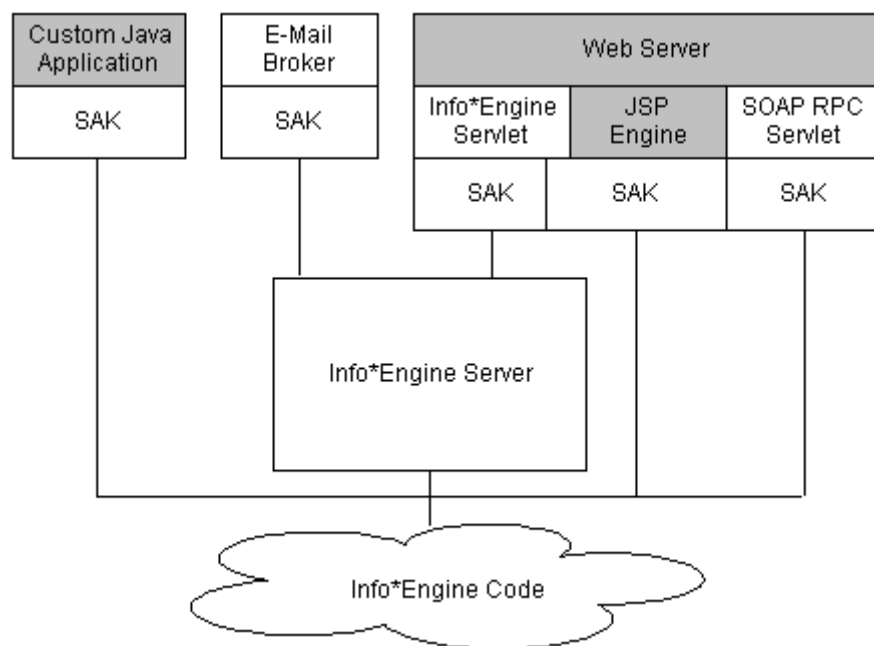
- Establishing interactions with Info*Engine.
- Managing the execution of Info*Engine tasks.
- Starting and managing Info*Engine components.
- Managing connections to the information systems where the data of interest resides.

Interacting with Info*Engine

Initiating an interaction with Info*Engine can be accomplished by using one or more of the following:

- Custom Java applications, including JavaServer Pages (JSP).
- Web servers that process Info*Engine requests. The requests can come from applications or Web browsers.
- E-mail requests that contain formatted messages sent to a predefined Info*Engine mailbox.
- Java Message Service (JMS) events and messages that queue Info*Engine tasks for execution.
- Custom third-party applications that make requests to execute Info*Engine tasks. These applications use the Info*Engine SOAP RPC servlet.

The following diagram shows how Info*Engine components and other customer software components can interact to execute Info*Engine code.



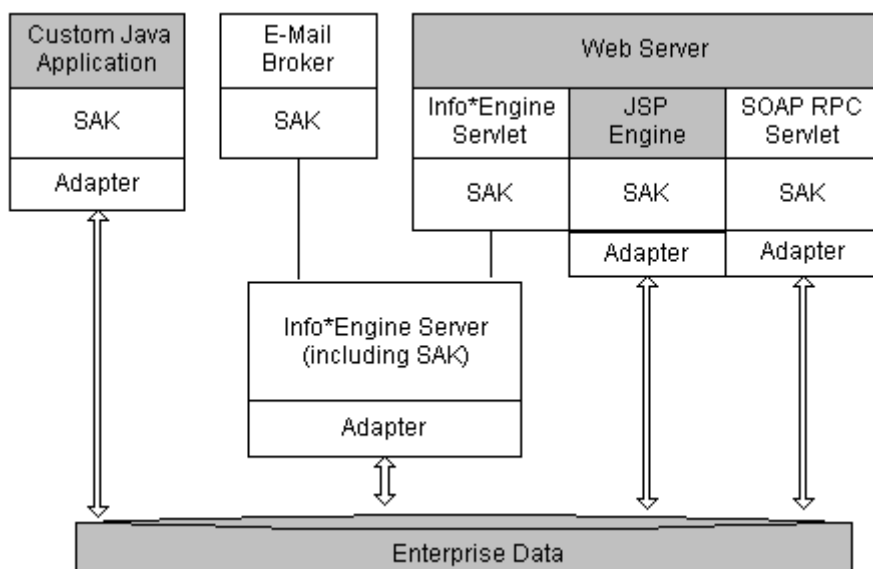
Info*Engine code consists of Java classes that are accessed through the Info*Engine API. The API is available through the SAK and externalizes predefined functions called webjects and tasks. The webjects and tasks can be easily instantiated and invoked as Java objects from a Java application or in a text file. Info*Engine text files can be accessed using requests or code within an application.

The following sections provide more detail about how to use the Info*Engine components with your software.

Using a Custom Java Application

By coding a custom application in Java, you can have quick and easy access to Info*Engine without the added complexity of a Web server. By using the API defined in the SAK, you can execute Info*Engine webjects, tasks, and other Info*Engine code in the Java Virtual Machine (JVM) where the application resides.

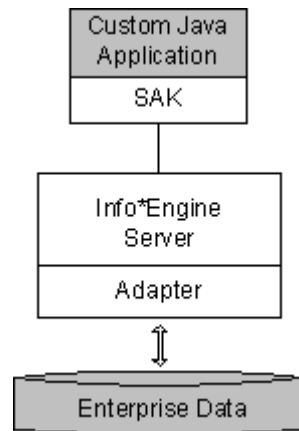
The following diagram shows the SAK and adapter classes being used in the application to access data in a remote database.



Within a Java application, you also have the flexibility of executing Info*Engine tasks that are maintained outside of the application. An Info*Engine task consists of a set of webjects and surrounding code that supports the processing of the webjects. These tasks can then be processed either in the JVM of any Info*Engine server or in the JVM of the application.

The following diagram shows the Info*Engine components that are used when an application executes a task in an Info*Engine server. In this case the application

requests that a task be executed in the server that accesses data in a remote database.



Using a Web Server to Process Info*Engine Requests

The installation process guides you through a procedure that deploys Info*Engine as a Web application. Going through the installation process sets up your Web server and its servlet engine to identify Info*Engine requests and pass those requests on to Info*Engine components for processing. After the installation is complete, your Info*Engine environment is set up so that Info*Engine requests to execute JSP and HTML pages coming from Web browsers are processed correctly.

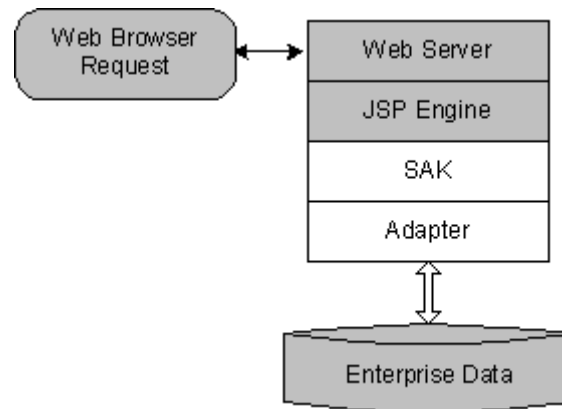
By doing some additional Info*Engine configuration steps, you can set up your Info*Engine environment to process requests from the following additional sources:

- If you configure the Info*Engine SOAP RPC servlet, Info*Engine SOAP requests can come from third-party applications.

The steps required to configure Info*Engine so that it processes requests from these additional sources are described in the Configuration chapter of this guide.

Processing Web Browser Requests

The following diagram shows the relationships among the components that process Web browser requests for JSP pages.



This diagram shows the components that are used when the request specifies that Info*Engine execute a JSP page. By default, Info*Engine and Web server configuration specifies that JSP pages are processed in the JSP engine of the servlet engine installed on your Web server. The JSP engine creates an instance of the SAK, which is then used to execute the Info*Engine-specific code on the page. For example, if a user clicks a link or uses a URL in a browser window that serves as a JSP request for information from Info*Engine, the JSP engine and the SAK work together to manage the request.

The SAK processes the request and, as needed, connects to specialized Info*Engine adapters that communicate with external applications such as Oracle databases, PDM systems, various legacy systems, and ERP systems. After the requested information is obtained from the external applications, the process reverses itself and ultimately displays information in the user's browser window.

Web Browser Request Example

Assume that a user needs to compare the manufacturing bill of materials (MBOM) for an assembly with the engineering bill of materials (EBOM) for the same assembly. However, the as-designed EBOM exists on a Product Data Management (PDM) system and the as-built MBOM exists on an Enterprise Resource Planning (ERP) system.

Through Info*Engine, the information from these two disparate systems can be combined and displayed to the user at the same time. The first step is to author a JSP page that uses Info*Engine to request this information and then display the requested items in side-by-side frames within a browser window. Usually, this JSP page resides in the directory assigned to Info*Engine JSP pages. To display

the page, the user includes the assigned Info*Engine application URL prefix in the URL. For example, assume the following:

- The Web page is named bill_of_materials.jsp.
- The Web server is named Wsvr1.
- The Info*Engine URL prefix that identifies where JSP pages reside is Windchill.

To initiate the request for the bill_of_materials JSP page, a user sends the following URL using HTTP:

`http://Wsvr1/Windchill/bill_of_materials.jsp`

Because the URL contains the Windchill URL prefix, the Web server passes the URL on to the JSP engine. The JSP engine then finds and processes the JSP page. In this example, the JSP page contains standard JSP and HTML tags that format the page to display the bill of material data in side-by-side frames.

In addition to the standard tags, the JSP page contains custom Info*Engine tags that identify requests for the data that will fill out the bills of material. The custom tags also provide the information that formats the data that is returned from the requests. When the JSP engine encounters the custom tags, it passes these tags off to the SAK for processing.

When the SAK processes the custom tags on the JSP page, it performs the following tasks:

- Locates the information needed to access any requested applications (for example, the PDM or ERP system).
- Obtains any additional information that is required to retrieve, manipulate, and display the requested data.
- Identifies any authentication requirements (who can or cannot access the information requested) if you set up custom tags to do so.

To obtain the data, the SAK sends requests through the Info*Engine protocol to the appropriate Info*Engine adapters.

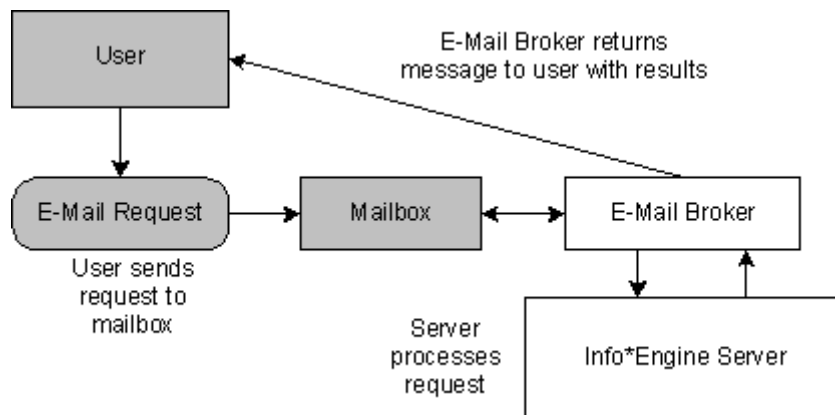
After the appropriate PDM and ERP applications are located, the requested EBOM and MBOM data is retrieved and returned to the SAK. The SAK maintains the data as two separate groups in an internal, virtual database (VDB).

Using Info*Engine custom tags that the author has included in the JSP page, the data returned in these two groups is manipulated and formatted into standard HTML-encoded text. Then, the SAK returns the encoded text to the JSP engine. The JSP engine passes the text back to the Web server, which passes it back to the user's browser to be displayed. As described earlier in this example, the display shows the data in the side-by-side frames that were set up for the EBOM and MBOM comparison originally requested by the user.

Making E-Mail Requests to Info*Engine

The E-Mail Broker allows users to make Info*Engine requests by e-mail.

The E-Mail Broker provides a process that monitors a mailbox for requests to execute Info*Engine tasks. When a request arrives in the mailbox, the E-Mail Broker connects to the Server and passes the request to the Info*Engine server for processing. It also captures output from the processed template or task, and returns the output in an e-mail message to the address specified in the From or Reply-To heading of the original request.



Managing the Execution of Info*Engine Tasks

Info*Engine tasks control the retrieval and manipulation of data. Tasks consist of the following:

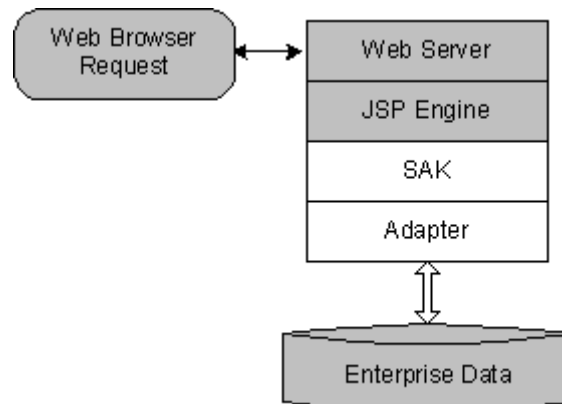
- Info*Engine webjects that retrieve and manipulate data.
- Surrounding Info*Engine custom tags that manage the execution of the webjects.

There are two basic ways to execute tasks:

- Incorporate tasks directly into any Java application, including JSP pages, using Info*Engine custom tags.
- Put the tasks in individual text-based documents, specify which tasks to execute in the Info*Engine custom tags within a Java application (or JSP page).

The decisions about how and where to execute Info*Engine tasks depend on your system requirements. For example, if you have a dedicated environment where one system contains both your Info*Engine application and all of the required software components, and the tasks to execute do not require any complex processing, you may choose to execute your tasks from within JSP pages that are

also used to display the results. In this case, the environment used could be similar to the following:



The JSP engine depicted in the diagram instantiates an instance of the SAK within the JVM of the JSP engine. The SAK is then used to process the Info*Engine custom tags. Some of the Info*Engine tags can execute webobjects that extract data from enterprise systems through an adapter, while others can display the data. In this example, all of the webobjects are contained in the same JSP page.

In a more complex environment where you have a large Java application that executes complex tasks, you can manage the tasks more efficiently by separating them into individual documents, rather than coding them directly in the application. When a task is contained in its own document, it is called a standalone task. For a standalone task, the following processing options are available:

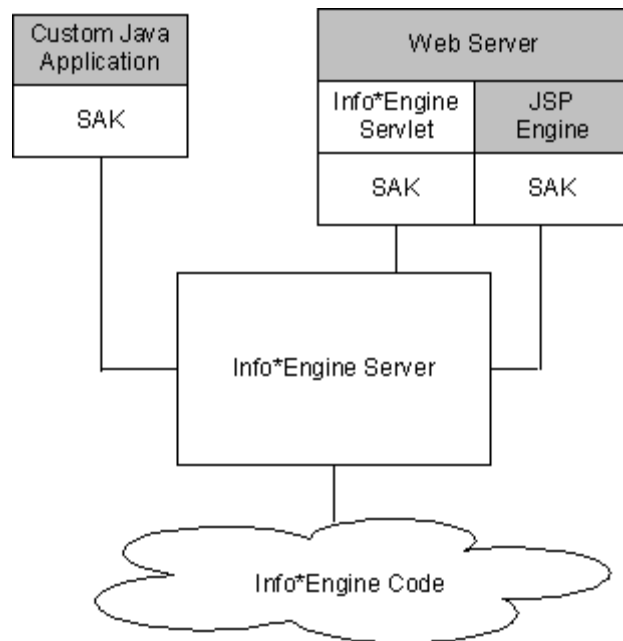
- You can specify where you want a standalone task to execute, whether it is in the same JVM as the application or in the JVM of any Info*Engine server that is part of your environment.
- You can specify how you want to execute standalone tasks that do not execute in the same JVM as the application. There are three ways to execute these standalone tasks:
 - Requesting, through a TCP/IP connection, that the task executes in a specific Info*Engine server. Each Info*Engine server listens for task requests and executes them upon arrival.
 - Implementing a specific event that executes tasks. Establishing events through an Info*Engine Web Event Service allows you to execute tasks based on specific actions that can occur in your environment.
 - Queuing a task for execution. After you queue a task, you can disconnect from your application. Any results are queued for later retrieval either by you or others. By queuing a task, you can also guarantee that the task will be completed, even if it is interrupted due to a system problem.

By performing the basic Info*Engine installation, the Info*Engine server is set up to receive task requests. To use either queues or events for executing tasks, you must install and configure additional Message-Oriented Middleware (MOM) software and then update your Info*Engine configuration.

The following sections describe the architecture of the components used in executing standalone tasks.

Requesting Task Execution Through a TCP/IP Connection

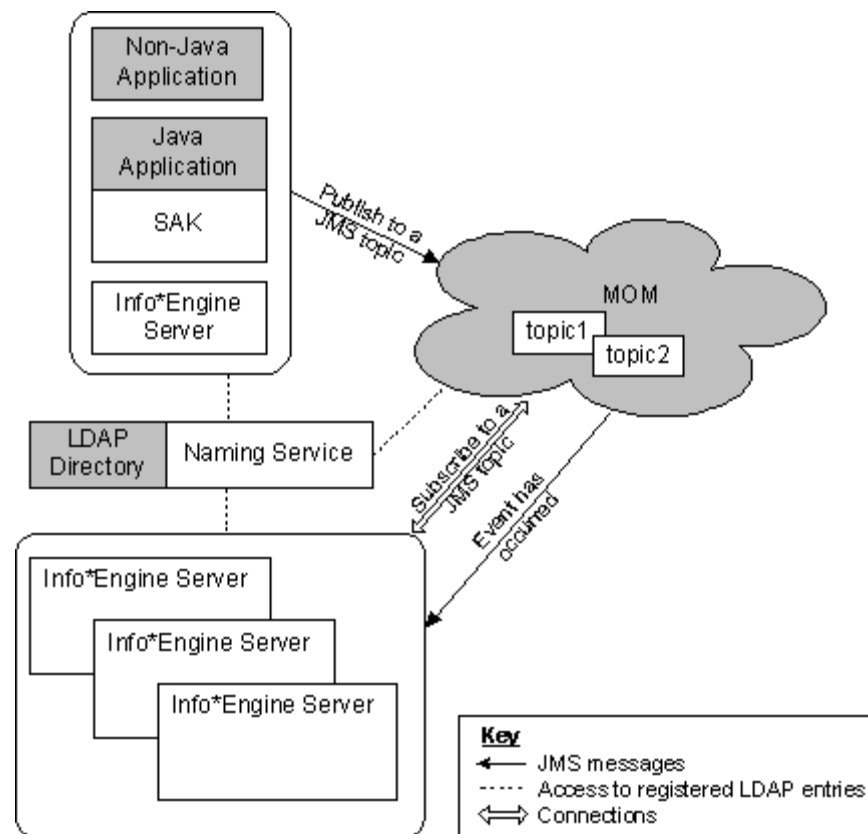
The following diagram show the components used to request the execution of a task through a TCP/IP connection:



All of these components can be configured through the basic Info*Engine installation. As shown in the diagram, requests to execute standalone tasks can come from both custom Java applications and JSP pages. In addition, requests can come from mail messages funneled through the Info*Engine E-Mail Broker, or from SOAP requests that come from third-party applications through the Info*Engine SOAP RPC servlet.

Implementing Events that Execute Tasks

The following diagram show the components that can be used to implement executing tasks through Info*Engine events:



You can think of events as internet newsgroups, and subscribing to an event is like signing up for a newsgroup, where the name of the event is the name of the newsgroup. When a message is posted to a newsgroup, those who signed up receive the message. In a similar manner, when an event occurs those subscribed to the topic associated with the event receive a message indicating that the event has occurred.

To implement executing tasks through Info*Engine events, you must install a Message-Oriented Middleware (MOM) software product such as IBM MQSeries, and you must create the required topics and a topic connection factory. You must also use the MOM utility to create managed object entries in your Naming Service LDAP directory so Info*Engine can locate the topics.

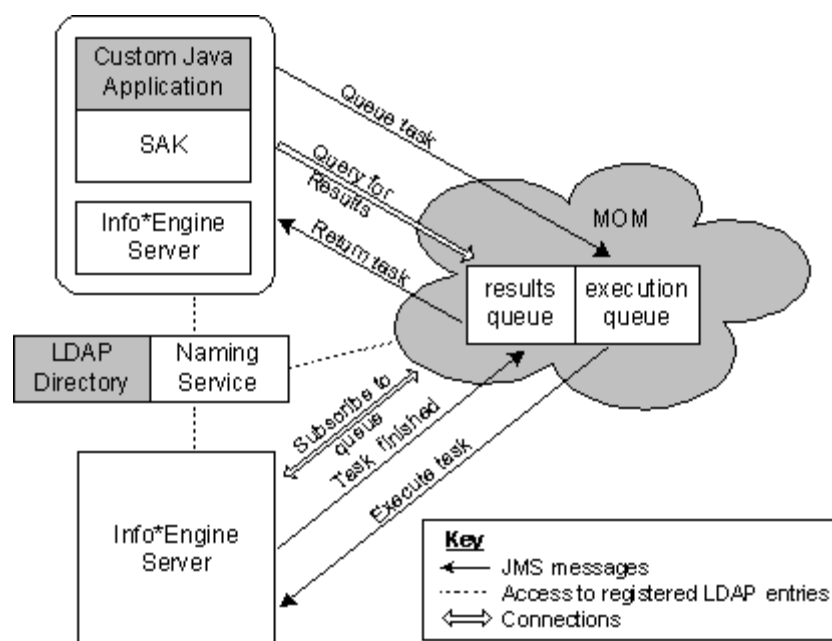
After topics and a topic connection factory have been created and registered, you can use an Info*Engine Web Event Service (WES) webject to subscribe Info*Engine servers to events. On a webject parameter, you name the task to execute when the event occurs. In the subscription process, Info*Engine builds a connection with the MOM. The MOM manages the topics and returns a message

to all subscribed Info*Engine servers when the event occurs. The previous diagram shows three Info*Engine servers subscribed to a topic. Each server executes a task when the event occurs.

Info*Engine also provides a WES webject that you can use to make an event occur. The webject creates a message that adheres to the Java Message Service (JMS) specification and sends the message to a specific JMS topic, indicating that the event has occurred. You can also use any other messaging tool in your environment that can publish to the JMS topic to make the event occur. The previous diagram shows events coming from three different sources: a non-Java application, a Java application, and a task executed from an Info*Engine server.

Queuing Tasks for Execution

The following diagram shows one possible set of components that can be used to queue tasks for execution:



This diagram shows two components (an application and an Info*Engine server) queuing tasks and one component (an Info*Engine server) executing tasks. The components used in queuing and executing tasks can easily be expanded to include multiple custom applications, Info*Engine servers, and MOMs, allowing you to scale your environment to accommodate a large number of users or tasks originating from varied locations.

To set up the queues required for queuing Info*Engine tasks, you must install a Message-Oriented Middleware (MOM) software product such as IBM MQSeries and configure the required queues and a queue connection factory. In addition,

you must use the MOM utility to create managed object entries in your Naming Service LDAP directory so that Info*Engine can locate the queues.

After the queues and queue connection factory are set up and registered, you can use Info*Engine messaging (MSG) webjects to queue tasks to execute and to query for the results. When Info*Engine processes a webject that queues a task, it builds a message that adheres to the Java Message Service (JMS) specification and sends the message to the specified execution queue in the MOM.

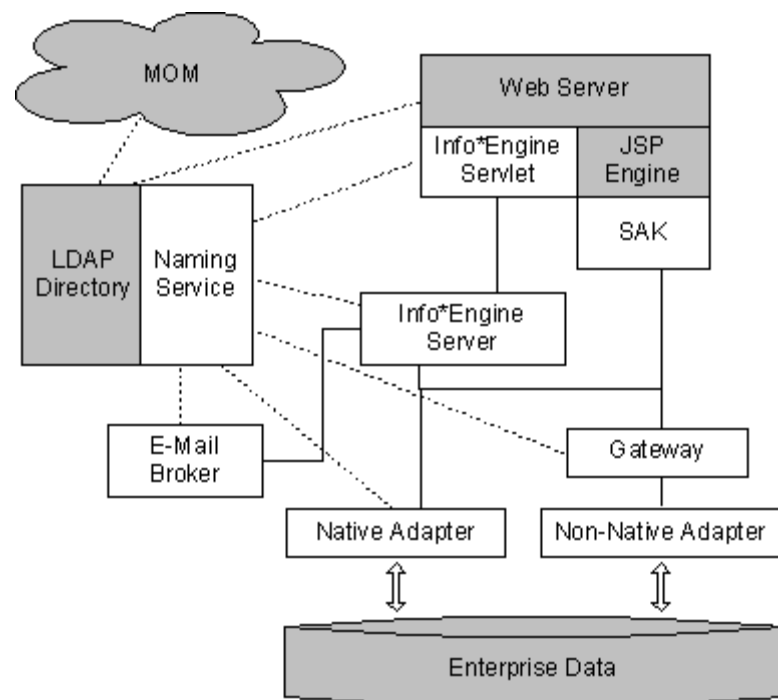
The MOM manages the queues and therefore can identify any Info*Engine server that has subscribed to the queue in order to execute tasks named in messages that are sent to the queue. If multiple Info*Engine servers have subscribed, the MOM determines which server executes the task.

After a task completes, the Info*Engine server sends a message to the results queue in the MOM. At any time, you can browse the messages in the results queue and retrieve results for tasks that have completed.

Starting and Locating Info*Engine Components

The Naming Service uses an LDAP directory to provide the Info*Engine Servlet, the Info*Engine server, the native adapters, and the Info*Engine gateways with a means of locating each other, acting as a traffic director of sorts.

In the following diagram, dashed lines represent the communication between the Naming Service, Info*Engine components, and third party software that could be installed.



Additionally, there is an Info*Engine SOAP RPC servlet entry in the Naming Service.

The Naming Service can be used to automatically start Info*Engine components residing on the same hardware system. Depending on where you install adapters and gateways, you may want to configure the Naming Service to start them as well.

Setting Up Connections Through Adapters

Adapters provide a connection between the Info*Engine server and information systems. One side of the adapter communicates with the Info*Engine server and the other side communicates with the information system. The adapter translates Info*Engine server requests into information system requests.

Info*Engine provides two types of adapters:

- *Native adapters* are implemented in the Java language and conform to the formal Info*Engine interface specification. For example, the JDBC and JNDI adapters are native adapters.
- *Non-native adapters* are implemented in a non-Java language or do not conform to the formal Info*Engine interface specification. Because the implementation is different from Info*Engine, you must also define a gateway for each non-native adapter you install. Gateways translate Info*Engine requests so the adapters can process them. After an adapter receives a request, the adapter sends it to the associated database or data repository. The adapter also returns any information obtained from the data repository to the gateway where it is translated and passed back to the Info*Engine server.

The adapters you use are determined by the information systems from which you want to retrieve information. Info*Engine provides a unique adapter for each information system.

Native adapters can be installed as follows:

- Residing in the same Java Virtual Machine as the Info*Engine webobject that accesses the adapter (known as the in-process adapter).
- Distributed in their own Java Virtual Machine on the same hardware system or on remote hardware systems (known as out-of-process adapters).

How to install native adapters is determined by your site.

Gateways usually reside in the same Java Virtual Machine as the calling webobject since the code for gateways is installed as part of Info*Engine.

Non-native adapters are always distributed in their own environment and are run as out-of-process adapters.

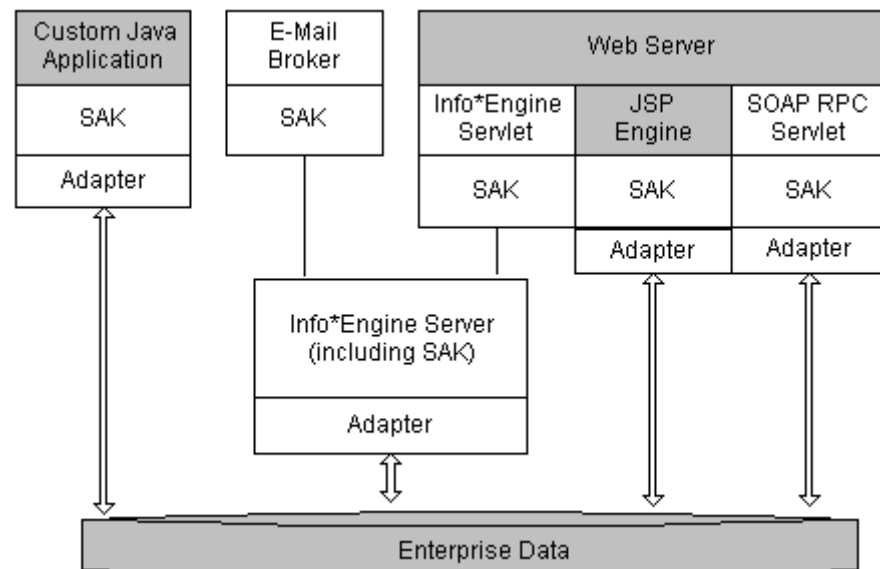
The following sections expand upon the installation options.

Using In-Process Adapters and Gateways

In-process adapters and gateways are installed and run in the same Java Virtual Machine as the calling webobject. Only native adapters and gateways can be configured to run in the same JVM as the calling webobject. The SAK determines which classes are required when processing webobjects for an in-process adapter or gateway, and instantiates the classes in the JVM. Therefore, the communication between the webobject and the adapter or gateway is very efficient.

Configuring in-process adapters and gateways minimizes communication delays and resource usage; however, the total resource usage of the machine hosting the Info*Engine code may be increased because of the additional load of running the adapter or gateway.

When an adapter is configured to be an in-process adapter, the adapter classes can be instantiated by any SAK that executes adapter webobjects. The following diagram shows adapter classes residing in the JVM of a custom Java application, the Web server, and the Info*Engine server:



As shown in the diagram, no external communication is needed between the SAK and the adapter when the adapter is in the same process.

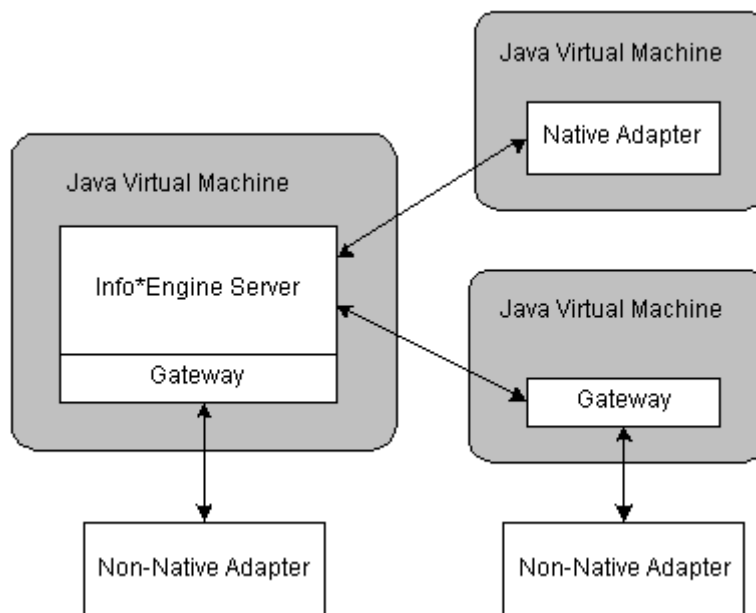
Running in-process native adapters and gateways is generally the preferred configuration if the resource usage on a single system is not excessive.

Using Out-of-Process Adapters and Gateways

Distributing adapters across multiple hardware systems reduces the overall resource usage on the machine hosting the Info*Engine code; however, it does introduce some delay and resource usage associated with using a TCP/IP

connection for communicating between Info*Engine components and each adapter.

The following diagram shows the communication lines that are used when three adapters and one gateway are distributed.



Distributed native adapters and gateways are installed and run in their own Java Virtual Machine. These virtual machines can be on the same hardware system as the Info*Engine server or on a different hardware system. Non-native adapters can only be configured as out-of-process adapters, and they always run as separate processes. Although gateways for non-native adapters are typically configured as in-process gateways to minimize the communication delays, they do not need to be in the same process.

The deployment of distributed adapters at your site may be determined by a company policy that requires the adapter to be located near the application it accesses, or it may be based on administrative reasons. One reason for running a native adapter in its own Java Virtual Machine could be to better manage the resource usage of the virtual machine.

2

Installation Planning Requirements

This chapter contains information that can help you as you plan your installation or that can be used as reference material during the installation.

Topic	Page
Software Matrices.....	2-2
Language Matrices	2-2
Windchill Installation Documentation	2-3
Best Practices for Installing Multiple Windchill Solutions on One Server.....	2-4

Software Matrices

The software matrix lists the combinations of platforms, operating systems, and third-party products that are fortified for use with this release on Windows and UNIX operating systems. It provides detailed technical support information for all Windchill products that are included in the release. It also includes information about third party products that are supported with Windchill, but not bundled with the release

Product and version matrix information is updated periodically to adjust to environment changes. To obtain a copy of the latest software matrix, use the following URL:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

This URL directs you to the PTC Online Support Web page for reference documents. For your document search criteria, select your product from the **Product** drop-down list, select the current release from the **Release** drop-down list, select **All User Roles** from the **User Role** drop-down list, and select **Matrices - Software** from the **Document Type** drop-down list.

Language Matrices

The language matrix lists the languages supported with this release.

To obtain a copy of the language matrix, use the following URL to access the PTC Support site.

<http://www.ptc.com/support/index.htm>

On this page, click **Platform Support** and then click the product (such as Windchill 8.0) and then **Language Support**. The **Language Support** link takes you to a list of supported languages and a link to the language matrix.

The language information maybe updated periodically to adjust to environment changes. See the PTC Web site (previously listed) for the latest copy of the language matrices.

The language files for most of the Windchill products are delivered on the Windchill MultiLanguage Pack CD in conjunction with the Windchill release. In some cases, however, a Windchill product will deliver its language files on the product installation CD.

Note: In the initial Windchill 8.0 release, the language content for all Windchill products is provided. Additionally, documentation (in the form of translated Windchill guides and tutorials) is delivered with the first maintenance release.

Windchill Installation Documentation

The following is a quick reference list of the Windchill 8.0 products and their associated installation guides:

- An overview of the Windchill 8.0 product suite -- *Windchill Installation Overview*
- Windchill Info*Engine -- *Info*Engine Installation and Configuration Guide*
- Windchill Foundation and Windchill solutions -- *Windchill Installation and Configuration Guide - Windchill*
- Windchill Visualization Services -- *Windchill Installation and Configuration Guide - Visualization Services*
- Windchill Visualization Object Adapters -- *Windchill Installation and Configuration Guide - Visualization Services Object Adapters*
- Windchill Information Modeler -- *Windchill Installation and Configuration Guide - Information Modeler*
- Windchill Classification Tools -- *Windchill Classification Tools Installation Guide*
- Windchill PartsLink -- *Windchill PartsLink Administrator's Guide*
- Windchill PartsLink Catalog -- *Windchill PartsLink Catalog Administrator's Guide*
- Windchill CounterPart -- *Windchill CounterPart Installation Guide*
- Windchill Enterprise Systems Integration for Oracle Applications -- *Windchill Enterprise Systems Integration Installation Configuration Guide - Oracle Applications*
- Windchill Enterprise Systems Integration for SAP -- *Windchill Enterprise Systems Integration Installation Configuration Guide - SAP*
- Optegra Gateway -- *Optegra Gateway Installation and Configuration Guide*
- Windchill Pro/INTRALINK Gateway -- *Windchill Pro/INTRALINK Gateway Installation and Configuration Guide*
- Workgroup Manager for AutoCAD -- *Workgroup Manager for AutoCAD Installation and Configuration Guide*
- Workgroup Manager for AutoDesk -- *Workgroup Manager for AutoDesk Installation and Configuration Guide*
- Workgroup Manager for CADDs -- *Workgroup Manager for CADDs Installation and Configuration Guide*
- Workgroup Manager for ECAD -- *Workgroup Manager for ECAD Installation and Configuration Guide*

- Workgroup Manager for CATIA V4 -- *Workgroup Manager for CATIA V4 Installation and Configuration Guide*
- Workgroup Manager for CATIA V5 -- *Workgroup Manager for CATIA V5 Installation and Configuration Guide*
- Workgroup Manager for I-DEAS -- *Workgroup Manager for I-DEAS Installation and Configuration Guide*
- Workgroup Manager for SolidWorks -- *Workgroup Manager for SolidWorks Installation and Configuration Guide*
- Workgroup Manager for Unigraphics -- *Workgroup Manager for Unigraphics Installation and Configuration Guide*

Best Practices for Installing Multiple Windchill Solutions on One Server

You can run multiple concurrent instances of Windchill solutions on the same server. PTC supports multiple concurrent instances of Windchill solutions with the following understanding:

- PTC assumes that you have sized your system appropriately when running multiple concurrent instances of Windchill solutions on the same server. Additionally, PTC expects that you have a test environment available to assist with troubleshooting any issues that arise. In that environment, you should be able to shut down instances so that an issue can be reproduced in a single Windchill instance. If runtime performance degrades after starting other instances of Windchill solutions, PTC Technical Support is not able to provide sizing guidelines nor Windchill runtime performance assistance.
- Some third-party vendors may not support the configuration of multiple instances of their software on a single server. In such a case, PTC cannot provide any support for a system configured in this fashion.
- The installation, configuration, or troubleshooting of the actual set-up of a multiple Windchill solution server is the responsibility of the customer. Additional assistance can be obtained from the third-party product documentation, third-party vendor support, or the configuration tips provided in the following sections. PTC does not (cannot) test and document all possible third-party product configurations running simultaneously on same server with multiple Windchill solution instances running. Furthermore, it is the responsibility of each third-party vendor to determine whether it is possible or supportable to run multiple instances of their application on the same server.
- PTC Technical Support can assist with Windchill solution functionality issues (for example, Administration, Workflow, and so on) unrelated to the multiple Windchill solution configuration as long as each Windchill solution instance is configured with its own Web server and servlet engine. If shutting down one of the Windchill solution instances (along with its related Web server and

servlet engine) eliminates the problem that necessitated a technical support call, then the user should follow the support procedures of the appropriate third-party vendor to find a solution. PTC Technical Support is unable to provide support on third-party products in a multiple Windchill solution environment.

Configuration Tips

Configuring multiple instances of Windchill on a single server involves installing and configuring the Windchill solutions and many third-party products multiple times. The procedure you use is basically the same as the procedure for installing a single Windchill solution. However, additional steps in some areas are needed.

This section provides tips on configuring multiple instances of some third-party products. If issues arise with configuring multiple instances of a specific third-party product, please contact the vendor's technical support for assistance.

The additional Info*Engine and Windchill configuration needed is also provided in the tips.

Use the following set of tips when configuring a single server to run multiple instances of Windchill solutions on one server:

[Web Server and Servlet Engine Configuration](#)

[Aphelion Directory Configuration](#)

[Oracle Configuration](#)

[Windchill Configuration](#)

[Search Engine Configuration](#)

Web Server and Servlet Engine Configuration

In most cases, a separate installation of the Web server and servlet engine are advised for each instance of a Windchill solution. In this case, the different Web servers and servlet engines must all use unique ports.

When installing the bundled versions of Apache (non HP-UX platforms) and Tomcat, the installer allows you to specify a different port number for each installation. For Apache on an HP-UX platform, you can modify the port in the conf/httpd.conf file.

For details on installing and configuring Apache and Tomcat, see the [Other Web Server and Servlet Engine Configurations Section](#).

For other supported Web server and servlet engine combinations, see the documentation for the corresponding third party products to determine if multiple installations are required.

Aphelion Directory Configuration

Separate installations of Aphelion are not required. However, each instance of Info*Engine and Windchill do require, at a minimum, a unique Base Distinguished Name that you specify when you install Info*Engine.

To allow for independent Aphelion backup and restore capabilities for each Windchill solution, you would be required create separate LDAP naming context for each solution and specify the context when you install Info*Engine. To backup or restore Aphelion for all solutions at the same time, separate contexts are not required.

For details on installing and configuring Aphelion, see the [Aphelion Directory Section](#). For details on installing Info*Engine, see the [Installing Info*Engine](#) chapter.

Oracle Configuration

Multiple Windchill solutions cannot share a single Oracle schema. An additional Oracle user and a set of database objects must be created for each instance of Windchill.

After you have installed a Windchill solution (but before loading data), use the Oracle Configuration Utility (OCU) to create a Windchill database user account and database objects. The utility prompts you to enter a user, default tablespace name, and temporary tablespace name for storing database objects each Windchill instance. Ensure that the names you enter are unique across all instances of Windchill

For details on using OCU to do this task, see the *Windchill Installation and Configuration Guide - Windchill*.

Windchill Configuration

To ensure that each Windchill solution runs properly, those properties that reference port numbers or URLs must be set to the correct values.

URLs

To ensure that the URLs for each instance are unique, specify a unique Web application name for each Info*Engine installation. This is done when you install Info*Engine. On the **Configure Info*Engine Server** panel, specify unique names in the **Web Application Context Root** field.

Port Numbers in Properties

For Windchill solutions, the following properties in the wt.properties file are the basic set of properties that you need to set to unique values:

```
wt.manager.port  
wt.method.minPort  
wt.method.maxPort  
wt.adapter.simpleTaskDispatcher.minPort
```


Note: All changes to property files should be made using the xconfmanager utility from within the windchill shell for the instance.

Windchill Adapter and Info*Engine Task Processor Port Numbers

Additionally, set a unique port for the Windchill adapter in each Windchill instance and, if you are using Info*Engine as a standalone product, then set unique port numbers for the Info*Engine task processor in each Info*Engine instance. You can use the Info*Engine Property Administrator to change the port numbers of the Windchill adapter and Info*Engine task processor.

Tip: Remember to include the Web server port number of the Windchill or Info*Engine instance when logging into the Property Administrator:

`http://localhost:<port_num>/Windchill/infoengine/jsp/admin/index.jsp`

For details on using the Property Administrator, see the *Windchill Info*Engine Administration and Implementation Guide*.

CAD Adapter Port Numbers

If you are using CAD adapters in each instance, the port used for the adapters must be unique. Modify the agent.ini file in the Windchill codebase directory to refer to the appropriate CAD Listener port.

Search Engine Configuration

You can use an enterprise search functionality for multiple installations of Windchill.

For details on how to do this task, see the *Windchill Installation and Configuration Guide - Windchill*.

3

About Installing Windchill Products

This chapter provides information about installing Windchill products, using the installation utility, and loading and mounting a CD-ROM on UNIX systems.

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Overview of an Installation Session

The following sections provide an introduction to the installation utility.

Choosing the Installer Language

Note: The Windchill Server Pack installer is only released in English; therefore, this section does not apply to that installer.

When the installer is launched, the language specified by your system is now the default install language. The installer assumes, therefore, that your system is set to the locale of your preference (the locale must be a supported Windchill locale) prior to initiating an installation. Once the language environment variable has been set, any messages issued by the installer are issued in that language. For information about the languages supported with this release, use the following URL:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

This URL directs you to the PTC Online Support Web page for reference documents. For your document search criteria, select your product from the **Product** drop-down list, select the current release from the **Release** drop-down list, select **All User Roles** from the **User Role** drop-down list, and select **Matrices - Language** from the **Document Type** drop-down list.

The following instructions are provided to assist you in verifying (or setting) the language environment variable on your system before you start the installation process:

Windows

To review (or set) the language environment variables, select **Start > Settings > Control Panel > Regional Options**. In the **Regional Options** dialog box select the **General** tab. From the drop down list, choose the appropriate language variable.

Note: Alternatively, you can set (or change) the locale for your system using a command. At the command prompt enter:

```
set LANG=<language>
```

Where *<language>* is the language specification for your platform.

UNIX

You can use the following command to determine the correct values for the locale:

```
locale -a
```

For Latin-1 languages, ISO88591 the option should be used, if available.

At the shell prompt enter:

```
setenv LANG <language>

setenv LC_ALL <language>

export LANG LC_ALL
```

Where *<language>* is the language specification for your platform.

When the current locale for the system is set to an Asian language, the installer allows you to choose only that Asian locale or English from the locale drop-down list. When the current locale for the system is a non-Asian language, all of the non-Asian languages in the drop-down list, including English, appear.

Navigation and Canceling

Installers operate in a standard wizard paradigm using **Next** and **Previous** to move forward or backward through the steps of the installation. A navigation bar on the side of the installer window gives a course-grained view of where you are in the overall installation process. Be aware, that on busy systems and with complex installers there can occasionally be a delay in moving between steps. Avoid clicking **Next** or **Previous** a second time while you are waiting for the switch as this could cause the wizard to skip the appropriate panel.

The basic interaction of each installer is to first collect information from you, then offer you a chance to review the most critical settings before actually beginning the modification of files on your system. At this point, the label on the **Next** button is changed to **Install** to signal that if you proceed that files on your system will be changed.

Clicking **Cancel** in the installer window can stop an installation; however, if you cancel *after* you have clicked **Install**, be aware that your file system has already been modified and the installers cannot undo what they have changed. Should you accidentally click **Cancel**, you are prompted to either confirm the cancellation or resume the installation. Unless specifically noted, the installers in the Windchill product suite do not have an uninstall capability.

Installation Type

Some installers offer specialized installation types, execution modes, and custom options. The most common installation types for the Windchill product suite installers are: Typical and Custom. Typical is the most common course of prompts and options. Custom allows you to select options that may not be available using the Typical installation type or allows you to skip portions of the installation. Some installers offer additional installation types that allow for specialized processing.

Choosing Installation Directory

All installers require you to choose where you want to install the software. Some products can be installed in any location, whereas others must be installed into the

same installation directory as another product. If the product has no restrictions on where it is installed, you can also enter a new directory path and the installer will create it.

If the product you are installing must be installed in the same location as another product, the panel indicates the name of the prerequisite product or products. It then shows a list of one or more directories that it believes meet the prerequisites.

Note: The list of directories comes from a central registry that the installers maintain on your system. If a previous installation has been deleted, a directory may be shown which no longer exists.

You can then choose one of the listed directories or browse to another directory if the one you want is not shown. After the directory is selected, the installer then performs a more in-depth validation of the chosen directory. If it does not meet the requirements, you are informed and given the chance to choose another location.

Terminology

Installer -- The program that you interact with to perform the installation; for example, setup (or setup.vbs) is referred to as the installer. The term installer is not intended to refer to the person doing the work.

Installation Directory -- The directory where you choose to place the product you are installing.

InstallAnywhere -- The framework and toolset, provided by ZeroG, which is used to develop the Windchill installers.

Java Runtime Environment

To run, the InstallAnywhere software requires the specific version of the Java Runtime Environment (JRE) which is bundled with each installer. When you run an installer using the documented scripts from the CD root, the installer automatically uses the bundled JRE and does not use a JRE from your system. The SDK on the Windchill server system is no longer used when installing Windchill products.

Documentation on the CD Image

For some CD images, a Docs directory is present on the root of the CD image. This directory contains one or more *.pdf files of manuals for the product(s) being installed from that CD. It is common for there to be a copy of the installation guide in that directory, plus possibly other manuals of an administrative nature. These books, along with others that are embedded elsewhere in the installation image, are copied onto your system by the installer.

Additionally, the Windchill Installation Overview is provided on the Third Party Software CD at the root level. Use this overview to become familiar with the set

of products that are in a given release of Windchill Info*Engine and Windchill solutions. The overview also provides guidance on the order in which products should be installed.

Disk Space Check Process

The installation of some products takes a considerable amount of disk space. The **Review Settings** panel of each installer gives an indication of the estimated disk space requirements to complete the installation based upon the options you have chosen. Once you click **Install** on the **Review Settings** panel, the installer checks your system for the required disk space. If it does not believe there is enough space, the installer presents a dialog box that informs you of this and waits for the space to be freed up. You may also choose to go back and select a different installation directory.

The disk space check can be disabled completely by setting the environment variable `CHECK_DISK_SPACE` to a value `OFF` (note all caps) prior to launching the installer.

Launching the Installer

The installer placement and behavior differs depending on the following things:

- Whether the your system platform is Windows or UNIX.
- Whether there is only one or multiple installers on the same CD.

Note: Running installers from a windchill shell or having a windchill shell open when you are installing is not recommended and causes errors to occur if you are installing or updating Windchill Services. Instead, be sure to modify the system `PATH` variable to include the path to your installed SDK bin directory before running the setup file.

The following sections describe where actual installer executables are located, as well as the installer placement and behavior based on whether there is one installer on the CD or multiple installers on the CD.

Single Installer on CD

The following describes what to expect when there is only one installer on the CD.

Automatic and Manual Execution on Windows

If you are using a CD to do the installation and there is only one installer on the CD, the setup program may automatically start when you insert the CD. Otherwise, to manually run the setup program, double click the **setup.vbs** program that is located in the CD root directory.

UNIX Setup Script

The UNIX installer script name is **setup**. It is located directly under the CD image root. The script automatically launches the program for the operating system on which the installation is taking place.

Before you install, check the DISPLAY environment variable setting to ensure that the installation windows will display on the machine. The DISPLAY value on the machine that runs the setup program should be set to `<machine>:0.0`, where `<machine>` is the name of the system where the setup program is installed.

If the DISPLAY variable is not set correctly, the installation program exits with the following error:

```
Configuring the installer for this system's environment...

Invocation of this Java Application has caused an
InvocationTargetException. This application will now exit. (LAX)
```

Multiple Installers on One CD

In some cases, there are multiple Windchill products on one CD. For example, the Windchill Third Party Software CD has the Tomcat, Apache, OCU, and JRE products. On Windows, the installer does not automatically launch when a CD contains multiple products. The scripts for each installer are located at the root directory of the CD.

To run the installation, navigate to the root directory on the CD and locate the setup script for the product you want to install. Run the setup script, as follows:

- On Windows -- Run the VBS setup file for the product. The actual name of the setup file includes the product name, such as `setup_tomcat.vbs` for the Tomcat product.
- On UNIX -- Run setup script for the product. The actual name of the setup file includes the product name, such as `setup_tomcat` for the Tomcat product.

Before running the setup script on a UNIX system, check the DISPLAY environment variable setting to ensure that the installation windows will display on the machine.

Location of Actual Installer setup Executables

As a convenience, the setup VBS file (for Windows) and the setup script file (for UNIX) are located in the root directory of the CD.

The actual setup executable files are located further down in the directory hierarchy:

- For Windows, the `setup.exe` file can be found in the `Disk1\InstData\Windows\NoVM` directory for the product you are installing.

- For UNIX, first locate the UNIX platform directory under the Disk/InstData directory for the product you are installing. Within that directory, the setup.bin file can be found in the NoVM directory.

Note: Do not run the setup executable directly to start an installer. The executable files are not coded to use the bundled JRE. Instead, always use the setup files that are in the CD root directory.

Loading and Mounting the CD-ROM on UNIX

Most UNIX systems automatically mount the CD-ROM after it is loaded into the CD-ROM drive. For users whose machines do not mount automatically, the following instructions explain how to load and mount the CD-ROM both locally and remotely.

Note: Sun Solaris 2.x has automatic CD mounting. For more specific information on how to mount CDs on Sun hardware, visit <http://docs.sun.com/>.

Determining the SCSI ID of the CD-ROM Drive

You specify the SCSI identification number of your CD-ROM drive when you mount the CD-ROM file system to your UNIX workstation.

If you already know the SCSI ID of your CD-ROM drive, proceed to the next step.

If you do not already know the SCSI ID of your CD-ROM drive:

- For external CD-ROM drives, the SCSI ID can be found on the back of your CD-ROM drive. Look for a single-digit switch. The displayed number is the SCSI ID number.
- For internal CD-ROM drives, use the following table to find the command(s) you need to enter to determine the SCSI ID (the number in bold is the ID).

Commands Used to Find the SCSI ID of the CD Device

System	Command and Output	SCSI ID
HP-UX	<ol style="list-style-type: none">1. Insert the CD-ROM into the drive.2. Become root user.3. For each file in the /dev/rdisk directory, type the following at the command line: <code>/etc/diskinfo /dev/rdisk/<device></code> <device> should be replaced with each item in the /dev/dsk directory. For the device file identified as type: CD-ROM, the SCSI ID is to the right of the letter t in this example of a device file name: <code>c0t3d0</code> <p>Note: The identified device file name is the same file name that is used in the command to mount the CD-ROM.</p>	3
SUN	Automatically mounts the CD-ROM.	
AIX	<code>lsdev -C -c cdrom -H</code> IBM eServer p5 and pSeries systems have IDE CD-ROM Drive	4 (in the string 00-08-00-#0)

Note: The inclusion of a system in this table does not indicate support for that system; this information is only included to help you determine the SCSI ID for CD-ROM drives that are remotely mounted to your workstation. See the software platform matrix (available from <http://www.ptc.com/appserver/cs/doc/refdoc.jsp>) for information on supported systems and platforms.

Loading and Mounting the CD-ROM Locally

1. Turn on the CD-ROM drive and insert the CD-ROM.
2. If the /cdrom directory does not already exist, create it using the following command:

```
mkdir /cdrom
```

3. To mount the CD-ROM drive, enter the command appropriate for your UNIX workstation system.

For Sun, the command is:

```
mount -F hsfs -o ro /dev/dsk/c0t#d0s0 /cdrom
```

In the command line, replace the # symbol with the SCSI ID of the drive.

For AIX, the command is:

```
/usr/sbin/mount -o ro -v cdrfs -f /dev/cd0 /cdrom
```

For Hewlett-Packard, the procedure is:

- a. Add the following line to the /etc/pfs_fstab file. The first entry is the CD-ROM device file, the second is the mount point. The third entry indicates that the CD-ROM to be mounted is in ISO9660 format with Rockridge extension:

```
<device_file> <mount_point> <filesystem_type>  
<translation_method>
```

Example:

```
/dev/dsk/c5t2do /cdrom pfs-rrip xlat=unix 0 0
```

- b. Perform this step (and steps c through e) as the root user. Run the following file:

```
# nohup /usr/sbin/pfs_mountd &
```

- c. Run the following file:

```
# nohup /usr/sbin/pfsd &
```

- d. Run the following command to mount the CD-ROM:

```
# /usr/sbin/pfs_mount /cdrom
```

- e. Exit the root user account:

```
# exit
```

- f. Change directories to /cdrom, where you can see a lowercase listing of the directories and files on the CD-ROM. The mounted CD-ROM should appear as another read-only file system.

Loading and Mounting the CD-ROM Remotely

The CD-ROM drive should be mounted using NFS version 2. On machines that support NFS 3, an extra argument needs to be added to the mount command to force the use of NFS 2.

1. Load and mount the CD-ROM on the remote UNIX system to which the CD-ROM drive is connected. Use the procedure outlined in the [Loading and Mounting the CD-ROM Locally](#) section.

2. The CD-ROM file system must be exported before a remote UNIX system can allow access to the CD-ROM from your local UNIX workstation. To accomplish this, a line must be added to a file on your local UNIX workstation and, in some cases, a command needs to be executed.
3. Use the following table to look up the system of the remote UNIX system. Select your system from the **System** column, and add the text line in the **Line to Add** column to the file in the **File to Edit** column. You must have correct write permissions to edit these files.
4. If necessary after you have made the changes, execute the command listed in the **Command** column.

Exporting the CD File System

System	File to Edit	Line to Add	Command
HP-UX	/etc/exports	/cdrom -ro	exportfs /cdrom
AIX	/etc/exports	/cdrom -ro (AIX 5.2) /cdrom -sec=sys,ro (AIX 5.3)	/usr/sbin/exportfs /cdrom
Sun	/etc/dfs/dfstab	share -F nfs -o ro /cdrom	shareall

5. If the /cdrom directory does not already exist on your local UNIX workstation, create it using the following command:

```
mkdir /cdrom
```

6. The CD-ROM directory must be mounted from the remote UNIX system to your local workstation. Use the following table to identify your local UNIX workstation type and execute the corresponding command. In the command, specify values, as follows:
 - *<node>* is the name of the remote UNIX system to which the CD-ROM drive is connected.
 - *<cdmount>* is the CD-ROM mount directory used on the remote UNIX system.

CD Device Remote Mounting Commands

System	Remote Mounting Command
HP-UX	/etc/mount -o ro,hard <node>:<cdmount> /cdrom
AIX	/usr/sbin/mount -o ro,hard <node>:<cdmount> /cdrom

System	Remote Mounting Command
Sun	<pre>mount -o ro,hard <node>:<cdmount> /cdrom</pre> <p>Note: If problems occur while using an installer from a remote-mounted CD-ROM, you can try remounting the remote CD-ROM using one of the following commands:</p> <p>For Sun systems:</p> <pre>mount -o ro,hard,vers=2 <node>:<cdmount> /cdrom</pre> <p>For IBM eServer p5 and pSeries systems:</p> <pre>/usr/sbin/mount -o ro,hard,vers=2 <node>:<cdmount> /cdrom</pre>

7. If your system does not automatically mount the CD-ROM, enter the required command. For example, for Hewlett Packard systems:

```
/etc/mount -F cdfs -o ro /dev/dsk/c?t#d0 /cdrom
```

Note: In the preceding example, the number sign (#) represents the SCSI ID of the CD-ROM drive.

8. The CD-ROM file system must be exported before a remote UNIX system allows access to the CD-ROM from your local UNIX workstation. To accomplish this, you must add a line to a file on your local UNIX workstation, and, in some cases, execute a command.
9. Use the following table, to identify your remote system; add the text in the **Line to Add** column to the file listed in the **File to Edit** column. You must have the correct write permissions to edit the files. If necessary, execute the command listed in the **Command** column. For additional information, see your hardware-specific documentation.

Exporting the CD-ROM File System

System	File to Edit	Line to Add	Command
HP-UX	/etc/exports	/cdrom -ro	exportfs /cdrom
Sun	/etc/dfs/dfstab	share -F nfs -o ro /cdrom	shareall

If problems occur while using an installer from a remote-mounted CD-ROM on Sun Solaris systems, try remounting the remote CD-ROM using the following command:

```
mount -o ro,hard,vers=2 <node>:<cdmount> /cdrom
```

Installation Log Files

During the installation, information is written to various log files. The log files are located in the `<installation directory>/installer/logs` directory. There are generally two log files written per installation session:

- `<installer short name>_InstallLog.xml`
- `<installer short name>_PtcInstall.log`

Note: The `<installer short name>_InstallLog.xml` is only available after the installer terminates.

When multiple executions of the same installer are performed to the same installation directory, these log files are backed up and the file names are changed to include a sequence number. The sequence numbers begin with 000. For example, the log files for the first execution of the installer would be named as follows:

- `<installer short name>_InstallLog.000.xml`. For example, `WNC_InstallLog.000.xml`
- `<installer short name>_PtcInstall.000.log`. For example, `WNC_PtcInstall.000.log`

Up until the point where you have actually clicked **Install** on the **Review Settings** panel, the log files are written to the temporary directory controlled by the operating system as follows:

- On Windows, the environment variable `%TMP%` is used and typically defaults to Local Settings\Temp directory of the current users in the User Profile directory. For example, `d:\User Profiles\<userid.domain>\Local Settings\Temp`.

Note: On Windows, the Local Settings directory may be hidden by default. If you cannot find the Local Setting directory using the Windows Explorer, check your folder options to ensure that hidden folders are displayed.

- On UNIX, the logs are temporarily written to either `/var/tmp` or `/tmp` (JVM implementation dependent). If the installer does not have permission to write to the temporary directory, it writes the `<installer short name>_InstallLog.xml` file to the user's `<HOME>` directory, but the `<installer short name>_PtcInstall.log` is held in memory until they are both written to `<Windchill>/installer/logs`. If the installation fails before you have actually clicked **Install**, there is no `<installer short name>_PtcInstall.log` written when the installer does not have permission to write to the temporary directory.

When the installer is executed in a language other than English, messages in the `<installer short name>_PtcInstall.log` files are written in both English and the translated form. Not all messages have a translated form.

If problems should occur during the installation, write down the location of the log files and be prepared to send them to PTC Technical Support for analysis. If an installer should fail before the install has actually started, the files are located in the directory identified by the operating system as noted previously.

Troubleshooting

Reading through the following common problem descriptions may help you in troubleshooting your installation problems.

Problem:

When an installation fails, the installer logs are not written to the standard output directory of *<installation directory>/installer/logs*.

Action:

In this case, the installer displays the location of the installation log files that it has produced. Write down the location specified by the installer. The location of the log files depends upon when in the installation process the installation fails. Refer to the [Installation Log Files](#) section for details.

Problem:

On a UNIX system, the installer does not run.

This can happen if the TMP directory does not have the disk space required by the installer.

Action:

Set the environment variable LAX_DEBUG=1 in the shell where the installer was launched and restart the installer. This should result in output being written to the console window.

If the output produced indicates that the amount of /tmp disk space required to perform this installation is greater than what is available, you can set the IATEMPDIR environment variable to a directory on a disk partition with enough free disk space. Then restart the installer.

To set the variable, enter one of the following commands at the UNIX command line prompt before running this installer again:

- for Bourne shell (sh), ksh, bash and zsh:

```
$ IATEMPDIR=/<your>/<free>/<space>/<directory>
```

```
$ export IATEMPDIR
```

- for C shell (csh) and tcsh:

```
$ setenv IATEMPDIR /<your>/<free>/<space>/<directory>
```

Problem:

On UNIX, the installer terminates unexpectedly.

Action:

PTC has encountered situations where a core dump is caused by corrupt font files. This problem is known to have occurred in 1.4.x JVMs. If you are running a 32-bit JVM, then set the environment variable LAX_DEBUG=1 in the shell where the installer was launched, and restart the installer. Navigate through the installer until it fails. This should result in output being written to the console window. Browse the console output for the following message:

```
Assertion failed: offset < fFileSize, file
../../../../src/share/natvie/sun/awt/font/fontmanager/fontobjects/fon
tObject.cpp, line XXX
Abort - core dumped
```

The solution is to identify the problematic fonts per the Evaluation sections in the following Java Bug Parade reports provided by Sun:

<http://developer.java.sun.com/developer/bugParade/bugs/4838130.html>

Problem:

The installer cannot find a valid Java Virtual Machine.

This can happen in the following situations:

- If you try running the installer using an executable file that is located in a NoVM directory.
- You are trying to install one of the products from the Windchill Third Party Software CD or the Windchill Services CD over a network connection, and you do not have a supported Java VM on your local machine. For the installers, the supported Java VM is a version of Java 1.4 (Java 1.5 cannot be used by the installers).

Either of the following messages could be returned:

- The installer requires Java 1.4 in your path. (on UNIX)
- Could not find a valid Java virtual machine to load. (on Windows).

Action:

If you were not using a setup script that is located at the root directory on the CD, rerun the installer using the setup script located in the root directory. Running the installer from the root directory ensures that the Java Virtual Machine bundled with the installer is used.

If you are installing over a network connection, locate a supported Java VM and rerun the installer using the setup command with the following as the first two arguments on the command line.

UNIX:

```
<install_dir>/<setup_script> LAX_VM <java_install_dir>/bin/java
```

Windows:

```
<install_dir>/<setup_script> LAX_VM <java_install_dir>/bin/java.exe
```

Where *<install_dir>* is the directory path to the setup file, *<setup_script>* is the setup script in the root directory of the CD for the product you are installing (such as *setup_tomcat.vbs*), and *<java_install_dir>* is the installation directory for the Java VM. The second argument is the actual Java VM executable, not a directory. If any other arguments are passed in, they must follow these two arguments.

Alternative Method:

An alternative to running the setup script from command line and including the LAX_VM option is to set the LAX_VM environment variable to the same value that would be used on the command line. When this variable is set, running the setup script that is in the root directory on the CD automatically adds LAX_VM and *<java_install_dir>/bin/java* to the command line for the installer that you are starting.

Problem:

On AIX, the installer core dumps and does not launch.

Action:

This can happen if the IBM_MIXED_MODE_THRESHOLD environment variable is set. Unset the IBM_MIXED_MODE_THRESHOLD variable.

Problem:

Technical Support asks you to provide additional diagnostic information about how the installer launches and what JRE is used to execute the installer.

Action:

There are two ways to obtain additional diagnostics:

- On some Windows versions, you can press the control key when you double-click on the setup.vbs script that is at the root level of the CD. This brings up a command shell window with diagnostic information. You can copy this information into a file to send to Technical Support.
- On UNIX and Windows, you can set the environment variable LAX_DEBUG to 1. Then execute the setup script for the installer that is at the root level of the CD. The diagnostics are shown in the same command window (UNIX) or in a pop-up window (Windows).

Problem:

The installer does not run. The error message returned indicates that one of the following requirements is not true:

- The installer only runs on the following platforms:
AIX, HP-UX, Solaris, Windows 2000, or Windows 2003
- The installer requires Java 1.4 or higher in your path.

Action:

Ensure that you are running on a supported platform. Although the message does not indicate that Windows XP is supported, the installers can run on Windows XP also.

Additionally, ensure that you are running the installer using the scripts located in the root directory of the CD. This ensures that Java Virtual Machine bundled with the installer is being used.

Problem:

Sometimes the installer appears to skip over a step.

Action:

The installers behave in a wizard-like fashion with **Next** and **Previous** buttons. In a system where the response is slow, the wizard may not advance to the next or previous step as quickly as expected and you may click the **Next** or **Previous** button again (repeatedly). This mouse click event is queued up and acted upon when the system responds. This may advance the windows beyond the expected window.

Once the **Next** or **Previous** button has been clicked, wait for the installer to respond and advance to the intended window.

Under normal system conditions, the installer moves forward and backward through the windows with little noticeable delay.

This issue has been filed as a bug with the software vendor ZeroG.

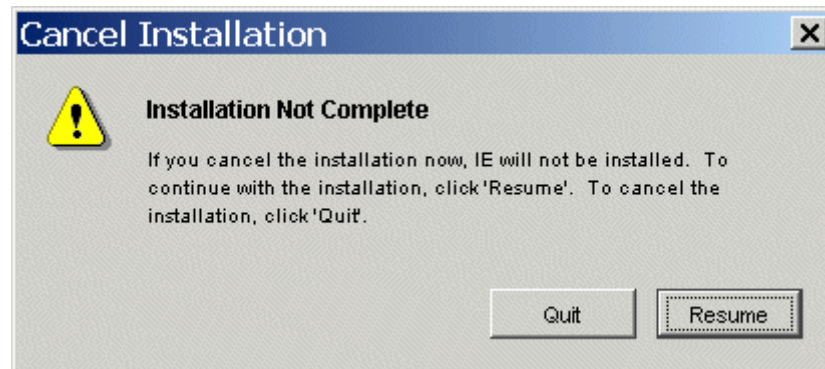
Problem:

On Windows, the installer **Cancel Installation** dialog box demands the user interface focus.

Action:

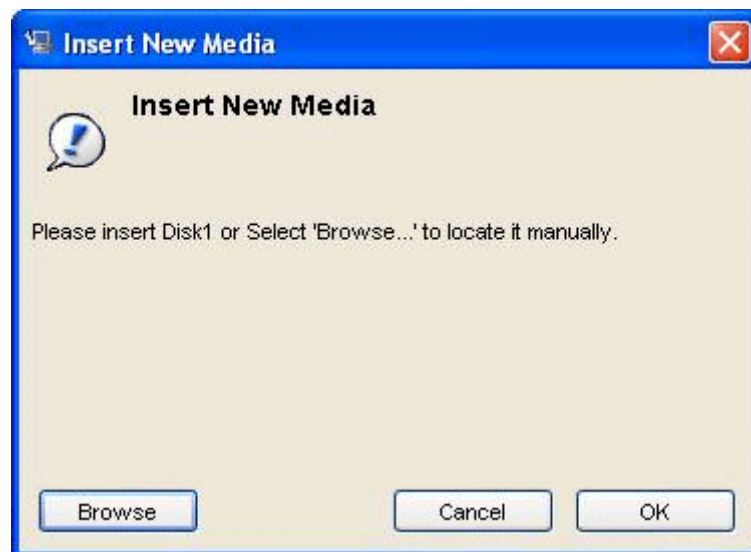
When you try to cancel the installer through the **Cancel Installation** dialog box, the window monopolizes the window focus on the desktop.

To release the focus, click either the cancel (the X in the upper right corner of the dialog box) or **Resume** button.



Problem:

During an installation, the installer displays the following:



Action:

The appearance of this window indicates that the installer could not locate a required file from the current media set.

If you are installing over a network, the window can be an indication that the response time across the network is too slow for the installer. Click **Cancel** and rerun the installer. If the windows appears again, try running the installer when there is less network traffic or from another network, or copy the installation files to your local system.

If you are installing from the installation CDs or a local directory, then the installation data set is incomplete. Try downloading the installation files again. If this fails to correct the problem, contact Technical Support for assistance.

Gathering Information for a Support Call

Prior to contacting Technical Support for assistance with your installation problem, gather the log files for your particular installer from the *<installation directory>/installer/logs* directory.

In some cases, the files are quite large. You may want to ZIP or TAR them before sending them to Technical Support.

If you are reporting an issue for a product installed into the Windchill installation directory, also provide the information generated by the Windchill version command. This information can be obtained by executing the following command in a command prompt window:

```
windchill version
```

A report similar to the following report is generated:

```
X:\>windchill version
```

Support Datecode	Support Release Number	Release Id	Installer Sequence	Display Label
F000	8.0	ie.8.0.00.34	06	Info*Engine
F000	8.0	wccm.8.0.00.34	01	Windchill Classification and Reuse
F000	8.0	pdml.8.0.00.34	01	Windchill PDMLink
F000	8.0	unc.8.0.00.34	01	Windchill Services

There are no temp patches installed.

There is no non-default locale support installed.

Provide the information in this report when submitting your information to Technical Support.

II

Installing Web Applications Section

4

Installing Java 2 Platform, Standard Edition Software Development Kit

Info*Engine supports Java 2 Platform, Standard Edition (J2SE) Software Development Kit (SDK). The J2SE SDK should also include the Java JIT compiler.

Note: You cannot use Info*Engine with just the JRE; you must install the J2SE SDK.

Select a version of the J2SE SDK supported with this release. For more information about the products supported with this release, see the [Software Matrices](#) section.

Topic	Page
Installing J2SE Software Development Kit (SDK).....	4-2

Installing J2SE Software Development Kit (SDK)

Perform the installation that is appropriate for your platform.

Note: After the installation is complete, be sure to add the path to the J2SE SDK bin directory to the value set in the system PATH variable and set the JAVA_HOME system environment variable to the J2SE SDK installation directory.

Note: The automatic configuration of Tomcat and Apache does not support use of characters that are not allowed in file names on the operating system (including / and \) in the file path for the J2SE SDK. PTC recommends that you do not use these characters in the installation directory for the J2SE SDK.

Note: To fix a known Java bug, add the following to the "grant" section of the java.policy file:

```
permission java.awt.AWTPermission "accessClipboard"
```

Windows and Solaris

To download a copy of J2SE SDK, use the following URL:

<http://www.javasoft.com>

From this site, be sure to select the J2SE version and not the J2EE version of the SDK. For example, you can select J2SE 1.4.2 SDK from the **Popular Downloads** side bar.

Note: Sun may require additional operating system patches. Read the Sun documentation to determine if any patches are required and follow the instructions provided by Sun to apply the patches (available from the Web).

AIX

To download a copy of J2SE SDK, use the following URL:

<http://www-128.ibm.com/developerworks/java/jdk>

From this site, be sure to select the AIX 1.4 version from the **Java 2 Standard Edition Downloads** section.

HP-UX

To download a copy of J2SE SDK, use the following URL:

<http://www.hp.com/products1/unix/java>

5

Installing Web Browsers and Java Plug-in

This chapter describes the supported Web browsers and Java plug-in.

Select a version of the Web browser and Java plug-in supported with this release. For more information about the products supported with this release, see the [Software Matrices](#) section.

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About Web Browsers

Windchill supports the use of either Microsoft Internet Explorer or Mozilla as your Web browser.

Installing Microsoft Internet Explorer (Windows Only)

You can install Internet Explorer from either the stand-alone browser or the full product suite package. In either case, a typical installation is adequate for use with Info*Engine and other Windchill software products. If you choose to install from the stand-alone browser, do not enable Active Desktop. When Active Desktop is selected, Internet Explorer replaces the system level process named Explorer in Windows. Hence, you cannot stop and restart your Web browser to affect environment changes without restarting the entire system.

Microsoft Internet Explorer is available free for downloading.

Double Authentication Can Be Eliminated when Using Internet Explorer

If Internet Explorer users do not select the **Save this password in your password list** option when first logging in, they are required to log in again when accessing a Java applet within Windchill.

To eliminate the need to log in twice, enter the correct user name and password for the first Windchill login in the Internet Explorer authentication window. Then, select **Save this password in your password list**. Selecting this option allows the Web browser to remember the credentials and users will not have to authenticate to the Java applet.

The **Save this password in your password list** option is available with Internet Explorer version 6.0 and greater when using JRE 1.4.2_02 or greater.

Note: There is no system setting that takes care of this issue; you should inform users that they should select the option whenever they log in.

Installing Mozilla

Mozilla is usually available from the Web site of the company who owns server platform you are using or is provided on the platform software CD that you receive.

Follow the vendors instructions to install and configure Mozilla for your environment.

To find which Mozilla versions are supported for use with Windchill, see the software matrix. To obtain a copy of the latest software matrix, use the following URL:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

This URL directs you to the PTC Online Support Web page for reference documents. For your document search criteria, select your product from the **Product** drop-down list, select the current release from the **Release** drop-down list, select **All User Roles** from the **User Role** drop-down list, and select **Matrices - Software** from the **Document Type** drop-down list.

Note: Double authentication cannot be eliminated when using Mozilla. When Mozilla users first log in, there is no way to cache the login information. Therefore, when accessing a Java applet within Windchill, the users will need to log in again.

Verifying Java Plug-in

Windchill uses the Sun Java Plug-in instead of the default virtual machine provided by the browser. The Java Plug-in supports Microsoft Internet Explorer and Mozilla. Verify the Java plug-in version installed with your browser conforms to the versions supported with this release.

When you install J2SE SDK, the Java Plug-in is automatically installed and configured for you.

When users install the plug-in for the first time, they should follow the instructions provided by Sun to download and install the plug-in.

For information about the Sun Java Plug-in product and installation instructions, see the following URL:

<http://java.sun.com/products/plugin/index.html>

Note: If users are working with large structures in Windchill PDMLink, the memory allocated to the Java runtime may need to be increased in the Java Plug-in Control Panel. To increase the memory, direct users to open the Java Plug-in Control Panel and go to the **Advanced** tab. Type -Xmx128m into the **Java Runtime Parameters** field. This will set memory allocation pool to 128 megabytes of memory. The default memory allocation pool is 64 megabytes of memory. Setting the memory allocation pool sets the upper limit on how much memory the Java runtime allocates on your system.

Note: Sun has reported known install issues for the plug-in. To search for bugs using the following URL:

<http://developer.java.sun.com/developer/bugParade/bugs/>

Note: To avoid plug-in conflict problems when more than one JRE is installed on the client, uninstall all JRE versions except one.

6

Installing and Configuring a Web Server and Servlet Engine

This chapter provides you with the information to install and configure Apache and Tomcat, and directions for the other PTC supported Web servers and servlet engines.

Select a combination and version of the Web server and servlet engine that are supported with this release. For more information about the products supported with this release, see the [Software Matrices](#) section.

Tomcat and Apache are installed using a framework that is common to all Windchill products. For general information about installing Windchill products, see the [About Installing Windchill Products](#) chapter.

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Before You Begin

Info*Engine supports the following Web server and servlet engine combinations with this release:

- Apache with Tomcat
- Sun ONE Java Enterprise System Server with its embedded servlet engine
- Microsoft Internet Information Server (IIS) with Tomcat

This chapter describes how to install and configure Apache and Tomcat.

If you plan on using IIS with Tomcat, then PTC recommends that you first install Tomcat and Apache (as described in this chapter) as well as install Info*Engine and any Windchill solutions before switching to use IIS. Testing Windchill with Apache ensures that Windchill is configured properly before you switch to IIS. For details on configuring IIS, see the [Configuring IIS and Tomcat](#) chapter.

For Web servers and servlet engines other than Apache and Tomcat, the manual configuration instructions are located in the Configuring Other Web Servers and Servlet Engines section:

- [Configuring Sun ONE Java Enterprise System Web Server](#)
- [Configuring IIS and Tomcat](#)
- [Configuring WebSphere on AIX](#)

Note: Because of restrictions in both Apache and the Sun ONE servers, the user names that are used for logging on cannot contain extended ASCII characters nor multi-byte characters.

For all other Web servers and servlet engines, the manual configuration instructions are located in the Configuring Other Web Servers and Servlet Engines section. Configurations for some of these combinations require that Info*Engine be installed first, therefore, you will perform the configurations for the other Web server and servlet engines following the installation of Info*Engine. Instructions are provided in the Info*Engine chapter to direct you when these configurations should be performed.

The Apache installer can configure Apache for Tomcat for you, which is the recommended configuration method. Tomcat does not have to be installed prior to running the Apache installer, as long as you can provide the host name of the machine you intend to install Tomcat on and the port number you will assign to Tomcat. The preferred install order is to install Tomcat and then Apache. The instructions in this chapter assume you will install Tomcat first and then Apache.

PTC only supports the Tomcat delivered on the CDs by PTC with this release. While PTC highly recommends using the Apache delivered by PTC with this release, you can use other versions of Apache as long as it meets the criteria described in the Windchill software matrices. The PTC installers will only

configure Apache installations that have had the PTC configuration scripts added to them. If you elect to not use the PTC-provided Apache, you have two options:

- Apache meets Windchill software matrix requirement scenario— Convert Apache to make it compatible with Windchill. Conversion instructions are located in the [Configuring a Non-PTC Apache \(manual install\)](#) section in the Advanced Apache and Tomcat Options chapter. If, after the conversion, Apache fails the PTC installer evaluation, then you can:
 - Use Apache provided by PTC.
 - Continue to use this Apache by configuring it so that it functions with Windchill. PTC, however, does not provide the instructions for, or supports this configuration.
- Apache does not meet Windchill software matrix requirement scenario — Use the Apache that you have by configuring it so that it functions with Windchill. PTC, however, does not provide the instructions for, or supports this configuration.

Installing Tomcat

PTC only supports a configuration where Tomcat and Info*Engine are installed on the same machine.

Before you begin to install Tomcat, you must have:

- Consulted the Windchill software matrices for products and versions supported with this release:
<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>
- Installed Java 2 Platform, Standard Edition Software Development Kit (J2SE SDK).

To complete the installation, the installer will prompt you for the following information.

- The directory where you installed the SDK.
- A port number to assign to Tomcat
 - Default is 8010.

The Tomcat servlet engine is bundled with Windchill and it is located on the Windchill Third Party Software CD. This CD includes other Windchill products for this release. Always install Tomcat from the Windchill CD; do not use other versions of Tomcat.

Tomcat installation scripts are available in the CD root directory for Windows and UNIX platforms.

When performing the installation, the install user should be:

- On Windows --The same user that will run the application.
- On UNIX -- A non-root user.

Complete the following steps:

1. Insert the CD and run the setup script:
 - On Windows: <CD-ROM>\setup_tomcat.vbs
 - On UNIX: <CD-ROM>/setup_tomcat
2. When the installer begins, select the language for the installer and click **OK**.
3. The first panel that opens is **Before You Begin**. This panel summarizes the preinstallation requirements, provides a link to the software matrices, and a reference to this book, *Windchill Info*Engine Installation and Configuration Guide*.

When you are ready to proceed with the installation, click **Next**.

4. In the **Select Directory** panel, enter the location where Tomcat should be installed, or select a pre-existing installation of Tomcat that the installer found.

Tomcat can be installed in any directory; there are no pre-existing directory requirements. In the case of a new installation, accept the default directory, or browse to create or select a different path.

Windows default installation directory: C:\ptc\tomcat5

UNIX default installation directory: /opt/ptc/tomcat5

5. In the **Select Java Software Development Kit Directory** panel, enter the location where the SDK is installed or select one of the directories the installer found.
6. In the **Configure Port** panel, enter a port number that Tomcat will listen on for requests from a Web server and the port number you want to use to shut down Tomcat. The shutdown port is used when you execute the shutdown file that is described later in this chapter.

The default Web server port number is 8010 and the default shutdown port number is 8006.

7. The **Review Settings** panel lists the selections you specified for the installation. Verified the information is correct, and then click **Install**.
8. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
9. When the installation completes successfully, the **Installation Complete** panel displays the directory where Tomcat was installed. The installation log

files are located in the `<Tomcat>/installer/logs` directory. The log files for the installation are named:

- Tomcat_InstallLog.xml
- Tomcat_PtcInstall.log

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

Starting and Stopping Tomcat

After you have installed Tomcat, it is not necessary to start it. In fact, PTC recommends that you complete the installation of as many Windchill applications as possible before starting Tomcat because Tomcat cannot be running during an installation in situations where there is an application and Tomcat interface. At a minimum however, Tomcat must be running when the Windchill database is loaded. When it necessary, you will be given the instruction to start Tomcat.

Throughout the guide, you will occasionally be given an instruction to start Tomcat, in which case, you will be redirected to this section to perform these instructions to start and stop Tomcat.

Tomcat Startup Files

The user that runs Tomcat should be the same user that installed Tomcat. PTC provides the following Tomcat startup files:

- wttomcat_start.bat for Windows
- wttomcat_start file for UNIX

These files are located in the bin directory where Tomcat is installed. The startup file sets the required environment variables CATALINA_HOME, JAVA_HOME, and JAVA_OPS, and initiates the Tomcat start command.

Alternatively, you can configure Tomcat as an Windows service. Those instructions are provided in the Running Tomcat and Apache as Windows Services in the Configuring Apache and Tomcat with Other Options chapter. These instructions should be performed after the installation of the Windchill applications are complete as previously recommended.

Setting Heap Size

The Tomcat installer provides initial minimum and maximum memory heap sizes, however, these are simply initial defaults that may not be sufficient for a given installation. PTC provides an Ant script that you can use to modify the heap size.

To adjust the heap size, enter the following Ant command from the Tomcat installation directory:

```
ant -f config.xml configureScripts -DminHeap=<minHeapInMB> -DmaxHeap=<maxHeapInMB>
```

For example, to set the minimum size to 64 MB and the maximum size to 128 MB, enter the following:

```
ant -f config.xml configureScripts -DminHeap=64 -DmaxHeap=128
```

Running this command updates the JAVA_OPTS line in the startup script with the correct syntax for the platform you are using.

Files for Stopping Tomcat

Tomcat provides the following files that can be used to stop Tomcat:

- shutdown.bat for Windows
- shutdown.sh file for UNIX

These files are located in the bin directory where Tomcat is installed and use the port specified in the installation to shut down Tomcat.

Use one of these files to stop Tomcat.

Tomcat Log Files

The Tomcat log files can be helpful when troubleshooting your configuration. The log files are located in the <Tomcat>/logs directory.

Installing Apache

PTC supports configurations where Apache is installed on the same machine as Info*Engine (local) or on a different machine (remote). A typical configuration is to install Apache and Info*Engine on the same machine. The instructions provided in this chapter support a typical installation scenario. If you choose to install Apache on a machine other than the Info*Engine machine, then additional steps are needed to interface a remote configuration of Info*Engine and Apache. The tools to complete the configuration are delivered with Info*Engine, therefore,

you will perform the interface instructions following the installation of Info*Engine in that case.

Before you begin to install Apache, you must have:

- Consulted the Windchill software matrices for products and versions supported with this release:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

- The Tomcat host name and port number for the Apache and Tomcat configuration.

Note: The PTC installer does not support an HP-UX Apache installation, because HP-UX is delivered as a depot file and it is installed using a different tool. Separate instructions are provided to install Apache for HP-UX and to install Apache for the other platforms.

To complete the installation, the installer will prompt you for the following information.

- The DNS registered host name of the machine where Apache will be installed.

Note: The host name of the computer must conform to the required standard Internet format that specifies the name can be a text string up to 63 characters drawn from only the alphabet (A-Z and a-z), digits (0-9), hyphen (-), and period (.). The period is only used as a domain name separator. The first character of a host name can be either a letter or a digit.

Using unsupported characters in the host name (such as an underscore or a comma) or supplying a host name that is longer than 200 characters causes problems in your Windchill system. Additionally, using uppercase letters (although allowed in host names) causes slower performance because of caching issues with the supported JVM. PTC recommends keeping your host name as short and readable as possible. For example:

windchill-server10.my-network.mycompany.com

- The HTTP (default 80) and HTTPS (default 443) port numbers. Values are required for both properties. HTTPS is not effective out-of-the-box and it requires manual configurations to implement.
- The e-mail address of the Web server administrator. This person will receive messages generated by Apache.
- The host name where Tomcat is installed.
- The port number Tomcat listens on.



Caution: Warning for Windows users. An installation of Apache on or under a Windows drive letter obtained by using the Windows Map Network Drive utility (for example, Windows Explorer > Tools) is not supported. Apache does not operate reliably when located on a mapped drive. Instead, select a local drive such as C or D for installation.

Apache for Non HP-UX Platforms

The Apache Web server is bundled with Windchill and it is located on the Windchill Third Party Software CD. The Windchill Third Party Software CD includes other Windchill products for this release.

Apache installation scripts are available in the CD root directory for Windows and UNIX platforms. You can install Apache on the same machine as Info*Engine (local) or on another machine of choice (remote).

When performing the installation, the install user should be:

- On Windows — The same user that will run the application.
- On UNIX — A root or non-root user.

Note: It is necessary for the user who installs Info*Engine to have update privileges for Apache files. Info*Engine is installed on UNIX as a non-root user. If you install Apache as a root user, you must follow the procedure in [Apache and Info*Engine Installed With Different Users](#) to configure Apache for Info*Engine.

Complete the following steps:

1. If you have the Windchill 8.0 Apache already installed, backup any files manually placed or edited in any the Apache directory. You will then have the backups available after completing the current Apache installation so that you can merge in desired changes.
2. Insert the CD and run the setup script:
 - On Windows: <CD-ROM>\setup_apache.vbs
 - On UNIX: <CD-ROM>/setup_apache
3. When the installer begins, select the language for the installer and click **OK**.
4. The first panel that opens is **Before You Begin**. This panel summarizes the preinstallation requirements, provides a link to the software matrices, and a reference to this book, *Windchill Info*Engine Installation and Configuration Guide*.

When you are ready to proceed with the installation, click **Next**.

5. In the **Select Directory** panel, enter the location where Apache should be installed, or select a preexisting installation of Apache (Windchill 8.0 version provided by PTC) that the installer found.

In the case of a new installation, Apache can be installed in any directory; there are no preexisting directory requirements. Accept the default directory, or browse to create or select a different path.

- Windows default install directory: C:\ptc\apache
- UNIX default install directory: /opt/ptc/apache

Select Directory

If you select...	Then	The next step is...
A new install directory	Apache will be installed in the directory you specify.	Go to Step 7.
An existing install directory	The Preserve or Overwrite Configuration Files window opens.	Go to Step 6.

6. The **Preserve or Overwrite Configuration Files** panel gives you the option to specify whether the existing Apache configuration files should be overwritten, or retained and applied to a new version of the software. The configuration information that is retained includes the machine name for Apache, the Apache HTTP and HTTPS port numbers, the administrator's e-mail address, the Tomcat host name and port number, and configurations performed by other PTC product installers that occur after Apache is installed.

Preserve or Overwrite Configuration Files

If you select...	Then	The next step is...
Preserve Existing Configuration Files	The installer will install a new copy of the Apache application and retain the existing Apache configuration files. No configuration steps are performed.	Go to Step 10.
Overwrite Existing Configuration Files	<p>The installer will install a new copy of the Apache application and replace the configuration files with the configuration data provided during this installation.</p> <p>Note: If you are installing over a previous Windchill 8.0 Apache installation, choose this option to ensure that all security updates are made.</p>	Go to Step 7.

7. The **Configure Host and Ports** panel, allows you to specify information about Apache that is needed for the Apache configuration files.

Configure Host and Ports

For this property...	Enter a value that meets this description...
DNS Registered Host Name	<p>Defines a fully qualified host name of the machine on which Apache is being installed.</p> <p>Note: The host name of the computer must conform to the required standard Internet format that specifies the name can be a text string up to 63 characters drawn from only the alphabet (A-Z and a-z), digits (0-9), hyphen (-), and period (.). The period is only used as a domain name separator. The first character of a host name can be either a letter or a digit. Using unsupported characters in the host name (such as an underscore or a comma) or supplying a host name that is longer than 200 characters causes problems in your Windchill system.</p>

For this property...	Enter a value that meets this description...
HTTP Port	<p>Defines a port number to listen for HTTP requests - required.</p> <p>Accept the default of 80 or specify another value.</p> <p>Note: If port number 80 is not your convention, then you must modify Apache to use a different port number.</p> <ol style="list-style-type: none"> Edit the <Apache>/conf/httpd.conf file to reflect your port number. The port number is referenced in the following entries: <ul style="list-style-type: none"> ServerName <domain>:##, where ## is the port number. Listen ##, where ## is the port number. <p>Save your changes and close the file.</p> With Windchill installed, make changes to the following values in the wt.properties file using xconfmanager. Be sure to propagate the changes using the xconfmanager -p option. <ul style="list-style-type: none"> wt.webserver.port=80 change 80 to the current port number. wt.server.codebase=http\:/\${java.rmi.server.hostname}/\${wt.webapp.name} place a ":" and the port number immediately prior to /\${wt.webapp.name}. For example, http\:/\${java.rmi.server.hostname}:8500/\${wt.webapp.name}
HTTPS Port	<p>Defines a port number to listen for HTTPS requests - required.</p> <p>Accept the default of 443 or specify another value.</p>

- The **Configure Web Server Administration E-mail** panel allows you to specify an e-mail address of the Web server administrator to whom Apache will send notices.

Configure Web Server Administration E-mail

For this property...	Enter a value that meets this description...
Web Server Administrator E-mail	The e-mail address of the administrator to whom messages will be sent by Apache when Apache detects an error.

9. The **Configure Apache for Tomcat** panel allows you to specify the Tomcat variables needed to complete the Tomcat configuration.

Configure Apache for Tomcat

For this property...	Enter a value that meets this description...
Tomcat Host Name	Defines the machine name where Tomcat is installed. Default is localhost. When Apache and Tomcat are installed on the same machine, localhost is acceptable, and, in this case, a fully qualified DNS name is not required.
Tomcat Port	Defines the port number Tomcat listens for requests from the Web server. Use the same port number value that you entered when you installed Tomcat.

10. The **Review Settings** panel lists the selections you specified for the installation. Verify the information is correct, and then click Install.
11. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
12. When the installation completes successfully, the **Installation Complete** panel displays the directory where Apache was installed. The installation log files are located in the <Apache>/installer/logs directory. The log files for the installation are named:

- Apache_InstallLog.xml
- Apache_PtcInstall.log

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

13. If you overwrote the Apache configuration files from a previous Apache installation, merge in the desired changes from the backups made before the installation.

Apache for HP-UX

The HP-UX Apache depot files are bundled on the Windchill Third Party Software CD. To install the HP-UX version of Apache, you will copy the desired depot file from the CD, install the depot file using the swinstall tool, and configure Apache. The depot file includes Apache, Tomcat, Webmin. The install process requires you to install all three products. You will use the mod_jk.so file installed with the Tomcat installer, however, you will not use the full version of Tomcat installed with the installer. Instead, you will use the Tomcat supplied with PTC. The PTC supplied Tomcat is used because the Apache module that supports the communications with Tomcat is currently installed only by the depot when Tomcat is selected. Also, these instructions assume that you have already installed Tomcat.

Apache for HP-UX is a depot file that is installed using the HP-UX software install tool, swinstall. The tool installs Apache to the default /opt/hpws/apache directory. To perform the installation, you will execute swinstall as the root user. Following the installation, the file permissions will be set appropriately for the Windchill operating environment.

Apache is located on the Windchill Third Party Software CD. This CD includes other Windchill products for this release.

When performing the installation, the install user should be a non-root user.

Note: If you choose to use altroot to move an existing HP Apache installation, you must edit the additions.conf file line that begins with "LoadModule jk_module ..." so that the path to mod_jk.so is "modules/mod_jk.so".

1. Insert the Windchill Third Party Software CD.
2. Navigate to the Apache/HPUX directory and open the directory.
3. Depending on your system, copy the following two files to a directory on your system:
 - PA-RISC:
 - hpApacheOverlay.tar.gz
 - HPUXWSAT-A<xxx>-1100.depot where <xxx> is part of the release number.
 - Itanium:
 - hpApacheOverlay.tar.gz
 - HPUXWSAT-B<xxx>-1123-64.depot where <xxx> is part of the release number.
4. Change user to root.
5. Execute the swinstall tool by typing swinstall at the command prompt.

6. In the **Specify Source** panel, specify the install options. Click **OK**, when your entries are complete.

Specify Source

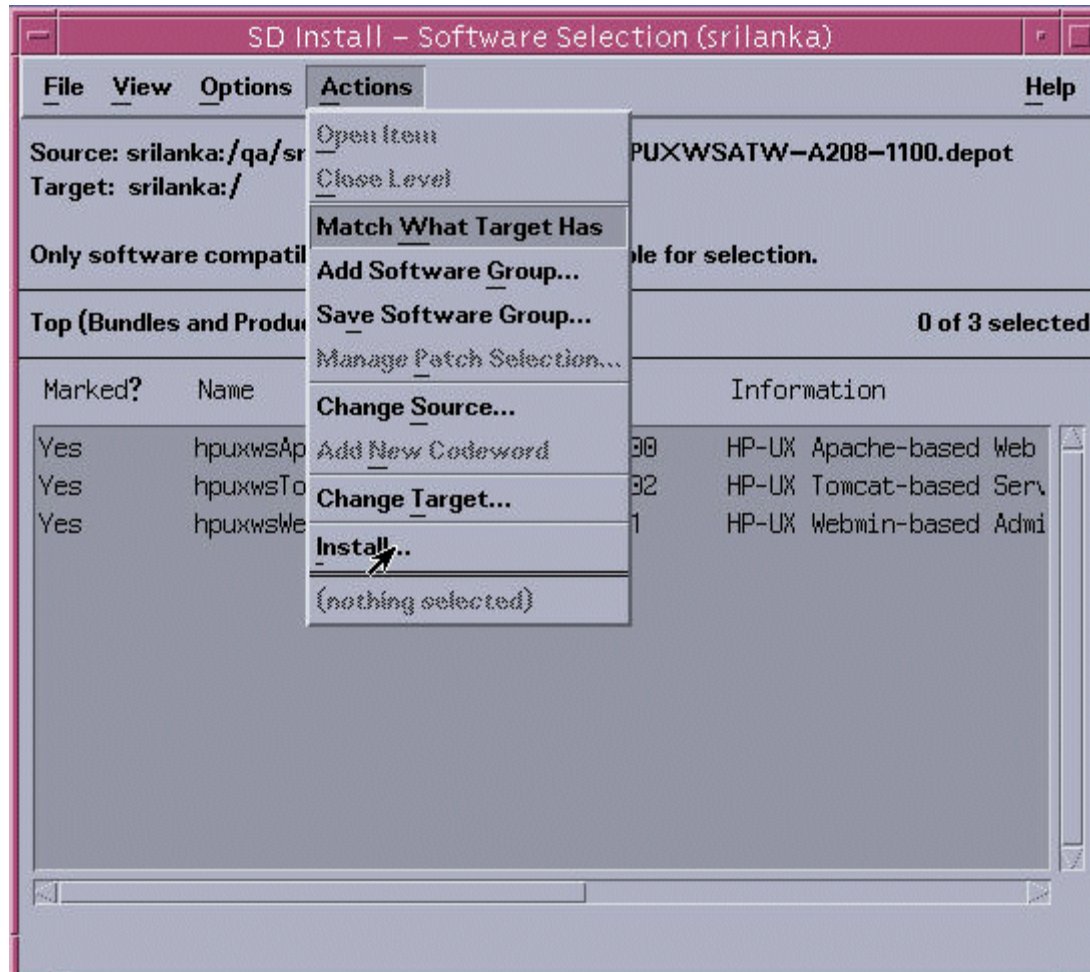
Select these options...	Specify these values...
Source Depot Type	Local Directory
Source Depot Path...	The fully qualified path to the depot file. For example: /mnt/disk1/install/temp/capps/Apache/HPUX/HPUXWSAT-A100-1100.depot.

7. In the **SD Install-Software Selection** panel, specify the products to install.
- Mark Apache, Tomcat, and Webmin for install.

SD Install-Software Selection

Product Name	Marked
hpuxwsApache	Yes
hpuxwsTomcat	Yes
hpuxwsWebmin	Yes

8. From the **Actions** menu, click **Install** as shown in the following panel:



9. The **Install Analysis** panel presents an analysis of the products scheduled for installation. Click **OK** to begin the installation.

In some cases, the following error message is displayed. You can ignore this message and continue with the installation by clicking **OK**.

Could not save session in the file "<file name>": The directory you specified does not exist or the file you specified is a directory.

10. The **Install Window** panel displays a summary of the installation process and status. After the products are installed, click **Done** to exit the installer.

The installation of Apache, Tomcat and Webmin is complete. The next set of instructions configure Apache for use with Windchill.

Configuring Apache

1. Gunzip and untar the hpApacheOverlay.tar.gz file into the directory where you installed Apache.

In Step 3 (previous set of Apache instructions), this file was copied from the HPUNIX directory on the Windchill Third Party Software CD to your system.

2. Open the `<Apache>/conf/httpd.conf` file in a text editor.
3. Navigate to the end of the file and add the following line entry:

```
Include conf/additions.conf
```

4. Save your changes and close the `httpd.conf` file.
5. Configure Apache for Tomcat.

To enable Apache to recognize Tomcat, the settings in the Apache `workers.properties` file must include the correct information for the Tomcat host name and port number. For your information, the default Tomcat host is `localhost` and the port number is `8010`.

- Modify the `<Apache>/conf/workers.properties` file to include the correct host name and port number for Tomcat.

6. By default, the installer configures Apache to use port number 80. If port number 80 is not your convention, then you must modify Apache to use a different port number.
 - a. Edit the `<Apache>/conf/httpd.conf` file to reflect your port number. The port number is referenced in the following entries:

- `ServerName <domain>:##`, where `##` is the port number.
- `Listen ##`, where `##` is the port number.

Save your changes and close the file.

- b. With Windchill installed, make changes to the following values in the `wt.properties` file using `xconfmanager`. Be sure to propagate the changes using the `xconfmanager -p` option.
 - `wt.webserver.port=80`
change 80 to the current port number.
 - `wt.server.codebase=http://$(java.rmi.server.hostname)/$(wt.webapp.name)`
place a ":" and the port number immediately prior to `/$(wt.webapp.name)`. For example,
`http://$(java.rmi.server.hostname):8500/$(wt.webapp.name)`

Starting and Stopping Apache

After you have installed Apache, it is not necessary to start it. In fact, PTC recommends that you complete the installation of as many Windchill applications as possible before starting Apache because Apache cannot be running during an installation in situations where there is an application and Apache interface. When it is necessary, you will be given the instruction to start Apache.

Throughout the guide, you will occasionally be given an instruction to start Apache, in which case, you will be redirected to this section to perform these instructions to start and stop Apache.

Apache Start and Stop Files

The user that runs Apache on Windows should be the same user that installed Apache. On UNIX, the user can be the same as the install user, however, this user must have access permission to use port numbers that are less than 1024, if necessary.

To start Apache on Windows:

- Use the Apache shortcut.

This shortcut is created by the Info*Engine installer. You can optionally elect to create the start file shortcut during the Info*Engine installation.

- Run `<Apache>/bin/Apache.exe`.

To stop Apache on Windows:

- In the Apache console window, enter Ctrl/C.
- If Apache is configured as a Windows service, then stop the `<Apache>/bin/ApacheMonitor.exe` service by using the Windows Services control panel.

To start Apache on UNIX:

- From a command prompt, enter:

```
apachectl start
```

To stop Apache on UNIX:

- From a command prompt, enter:

```
apachectl stop
```

Alternatively, Apache can be configured as a Windows service or for HTTPS. Those instructions are provided in the Configuring Apache and Tomcat with Other Options chapter. These instructions, however, should be performed after the installation of the Windchill applications are complete as previously recommended.

Apache Log Files

The Apache log files can be helpful when troubleshooting your configuration. The log files are located in the *<Apache>/logs* directory.

Note: For HP-UX, the `access_log` file is not automatically generated. To generate this log file, remove the comment character in the following line in the `httpd.conf` file:

```
#CustomLog logs/access_log common
```

The `httpd.conf` file is located in the *<Apache>/conf* directory.

Restart Apache to activate the `access_log` file.

Installation Summary

Tomcat and Apache are installed and configured, however, they are not running at this time. The installers do not start the servers and they must be started manually. It is not necessary to start the servers at this time, because in subsequent installations of the Windchill products additional configurations will occur and the servers must be stopped to enable the configurations to take effect. Rather than instructing you to stop and start the servers repeatedly, you will be given an instruction to start the servers at the time when they must be started.

III

Aphelion Directory Section

7

Installing Aphelion Directory 8.0

This chapter describes how to install the Aphelion Directory 8.0 and its associated products. The Aphelion Directory 8.0 product is BT Aphelion Directory 2003.2 as installed by the PTC installer.

Aphelion Directory 8.0 is installed using a framework that is common to all Windchill products. For general information about installing Windchill products, see the [About Installing Windchill Products](#) chapter.

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Before You Begin

PTC supports the Aphelion Directory 8.0 (BT Aphelion Directory 2003.2) version released with Info*Engine 8.0. If you have legacy Aphelion data from prior releases that you would like to retain, that data can be exported from the earlier version of Aphelion and imported into Aphelion Directory 8.0.

PTC provides one Aphelion installation program that can install the following:

- Aphelion Directory 8.0.
- The BT LDAP browser that you can use to view your directory structure.
- Aphelion Web tools for managing the directory in a complex environment.

Note: The Aphelion Web tools must be installed at the same time that you install Aphelion. If you choose not to install the tools when you install Aphelion and, later, decide you want the tools, your only option is to export your LDAP data, uninstall Aphelion, reinstall Aphelion and the Web tools, and import your data.

Tasks to Complete Before Installing Aphelion

Before you begin to install Aphelion Directory 8.0, complete the following tasks:

- Consult the Windchill software matrices for products and versions supported with this release:

<http://www.ptc.com/appserver/cs/doc/refdoc.jsp>

- Install a Web browser. Installing a Web browser is optional if you are not installing Aphelion Web Tools.

Information about installing Web browsers can be found in the [Installing Web Browsers and Java Plug-in](#) chapter.

- Install a supported version of the Java 2 Software Development Kit (SDK). Information about install an SDK can be found in the [Installing Java 2 Platform, Standard Edition Software Development Kit](#) chapter.
- If you want to install the Aphelion Web tools, you must have already installed the PTC versions of both the Tomcat servlet engine and the Apache Web server. Installing the Aphelion Web tools is a custom installation option that you can choose.

Note: Tomcat and Apache are bundled on the Windchill Third Party Software CD and can be installed using instructions provided in this guide. For details, see the [Installing and Configuring a Web Server and Servlet Engine](#) chapter. The same installations of Tomcat and Apache can be used with Info*Engine, or you can choose to install a different supported servlet engine and Web server combination for Info*Engine.

- Apply all vendor required operating system patches and other suggested installations. In particular, verify the HP-UX kernel configuration parameters are set correctly. For additional information, contact your hardware vendor for their recommendations.
- Verify that adequate space is available to support an installation of Aphelion.

On Windows, the disk space required during installation and execution is approximately 250 megabytes. This does not include space required for a large Aphelion database or large log files.

On UNIX, reviewed the disk space requirements for a temporary directory. For additional information, see the next section.

Check Disk Space Required for Installing and Running Aphelion on UNIX

Ensure that you have at least 550000 blocks of free space in the temporary directory defined on your system.

The installation program attempts to use the temporary directory when it installs Aphelion. If this directory does not have enough space, the program attempts to use the directory where the installation program resides. If you are installing from the CD, a message displays that indicates that directory does not exist or you do not have permission to write to the CD. If you are installing from another file system, the message indicates that the temporary directory on that system does not exist or you do not have permission to write to it. The message also requests that you set the IATEMPDIR environment variable as follows:

To set the variable enter one of the following commands at the UNIX command line prompt before running this installer again:

```
- for Bourne shell (sh), ksh, bash and zsh:

    $ IATEMPDIR=/your/temp/space/directory
    $ export IATEMPDIR

- for C shell (csh) and tcsh:

    $ setenv IATEMPDIR /your/temp/space/directory
```

Note: You may need to be the root user to accomplish these tasks.

If you know that there is not enough space in the temporary directory or if you get the described error message, set the IATEMPDIR environment variable as described in the message and then run the installation program.

The installation process requires a minimum of 200 megabytes of free space in the partition used for installing and running. The default installation directory is /opt/ptc/aphelion. If the partition where /opt/ptc/aphelion resides does not have the required disk space available, you can choose to install the Aphelion Directory in a different location.

Note: Increase the disk space you will need if your Aphelion database will contain a large number of entries or you will allow large log files.

Data Needed to Install Aphelion

During the installation, the installer prompts you for the following information:

- The installation directory for the Java 2 Software Development Kit (SDK) that you have installed.
- A distinguished name for the Aphelion administrator - default is cn=Manager.
- The Aphelion administrator's password.
- A port number to assign to the Aphelion server - default is 389.
- An Aphelion naming context (optional).

If you are installing an LDAP directory exclusively for Info*Engine and other Windchill software, you should leave the naming context field blank.

Otherwise, if you chose to provide a naming context value, see the examples provided in the [Naming Context Example](#) section of this chapter and information about contexts in the *Aphelion Directory 2003.2 Administration Guide* or other LDAP directory documentation.

The *Aphelion Directory 2003.2 Administration Guide* provides detailed descriptions about some of the inputs you enter on the installer panels. Refer to this guide if additional information is needed. The Aphelion administration guide is included in the Docs directory on the Aphelion Directory Server for Windchill CD:

<CD-ROM>/Aphelion/Docs/AphelionAdminGuide.pdf

Additionally for Windows installations, you are prompted for the following information:

- An unmapped drive letter that Aphelion uses as a virtual drive - default is R.
- The Windows Administrator's user name, domain name, and group name.

If you choose to install the Aphelion Web tools through the custom installation option, you are prompted for the following:

- Tomcat installation directory
- Apache installation directory

The Installation Process

If you have completed the prerequisite tasks and gathered the recommended data, you are ready to begin the installation.

If you currently have Aphelion installed and you want to retain the contents of the LDAP directory, then the install scenario is as follows: save the directory by exporting the contents, uninstall Aphelion as outlined in the Uninstalling Aphelion chapter, install a new version of Aphelion as outlined below, and import the saved directory contents. Otherwise, just install a new version of Aphelion.

Main Tasks

Complete the following steps to install the Aphelion Directory:

1. Export an existing LDAP directory and uninstall the old version of Aphelion, as described in [Exporting Existing LDAP Directory Content](#).

This is an optional step and should be performed to save the content of an existing Aphelion Directory before installing a new version of Aphelion.

2. Install the Aphelion Directory, as described in [Installing Aphelion](#).
3. If you specified a naming context value when you installed Aphelion, complete the task of configuring a naming context as described in the [Establishing a Naming Context](#) chapter.

Note: This configuration must be completed before you install Info*Engine:

4. Import the saved LDAP directory content, as described in [Importing Saved Content of LDAP Directory](#).

This is an optional step and should be performed if you exported the content of an existing Aphelion database as described in Step 1.

5. Test the Aphelion Directory installation, as described in [Testing Aphelion Directory Installation](#).
6. If you installed the Aphelion Web tools, complete the following step:
 - Configure the Web browser for the Aphelion Web tools as described in [Configuring Web Browser for Aphelion Web Tools](#).

After these steps are complete, Aphelion is installed and ready to use.

Additional Tasks

After installing Aphelion, you may also want to do the following:

- Install an additional LDAP browsers as described in the [Installing Additional LDAP Browsers](#) chapter.
- Manage Aphelion as described in the [Managing the Aphelion Directory](#) chapter.
- Start and stop the Aphelion server as described in the [Starting and Stopping the Aphelion Directory](#) chapter.

- Uninstall Aphelion as described in the [Uninstalling Aphelion](#) chapter.

Exporting Existing LDAP Directory Content

If you have an existing Aphelion LDAP directory and you would like to transfer that data to the new Aphelion LDAP directory, then perform these instructions to export (backup) your data and uninstall your existing Aphelion Directory. Otherwise, skip this step and proceed to the step to install Aphelion.

There are different instructions for Windows and UNIX. See the appropriate section.

Exporting LDAP Content on Windows

For Windows, use the following procedure to export data from an existing LDAP directory:

1. From the **Control Panel**, double-click **Services**.
2. Select **Aphelion Services** and click **Stop**.
3. Open a command shell and make the Aphelion mapped drive active:

```
R:
```

4. Change directory by entering the following:

```
cd \usr\var\lde\PTCLdap
```

5. Enter the following command:

```
\usr\sbin\lde\export.exe -f PTCLdap_lde.conf
```

6. Open the Aphelion lde.log.general file:

```
R:\usr\var\lde\PTCLdap\PTCLdap_logs\lde.log.general
```

7. Verify that the export completed properly by locating the following message in file:

```
Export: Export of all requested databases completed
```

Note: If this message has the time stamp corresponding to your export, the export was successful; you can ignore other messages in the file.

8. Copy the exported root.ldif file found in R:\usr\var\lde\PTCLdap\PTCLdap_database into a safe directory.

If the directory you are backing up does not have an empty naming context, refer to the *Aphelion Directory 2003.2 Administration Guide* and compare the files.

9. Save your configuration information (for example, cn=Manager). This should include information such as the principal, password, installation location, and port number.

10. Uninstall Aphelion.

For instructions, see [Uninstalling Aphelion Directory and Tools](#).

Proceed to the next step to install a new version of Aphelion.

Exporting LDAP Content on UNIX

For UNIX, use the following procedure to export data from an existing LDAP directory:

Note: In some instances on UNIX systems, the file size limit for the Aphelion `lde.log.general` and `lde.log.requests` files can be exceeded, causing the Aphelion LDAP services to stop. This situation can occur during high volume updates (for example, migrations) to the LDAP database. Before initiating a high volume update process, ensure that the files are located on a disk partition that has sufficient free space to hold the files. Also, check the file sizes and either archive or delete the files as necessary. The log files are located in the `/usr/var/lde/var/PTCLdap/PTCLdap.logs/` directory. For additional information about setting log file parameters, refer to the Aphelion documentation.

1. Stop Aphelion using the appropriate script for your platform.
2. Change the directory by entering the following:

```
cd /opt/lde/var/PTCLdap
```

3. Enter the following command:

```
/opt/lde/sbin/export -f ./PTCLdap_lde.conf
```

4. Open the Aphelion `lde.log.general` file:

```
/opt/lde/var/PTCLdap/PTCLdap_logs/lde.log.general
```

5. Verify that the export completed properly by locating the following message in file:

```
Export: Export of all requested databases completed
```

Note: If this message has the time stamp corresponding to your export, the export was successful; you can ignore other messages in the file.

6. Copy the exported `root.ldif` file found in `/opt/lde/var/PTCLdap/PTCLdap_database` into a safe directory.

If the directory you are backing up does not have an empty naming context, refer to the *Aphelion Directory 2003.2 Administration Guide* and compare the files.

7. Save your configuration information (for example, `cn=Manager`). This should include information such as the principal, password, installation location, and port number.

8. Uninstall Aphelion.

For instructions, see [Uninstalling Aphelion Directory and Tools](#).

Proceed to the next step to install the new version of Aphelion.

Installing Aphelion

Aphelion Directory software is located on the Aphelion Directory Server for Windchill CD.

Aphelion installation scripts are available in the CD root directory for Windows and UNIX platforms.

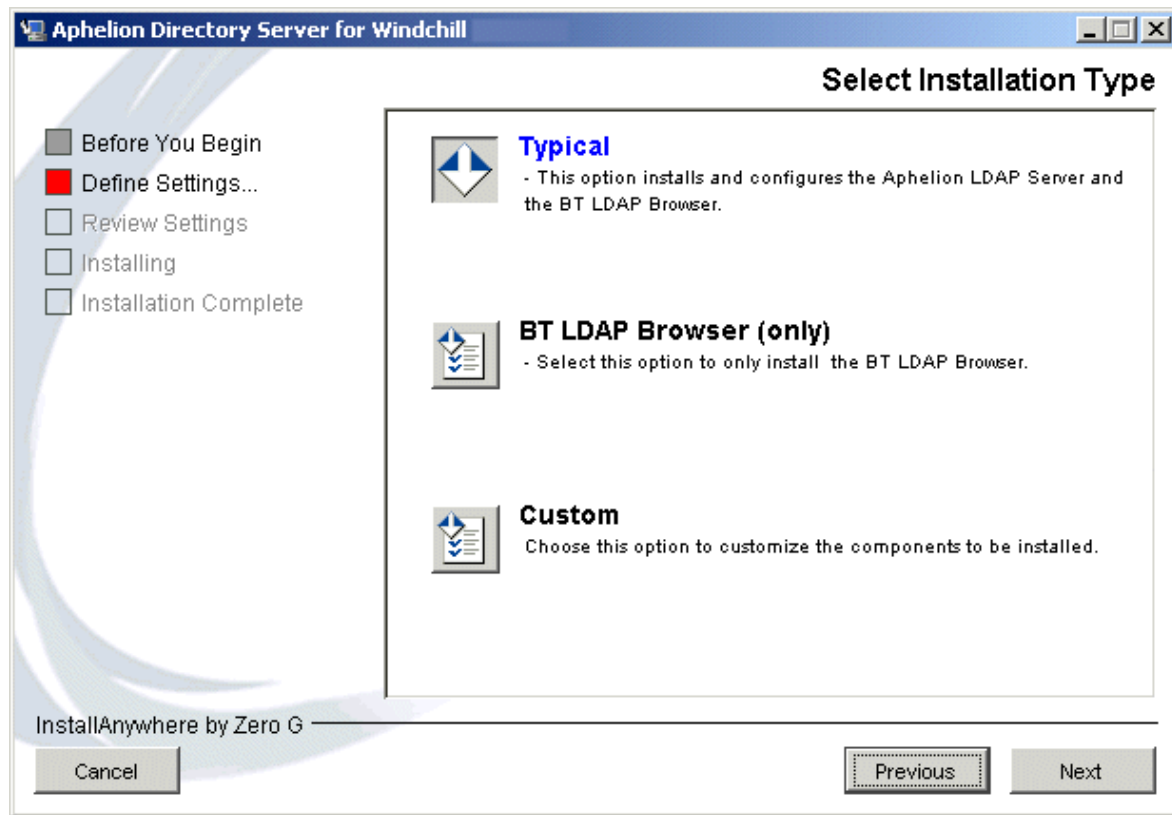
To install Aphelion on Windows, you must be a user that belongs to the Windows Administrators group.

To install Aphelion on UNIX, you should be the root user.

1. Insert the CD.
2. If you are installing on Windows and have the autorun feature enabled, the installer starts automatically. Otherwise, run the setup script:
 - On Windows: `<CD-ROM>\setup.vbs`
 - On UNIX: `<CD-ROM>/setup`
3. When the installer begins, select the language for the installer and click **OK**.
4. The first panel that opens is **Before You Begin**. This panel summarizes the preinstallation requirements, provides a link to the software matrices, and references this guide. For additional information about preinstallation requirements, see the [Before You Begin](#) section in this chapter.

When you are ready to proceed with the installation, click **Next**.

5. In the following panel, select the type of installation to perform.

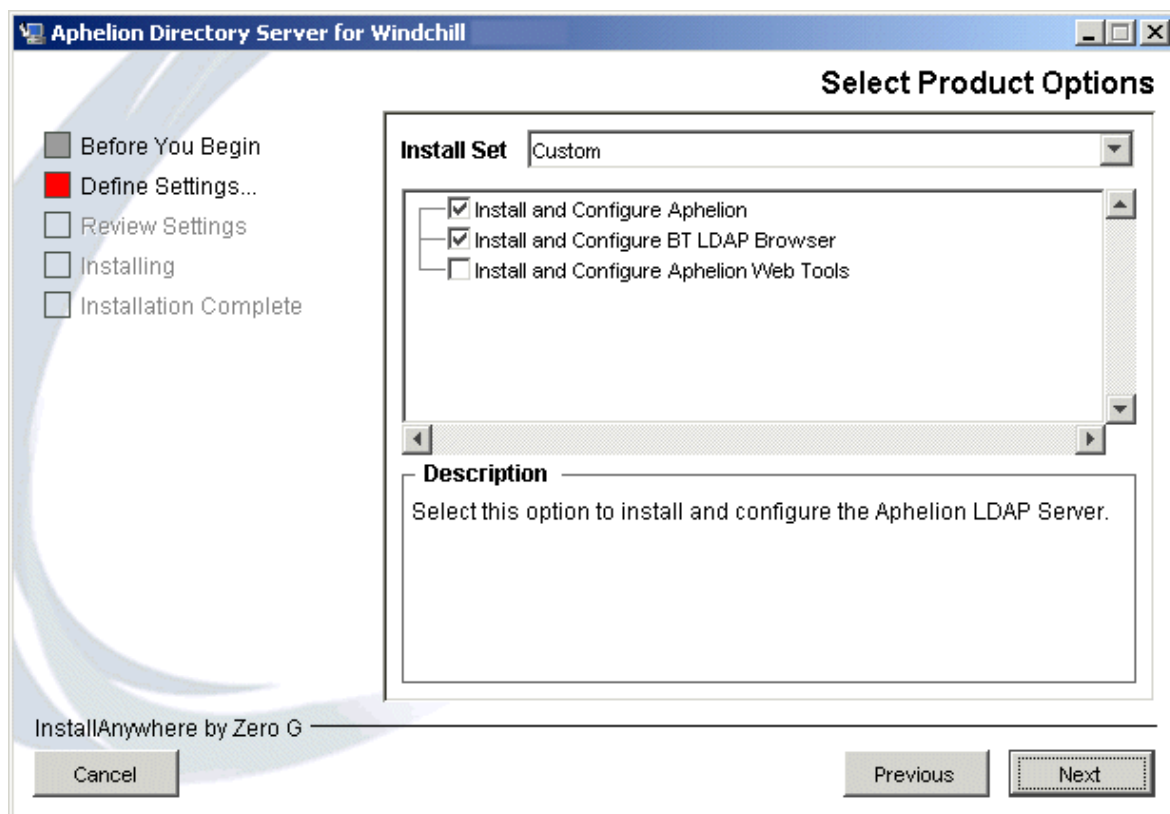


The installation types are described in the following table. Select either **Typical** or **Custom** to perform the installation and configuration of Aphelion and the BT LDAP Browser. Using the **BT LDAP Browser (only)** option is addressed in the [Installing Additional LDAP Browsers](#) chapter.

Select this type	To	Go to...
Typical	Install Aphelion and the LDAP browser.	Step 6.
BT LDAP Browser (only)	Install the LDAP browser on a system where Aphelion is not installed.	Installing Additional LDAP Browsers chapter.

Select this type	To	Go to...
Custom	Choose the products you want to install. The products include Aphelion, the LDAP browser, and the Aphelion Web tools.	Step 5.

6. In a custom installation, select the products to install from the following panel.



By default, the products that are selected in custom install set are those that are installed with the **Typical** installation.

You can install the Aphelion Web tools when you are installing Aphelion by also selecting **Install and Configure Aphelion Web Tools**. Usually, you would want to select the Web tools option when you are installing Aphelion on a complex production system. You can use these tools to manage Aphelion.

Note: The Aphelion Web tools must be installed at the same time that you install Aphelion. If you choose not to install the tools when you install Aphelion and, later, decide you want the tools, your only option is to export your LDAP data, uninstall Aphelion, reinstall Aphelion and the Web tools, and import your data.

Select the products you want to install and click **Next**.

7. In the **Specify Directory** panel, enter the location where you want to install Aphelion.

Aphelion can be installed in any directory; there are no preexisting directory requirements. Accept the default directory path displayed, type in a new directory path to create it, or click **Browse** to select a different directory path.

8. In the **Select Java Software Development Kit Directory** panel, the default location appears in the field. Click **Choose** to select a different location of an SDK that you have installed.

For details on installing an SDK, see the [Installing Java 2 Platform, Standard Edition Software Development Kit](#) chapter.

After selecting the SDK directory, click **Next**.

9. The **Configure Aphelion Administrator** panel lists the administrative property fields used to access the Aphelion Directory. The following table describes the properties:

For this property...	Enter a value that meets this description...
Aphelion Administrator Distinguished Name	<p>Defines the distinguished name for the Aphelion administrator. The setup program creates the directory using the distinguished name that you specify. A suggested name of cn=Manager is provided. You can edit this field to change the suggested name.</p> <p>Note: If you plan on specifying a naming context value, you must also include the context in the distinguished name for the Aphelion administrator. For details, see the next step.</p>
Aphelion Administrator Password	Defines the password for the Aphelion administrator.
Verify Aphelion Administrator Password	Specify the same password that you specified in the Aphelion Administrator Password field.

Enter the required information and click **Next**.

10. The **Configure Aphelion Runtime Properties** panel lists the properties used when operating the Aphelion server. The following table describes the properties:

For this property...	Enter a value that meets this description...
Aphelion Server Port Number	Defines the port number that the Aphelion Directory will use. A suggested port of 389 is provided.
Aphelion Naming Context	Defines the distinguished name that is used for the context created by the installation program. If you are installing an LDAP directory exclusively for Info*Engine and other Windchill software, you should leave the Aphelion Naming Context field blank. Otherwise, see the Naming Context Example section and the <i>Aphelion Directory 2003.2 Administration Guide</i> for additional information.

Enter the required information and click **Next**.

11. On Windows, the following panel opens.

Note: If you are installing Aphelion on a UNIX system, skip this step and the next step.

Aphelion Directory Server for Windchill

Configure Aphelion Windows Specific Properties

☐ Before You Begin
☒ Define Settings...
☐ Review Settings
☐ Installing
☐ Installation Complete

Specify the mapped drive and Windows service parameters for Aphelion.

Unused Drive Specification:
R:

Windows Administrator User Name:
<admin_name>

Windows Administrator Group Name:
Administrators

Windows Administrator Domain Name:

InstallAnywhere by Zero G

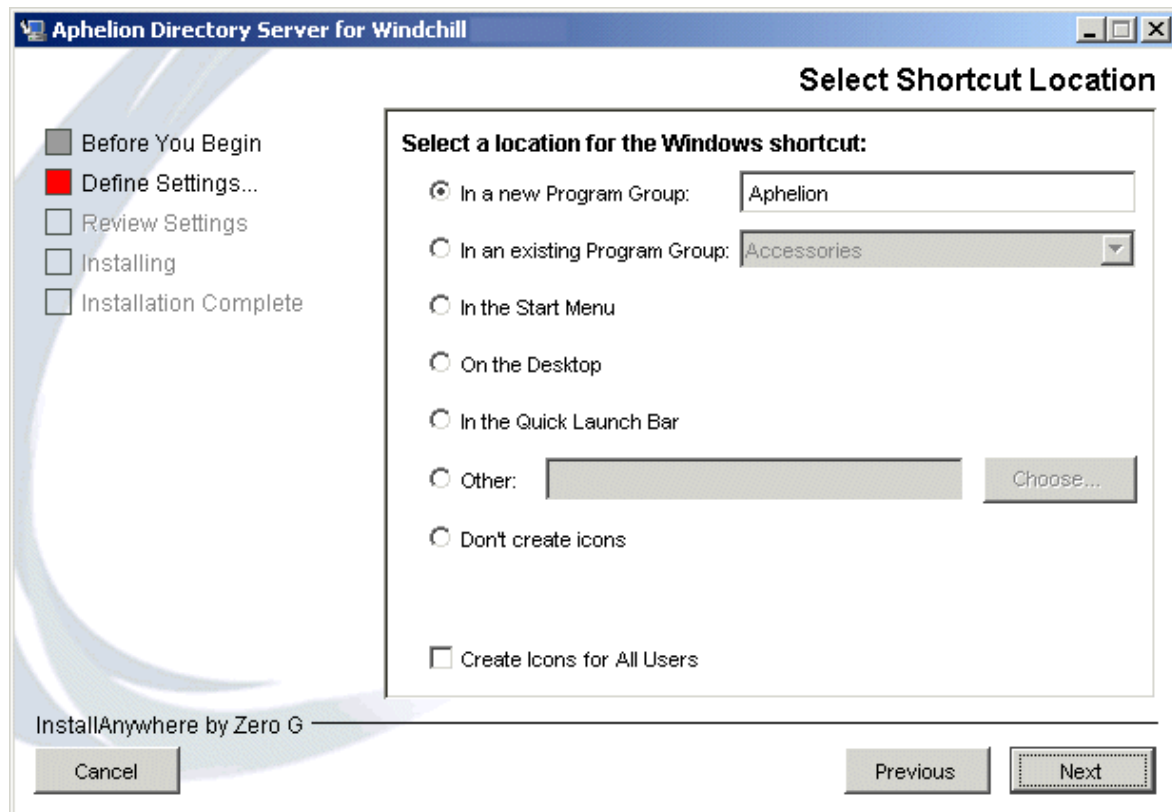
Cancel Previous Next

The following table describes the Windows properties that need to be set for Aphelion.

For this property...	Enter a value that meets this description...
Unmapped Drive Letter	Defines the drive letter that the Aphelion Directory will use as its virtual drive. The default is R . Note: The drive letter you specify must not already be assigned on your system. If the drive letter that you want to use is currently assigned, you can use the subst command to unmap the drive as described in Uninstalling Aphelion Directory and Tools .
Windows Administrator User Name	Identifies the user name of the Windows administrator that you want to use for Aphelion.
Windows Administrator Group Name	Identifies the group name of the specified Windows administrator.
Windows Administrator Domain Name	Identifies the domain name associated with the specified Windows administrator.

Enter the required information and click **Next**.

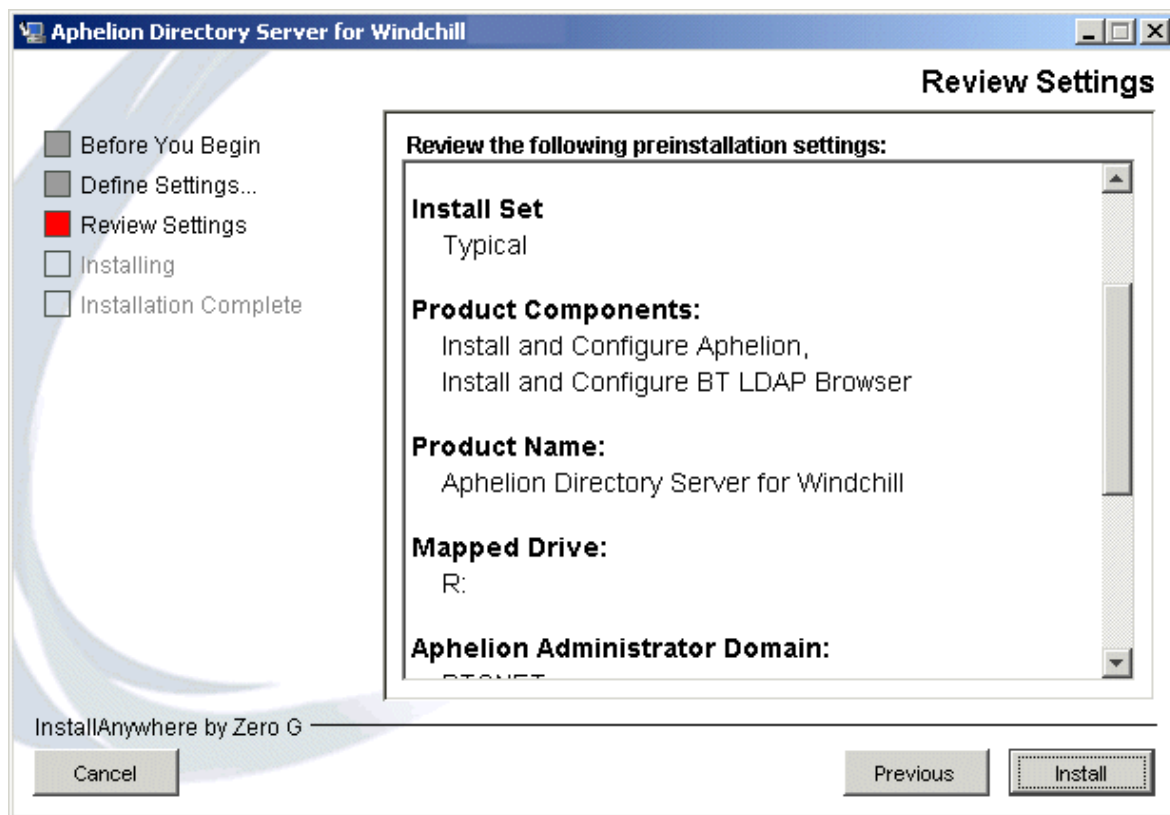
12. On Windows, the following panel opens.



Select the location of the Aphelion shortcut by clicking one of the radio buttons that are available and providing additional information as needed. If you want all users who log on to the PC to see the shortcut, also click the **Create Icons for All Users** check box; otherwise, only the user who installs Aphelion sees the shortcut.

Click **Next** to continue.

13. If you selected the **Custom** installation type and also selected **Install and Configure Aphelion Web Tools**, the installer prompts for both the Apache and Tomcat installation directories. These products must be installed before you can install the Aphelion Web tools.
 - a. In the first **Specify Directory** panel, select from the Apache installation directories that the installer has located or browse to locate a different Apache installation directory. Then click **Next**.
 - b. In the second **Specify Directory** panel, select from the Tomcat installation directories that the installer has located or browse to locate a different Tomcat installation directory. Then click **Next**.
14. The **Review Settings** panel lists the selections you specified for the installation. The following example panel shows some of the typical settings used for a Windows installation:



Verify that the information is correct; be sure to scroll to see all settings, including the disk space setting. To change settings, click **Previous** as many times as is necessary to return to earlier panels. When you have determined that the settings are correct, click **Install**.

15. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
16. When the installation completes successfully, the **Install Complete** panel displays the directory where Aphelion was installed.
17. On a UNIX system, set up the access to Aphelion man pages.

Note: If you are installing Aphelion on a Windows system, skip this step.

To set up access, update your MANPATH environment variable to include the symbolic link to where Aphelion man pages are installed. The link is /opt/lde/man.

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. The installation log files are located in the <Aphelion>/installer/logs directory. The log files for the installation are named:

- Aphelion_InstallLog.xml
- Aphelion_PtcInstall.log

See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

At the successful completion of the installation, the Aphelion Directory is running.

Importing Saved Content of LDAP Directory

If you saved the contents of an existing LDAP directory (Step 1), then perform these instructions to import the your legacy LDAP data. Otherwise, skip this step and continue to the next step to test your installation.

There are different instructions for Windows and UNIX. See the appropriate section.

Importing LDAP Content on Windows

For Windows, use the following procedure to import LDAP data that you had previously exported:

1. From the **Control Panel**, double-click **Services**.
2. Select **Aphelion Services** and click **Stop**.

3. Open a command shell and make the Aphelion mapped drive active:

```
R:
```

4. Copy the saved version of the exported root.ldif file to the following:

```
R:\usr\var\lde\PTCLdap\PTCLdap_database\
```

5. Change the directory by entering the following:

```
cd \usr\var\lde\PTCLdap
```

6. Enter the following:

```
\usr\sbin\lde\import.exe -f PTCLdap_lde.conf
```

7. Open the Aphelion lde.log.general file:

```
R:\usr\var\lde\PTCLdap\PTCLdap_logs\lde.log.general
```

8. Verify that the import completed properly by locating the following messages in file:

```
Import: Index file building completed successfully.  
Import complete: LDE localhost:<port_number>
```

Note: If these messages have the time stamp corresponding to your import, the import was successful; you can ignore other messages in the file.

Proceed to the next step to check the settings for your anti-virus software.

Importing LDAP Content on UNIX

For Windows, use the following procedure to import LDAP data that you had previously exported:

1. Stop Aphelion using the appropriate script for your platform.
2. Copy the saved version of the exported root.ldif file to the following:

```
/opt/lde/var/PTCLdap/PTCLdap_database/
```

3. Change the directory by entering the following:

```
cd /opt/lde/var/PTCLdap
```

4. Enter the following:

```
/opt/lde/sbin/import -f ./PTCLdap_lde.conf
```

5. Open the Aphelion lde.log.general file:

```
/opt/lde/var/PTCLdap/PTCLdap_logs/lde.log.general
```

6. Verify that the import completed properly by locating the following messages in file:

```
Import: Index file building completed successfully.  
Import complete: LDE localhost:<port_number>
```


Note: If these messages have the time stamp corresponding to your import, the import was successful; you can ignore other messages in the file.

Proceed to the next step to check the settings for your anti-virus software.

Checking Anti-virus Software Settings

If you are running anti-virus software on the same system as your Aphelion server, the software must be configured to avoid scanning Aphelion files. This includes both real-time and offline scanning.

Specifically, configure the anti-virus software so scanning is not performed on any of the directories or files used by Aphelion. This includes database files, index files, temporary files, log files, LDIF files (in the database or backup directories), modlogs files, replication files, and replication log files.

For Windows, scanning should not be performed on the mapped drive (typically R:\) or the portion of the main drive to which the mapped drive points.

Testing Aphelion Directory Installation

Use the following steps to test your Aphelion Directory installation:

1. Start your LDAP browser.
 - On Windows, select **Start > Programs > LDAP Browser**.
 - At a UNIX command prompt, enter the following:

```
/<aphelion_dir>/SyntegraLDAPBrowser/lbe.sh
```

where *<aphelion_dir>* is the directory where Aphelion is installed.
2. The LDAP browser starts and displays the **Connect** dialog box.
3. To connect to the local directory, select **localhost** and click **Connect**.
Or, to connect to another directory, select the corresponding name in the list.

If your connection is successful, the Aphelion Directory is installed correctly.

Installation Summary

Aphelion is now installed and working; however, if you have not imported data, the Aphelion Directory is empty. It will be populated during the Info*Engine installation phase.

If you have installed the Aphelion Web tools, go to [Configuring Web Browser for Aphelion Web Tools](#), for further instructions.

Naming Context Example

The database context defined here identifies the section of the LDAP directory that is to be stored on the directory host. If you have a good understanding of LDAP directories and want to define the context for LDAP entries that are stored on this host, you can do so. For example, assume that you have created a company-wide LDAP directory that directory has the following tree structure:

```
c=US
|
o=myCompany
|
l=Pacific
```

Then using this installation, you can add a context under l=Pacific for Info*Engine LDAP entries. If you name the subtree entry ou=pIE, then you would enter the context as:

```
ou=pIE,l=Pacific,o=myCompany,c=US
```

In another example, assume that you want the new context to include the following general domain structure with the subtree ou=pIE entry:

```
dc=com
|
dc=myCompany
|
dc=myLocation
|
dc=myHost
```

Then, you would enter the context as:

```
dc=myHost,dc=myLocation,dc=myCompany,dc=com,ou=pIE,
l=Pacific,o=myCompnay,c=US
```

Note: The base distinguished name you enter when you set the LDAP properties during the Info*Engine installation must include the context name specified during the Aphelion installation (if you set one).

In the examples shown, the installation program does not connect the context it creates to the company-wide LDAP directory. If you want them connected, you would use Aphelion Web tools to connect them after completing the installation.

For additional information about contexts, see the *Aphelion Directory 2003.2 Administration Guide* or other LDAP directory documentation.

Configuring Web Browser for Aphelion Web Tools

Web browsers used for the Aphelion Web tools must be configured such that a fresh copy of the Web page is obtained from the server at each reference. Failure to do so will lead to unpredictable results.

Note: For normal use with Windchill solutions, the client browser cache should not be configured to obtain a fresh copy of every page, as is required with the Aphelion Web tools. Configure the browsers to read objects from the local disk where appropriate.

Use one of the following procedures to configure your Web browser:

Internet Explorer

1. Select **View > Internet Options**.
2. Select the **General** tab on the **Internet Options** dialog box.
3. Click **Settings** in the Temporary Internet Files frame.
4. Select **Every visit to the page**.
5. Click **OK** on the **Settings** dialog box.
6. Click **OK** on the **Internet Options** dialog box.

Mozilla

1. Select **Edit > Preferences**.
2. Click **Advanced**.
3. Click **Cache**.
4. Select **Every time**.
5. Click **OK**.

8

Establishing a Naming Context

This chapter describes how to configure the naming context if, during the Aphelion installation, a naming context was specified. By default, a naming context is not required when you install Aphelion.

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Configuration Summary	8-2

Establishing a Naming Context

If you entered a naming context for the Aphelion properties during the Aphelion Directory installation, complete the following steps before you install Info*Engine:

1. Create an LDIF file that matches the context prefix. For example, if the naming context specified is "dc=myLocation,dc=myCompany", then create a file with the following LDIF text:

```
dn: dc=myCompany
dc: myCompany
objectClass: top
objectClass: domain

dn: dc=myLocation,dc=myCompany
dc: myLocation
objectClass: top
objectClass: domain
```

If you specified other prefix elements in the naming context distinguished name that was entered during the installation, adjust the LDIF file so that the file contains the corresponding "objectClass" for the element and the correct "dn" and "dc" of each element.

2. Log in to the LDAP browser that was installed with Aphelion using administrator distinguished name. This name includes the naming context. For example, if the naming context specified is "dc=myLocation,dc=myCompany", then administrator name includes these elements as in "cn=Manager,dc=myLocation,dc=myCompany".

3. Select the naming context entry.

Note: You can ignore the failure message displayed in the status field.

4. Import the LDIF file into the installed Aphelion Directory.

Importing the file causes the LDAP directory to do the necessary internal processing to set up the correct database structure for the specified naming context.

5. Verify the correct operation of the LDAP directory by adding an LDAP entry using the LDAP browser.

Configuration Summary

The steps to establish a naming context are complete.

To continue, return to the next step in [The Installation Process](#) for further instructions.

9

Installing Additional LDAP Browsers

This chapter describes how to install additional LDAP browsers on hosts other than where Aphelion Directory is installed.

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Checking Requirements	9-2
Installing an LDAP Browser on an Alternate System.....	9-2
Configuring the LDAP Browser for a Specific LDAP Server	9-6

Installing an LDAP Browser Overview

The Aphelion Directory installation installs and configures an LDAP browser on the host where the directory is installed. If you want to install an LDAP browser on another host, you can use the instructions that follow.

One of the installation types provided with the Aphelion installer allows you to install additional LDAP browsers on systems where Aphelion is not installed.

After installing and configuring the browser, you can use the browser from a remote host to view the Aphelion Directory.

There are three parts to installing and configuring the LDAP browser. To install and configure the LDAP browser, complete all parts:

- Check hardware and software requirements.
- Install the LDAP browser using the Aphelion installer.
- Configure the LDAP browser for a specific LDAP server.

Checking Requirements

The LDAP browser can be installed on any of the supported platforms described in the Windchill Software Matrix: For information on how to access the matrix, see [Software Matrices](#).

The LDAP browser requires that you have installed the Java Software Development Kit (SDK) on the same platform before you install the additional LDAP browser.

LDAP browser requires a minimum of 800 Kilobytes of disk space, not including the space required for the SDK.

Installing an LDAP Browser on an Alternate System

Note: If you select the Typical installation option, an LDAP browser is automatically installed on your system when you install the Aphelion Directory. You do not need to install another LDAP browser. However, you can install one on another system if you want to do so.

Use the following procedure to install an additional LDAP browser on another system:

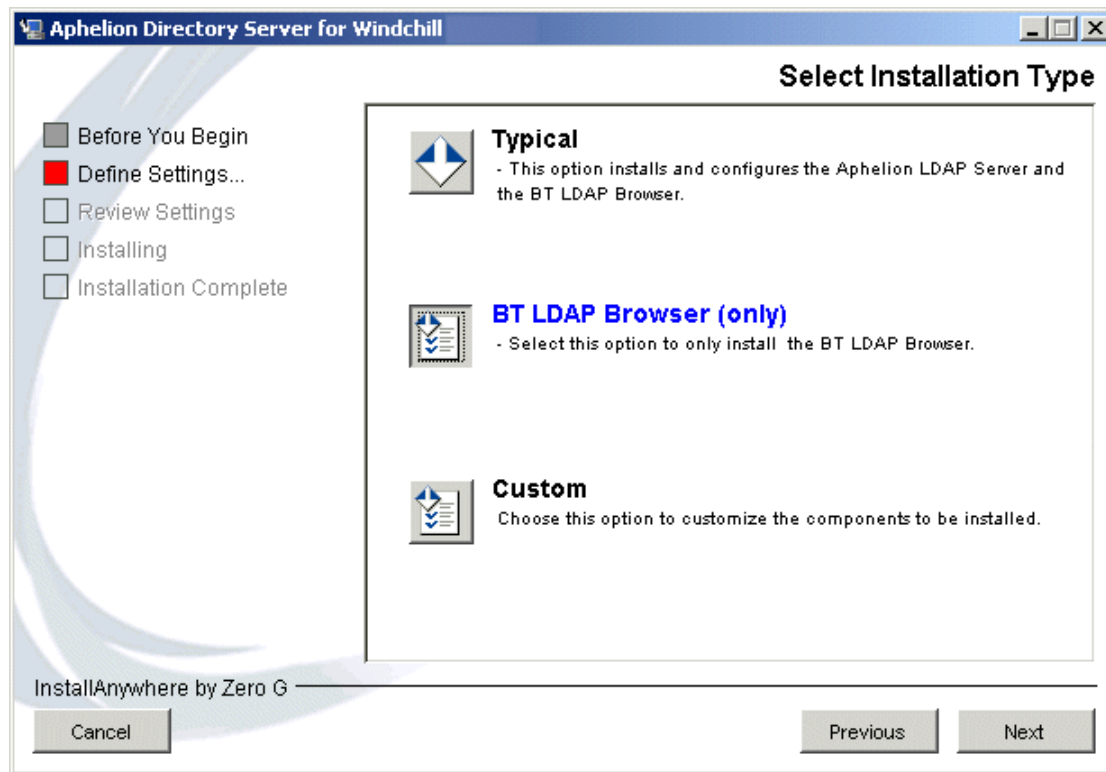
1. Insert the Aphelion Directory Server for Windchill CD on the system where you want to install the LDAP browser and run the appropriate Aphelion setup file from the <CD-ROM>/Aphelion directory:
 - On Windows, run the setup.vbs file.
 - On UNIX, run the setup file.

2. When the installer begins, select the language for the installer and click **OK**.
3. The first panel that opens is **Before You Begin**. This panel summarizes the preinstallation requirements, provides a link to the software matrices, and references the *Aphelion Directory 2003.2 Administration Guide*.

For installing an LDAP browser, you must have already installed an SDK on the same platform.

Click **Next**.

4. In the following panel, select **BT LDAP Browser (only)**.



5. In the **Specify Directory** panel, enter the location where you want to install the LDAP browser.

The browser can be installed in any directory; there are no preexisting directory requirements. Accept the default directory path displayed, type in a new directory path to create it, or click **Browse** to select a different directory path.

Click **Next** to continue.

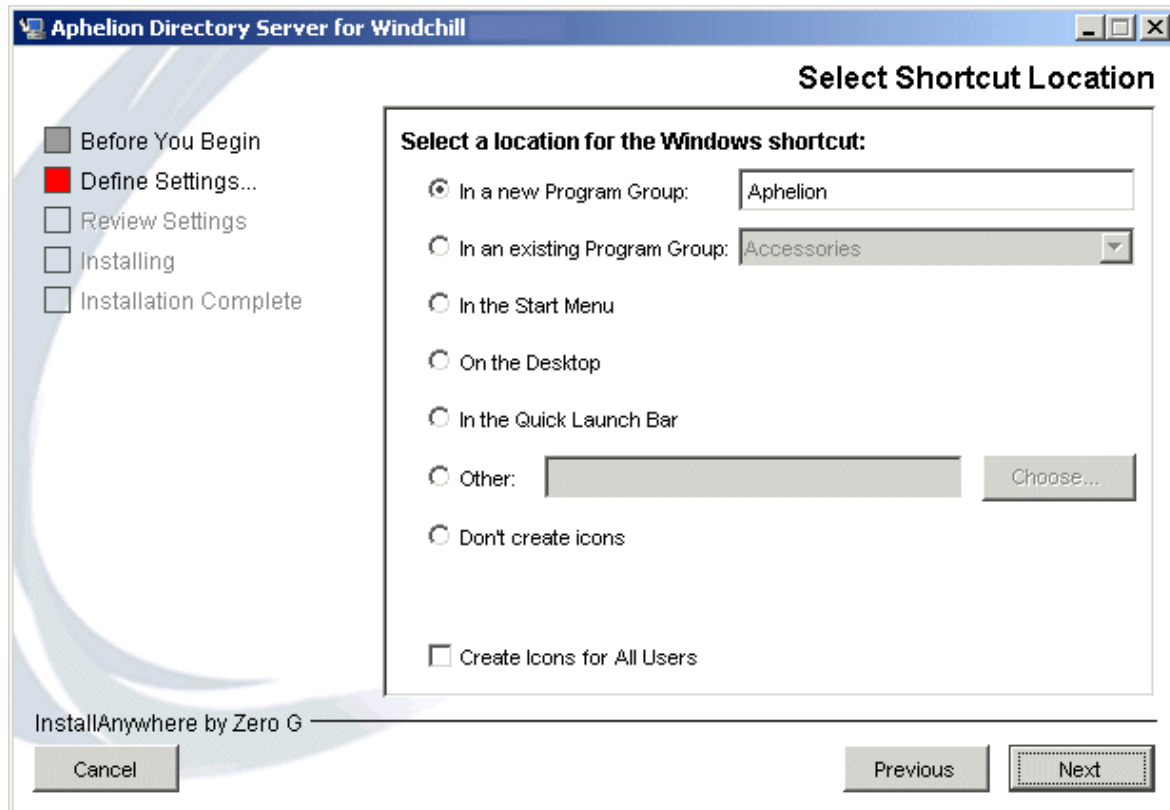
6. In the **Select Java Software Development Kit Directory** panel, the default location appears in the field. Click **Choose** to select a different location of an SDK that you have installed.

For details on installing an SDK, see the [Installing Java 2 Platform, Standard Edition Software Development Kit](#) chapter.

After selecting the SDK directory, click **Next**.

7. On Windows, the following panel opens.

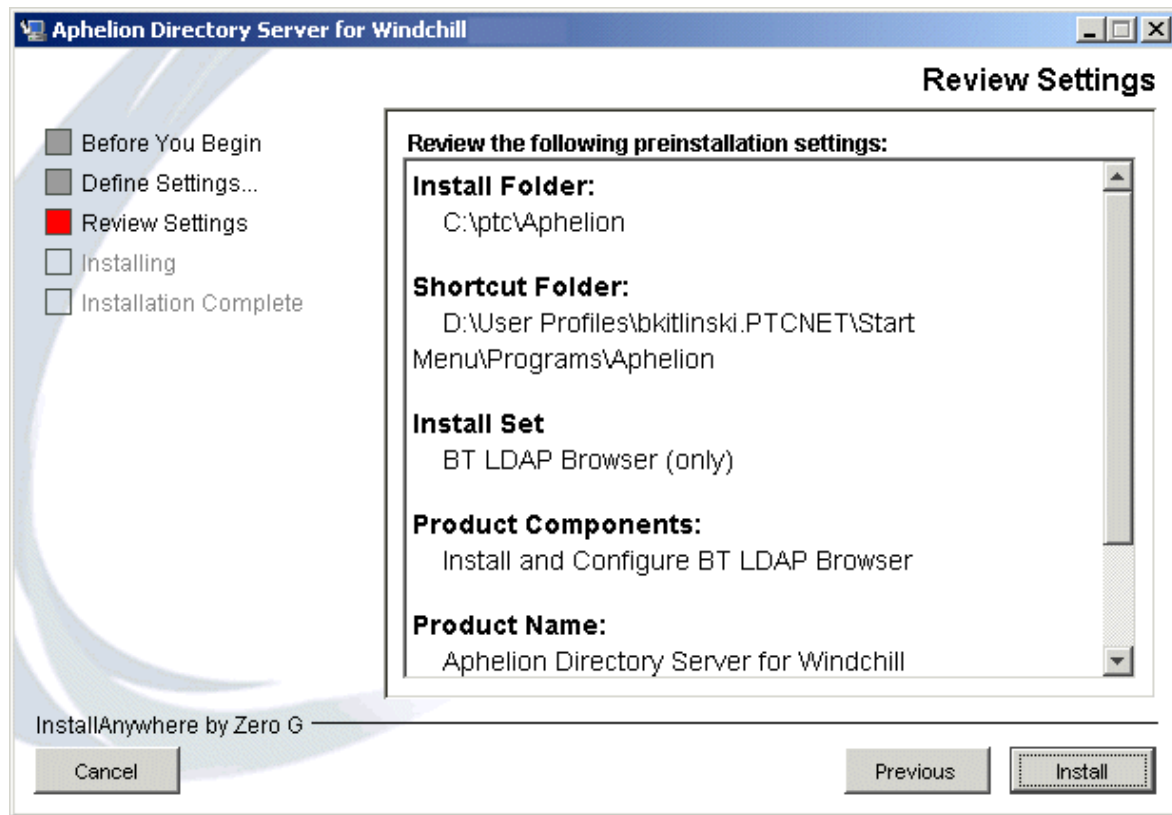
Note: If you are installing Aphelion on a UNIX system, skip this step.



Select the location of the LDAP browser shortcut by clicking one of the radio buttons that are available and providing additional information as needed. If you want all users who log on to the PC to see the shortcut, also click the **Create Icons for All Users** check box; otherwise, only the user who installs the LDAP browser sees the shortcut.

Click **Next** to continue.

8. The **Review Settings** panel lists the selections you specified for the installation. The following example panel shows the administrator information and disk space information:



Verify that the information is correct; be sure to scroll to see all settings, including the disk space setting. To change settings, click **Previous** as many times as is necessary to return to earlier panels. When you have determined that the settings are correct, click **Install**.

9. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
10. When the installation completes successfully, the **Install Complete** panel displays the directory where Aphelion was installed.
11. Determine how to start the LDAP browser:
 - On Windows, you had the option to choose a shortcut location as part of the installation. click the shortcut to start the LDAP browser.
 - On UNIX, use the lde.sh file to start the browser.

Configuring the LDAP Browser for a Specific LDAP Server

Use the following procedure to configure the LDAP browser that you installed using the previous section:

1. Start the LDAP browser that you installed. The LDAP browser will display the **Connect** dialog box.
2. Create a new connection by selecting **New** from the buttons on the right.
3. In the dialog that displays, enter the configuration information for the LDAP server. For example:
 - a. Enter the host address and port number.
 - b. Click **Fetch DNs**. This populates the **Base DN** box with the context prefixes associated with the server. If there is no context prefixes associated with the server, no values appear.
 - c. If DNs are listed, select the base DN from those listed. If none are listed, continue.

You can also clear any selection if your directory allows you to read below the advertised naming context.
 - d. If a user name and password are to be used, clear the **Anonymous bind** check box.

If you clear the Anonymous bind check box, you must enter the user DN and password that are to be used to bind to the server.
4. Click **Save**. You will return to the **Connect** dialog box.
5. In the **Session List** box, select **new** and click **Rename**. The **Rename Session** dialog box appears.
6. Enter a meaningful name for your connection and click **OK**.
7. From the **Connect** dialog box, select the new connection name just entered in the Session list.
8. Click **Connect**. The Connect dialog box disappears, and the **BT LDAP Browser/Editor** window displays the children of the base DN (if one is selected in Step 3) or of the directory root (if the selection is cleared in Step 3).

For additional browser information, see the *Aphelion Directory 2003.2 Administration Guide*.

10

Managing the Aphelion Directory

This chapter describes how to manage the Aphelion Directory.

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Adding Other Aphelion Web Tool Users.....	10-4
Modifying Aphelion Options for Large Systems.....	10-4
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Managing the Aphelion Directory Overview

Aphelion Web tools allow you to manage the Aphelion Directory outside of the Info*Engine environment. The management functions include changing Aphelion settings, making changes to an existing LDE database, removing an existing LDE database definition, exporting data from a database and importing data into a database. For sites that are only using the directory in conjunction with Info*Engine, the Web tools are not usually needed.

Instructions in this chapter include:

- Starting the Aphelion Web tools.
- Adding additional users to the Aphelion Web tools.
- Modifying Aphelion for large systems.
- Restricting access to Aphelion

Starting the Aphelion Web Tools

To start the Aphelion Web tools, use the following URL from your browser:

`http://<hostname>[:<port>]/aphelion/`

Where *<hostname>* is the Aphelion host and *<port>* is the optional port used for the Web tools. You need to specify the port when the default port is not used.

Note: You must include the slash (/) at the end of the URL.

To use the Aphelion Web tools, click **Authenticate** and log in. Enter the user name and password under which you installed Aphelion.

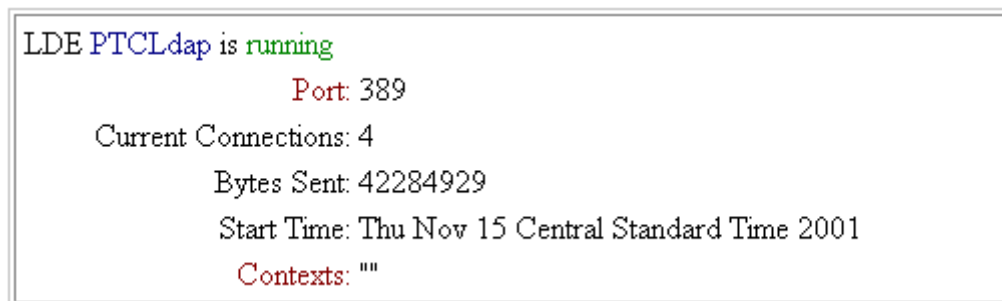
Note: If you installed Aphelion on a Windows system using a domain user, enter the domain name, a backslash (\), and the user name in the **User** field. For example, if your domain name is "division12" and your user name is "user555", then you would enter the following:

`division12\user555`

If the login is successful and the tools are connected to the Aphelion Directory that you installed, the following frame displays on the left side of the browser window:



In this frame, you should see the **PTCLdap** LDE link. This is the link to information about your Aphelion Directory. For example, clicking the link displays information similar to the following:



If the frame does not contain the **PTCLdap** LDE link or if your login was not successful, verify that the user name you entered is the user under which you installed the Aphelion Directory. On a Windows system, if that user is a domain user rather than a local user, enter the domain name, a backslash (\), and the user name in the **User** field.

Adding Other Aphelion Web Tool Users

Initially, only the user under which you installed the Aphelion Directory can be specified when logging into the Aphelion Web tools.

If you would like to specify other user names when logging in, you can add these users through the Web tools. Use the following steps to add users:

1. Determine the name of the users that you want to add.

For Windows, users must be in the Administrators group. For UNIX, users must be valid UNIX users on that system.

2. Start the Aphelion Web tools and log in. See [Starting the Aphelion Web Tools](#).

3. In the left-hand frame, under **PTCLdap**, click **Manage**.

The **LDE Configuration:PTCLdap** window displays.

4. In the left-hand frame of the **LDE Configuration:PTCLdap** window, under **PTCLdap > Administration**, click **Privileges**.

The **Administrative Privileges for PTCLdap** page displays

5. Under **Master Administrators**, click **Add** and enter the user name in the field that is provided. You can repeat this step for each user you want to add.

If the user is a Windows domain user, you must include the domain name and a backslash (\) before the user name. For example, assume that you want to add user "user555", where user555 is a domain user with the domain name of "division12". Then enter the following user:

```
division12\user555
```

6. Click **Update Administrative Privileges** to save your additions.

The changes made are automatically in effect for all subsequent login attempts.

Modifying Aphelion Options for Large Systems

If your site will have a large number of LDAP entries in the directory or if you anticipate slow response time, you may want to modify the default values for the following Aphelion options:

- **Maximum number of entries returned** is set to 500. The default setting of 500 actually returns a maximum of 2000 entries. The actual maximum number of entries returned is four times the value you set.
- **Request time limit** is set to 3600 seconds.

To get to the Options windows, expand the **PTCLdap** link and then the **Settings** link. Click the **Options** link to display the options.

Restricting Access to Aphelion

The out-of-the-box installation of the Aphelion Directory allows anonymous access to the Aphelion Directory.

You can change the Aphelion access controls so that anonymous access is not allowed.

Note: Treat the changes that you make to PTC-supplied files as a customization; this means that the original files and the updated files should be saved in a parallel directory structure according to Windchill maintenance best practices. See the *Windchill Customizer's Guide* for details.

There are many ways of setting access controls on the Aphelion Directory. PTC recommends that you study the following example and then implement a similar approach at your site for providing restricted access to the Aphelion Directory.

The example assumes the following:

- Your Windchill solution is installed with Apache as the Web server and uses the out-of-the-box Aphelion Directory installation.
- You have decided to use two users for accessing Aphelion through your solution:
 - Use the **aphelionadmin** user for administrative tasks that require read and write access to your Aphelion Directory.
 - Use the **aphelionuser** user for tasks that only require read access to your Aphelion Directory.
- When the directory is accessed on behalf of your Windchill system or as an Administrator, then the aphelionadmin user is used.
- When a non-administrative user logs on and needs access to the directory, then the aphelionuser user is used.

The example consists of the following major steps:

1. [Create the Required Users through the Principal Administrator](#)
2. [Modify the MapCredentials File](#)
3. [Add the aphelionuser to your Apache Configuration](#)
4. [Change the LDAP Manager in Windchill](#)
5. [Set Access Control in Aphelion](#)
6. [Restart All Affected Products](#)

Complete all steps to restrict access to Aphelion.

Create the Required Users through the Principal Administrator

Use the Windchill Principal Administrator to define the aphelionadmin and aphelionuser users and to add the aphelionadmin user to the Administrators group. Be sure to include a password for each user and set the organization attribute (default is "o") to the host organization defined when you installed your Windchill solution.

For details on using the Principal Administrator, see the *Windchill Business Administrator's Guide*.

Write down the distinguished name and password of each user. You must enter this information in the MapCredentials file (described in the next section) and in other files (described in later sections).

Tip: You can see the distinguished name of a user on the Principal Administrator **User Information** page for the user.

For example, assume that the distinguished names and passwords are as follows:

```
uid=aphelionadmin,ou=people,cn=mywindchill,cn=application services,o=mycompany
password: admin
```

```
uid=aphelionuser,ou=people,cn=mywindchill,cn=application services,o=mycompany
password: user
```

Note: These distinguished names assume that you used the default LDAP configuration properties base when Info*Engine was installed. In the example distinguished names, the value *mywindchill* is by default

Windchill_<release_number> and *mycompany* is the value derived from the network domain of the host computer. For example, if the network domain is mycompany.com, then mycompany is used. When implementing the example at your site, be sure to replace the example distinguished name attributes with the attributes used at your site.

Note: Instead of using the Principal Administrator, you can use an LDAP Browser to define the users in the Aphelion Directory.

Modify the MapCredentials File

Include the users created in the previous section in the MapCredentials file. The users are identified by their distinguished names, which you have access to through the Principal Administrator.

To include the users, modify the contents of the
<Windchill>/tasks/federation/MapCredentials file. The MapCredentials file

defines a map group using the Info*Engine Create-Group webject. For information about this webject, see the *Info*Engine User's Guide*.

The MapCredentials file that is installed on your system contains data specific to your installation, but it does not identify the users you created in the previous section. To identify the users, complete the following tasks:

- Modify the values set for the DBUSER and PASSWD keys in both the administrative privileges and PendingUserAdapter sections of the MapCredentials file so that the uid is equal to the distinguished name of the aphelionadmin user and PASSWD is equal to the aphelionadmin user password. For example, using the distinguished name from the previous section, set the following:

```
DBUSER=uid=aphelionadmin,ou=people,cn=mywindchill,  
cn=application services,o=mycompany:PASSWD=admin
```

- In the non-privileged user section, provide the data for the aphelionuser user. You can do this by copying the updated data element from the administrative privileges section to the non-privileged user section and changing the distinguished name and password to the aphelionuser distinguished name and password. For example, using an INSTANCE of com.network.domain.Ldap and the distinguished name for aephelionuser from the previous section, use the following data value:

```
data="INSTANCE=com.network.domain.Ldap:DBUSER=uid=aphelionuser,ou=people,  
cn=mywindchill,cn=application services,o=mycompany:PASSWD=user"
```

Following is a sample of an updated MapCredentials file (formatted to fit the page).

Before implementing this example, be sure to change the data values to reflect your distinguished names and passwords. The INSTANCE value should already contain your site information; you do not need to update the value.

```
<ie:webject name="Create-Group" type="GRP">  
  <% if ( isAdmin ) { %>  
    <!-------  
      Create a credentials map for users with administrative privileges  
    ----->  
    <ie:param name="element"  
data="INSTANCE=com.network.domain.Ldap:DBUSER=uid=aphelionadmin,ou=people,  
cn=mywindchill,cn=application services,o=mycompany:PASSWD=admin"/>  
  
    <!-------  
      PendingUserAdapter  
    ----->  
    <ie:param name="element"  
data="INSTANCE=com.network.domain.mywindchill.ldap-pending:  
DBUSER=uid=aphelionadmin,ou=people,cn=mywindchill,  
cn=application services,o=mycompany:PASSWD=admin"/>  
    <!-------  
    ----->  
  <% } else { %>  
    <!-------
```

```

        Create a credentials map for non-privileged users
        ----->
        <ie:param name="element"
data="INSTANCE=com.network.domain.Ldap:DBUSER=uid=aphelionuser,ou=people,
cn=mywindchill,cn=application services,o=mycompany:PASSWD=user"/>
        <% } %>

        <ie:param name="delimiter" data=":"/>
        <ie:param name="group_out" data="map"/>

</ie:webobject>

```

Add the aphelionuser to your Apache Configuration

Adding the aphelionuser to your Apache configuration allows Apache to access the Aphelion Directory to read entries. The app-Windchill-Auth.conf file is used to set the user and password that Apache uses to bind to the directory to search for users during authentication.

Use the following steps to add the user and regenerate the app-Windchill-Auth.conf file:

1. Modify the following lines in the *<Apache>/conf/app-Windchill.properties* file:

```

apacheWebApp.bindDn=cn\=guest
apacheWebApp.anonBind=true
apacheWebApp.bindPwd=secret

```

Assuming that you are using the same distinguished name and password for aphelionuser as described in the previous section, change the values of the properties to the following:

```

apacheWebApp.bindDn=uid\=aphelionuser,ou\=people,
                    cn\=mywindchill,cn\=application services,
                    o\=mycompany
apacheWebApp.anonBind=false
apacheWebApp.bindPwd=user

```

2. From a windchill shell, change to the Apache installation directory and run:

```

ant -f webAppConfig.xml regenAllWebApps

```

This command regenerates the app-Windchill-Auth.conf file.

Change the LDAP Manager in Windchill

The `ie.ldap.managerDn` and `ie.ldap.managerPw` properties that are stored in the `<Windchill>/codebase/WEB-INF/ieStructProperties.txt` file define the LDAP manager used in Windchill. Change these properties to the `aphelionadmin` user and password using the `xconfmanager` utility and propagate the changes.

Assuming that you are using the same distinguished name and password for `aphelionadmin` as described in the earlier section, enter the following (on one line) from a windchill shell:

```
xconfmanager -s "ie.ldap.managerDn=uid=aphelionadmin,ou=people,cn=mywindchill,
cn=application services,o=mycompany" -s "ie.ldap.managerPw=admin"
-t "codebase/WEB-INF/ieStructProperties.txt" -p
```

Set Access Control in Aphelion

The Aphelion access properties are used to set access control for the Aphelion Directory. For Windchill, these properties are stored in the `PTCLdap.conf` file, which is located in either of the following directories:

Windows: `<Aphelion_mapped_drive>:\usr\var\lde\PTCLdap`

UNIX: `/opt/lde/var/PTCLdap`

For a detailed descriptions of the Aphelion access properties, see the *Aphelion Directory 2003.2 Administration Guide*.

To change for anonymous access to restricted access using the `aphelionadmin` and `aphelionuser` users (as defined in an earlier section), you must edit the `PTCLdap.conf` file and set the access properties as follows:

- Add the comment character (`#`) to the following line:

```
anonymous_access_allowed on
```

- Remove the comment characters from all lines between the following lines:

```
# Turn anonymous access off
```

```
# end Turn anonymous access off
```

- Change the following line to reflect the specific distinguished name (for example, `aphelionadmin`) that you want to use for write access:

```
access to dn=.*cn=Application Services,dc=ptc" by
"dn=cn=manager,cn=Application Services,o=ptc" write
```

- Change the following line to reflect the specific distinguished name (for example, `aphelionuser`) that you want to use for read access:

```
access to "dn=.*cn=myMachine,cn=Application Services,dc=ptc"
by "dn=cn=windchilluser,cn=Applications Services,dc=ptc"
read
```

- Add the comment character (#) to the following line (which appear two times in the file):

```
access to dn=.* attrs=entry,general by dn=.* read
```

The following sections provide examples of the section in the PTCLdap.conf file before and after it is modified.

PTCLdap.conf File Section Before Modifications

The following lines provide an example of the section of the PTCLdap.conf file before you make any changes to restrict access to Aphelion (formatting of long lines has been modified to fit the page):

```
# Allow anonymous access

anonymous_access_allowed on

# End allow anonymous access

# Turn anonymous access off
#
#anonymous_access_allowed false
#
#

#access to "dn=.*cn=Application Services,dc=ptc" by "dn=cn=manager,
      cn=Application Services,o=ptc" write
#access to "dn=.*cn=myMachine,cn=Application Services,dc=ptc" by
      "dn=cn=windchilluser,cn=Applications Services,dc=ptc" read

#access to dn=config by * none
#access to dn=.*,cn=monitor by * none
#access to dn=schema by * none
#
#access to dn=config by dn=cn=Manager write
#access to dn=.*,cn=monitor by dn=cn=Manager write
#access to dn=schema by dn=cn=Manager write
#
#access to dn=.* attrs=entry,general by dn=.* read
#access to dn=.* by dn=.* none
#defaultaccess none
#
# end Turn anonymous access off

indexed_searches_only no
lookup_host_name off
generate_uuid on
#extra_import_checks on
#max_mmap_space 0x64000000

readonly off

port 389
master_directory /usr/var/lde/PTCLdap/PTCLdap_master
replicate_directory /usr/var/lde/PTCLdap/PTCLdap_replicate
```

```

max_mod_logs 32
mod_log_roll_time 24
auto_log_roll on
max_logs 8
log_roll_time 24
volume_period 60
compress_log_files on

index_all_alias *

encrypt_attrs "userPassword, issNTPassword, cdsLocalPassword, cdsForeignPassword"
encrypt_cipher CRYPT

# uncomment the line below to allow users to change their own passwords
#access to dn=".*" attrs=userPassword by self write

access to attrs="pwdAttribute, pwdMinAge, pwdMaxAge, pwdInHistory, pwdCheckSyntax,
pwdMinLength, pwdExpireWarning, pwdGraceLoginLimit, pwdLockout, pwdLockoutDuration,
pwdMaxFailure, pwdFailureCountInterval, pwdMustChange, pwdAllowUserChange,
pwdSafeModify, pwdRejectPatterns, pwdRequirePatterns, pwdTrivialCheck, pwdDictPath,
pwdChangedTime, pwdAccountLockedTime, pwdExpirationWarned, pwdTimeOfFailure,
pwdHistory, pwdTimeOfGraceUse, pwdReset" by * none

access to filter="objectClass=pwdPolicy" by * none
access to dn=.* attrs=entry,general by dn=.* read
access to dn=.* by dn=.* none
defaultaccess none

```

PTCLdap.conf File After Modifications

The following lines provide an example of the section of the PTCLdap.conf file after you make the suggested changes to restrict access to Aphelion using the distinguished names for the aphelionadmin and aphelionuser users defined in the earlier section (formatting of long lines has been modified to fit the page):

```

# Allow anonymous access

#anonymous_access_allowed on

# End allow anonymous access

# Turn anonymous access off

anonymous_access_allowed false

access to "dn=.*cn=Application Services,o=mycompany" by
"dn=uid=aphelionadmin,ou=people,
    cn=mywindchill,cn=application services,o=mycompany" write
access to "dn=.*cn=myMachine,cn=Application Services,dc=ptc" by
    "dn=uid=aphelionuser,ou=people,cn=mywindchill,cn=application
services,o=mycompany" read

access to dn=config by * none
access to dn=.*,cn=monitor by * none
access to dn=schema by * none

```

```

access to dn=config by dn=cn=Manager write
access to dn=.*,cn=monitor by dn=cn=Manager write
access to dn=schema by dn=cn=Manager write

#access to dn=.* attrs=entry,general by dn=.* read
access to dn=.* by dn=.* none
defaultaccess none

# end Turn anonymous access off

indexed_searches_only no
lookup_host_name off
generate_uuid on
#extra_import_checks on
#max_mmap_space 0x64000000

readonly off

port 389
master_directory /usr/var/lde/PTCLdap/PTCLdap_master
replicate_directory /usr/var/lde/PTCLdap/PTCLdap_replicate
max_mod_logs 32
mod_log_roll_time 24
auto_log_roll on
max_logs 8
log_roll_time 24
volume_period 60
compress_log_files on

index_all_alias *

encrypt_attrs "userPassword, issNTPassword, cdsLocalPassword, cdsForeignPassword"
encrypt_cipher CRYPT

# uncomment the line below to allow users to change their own passwords
#access to dn=".*" attrs=userPassword by self write

access to attrs="pwdAttribute, pwdMinAge, pwdMaxAge, pwdInHistory, pwdCheckSyntax,
pwdMinLength, pwdExpireWarning, pwdGraceLoginLimit, pwdLockout, pwdLockoutDuration,
pwdMaxFailure, pwdFailureCountInterval, pwdMustChange, pwdAllowUserChange,
pwdSafeModify, pwdRejectPatterns, pwdRequirePatterns, pwdTrivialCheck, pwdDictPath,
pwdChangedTime, pwdAccountLockedTime, pwdExpirationWarned, pwdTimeOfFailure,
pwdHistory, pwdTimeOfGraceUse, pwdReset" by * none

access to filter="objectClass=pwdPolicy" by * none
#access to dn=.* attrs=entry,general by dn=.* read
access to dn=.* by dn=.* none
defaultaccess none

```


Restart All Affected Products

You have modified Apache, Aphelion, and Windchill files.

To activate restricted Aphelion access, restart the affected products:

- For details on restarting Apache, see [Starting and Stopping Apache](#).
- For details on restarting Aphelion, see [Starting and Stopping the Aphelion Directory](#).
- For details on restarting Windchill, see the *Windchill Installation and Configuration Guide - Windchill*.

11

Starting and Stopping the Aphelion Directory

This chapter describes how to stop and start the Aphelion Directory and the LDAP browser.

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Starting and Stopping the Aphelion Directory Overview	11-2
Starting and Stopping the Aphelion Directory with Web Tools	11-2
Manually Starting and Stopping the Aphelion Directory.....	11-2
Starting the LDAP Browser	11-4

Starting and Stopping the Aphelion Directory Overview

You can start and stop the Aphelion Directory by using the Aphelion Web tools or by manually starting and stopping Aphelion.

Note: In some instances on UNIX systems, the file size limit for the Aphelion `lde.log.general` and `lde.log.requests` files can be exceeded causing the Aphelion LDAP services to stop. This situation can occur during high volume updates (for example, migrations) to the LDAP database. Before initiating a high volume update process, ensure that the files are located on a disk partition that has sufficient free space to hold the files. Also, check the file sizes and either archive or delete the files as necessary. The log files are located in the `/usr/var/lde/var/PTCLdap/PTCLdap.logs/` directory. For additional information about setting log file parameters, refer to the Aphelion documentation.

Starting and Stopping the Aphelion Directory with Web Tools

The Aphelion Directory is an LDE that is named PTCLdap. The directory can be started and stopped using the Aphelion Web tools:

1. Start and log into the Aphelion Web tools. See [Starting the Aphelion Web Tools](#).
2. Select **LDE > PTCLdap > Manage**. Then select **Administration > Processes**.

The **Process Administration** page displays.

3. Under **LDE-PTCLdap**, click **Stop** to stop the Aphelion Directory when it is running and click **Start** to start the directory when it is stopped.

Manually Starting and Stopping the Aphelion Directory

How you manually start and stop the Aphelion Directory is determined by which operating system you are using.

Starting and Stopping on Windows

The Windows Aphelion installation adds the **Aphelion Administration** and **Aphelion Services** services, which are automatically started when the installation completes and when your system reboots. You do not need to manually start these services. However, if you want to manually stop and restart the services, you can do so through the Control Panel **Services** dialog.

Starting and Stopping on UNIX

The UNIX Aphelion installation generates an Aphelion startup script and starts Aphelion.

For Solaris and HP-UX systems, the installation also adds the script to the system auto startup scripts. Therefore, Aphelion processes automatically start when Solaris and HP-UX systems are rebooted.

For AIX systems, you can manually start Aphelion after the system is rebooted or you can add the Aphelion startup script to the auto start process.

The following sections provide the specific commands that you can use to manually start and stop Aphelion on a UNIX system.

Solaris

To stop all Aphelion processes, run the following command:

```
/etc/rc2.d/S77cdsDaemon stop
```

To start all Aphelion processes, run the following command:

```
<aphelion_dir>/instTemp/startsolaris.sh
```

Where *<aphelion_dir>* is the directory where Aphelion is installed.

HPUX

To stop all Aphelion processes, run the following command:

```
/sbin/rc2.d/S56lcdsDaemon stop
```

To start all Aphelion processes, run the following command:

```
<aphelion_dir>/instTemp/starthpux.sh
```

Where *<aphelion_dir>* is the directory where Aphelion is installed.

AIX

To stop Aphelion processes, run the following command to determine the PID of the Aphelion processes:

```
ps -eaf | grep lde
```

Then, manually kill those processes that were listed.

To start all Aphelion processes, run the following command:

```
<aphelion_dir>/instTemp/startAix.sh
```

Where *<aphelion_dir>* is the directory where Aphelion is installed.

Starting the LDAP Browser

An LDAP browser is a general purpose tool that allows you to view and modify the contents of any LDAP directory. Although, you do not need to use the LDAP browser when Info*Engine is operating with no problems, you may find it helpful when you are investigating problems that occur.

The LDAP browser installed during the Aphelion Directory installation can be started as follows:

- On Windows, select **Start > Programs > LDAP Browser**.
- At a UNIX command prompt, enter the following:

```
/<aphelion_dir>/SyntegraLDAPBrowser/lbe.sh
```

Where *<aphelion_dir>* is the directory where Aphelion is installed.

The LDAP browser starts and displays the **Connect** dialog box. To connect to the directory installed on the same host, select **localhost** and click **Connect**. To connect to another directory, select the corresponding name in the list.

12

Uninstalling Aphelion

This chapter describes how to uninstall the Aphelion Directory tools.

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Uninstalling Aphelion Directory and Tools	12-2

Uninstalling Aphelion Directory and Tools

Note: If you want to use the data in an existing Aphelion Directory, you must export the data before uninstalling the directory. Use the procedure described in [Exporting Existing LDAP Directory Content](#) to export data.

This version of the installation program provides you with the following uninstall options:

- On Windows, click the Control Panel **Add/Remove Programs** icon to display your installed programs. Remove the **Aphelion Directory** entry from the list.
- On UNIX, enter the following at a command prompt:

```
/<aphelion_dir>/UninstallerData/Uninstall_aphelion
```

Where <aphelion_dir> is the directory where Aphelion is installed.

Note: On Windows, the drive used by Aphelion is not unmapped when you remove the **Aphelion Directory** entry.

You can unmap the drive by doing either of the following:

- Reboot your system.
- Enter the following command from a command prompt:

```
subst <drive_letter>: /D
```

For example, to unmap the R drive, enter the following command from a command prompt:

```
subst R: /D
```

After you have uninstalled Aphelion, remove the Aphelion installation directory and all remaining files under that directory.

IV

Installing Info*Engine Section

13

Installing Info*Engine

This chapter provides the instructions to install Info*Engine.

The installation uses a framework that is common to all Windchill products. For general information about installing Windchill products, see the [About Installing Windchill Products](#) chapter.

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Before You Begin

Before you begin to install Info*Engine, you should have:

- Installed Apache if it is your Web server, otherwise you will install the other Web servers after Info*Engine is installed, because there are configuration steps that require access to the location where Info*Engine is installed.
- Installed Tomcat if it is your servlet engine, otherwise you will install the other servlet engines after Info*Engine is installed, because there are configuration steps that require access to the location where Info*Engine is installed
- Installed Aphelion.
- Installed the J2SE Software Development Kit (SDK).

The Info*Engine installer is designed to automatically configure Info*Engine for Apache and Tomcat. All other supported Web servers and servlet engines require you to perform manual configurations. If you are using a Web server and servlet engine combination other than Apache and Tomcat, those configuration instructions are performed following the Info*Engine installation and they are located in subsequent chapters of this book.

Note: To support running multiple instances of Windchill products on one system, the Info*Engine installer no longer sets the WT_HOME environment variable. If you had installed earlier versions of Info*Engine and now want to run multiple instances, be sure that this variable is not set on your system. On Windows, remove the variable from the system environment variables administered through the Control Panel. On UNIX, remove the variable from the .cshrc or .profile file. Additionally, if you are installing Windchill, remove associated Windchill paths from the PATH and SQLPATH variables.

With the removal of Windchill variable settings on your system, the Windchill environment is no longer available from your general system prompt; instead, always enter commands that need to be executed against Windchill from within the windchill shell. For information about the windchill shell, see the *Windchill System Administrator's Guide*.

During the installation, the installer will prompt you for specific configuration information. PTC recommends you gather this information prior to running the installer so that the install can proceed without interruption:

- The directory where the J2SE SDK is installed.
- The Web context root.

This is the context root of the Web application. The context root is a component of the Web application URL that is used to access the Windchill application from a Web browser, for example:

`http://www.myserver.com/<context root>.`

The default is Windchill.

Note: The automatic configuration of Tomcat and Apache does not support use of spaces or characters that are not allowed in file names on the operating system (including / and \) in the context root. PTC recommends that you do not use these characters.

- The DNS registered host name where Info*Engine is being installed. The host name is used by the network components to access the Windchill application.

The default is derived from the network configuration of the machine. If for any reason, the network domain is not supplied in the text box, manually enter the fully qualified name of the machine.

Note: The host name of the computer must conform to the required standard Internet format that specifies the name can be a text string up to 63 characters drawn from only the alphabet (A-Z and a-z), digits (0-9), hyphen (-), and period (.). The period is only used as a domain name separator. The first character of a host name can be either a letter or a digit.

Using unsupported characters in the host name (such as an underscore or a comma) or supplying a host name that is longer than 200 characters causes problems in your Windchill system. Additionally, using uppercase letters (although allowed in host names) causes slower performance because of caching issues with the supported JVM. PTC recommends keeping your host name as short and readable as possible. For example:

windchill-server10.my-network.mycompany.com

- The information needed to connect Info*Engine to Aphelion:
 - The DNS registered host name where Aphelion is installed.
 - The port number Aphelion listens on. The default is 389.
 - The distinguished name of the LDAP directory manager. This value was set when Aphelion was installed.
 - The password of the LDAP directory manager. This value was set when Aphelion was installed.
 - The distinguished name of the LDAP configuration properties base. The default is cn=Windchill_<release_number>,cn=Application Services,o=<mycompany>. Where <mycompany> is derived from the network domain, for example, if the network domain is mycompany.com, mycompany will be used.
- The port number of the task processor for the Info*Engine server (custom only).
- The installation directory and port number for Apache (custom only).
- The directory where Tomcat is installed.

The following methods are available to install and configure Info*Engine:

- Typical -- This option configures the Info*Engine server, and configures Info*Engine for Apache and Tomcat (PTC delivered versions only). Apache and Tomcat are the supported default Web server and servlet engine combination. The typical process automatically configures Info*Engine for the SDK, Aphelion, Apache, and Tomcat; while you provide the installation locations for these products.
- Reconfiguration for Apache -- This option is useful if you have an existing installation of Info*Engine and you reinstalled Apache. You will need to add the LDAP authentication configuration if other Windchill products have been installed. If you do not use this method to reconfigure Apache when changes occur, then the configurations must be performed manually.
- Reconfiguration for Tomcat -- This option is useful if you have an existing installation of Info*Engine and you reinstalled Tomcat.
- Custom -- This option allows you to selectively choose the options to install and configure Info*Engine. In particular, this option must be used to bypass the Web server and servlet engine configurations when:
 - You are using a non-PTC supplied Apache or Tomcat. Furthermore, you must select this option in order to bypass the Apache configuration if you are using a non-PTC Apache that must be manually configured to function with Windchill.
 - You are using a Web server and servlet engine other than Apache and Tomcat.
 - You want to use some value other than the non-default port number for the Info*Engine task processor or Apache.

The Info*Engine installer supports the following scenarios:

- Installing Info*Engine - This can be a first time installation of Info*Engine or reinstalling the Info*Engine source code. The Typical and Custom installation options support the scenario.
- Reconfiguring Apache or Tomcat - In this scenario, Info*Engine has been installed and configured and you installed Apache or Tomcat a second time subsequent to installing Info*Engine. In effect, you are using the installer as a utility to reconfigure Info*Engine for Apache or Tomcat. The Reconfiguration for Apache and Reconfiguration for Tomcat options support this scenario.

The installer instructions have been subdivided to support the scenarios as follows:

Install Info*Engine

Perform the following steps, that are described in the following sections, to install, configure the Info*Engine installation:

1. Installing Info*Engine
2. [Additional Web Server and Servlet Engine Configurations](#)
3. [How to Start and Stop Info*Engine Components](#)

Reconfigure Apache or Tomcat

Perform one or both of the following set of instructions, that are described in the following sections, to reconfigure Info*Engine for Apache or Tomcat.

- [Reconfiguration for Apache](#)
- [Reconfiguration for Tomcat](#)

Additional Information

The remaining sections in this chapter are for your information:

- [About Info*Engine Web Application URLs](#)
- [Installation Summary](#)

Installing Info*Engine

When performing the installation, the install user should be:

- On Windows -- The same user that will run the application.
- On UNIX -- A non-root user.

If you installed Apache as a root user, see [Apache and Info*Engine Installed With Different Users](#).

Note: The Info*Engine installer no longer sets the WT_HOME environment variable on your system. Not setting this variable allows you to run multiple instances of the software on the same system. If you had installed earlier versions of Info*Engine and want to run mutiple instances, be sure that this variable is not set on your system. On Windows, remove the variable from the system environment variables administered through the Control Panel. On UNIX, remove the variable from the .cshrc or .profile file. Additionally, if you are installing Windchill, remove associated Windchill paths from the PATH and SQLPATH variables.

Info*Engine is located on the Windchill Info*Engine CD.

1. Before initiating the installer, stop all running Web servers and servlet engines, close all windchill shells and all other programs that have Windchill files open (for example, a text editor with an open Windchill log file), and ensure that the Aphelion Directory server is running.
2. Insert the Windchill Info*Engine CD.
3. If you are installing on Windows and have the autorun feature enabled, the installer starts automatically. Otherwise, run the setup script:
 - On Windows: <CD-ROM>\setup.vbs
 - On UNIX: <CD-ROM>/setup
4. When the installer begins, select the language for the installer and click **OK**.
5. The first panel that opens is **Before You Begin**. This panel summarizes the preinstallation requirements, provides a link to the software matrices, and a reference to this book, *Windchill Info*Engine Installation and Configuration Guide*.

When you are ready to proceed with the installation, click **Next**.

6. The next panel opens with the **PTC Customer Agreement** displayed in the scrolling window. Read the agreement so that you understand the license agreement policy for the software.

To activate the following radio buttons and the **Next** button, you must scroll to the end of the agreement:

I Accept the Agreement Terms and Conditions

I Decline the Agreement Terms and Conditions

You can save the agreement to a file on your local drive by clicking **Save**.

To continue with the installation, you must accept the agreement terms and conditions by clicking the radio button for that option and then clicking **Next**.

If you decline, you are asked to confirm that you are declining and then click **Exit Installer** to exit the installer without installing the software.

7. In the **Select Installation Type** panel, select the type of installation to perform.

The installation options are described in the following table. Select either Typical or Custom to perform the installation and configuration of Info*Engine. The Apache and Tomcat reconfiguration install options are addressed in another section later in this chapter.

Select Installation Type

Select this option	To	Go to...
Typical	Install Info*Engine and configure it with Apache and Tomcat. This option delivers a standard, out-of-the-box installation and configuration of Info*Engine.	Step 9.
Reconfiguration for Apache	Change the existing Apache configuration for Info*Engine.	Not documented in this section.
Reconfiguration for Tomcat	Change the existing Tomcat configuration for Info*Engine.	Not documented in this section.
Custom	Specify your installation and configuration options for Info*Engine. You must select this option to install Info*Engine if you are using a non-PTC-supplied Apache or Tomcat, or a Web server and servlet engine other than Apache and Tomcat, or an Apache that has been manually configured to function with Windchill.	Step 8.

8. In the **Select Product Options** panel, specify the options to install and configure Info*Engine. This panel appears when the Custom installation type is selected.

By default, the **Install Info*Engine Software**, **Configure Info*Engine Server**, **Configure Apache and Tomcat**, and **Create Startup Script** options are selected. You can select and deselect the options as desired.

Select Product Options

Select this option	To
Install Info*Engine Software	Copy the Info*Engine files to the installation directory. No configurations for Info*Engine are performed.
Configure Info*Engine Server	Configure Info*Engine using the values you specify during the installation.
Customize Info*Engine Configuration	Configure the advanced Info*Engine properties using the values you specify during the installation.
Configure Local Apache	Configure a locally installed version of Apache or select to bypass the Web server configuration process. The configuration for Apache uses default settings, while you specify only its installation location.
Configure Tomcat	Configure Tomcat or select to bypass the servlet engine configuration process. The configuration for Tomcat uses default settings, while you specify only its installation location.
Customize Apache Configuration	If the port number Apache is listening on is a value other than 80, specify the port number assigned when Apache was installed. The default port number is 80.
Create Startup Scripts	Create startup scripts for Info*Engine.

9. In the **Select Directory** panel, enter the location where Info*Engine should be installed.

Info*Engine can be installed in any directory; there are no pre-existing directory requirements. Accept the default, /opt/ptc/Windchill_8.0 for UNIX or C:\ptc\Windchill_8.0 for Windows, or click **Browse** to create or select a different path.

10. In the **Select Java Software Development Kit Directory** panel, specify the location where J2SE SDK is installed.
11. In the **Configure Info*Engine Server** panel, specify the configuration parameters for Info*Engine.

Configure Info*Engine Server

For this field...	Enter a value that meets this description...
Web Application Context Root	<p>Defines the Web application context root name used to access the Windchill applications through the Web browser. This value is used to format the URL, for example, <code>http://<DNS name>/<Web application context root></code>.</p> <p>The default is Windchill.</p> <p>Note: The automatic configuration of Tomcat and Apache does not support use of spaces or characters that are not allowed in file names on the operating system (including / and \) in the context root. PTC recommends that you do not use these characters.</p>
DNS Registered Host Name	<p>A fully qualified DNS host name that defines the host on which Info*Engine is being installed.</p> <p>The default is derived from the network configuration of the machine. If for any reason, the network domain is not supplied in the text box, manually enter the fully qualified name of the machine.</p> <p>Note: The host name of the computer must conform to the required standard Internet format that specifies the name can be a text string up to 63 characters drawn from only the alphabet (A-Z and a-z), digits (0-9), hyphen (-), and period (.). The period is only used as a domain name separator. The first character of a host name can be either a letter or a digit. Using unsupported characters in the host name (such as an underscore or a comma) or supplying a host name that is longer than 200 characters causes problems in your Windchill system.</p>

12. In the **Configure LDAP Connection** panel, specify the parameters needed to make a connection to the Aphelion LDAP directory.

The LDAP directory is used for storing the LDAP entries related to Info*Engine and to other Windchill applications.

Configure LDAP Connection

For this field...	Enter a value that meets this description...
LDAP Server Host Name	<p>Defines the host where the existing Aphelion Directory resides.</p> <p>The default used assumes Aphelion is installed on the same machine as Info*Engine, and displays the host name of the local machine.</p>
LDAP Server Port Number	<p>Defines the port number to connect to the Aphelion Directory.</p> <p>The value shown, 389, is the suggested default when the Aphelion Directory was installed. The value must be the port number assigned when Aphelion was installed.</p>
LDAP Directory Distinguished Name	<p>Defines the distinguished name of the existing manager or a distinguished name that has sufficient privileges to add LDAP entries to the directory.</p> <p>The suggested value shown, cn=Manager, is the distinguished name of the default user that is created when Aphelion is installed. This user has the required privileges to administer the Aphelion Directory, and to add, delete, modify, and search LDAP entries. The value you supply must be the same value defined when Aphelion was installed.</p>
LDAP Directory Manager Password	<p>Defines the current password of the LDAP manager specified by the LDAP Directory Distinguished Name.</p> <p>Specify the password used when Aphelion was installed.</p> <p>No default is provided.</p>

For this field...	Enter a value that meets this description...
Distinguished Name of LDAP Configuration Properties Base	<p>Defines the distinguished name of the top subtree LDAP entry under which Info*Engine component LDAP entries will reside. The default name presented is based on the Windchill release. For example, cn=Windchill_<release_number>, cn=Application Services, o=<myCompany>.</p> <p>You can enter any unique base unless you entered a context name when you installed the Aphelion Directory. Then, you must include that name as part of the distinguished name entered here. By default, no context name was required when you installed Aphelion.</p> <p>For an example, see the Naming Context Example section in the Installing Aphelion chapter.</p>

The next window that opens depends on the installation option you chose. If you selected **Typical**, then go to Step 14, otherwise continue Step to 13.

13. In the **Customize Info*Engine Configuration** panel (**Custom** option only), you have the opportunity to customize your Info*Engine configuration.

The following table lists the properties you can modify to suit your Info*Engine environment.

Customize Info*Engine Configuration

For this field...	Enter a value that meets this description...
Info*Engine Server Task Processor	<p>Defines the port number the task processor listens on.</p> <p>The default is 10002. Select a different number if this port number is already in use.</p>

14. The **Specify Directory** for Apache panel prompts you for the Apache installation location.

- Enter the directory location where the PTC-supplied version of Apache is installed. Accept the default that is displayed and selected, or click **Browse** to select a different path.

Note: Configurations with other non-PTC versions of Apache are not supported.

15. The **Specify Directory** for Tomcat panel prompts you for the Tomcat installation location.

- Enter the directory location where the PTC-supplied version of Tomcat is installed. Accept the default that is displayed and selected, or click **Browse** to select a different path.

Note: Configurations with other non-PTC versions of Tomcat are not supported.

The next window that opens depends on the installation option you chose. If you selected **Typical**, then go to Step 17, otherwise continue to Step 16.

16. The **Specify Apache Port Number** panel (**Custom** option only) prompts you to enter the port number that Apache listens on. This is the port number you entered when Apache was installed (the default Apache port number is 80).
17. To specify a location to place the startup scripts. Select one of the options listed in the **Select Shortcut Location** (on Windows) or **Create Link** (on UNIX) panel.

If you elect to create a shortcut, the installer will create startup scripts for Info*Engine, Tomcat, and Apache based on the selection you specify.

The decision you make at this time to create a shortcut, also determines whether the Windchill Services and Windchill Information Modeler installers will create shortcuts for their applications. If these installers determine that a shortcut exists, then they will automatically create a startup shortcut for you during the installation. If the shortcut exists, the Windchill Services installer also creates a windchill shell shortcut.

18. The **Review Settings** panel lists the selections you specified for the installation. Verify the information is correct, and then click **Install**.
19. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
20. When the installation completes successfully, the **Installation Complete** panel displays the directory where Info*Engine was installed. The installation log files are located in the *<Windchill>/installer/logs* directory. The log files for the installation are named:
 - IEServer_InstallLog.xml
 - IEServer_PtcInstall.log

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

Additional Web Server and Servlet Engine Configurations

If your Web server and servlet engine are something other than the PTC-supplied Apache and Tomcat or if you installed Apache on a remote machine (different than Info*Engine, then it is necessary to perform manual configurations for those applications.

If you plan on using IIS with Tomcat, then PTC recommends that you first install Tomcat and Apache (as described in the [Installing and Configuring a Web Server and Servlet Engine](#) chapter) as well as install Info*Engine and any Windchill solutions before switching to use IIS. Testing Windchill with Apache ensures that Windchill is configured properly before you switch to IIS. For details on configuring IIS, see the [Configuring IIS and Tomcat](#) chapter.

In addition to Apache and Tomcat, PTC supports the following Web server and servlet engine combinations:

- Sun ONE Java Enterprise System Server with its embedded servlet engine
- WebSphere with HTTP Server
- Microsoft Internet Information Server (IIS) with Tomcat

For Web servers and servlet engines other than Apache and Tomcat, the manual configuration instructions are located in the Configuring Other Web Servers and Servlet Engines section:

- [Configurations When Apache is Installed Remotely](#)
- [Configuring Sun ONE Java Enterprise System Web Server](#)
- [Configuring IIS and Tomcat](#)
- [Configuring WebSphere on AIX](#)

After you have completed the configuration steps, continue to the next section.

Using the Windows Shortcut to Start the Servers

If you elected to create a shortcut during the installation, then the installer created a shortcut for each of the following: Info*Engine, Tomcat, and Apache. You can use the shortcut to start the application, however, to stop the application you must manually issue the stop command.

The following list describes the shortcut start command for Tomcat, Apache, and Info*Engine categorized by the shortcut options that were presented to you:

- Windows **Start** menu:
 Tomcat — Navigate to **Start > Programs > <Windchill>**, and click **Tomcat**.
 Apache — Navigate to **Start > Programs > <Windchill>**, and click **Apache**.
 Info*Engine — Navigate to **Start > Programs > <Windchill>**, and click **Info*Engine Server**.
 Where <Windchill> represents the Web Application Context Root value you specified during the Info*Engine installation, for example, Windchill.
- Desktop Icon:
 - Click on the **Tomcat** icon.
 - Click on the **Apache** icon.
 - Click on the **Info*Engine Server** icon.
- Quick Launch Bar:

You must mouse-over the icons in the quick launch bar to display the icon labels.

 - Click on the **Tomcat** icon.
 - Click on the **Apache** icon.
 - Click on the **Info*Engine Server** icon.
- Other -- This is a location that you specified during the installation.

How to Start and Stop Info*Engine Components

In a simple Info*Engine environment where the Info*Engine components all run in the same Java Virtual Machine (JVM), you do not need to manually start any Info*Engine components. Info*Engine uses the Naming Service search base entered during the installation to identify where the Info*Engine LDAP entries reside.

In a complex Info*Engine environment, where Info*Engine components are running in different JVMs and requests are made to execute adapters or task processors that are not in the same JVM, then the out-of-process adapters and task processors must be running when requests for them are made.

When installing Info*Engine with Windchill, once Windchill Services is installed, the Info*Engine server will execute within the Windchill application, and there is no need to separately start the Info*Engine server. The only time you would use the start files is:

- To start standalone Info*Engine.
- To test the Info*Engine installation.

- To start the out-of-process adapters. The adapter runs independently from Info*Engine in a different JVM (Java Virtual Machine).

Installed Start Files

The following table lists the start files for both Windows (.bat) and UNIX (.sh).

Script Name	Description
startnamingservice	Starts the Naming Service. By default, the Naming Services starts the Info*Engine server, however, it can be configured (manually) to start additional Info*Engine services. Use for standalone Info*Engine.
startserver	Starts the Info*Engine server (only).
startemail	Starts the E-Mail Broker. The e-mail broker must be configured manually. The Info*Engine administration guide includes this information.
startjndi	Starts the JNDI adapter as an out-of-process adapter. The JNDI adapter must be configured manually. The JNDI adapter guide includes this information.

These files can be used for starting Info*Engine components. The files are located in the /bin/infoengine directory where Info*Engine is installed.

Stopping Info*Engine

Windows

On a Windows system, you can stop any Info*Engine component that is running by closing the window in which it is running. On Windows, stopping one Info*Engine component does not stop any other component.

UNIX

On a UNIX system, you can do either of the following:

- Use the UNIX kill command to end the Info*Engine process.
- Enter CTRL/C in the Info*Engine component window.

Info*Engine Log Files

The Info*Engine log files can be helpful when troubleshooting your configuration. The log files are located in the `<Info*Engine>/logs` directory.

Reconfiguration for Apache

If you have already installed Apache and you reinstalled it subsequent to installing and configuring Info*Engine, then you can use these instructions to reconfigure Info*Engine for a new installation of Apache.

You will use the functionality provided with the Info*Engine installer to complete these instructions. The Info*Engine installer is located on the Windchill Info*Engine CD.

1. Before initiating the installer, stop Apache, Tomcat, Info*Engine, and the Web browser.
2. Insert the Windchill Info*Engine CD.
3. When the installer begins, the first window that opens is **Before You Begin**. This section summarizes the preinstallation requirements, provides a link to the software matrices, and a reference to this book, *Windchill Info*Engine Installation and Configuration Guide*.

When you are ready to proceed with the installation, click **Next**.

4. The next panel opens with the **PTC Customer Agreement** displayed in the scrolling window.

To activate the radio buttons and the **Next** button, you must scroll to the end of the agreement.

To continue with the installation, you must accept the agreement terms and conditions by clicking the radio button for that option and then clicking **Next**.

5. In the **Select Installation Type** panel, select the type of installation to perform.

The installation options are described in the following table. Select the **Reconfiguration for Apache** option.

Select Installation Type

Select this option	To	Go to...
Typical	Install Info*Engine and configure it with Apache and Tomcat. This option delivers a standard, out-of-the-box installation and configuration of Info*Engine.	This option is not supported in this section.
Reconfiguration for Apache	Change the existing Apache configuration for Info*Engine.	Step 6.
Reconfiguration for Tomcat	Change the existing Tomcat configuration for Info*Engine.	This option is not supported in this section.
Custom	Specify your installation and configuration options for Info*Engine. You must select this option to install Info*Engine if you are using a non-PTC-supplied Apache or Tomcat, or a Web server and servlet engine other than Apache and Tomcat, or an Apache that has been manually configured to function with Windchill.	This option is not supported in this section.

6. In the **Specify Directory** panel, enter the location where Info*Engine is installed.

Accept the default that is displayed and selected, or click **Browse** to select a different path.

7. In the **Specify Directory** panel, enter the location where Apache is installed.

Accept the default that is displayed and selected, or click **Browse** to select a different path.

8. In the **Select Shortcut Location** (on Windows) or the **Create Link** (on UNIX) panel, select a location for the Info*Engine startup executable/script.

The Info*Engine startup shortcuts are recreated to support the new Apache.
9. The **Review Settings** panel lists the selections you specified for the installation. Verify the information is correct, and then click **Install**.
10. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
11. When the installation completes successfully, the **Installation Complete** panel displays the directory where Info*Engine was installed. The installation log files are located in the `<Windchill>/installer/logs` directory. The log files for the installation are named:
 - IEServer_InstallLog.xml
 - IEServer_PtcInstall.log
12. Restart the servers.

Now that the changes are complete, you can restart Apache, Tomcat, Info*Engine and the Web browser.
13. You can verify that your Web server, servlet engine and Info*Engine components have been configured correctly by executing the VerifyIE.jsp page that is located in the `infoengine/jsp/examples` directory where Info*Engine is installed:

```
http://localhost/<Windchill>/infoengine/jsp/examples/  
VerifyIE.jsp
```

where `<Windchill>` is your Web application name.

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

Reconfiguration for Tomcat

If you have already installed Tomcat and you reinstalled it subsequent to installing and configuring Info*Engine, then you can use these instructions to reconfigure Info*Engine for a new installation of Tomcat.

You will use the functionality provided with the Info*Engine installer to complete these instructions. The Info*Engine installer is located on the Windchill Info*Engine CD.

1. Before initiating the installer, stop Apache, Tomcat, Info*Engine, and the Web browser.

2. Insert the Windchill Info*Engine CD.
3. When the installer begins, the first window that opens is **Before You Begin**. This section summarizes the preinstallation requirements, provides a link to the software matrices, and a reference to this book, *Windchill Info*Engine Installation and Configuration Guide*.

When you are ready to proceed with the installation, click **Next**.

4. The next panel opens with the **PTC Customer Agreement** displayed in the scrolling window.

To activate the radio buttons and the **Next** button, you must scroll to the end of the agreement.

To continue with the installation, you must accept the agreement terms and conditions by clicking the radio button for that option and then clicking **Next**.

5. In the **Select Installation Type** panel, select the type of installation to perform.

The installation options are described in the following table. Select the **Reconfiguration for Tomcat** option.

Select Installation Type

Select this option	To	Go to...
Typical	Install Info*Engine and configure it with Apache and Tomcat. This option delivers a standard, out-of-the-box installation and configuration of Info*Engine.	This option is not supported in this section.
Reconfiguration for Apache	Change the existing Apache configuration for Info*Engine.	This option is not supported in this section.
Reconfiguration for Tomcat	Change the existing Tomcat configuration for Info*Engine.	Step 6.

Select this option	To	Go to...
Custom	Specify your installation and configuration options for Info*Engine. You must select this option to install Info*Engine if you are using a non-PTC-supplied Apache or Tomcat, or a Web server and servlet engine other than Apache and Tomcat, or an Apache that has been manually configured to function with Windchill.	This option is not supported in this section.

6. In the **Specify Directory** panel, enter the location where Info*Engine is installed.

Accept the default that is displayed and selected, or click **Browse** to select a different path.
7. In the **Specify Directory** panel, enter the location where Tomcat is installed.

Accept the default that is displayed and selected, or click **Browse** to select a different path.
8. In the **Select Shortcut Location** (on Windows) or the **Create Link** (on UNIX) panel, select a location for the Info*Engine startup executable/script.

The Info*Engine startup shortcuts are recreated to support the new Tomcat.
9. The **Review Settings** panel lists the selections you specified for the installation. Verify the information is correct, and then click **Install**.
10. The **Installing** panel displays the installer progress as files are copied to the system and configurations are performed.
11. When the installation completes successfully, the **Installation Complete** panel displays the directory where Info*Engine was installed. The installation log files are located in the <Windchill>/installer/logs directory. The log files for the installation are named:
 - IEServer_InstallLog.xml
 - IEServer_PtcInstall.log
12. Restart the servers.

Now that the changes are complete, you can restart Apache, Tomcat, Info*Engine and the Web browser.

13. You can verify that your Web server, servlet engine and Info*Engine components have been configured correctly by executing the VerifyIE.jsp page that is located in the infoengine/jsp/examples directory where Info*Engine is installed:

```
http://localhost/<Windchill>/infoengine/jsp/examples/  
VerifyIE.jsp
```

where <Windchill> is your Web application name.

If the installation fails, a panel is displayed that contains error messages and the name of the log files. Document the location and name of the log files. The log files can be helpful in assisting you in determining the cause of the failure. Be sure to include them when filing an installation support request. See the Installation Log Files section in the [About Installing Windchill Products](#) for more information.

About Info*Engine Web Application URLs

As a result of the Info*Engine deployment, URL requests for Info*Engine JSP pages, templates and tasks must include a Info*Engine Web application context root prefix. The prefix is defined through the deployment and results in the following URL references:

- For references to Info*Engine JSP pages, the request URL must include the application URL prefix. For example, if the Web application context root is "Windchill", then the following URL can be used to reference the "XXX.jsp" file that is in the "infoengine" directory:

```
http://<host>/Windchill/infoengine/XXX.jsp
```

- In addition to the application context root prefix, URL references to Info*Engine tasks must include **/servlet/IE/tasks/**. For example, if the application context root is "Windchill", then the following URL can be used to reference the "XXX.xml" file that is in the "infoengine" directory:

```
http://<host>/Windchill/servlet/IE/tasks/infoengine/XXX.xml
```

- For SOAP requests, URL references include the host name, the application URL prefix, and **/servlet/RPC**. For example, if the application context root is "Windchill", then the following URL can be used to access the SOAP RPC servlet:

```
http://<host>/Windchill/servlet/RPC
```

- In addition to the application context root prefix, URL references to Info*Engine templates must include **/servlet/IE/**. Using HTML templates is not recommended. To use this URL, you must configure the template processor; configuration is no longer done automatically.

For example, assume that the template processor is configured. Then, if there are existing Info*Engine templates (such as XXX.html) that reside in the root template directory, they can be accessed using a URL similar to the following URL:

```
http://<host>/Windchill/servlet/IE/XXX.html
```

The installer establishes these URL references during the Info*Engine installation through settings in both the servlet engine and the Info*Engine LDAP entries.

Installation Summary

After you verify that Info*Engine is installed and configured correctly, you can go on to install and configure adapters and to configure any other Info*Engine feature that you may want to use.

The following sections are for your information only. The Info*Engine directory structure is described in About the Info*Engine Installed Directories and other Info*Engine features such as adapters and gateways are discussed in About Info*Engine Adapters and Gateways.

How Authentication Applies to Info*Engine

By default, the Web server is not configured to support user authentication for Info*Engine. User authentication is not needed for Info*Engine running in a standalone mode. It is assumed that if authentication is needed for Info*Engine in standalone mode, then it is up to the customer to perform the authentication configurations.

Note: If additional products are installed, authentication is automatically added for all Info*Engine URLs.

The [Configuring Apache and Tomcat With Other Options](#) chapter includes information about authentication and other information that can be helpful when configuring authentication for Info*Engine in standalone mode. For authentication related to other Web server and servlet engines, see the chapter for the specific product.

About the Info*Engine Installed Directories

The installer installs the Info*Engine components using the industry standard Web application model. Using this model, the Info*Engine class and jar files are available to the JSP engine through the codebase/WEB-INF directory.

After you install Info*Engine components, the Info*Engine installation directory contains the following items:

- The bin directory, under which there is an infoengine directory that contains Info*Engine startup files.

- The codebase directory, which is the repository for the code. In this directory, there are two subdirectories, infoengine and WEB-INF:
 - In the infoengine/docs directory, you can find the Info*Engine documentation.
 - In the infoengine/docs/apidocs directory, you can find the API documentation for the Info*Engine external classes that can be used with JSP and the Service Access Kit (SAK).
 - In the infoengine/jsp/admin directory, you can find the JSP pages and a help directory for the Info*Engine Property Administrator.
 - In the infoengine/jsp/examples directory, you can find example JSP pages.
 - The WEB-INF/lib directory holds the jar files that you want to make available to Info*Engine through the JSP engine. Initially, this directory holds the jar files that are required by Info*Engine. You can put other jar files that are used by Info*Engine in this directory. For example, when you install coresident Info*Engine adapters, additional jar files are installed to the directory or you are instructed to add the jar files to this directory.

All jar files that you put in this directory are automatically available to Info*Engine.

- The conf directory, which has additional subdirectories that contain templates of Info*Engine-specific configuration files that were used during the installation. They can be used as reference information and may be helpful in debugging problems that come up.
- The lib directory, which contains the Info*Engine servlet.jar file.
- The opt directory, which contains the Apache and Tomcat Servlet Engine files that are used by the installer to configure Apache and install Tomcat.
- The prog_examples directory, which contains custom webjext, SAK, and SOAP examples that can be used for illustration purposes.
- The tasks directory for XML task files. Example XML files are in the infoengine/examples subdirectory under this directory.
- The templates directory for HTML template files. Because JSP pages are recommended, no template examples are provided.

Note: As listed previously, some directories contain examples that personnel at your site can use when they are developing on your test system. When you install on a production system, consider removing the examples from the following directories as a security measure:

```
<Windchill>/codebase/infoengine/jsp/examples/
<Windchill>/tasks/infoengine/examples/
```

If you install the Info*Engine components using the default log option, the Info*Engine installation directory also contains the following directory:

The logs directory for Info*Engine log files.

Note: The Info*Engine JSP, program, and task examples are provided to illustrate Info*Engine features. Before running these examples, you may need to modify the files or configure adapters.

The Info*Engine CD also contains the Info*Engine documentation. The files in the Docs directory on the CD are the same files that the installer copies to the codebase/infoengine/docs directory under your installation directory. Other related API documents are copied to the codebase/wt/clients/library directory.

The *Info*Engine Installation and Configuration Guide*, *Info*Engine User's Guide*, and *JNDI Adapter Guide* are available in the PDF format. You can copy these files to any directory on your system. To view the PDF version of a guide, you must have the Adobe Acrobat Reader on your system. Double-click the PDF file to view its contents.

About Adapters and Gateways

The JNDI adapter and the gateway software are installed with Info*Engine, but, they are not configured during the Info*Engine installation. The JNDI adapter and gateway must be manually configured for use with standalone Info*Engine. On the other hand, when Windchill Services is installed, the Windchill adapter is installed and an instance of the JNDI adapter and Windchill adapter are configured.

All other adapters are delivered on their own CD-ROMs. Each CD-ROM contains adapter instructions; use these instructions to install and configure the adapter. For other configuration information, see the *Windchill Info*Engine Administration and Implementation Guide*.

V

Other Web Server and Servlet Engine Configurations Section

14

Configuring Sun ONE Java Enterprise System Web Server

The instructions in this chapter provide the details to configure the Sun ONE Java Enterprise System Web Server and its embedded servlet engine for use with Info*Engine.

Topic	Page
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Using JES Web Server for Multiple Instances of Windchill.....	14-3
Editing XML Files.....	14-4
Setting Up Access to the Aphelion Directory and Applying Changes.....	14-7
Enabling the Downloading of EXE Files	14-9
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Before You Begin

Before you begin this configuration, you should have:

- Consulted the Windchill software matrices for the version of the Sun ONE Java Enterprise System Web Server (JES Web Server) that is supported with this release.
- Installed JES Web Server.
- Installed Info*Engine.

As part of the installation, do not configure Info*Engine to work with Tomcat and Apache. This is done by selecting the **Custom** option from the **Select Product Options** panel and then unchecking the Tomcat and Apache configuration options.

The configurations for JES Web Server are performed using the Sun ONE Web Server Administration Server and manually editing files. You will need the following information to complete the configuration:

- The location of the Info*Engine codebase directory -- This value was defined during the installation of Info*Engine, for example, /opt/ptc/Windchill/codebase.
- The Info*Engine Web application context root name -- This value was defined during the installation of Info*Engine, for example, Windchill.
- The host name of the system where Aphelion resides.
- The Aphelion server port number -- This value was defined during the installation of Aphelion. The default is 389.
- The Base DN used by Aphelion for Info*Engine -- This is the value you entered in the **Distinguished Name of LDAP Configuration Properties Base** field during the Info*Engine installation.
- The Bind DN -- This is the Aphelion administrator distinguished name that was defined during the installation of Aphelion. The default is cn=Manager.
- The Bind Password -- This is the password you defined for the Aphelion administrator that was defined during the installation of Aphelion.

The next set of instructions will guide you through the steps to configure the JES Web Server for use with Info*Engine (and Windchill solutions):

1. [Using JES Web Server for Multiple Instances of Windchill](#) (optional)
2. [Editing XML Files](#)
3. [Setting Up Access to the Aphelion Directory and Applying Changes](#)
4. [Enabling the Downloading of EXE Files](#)
5. [Configuring Windchill for Sun ONE JES Web Server](#)

6. [Configuration Summary](#)

Using JES Web Server for Multiple Instances of Windchill

To use the same JES Web Server software to connect to multiple instances of Windchill, you must create multiple JES Web Server servers, you must identify each instance by adding a server in the Sun ONE Web Server 6.1 Administration Server. Consult the Sun ONE help if you need detailed information about the administration server.

Note: If you plan to have only one instance of Windchill using the JES Web Server software, you can skip this section.

For each Windchill instance, complete the following steps:

1. Open the Sun ONE Web Server 6.1 Administration Server.
 - a. In your browser, enter:

```
http://<host_name>:8888
```
 - b. Log in as the administrator you established when you installed JES Web Server.

The **Sun ONE Web Server 6.1 Administration Server** window opens.

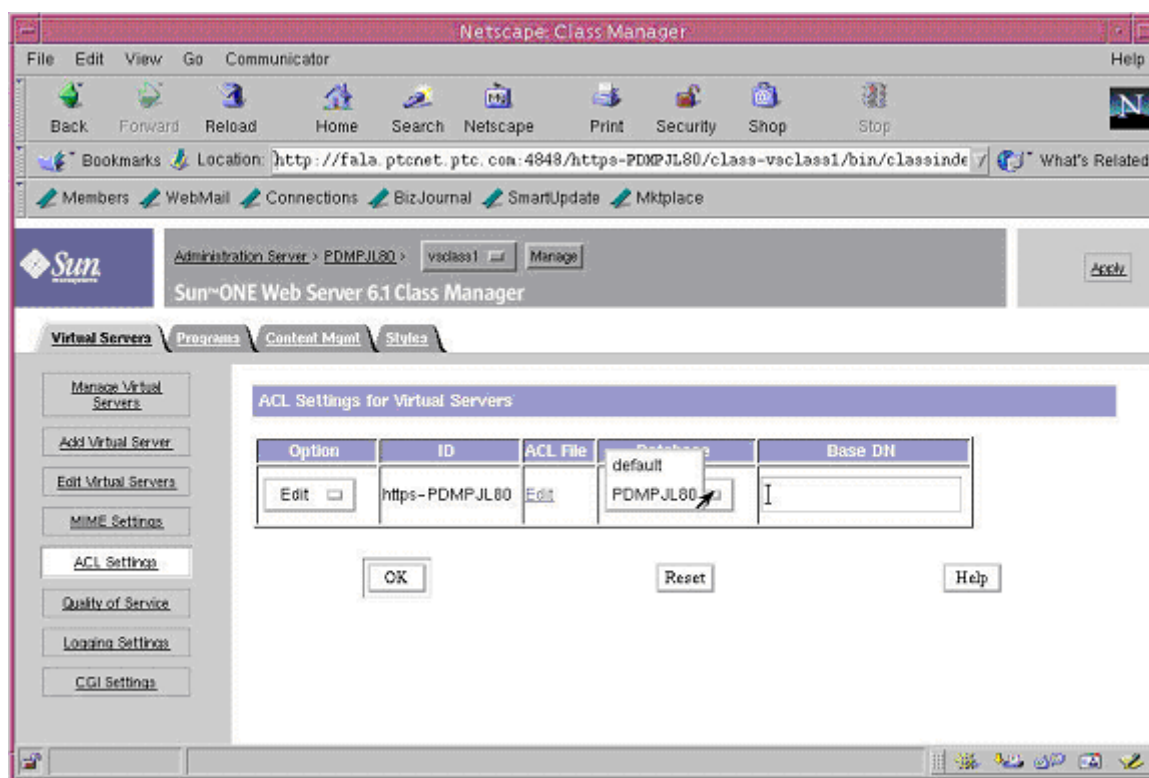
2. From the **Servers** tab, add a server as follows:
 - a. Click Add Server (if it is not already selected)
 - b. Enter information in the fields as described in the following table:

Add Server

For this field	Enter this value...
Server Name	The host name of the computer where the JES Web Server resides.
Server Port	A port number used for the JES Web Server.
Server Identifier	The value by which you want to identify this instance. Each instance name must be unique.
Server User	The Web Server administrator specified when you installed the JES Web Server.
Document Root	The directory path under which you want document content stored for this instance. The installation default for document content is <i><install_dir>/docs</i> .

- c. To save the new server, click **OK**.

3. Complete the steps described in the following sections:
 - [Editing XML Files](#)
 - [Setting Up Access to the Aphelion Directory and Applying Changes](#)
 - [Enabling the Downloading of EXE Files](#)
 - [Configuring Windchill for Sun ONE JES Web Server](#)
4. After configuring the LDAP for a specific Windchill instance, select **Class Manager** (located in the top right corner) for the new Web server instance you created.
5. On this **Virtual Servers** page, select the **ACL Settings** link. On this page, change the database to the LDAP instance which you configured for the Web server instance.



6. Click **OK** to save your changes and **Apply** to apply the changes to the server.

Editing XML Files

In this step, you will:

- Define the security constraints in the web.xml file.

- Identify where the Windchill class files reside.
- Add the Web application.

Defining Security Constraints

Define the security constraints in the web.xml file as follows:

1. Open the `<Windchill>/codebase/WEB-INF/web.xml` file in a text editor of choice.
2. Navigate to the end of the file, just above the closing `</web-app>` tag.
3. Add the following security code within the `<web-app>` tag. In your application, additional entries may be included depending on the Windchill solutions installed.

```
<security-constraint>
  <web-resource-collection>
    <web-resource-name>Windchill Protected Area</web-resource-name>
    <url-pattern>/servlet/WindchillAuthGW/*</url-pattern>
    <url-pattern>/servlet/WindchillSAGW/*</url-pattern>
    <url-pattern>/servlet/IE/*</url-pattern>
    <url-pattern>/servlet/RPC/*</url-pattern>
    <url-pattern>/servlet/SimpleTaskDispatcher/*</url-pattern>
    <url-pattern>/wtcore/jsp/*</url-pattern>
    <url-pattern>/netmarkets/jsp/*</url-pattern>
    <url-pattern>/infoengine/*</url-pattern>
    <url-pattern>/pdmlink/jsp/*</url-pattern>
    <url-pattern>/com/ptc/wvs/client/jsp/*</url-pattern>
    <url-pattern>/servlet/RSURLServlet/*</url-pattern>
    <url-pattern>/rs/jsp/jsp/*</url-pattern>
    <url-pattern>/install/jsp/*</url-pattern>
    <http-method>DELETE</http-method>
    <http-method>GET</http-method>
    <http-method>POST</http-method>
    <http-method>PUT</http-method>
  </web-resource-collection>
  <auth-constraint>
    <role-name>ANYONE</role-name>
  </auth-constraint>
</security-constraint>
<login-config>
  <auth-method>BASIC</auth-method>
  <realm-name>Windchill</realm-name>
</login-config>
```

In the code shown above, set the role-name tag value to ANYONE (as shown) and set realm-name tag value to the value you specified for the Info*Engine Web application context root name during the Info*Engine installation. The default name is Windchill.

Identifying the Windchill Class Files

To identify where the Windchill class files reside, create a new `sun-web.xml` file and add it to the `<Windchill>/codebase/WEB-INF` directory as follows:

1. In a text editor of choice, create `sun-web.xml` file in the `<Windchill>/codebase/WEB-INF` directory.
2. Add the following code:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE sun-web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Sun ONE Application
Server 7.0 Servlet 2.3//EN"
'http://www.sun.com/software/sunone/appserver/dtds/sun-web-app_2_3-0.dtd'>
<sun-web-app>
  <session-config>
    <session-manager/>
  </session-config>
  <class-loader extra-class-path="<WC_install_dir>/codebase" delegate="true" />
  <jsp-config/>
</sun-web-app>
```

The `<class-loader extra-class-path>` tag requires you to enter the fully qualified path name of the Windchill codebase directory, replacing `<WC_install_dir>`. Be sure to omit the `<` and `>` characters in your path name. For example:

```
<class-loader extra-class-path="/opt/ptc/Windchill/codebase" delegate="true" />
```

3. Save your changes and close the file.

Adding the Web Application

To add the Web application, edit the `server.xml` file to add the `<WEBAPP>` tag as follows:

1. Open the `/opt/SUNWwbsvr/https-<host_name>/config/server.xml` file in a text editor of choice, where `<host_name>` is the host name of the server.
2. Navigate to the `VS` tag and add the following on a new line before the `</VS>` tag:

```
<WEBAPP uri="<uri>" path="<WC_install_dir>/codebase" enabled="true"/>
```

where `<uri>` is the Info*Engine Web application context root name that was defined during the installation of Info*Engine (for example, Windchill) and `<WC_install_dir>` is the Info*Engine installation directory. For example, if the Web application name is Windchill80 and the installation directory is `/opt/ptc/Windchill_8.0`, then the `WEBAPP` tag is:

```
<WEBAPP uri="Windchill80" path="/opt/ptc/Windchill_8.0/codebase" enabled="true"/>
```

3. Save and close the `server.xml` file.

Setting Up Access to the Aphelion Directory and Applying Changes

The instructions in this section use the Sun ONE Web Server 6.1 Administration Server to perform the configurations. Consult the Sun ONE help if you need detailed information about the administration server.

1. Start the Sun ONE Web Server 6.1 Administration Server as follows:

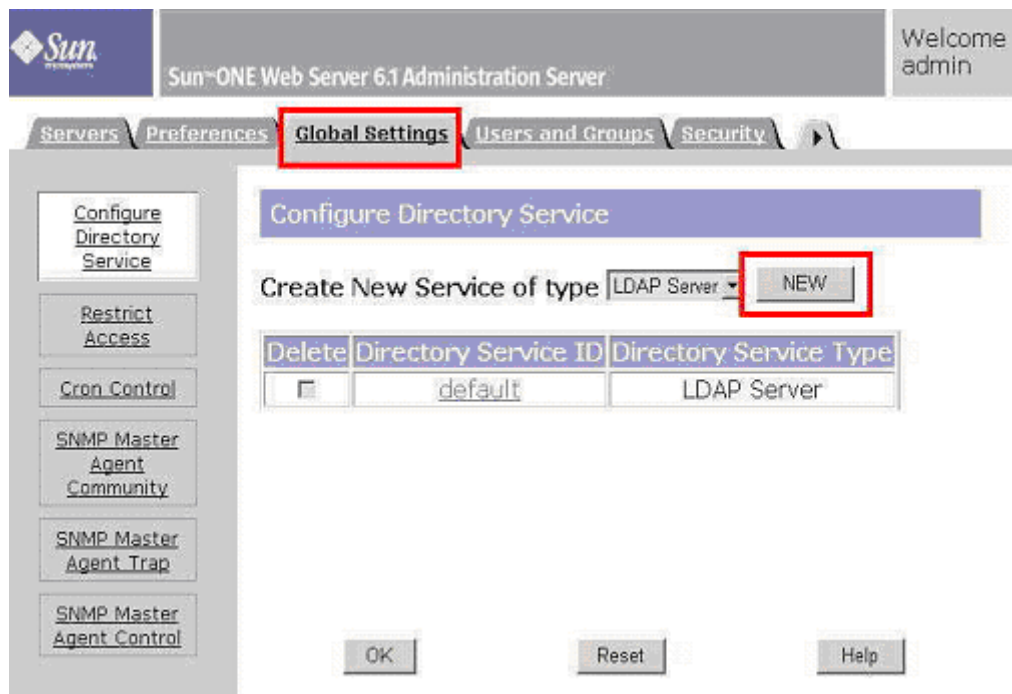
- a. In your browser, enter:

`http://<host_name>:8888`

- b. Log in as the administrator you established when you installed JES Web Server.

The **Sun ONE Web Server 6.1 Administration Server** window opens.

2. From the **Global Settings** tab, create a new directory service.



- a. Click **Configure Directory Service** (if it is not already selected).
- b. Click **NEW**.

The following window opens:

Sun ONE Web Server 6.1 Administration Server

Welcome admin

Servers | Preferences | **Global Settings** | Users and Groups | Security | Cluster Mgmt

Configure Directory Service

Restrict Access

LDAP Directory Server Configuration

Directory Service ID: default

Host Name: myhostname

Port: 389

Use Secure Sockets Layer (SSL) for connections?: ☐ Yes ☒ No

Base DN: ou=people,cn=myhostname,cn=Application Services,

Bind DN : cn=Manager

(Blank for Anonymous Bind)

Bind Password : *****

Save Changes Reset Help

- c. In the window, enter information in the fields as described in the following table:

LDAP Directory Service Configuration

For this field	Enter this value...
Host Name	The host name of the computer where Aphelion resides.
Port	A port number used for Aphelion. The default port number is 389.
Base DN	The value entered in the Distinguished Name of LDAP Configuration Properties Base field during the Info*Engine installation.
Bind DN	The Aphelion administrator distinguished name that was defined during the installation of Aphelion. The default is cn=Manager.
Bind Password	The password you defined for the Aphelion administrator during the installation of Aphelion.

- d. To save the new configuration, click **Save Changes**.
3. Verify that the connection to Aphelion is working by searching for users as described in the following steps:
 - a. Click the **Users and Groups** tab.
 - b. Click **Manage Users**.
 - c. Click **Find**.

If you have installed Windchill Services, the administrator defined during that installation should display. Otherwise, no users are found.

4. Select the server to manage:
 - a. Click the **Servers** tab.
 - b. Select the server from the **Select a Server** drop-down list and click **Manage**.

Note: If you have created multiple servers (one for each Windchill instance), then the drop-down list has multiple items. Otherwise, only the host name is listed.

The **Sun ONE Web Server 6.1 Server Manager** window opens.

- c. Click **Apply**. This button is located in the upper right corner of the window.

Note: Clicking **Apply** applies the changes you made to the XML files and starts the Web server instance that you identified in the **Select a Server** drop-down list.

Enabling the Downloading of EXE Files

By default, the Sun ONE Web Server does not allow the downloading of files that have the EXE extension. To use all of your Windchill capabilities, users must be able to download files with this extension.

To allow users to download EXE files, edit the MIME types as follows:

1. From the **Preferences** tab of the Web Server instance, click the **MIME Types** link.
2. With the **Edit** option and **mime.types** MIME File selected, click **OK**.
3. On the page that opens, locate **exe** in the **File Suffix** column. The exe suffix is listed in the row that has the **Content-Type** of **magnus-internal/cgi**.
4. Click **Edit** in the **magnus-internal/cgi** row.
5. On the **Edit MIME Type** page, delete **exe** and the comma that follows exe from the list of suffixes. Then click **Change MIME Type**.

6. On the top of the page, add a **Content-Type** of **application/octet-stream** and a **File Suffix** of **exe**. Then click **New Type** at the beginning of the row.

The new type is added at the end of the listed types.

7. To apply the changes you made, you must restart the web server.

Configuring Windchill for Sun ONE JES Web Server

After you have installed Windchill, complete the following section to configure Windchill and optionally complete the [Using HTTPS](#) section.

Identifying the Sun ONE Web Server to Windchill

To identify the Web server being used as a Sun ONE Web Server, set the following `wt.properties` property using the `xconfmanager`:

```
wt.content.SunOne=true
```

Using HTTPS

Note: Using HTTPS assumes that you have set up the JES Web Server to use Secure Sockets Layer (SSL) certificates. See the JES Web Server documentation for how to use SSL certificates.

To enable a Windchill instance to use HTTPS with the Sun ONE JES Web Server:

- Use the `xconfmanager` to change the URL in the `wt.server.codebase` property in `wt.properties` to HTTPS instead of HTTP.

To cache JAR downloads (which is required for HTTPS), the following `wt.properties` properties are automatically set:

```
wt.taglib.util.plugin.useCacheVersion=true  
wt.tools.boot.updateVersion=1.4
```

Restart the Web server, servlet engine and Windchill to effect the changes.

Configuration Summary

At this time, the JES Web Server is configured for Info*Engine (and Windchill solutions), and authentication is set to enable the administrative user to load the Windchill database.

15

Configuring IIS and Tomcat

The instructions in this chapter provide the details to configure Internet Information Services (IIS) and Tomcat for use with Info*Engine and Windchill solutions.

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Before You Begin

PTC supports Internet Information Services (IIS) with Tomcat.

Before you begin this configuration, you should have:

- Consulted the Windchill software matrices for the version of IIS supported with this release.
- Installed a supported version of IIS, including the Microsoft Script Debugger. The debugger is optional, but is very useful for debugging.
- Installed the Java 2 Software Development Kit (SDK) as described in the [Installing Java 2 Platform, Standard Edition Software Development Kit](#) chapter.
- Installed Tomcat as described in the [Installing and Configuring a Web Server and Servlet Engine](#) chapter.
- Installed Apache as described in the [Installing and Configuring a Web Server and Servlet Engine](#) chapter.

PTC highly recommends that you use the bundled Apache Web server to initially test your Info*Engine installation before switching to IIS. Testing your installation with Apache takes very little time additional time up front and generally saves a great deal of time in troubleshooting if anything is not working properly with IIS.

- Installed Info*Engine as described in the [Installing Info*Engine](#) chapter.

Installing Info*Engine using the **Typical** installation type configures Tomcat and Apache for use with Info*Engine.

- Installed any Windchill solution that you intend to use and tested it with Tomcat and Apache. Completing this step ensures that Windchill is correctly installed before you switch to using IIS. Installing Windchill is described in the *Windchill Installation and Configuration Guide - Windchill*.

As part of testing Windchill with Apache, you may want to add an alternate user name (for example, "domainxzy\userxyz") to a user LDAP entry in Aphelion to ensure that such users can be accessed using the Windows "domain\user"-style credentials. For example, during the installation of Windchill Services, you specified the user name of the Windchill administrator and this user was added to Aphelion. If the name you entered (such as wadmin) was not a Windows user, you can add an alternate user name for the administrator by updating the user through the Windchill Principal Administrator. The user name you add should be an established Windows user that IIS will be able to access. Remember that after you switch to IIS, IIS does not access user and password information in Aphelion.

Note: If you are using only Info*Engine and not Windchill, this item does not apply.

- Installed all vendor required operating system patches and other suggested installations. For example, it is recommended that Service Pack2 (SP2) be installed on your machine to support IIS.

The next section guides you through the steps to configure IIS and Tomcat.

Configuring IIS and Tomcat

Many of the instructions in this section use the Internet Information Services (IIS) Manager to configure IIS and Tomcat. Consult the IIS Manager help if you need detailed information about the user interface.

Configuring IIS and Tomcat for use with Info*Engine and Windchill involves completing the sets instructions in the following sections:

[Installing Tomcat Connector into IIS](#)

[Configuring isapi_redirect to Forward Escaped URIs](#)

[Creating the Windchill Virtual Directory](#)

[Configuring IIS to Serve Necessary MIME Types](#)

[Adding Tomcat Connector to ISAPI Extension List](#)

[Putting IIS in IIS 5 Isolation Mode](#)

[Improving Performance on IIS](#)

[Setting Authentication Constraints Required by Windchill](#)

Setting Up the IIS/Tomcat Connector Directory

The IIS/Tomcat connector directory contains the IIS/Tomcat connector configuration files. To set up this directory, complete the following steps:

1. To determine which directory you should use for the IIS/Tomcat connector directory, consider the following:
 - If you are using only a single Tomcat on the same host as IIS, then you can do either of the following:
 - Use the <Tomcat>/connectors/iis directory as the connector directory, where <Tomcat> is the Tomcat installation directory.

Note: If you use this directory, you will have to shut down IIS to install Tomcat updates. This is because IIS locks isapi_redirect.dll once it uses it. In any event, you would need to do shut down IIS to update the DLL used by IIS.
 - Copy the <Tomcat>/connectors/iis directory (and all its contents) to another location on the same machine as IIS, renaming it as desired.

- If you are using multiple Tomcat servlet engines (such as when load balancing across multiple servlet engines in advanced configurations), copy the `<Tomcat>/connectors/iis` directory (and all its contents) from one of the Tomcat servlet engines you are using to a location on the same machine as IIS, renaming it as desired.

For the remainder of these instructions, the IIS/Tomcat connector directory that you set up in this section is referred to as `<IISConnectorDir>`.

2. Edit `<IISConnectorDir>\conf\workers.properties` as follows:

- If Tomcat is on a different server than IIS, then change "localhost" to the appropriate host name.
- If Tomcat is listening for AJP13 requests on a port other than 8010 (the default), change "8010" to the appropriate port number.

Note: The contents of this file can be identical to that in `workers.properties` in the Apache `conf` directory; so if you are moving from Apache to IIS, you can simply copy the Apache file to `<IISConnectorDir>\conf`.

3. Edit `<IISConnectorDir>\conf\uriworkermap.properties`.

- Copy the following lines that are in the file to the end of the file:

```
#/webAppName>*.jsp=ajp13
#/webAppName/*.jsp/*= ajp13
#/webAppName/servlet/*= ajp13.
```

- Uncomment the lines you copied and replace `webAppName` with the name of the web application that you established through the Info*Engine installation. The default name presented during the installation was Windchill.

Save your changes and close the file.

Installing Tomcat Connector into IIS

To install the Tomcat connector into IIS, complete the following steps:

1. Open a command prompt window and navigate to the `<IISConnectorDir>` directory that was set up in the previous section.

2. Enter the following command (all on one line), replacing the italicized arguments as directed in the table that follows:

```
scripts\isapi_install <server> <fdir> <worker> <mount> <log> <level>
```

Argument	Description
<server>	Name of the IIS web site to use; this should generally be "Default Web Site" (including the double-quotes) unless your site requires another value. If you use a value other than "Default Web Site", be sure to use that value instead of "Default Web Site" throughout the remainder of these instructions.
<fdir>	Full file name (including path) of <IISConnectorDir>.
<worker>	Full file name of (including path) of <IISConnectorDir>\conf\workers.properties.
<mount>	Full file name (including path) of <IISConnectorDir>\conf\uriworkermmap.properties file.
<log>	Full file name (including path) of log file in which filter connector messages will be logged. This file does not exist at this point in the process. PTC recommends that you use <IISConnectorDir>\logs\isapi_redirect.log as the log file name.
<level>	The level of logging verbosity: emerg , error , info , or debug . error is suggested for normal production usage, whereas debug should be used in the course of troubleshooting. If error is too verbose in a given environment, then use emerg instead.

Note: This command can be safely re-run with any necessary changes to any arguments including the level of logging.

3. Restart IIS.

Note: IIS must be restarted before changes actually take effect.

- a. Select the <ComputerName> (local computer) node in the left pane.
- b. Select **All Tasks** and then **Restart IIS** from the right-mouse contextual menu.
- c. Click **OK**.

Configuring isapi_redirect to Forward Escaped URIs

Since the version of Tomcat that you are using is higher than Tomcat 3.2, complete the following steps to configure isapi_redirect to forward escaped URIs:

1. From a command prompt, type **regedit**.
2. In the left pane of the **Registry Editor** window, select the **HKEY_LOCAL_MACHINE\SOFTWARE\Apache Software Foundation\Jakarta Isapi Redirector\1.0** node.
3. Select **New > String Value** from either the right-mouse contextual menu or the **Edit** menu.
4. Set the name of this value to **uri_select** and the data value to **escaped**.
5. Close the **Registry Editor** window and the command prompt.

Creating the Windchill Virtual Directory

In this set of steps, you create a Windchill virtual directory for the Windchill codebase directory, set the access permissions for the virtual directory, and add the index.html file for documents. The virtual directory is created in Default Web Site.

1. Open IIS Manager by navigating to **Start > Control Panel > Administrative Tools**.
2. From tree tool in the left pane, select the **Default Web Site** (found in the **Web Sites** folder) and then, using the right-mouse, select **New > Virtual Directory**.
3. Enter the following information for the virtual directory:

Windchill Virtual Directory Creation

At this prompt	Enter a value that meets this description...
Alias	A short name (alias) to give the Windchill virtual directory. For example, Windchill.
Path	Enter the fully-qualified path to the Windchill codebase directory: <Windchill>\codebase.
Permissions	Select the Read and Browse access permissions.

4. Click **Finish**.
5. Select the resulting virtual directory from the left pane and select **Properties** from either the right-mouse contextual menu or the **Action** menu.

6. Select the **Documents** tab in the resulting dialog.
7. Click **Add** and enter **index.html** in the resulting dialog. Then click **OK** two times.

By default, IIS only understands index.htm. Because Windchill has the index.html file, this step is required. For web applications without an index.html file, this step is optional.

Configuring IIS to Serve Necessary MIME Types

IIS returns a 404.3 error rather than serving file types which are not listed in its global MIME types list. This error can be resolved by adding each type individually. Instead, PTC recommends that you can add a wildcard MIME type allowing IIS to serve all unregistered MIME types as binary files.

Use the following steps to add the wildcard MIME type:

1. From IIS Manager, select the <ComputerName> (local computer) node in the left pane.
2. Select **Properties** from either the right-mouse contextual menu or the **Action** menu.
3. Select the <ComputerName> (local computer) node in the left pane.
4. Select **MIME Types** in the resulting dialog. Then select **New**.
5. Enter the asterisk (*) for **Extension** and **application/octet-stream** for **MIME Type**.
6. Click **OK** three times.

Adding Tomcat Connector to ISAPI Extension List

To add the Tomcat connector to the list of allowed ISAPI extensions, complete the following steps:

1. From IIS Manager, select the **Web Service Extensions** node in the left pane.
2. In the right pane, select **Add a new web service extension....**
3. Enter **jakarta** for the **Extension name** in the resulting dialog.
4. Use **Add...** to add <IISConnectorDir>\isapi_redirect.dll as a required file.
5. Select the **Set extension status to allowed** checkbox.
6. Click **OK**.

Putting IIS in IIS 5 Isolation Mode

To put IIS into IIS 5 isolation mode, complete the following steps:

1. From IIS Manager, select the **Web Sites** folder in the left pane.

2. Select **Properties** from either the right-mouse contextual menu or the **Action** menu.
3. Select the **Service** tab in the resulting window.
4. Select the **Run WWW service in IIS 5.0 isolation mode** checkbox.
5. Click **OK** and approve restart of IIS.

Note: The Tomcat filter should not be put on a server with SharePoint when IIS is run in isolation mode.

Improving Performance on IIS

Complete the following steps to improve IIS performance:

1. From IIS Manager, select the jakarta virtual directory node in the left pane.
2. Select **Properties** from either the right-mouse contextual menu or the **Action** menu.
3. From the **Application protection** drop-down list in the resulting window, select **Low (IIS Process)**.
4. Click **OK**.

Setting Authentication Constraints Required by Windchill

Note: If you are configuring IIS for use with only Info*Engine and not Windchill, you can skip this section.

In this set of steps, the virtual directory is configured to verify the identity of the users accessing it. Users can be authenticated to prevent unauthorized users from establishing a Web (HTTP) connection to restricted content.

To set the required authentication, complete the following steps:

1. Create a directory called **servlet** within the Windchill codebase directory.
2. Create a directory named **WindchillGW** in the servlet directory.
3. Create a directory named **ProwtGW** in the servlet directory.
4. From IIS Manager, select the virtual directory created in [Creating the Windchill Virtual Directory](#) from the left pane. For example, select Windchill. Then select **Refresh** from either the right-mouse contextual menu or the **Action** menu. Performing this action makes the newly created directory visible.

5. Set up the following access controls in IIS for each directory within the Default Web Site:

- Enable anonymous access for specific directories
- Enable Basic authentication for all directories
- Disable Integrated Windows authentication for all directories

The following table lists the directories you will find in Default Web Site and whether to set **Enable anonymous access** for each directory. In the path listed, *<webAppName>* refers to the alias of the virtual directory created in [Creating the Windchill Virtual Directory](#)):

Path in Default Web Site	Enable anonymous access
jakarta/	Yes
<i><webAppName>/</i>	Yes
<i><webAppName>/servlet/WindchillGW</i>	Yes
<i><webAppName>/servlet/ProwtGW</i>	Yes
<i><webAppName>/infoengine</i>	No
<i><webAppName>/servlet</i>	No
<i><webAppName>/wtcore/jsp</i>	No
<i><webAppName>/netmarkets/jsp</i>	No
<i><webAppName>/com/ptc/wvs/client/jsp</i>	No
<i><webAppName>/rs/jsp/jsp</i>	No
<i><webAppName>/install/jsp</i>	No
<i><webAppName>/pdmlink/jsp</i>	No

Enable all of the above directories for **Basic authentication** using the associated checkbox.

Also, disable all of the directories for **Integrated Windows authentication** by not clicking the checkbox.

The steps to accomplish setting access controls for each directory are as follows:

- a. Select the virtual directory from the left pane.
For `<webAppName>/servlet/WindchillGW`, you must select `<webAppName>/servlet` and then select WindchillGW in the right pane.
- b. Select **Properties** from either the right-mouse contextual menu or the **Action** menu.
- c. In the resulting **Properties** window, select the **Directory Security** tab.
- d. Click **Edit**.
- e. In the resulting window, make the selections indicated previously for the following:
 - Enable anonymous access
 - Basic authentication
 - Integrated Windows authentication
- f. Also, in the same window:
 - Select the default domain.

Note: To access Windchill, users must be in the default domain that is selected.

- Type **Windchill** in the **Realm** field.

Entering **Windchill** in this field is required to ensure the proper functioning of Workgroup Managers.

The following example window shows the selection of both **Enable anonymous access** and **Basic authentication**, as well as the entry of **WCQAPUNE.TEST.COM** in the **Default domain** field and of **Windchill** in the **Realm** field:



Note: Set **Enable anonymous access** for only the jakarta/, <webAppName>/, and <webAppName>/servlet/WindchillGW directories.

g. Click **OK** in both windows.

Authentication must be set for the first seven paths listed in the table. If any of the paths listed after the first seven paths do not exist in your installation, you can skip them.

Note: If additional Windchill products or updates are installed into this instance, they may require additional directories to be authenticated. To check for this case, examine the list of web-app-relative resources for which the Windchill instances requires authentication as recorded in the Windchill instance of apacheConf/config/authResAdditions.xml file. Also note that all

entries starting with "servlet" can be ignored as these are already handled by the table above.

6. Restart IIS.

Note: IIS must be restarted before changes actually take effect.

- a. Select the <ComputerName> (local computer) node in the left pane.
- b. Select **All Tasks** and then **Restart IIS** from the right-mouse contextual menu.
- c. Click **OK**.

Configuration Summary

At this time, IIS and Tomcat are configured for Info*Engine and Windchill.

To complete your IIS and Tomcat configuration activities, you should:

- If you have installed Windchill, test the Windchill solution that you intend to use with IIS and Tomcat. Installing Windchill is described in the *Windchill Installation and Configuration Guide - Windchill*. Administrative activities for Windchill are described in the *Windchill Business Administrator's Guide*.
- If you want to use Active Directory Server (ADS) as your enterprise LDAP service, you can do so by configuring Windchill to use it. For details on how to configure Windchill, see the Configure Windchill to Use an Enterprise Directory chapter in the *Windchill Installation and Configuration Guide - Windchill*.

Additionally, the isapi_redirect connector has additional advanced configuration options and capabilities beyond what is covered in this chapter. For more information, see <Tomcat>\connectors\doc\index.html.

16

Configuring WebSphere on AIX

The instructions in this chapter provide the details to configure WebSphere on an AIX platform for use with Info*Engine and Windchill solutions.

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Configuring HTTP Web Server and WebSphere Servlet Engine	16-2

Before You Begin

PTC supports WebSphere on an AIX platform.

Before you begin this configuration, you should have:

- Consulted the Windchill software matrices for the version of WebSphere supported with this release.
- Installed WebSphere Application Server, including:
 - WebSphere servlet engine
 - IBM Development Kit (JDK)

The JDK shipped with WebSphere is required for WebSphere functionality but does not meet the requirements for Info*Engine and Windchill. Therefore, you must install this as well as the Java 2 Software Development Kit mentioned below.

- IBM-HTTPServer plugin (connects the HTTPServer with the WebSphere AppServer)
 - HTTP Server Web server (IBM extended version of Apache)
- Installed the Java 2 Software Development Kit (SDK) as described in the [Installing Java 2 Platform, Standard Edition Software Development Kit](#) chapter.
- Installed Info*Engine as described in the [Installing Info*Engine](#) chapter.

During the installation, select the **Custom** option from the **Select Product Options** panel and clear the check boxes for the **Tomcat** and **Apache** configuration options.

- Installed any Windchill solution that you intend to use. Installing Windchill is described in the *Windchill Installation and Configuration Guide - Windchill*.

The next section guides you through the steps to configure WebSphere for use with Info*Engine and Windchill.

Configuring HTTP Web Server and WebSphere Servlet Engine

To configure WebSphere servlet engine and HTTP Server Web server for use with Info*Engine and Windchill, complete the following:

[Configuring HTTP Server Web Server](#)

[Configuring WebSphere Servlet Engine](#)

[Configuring Info*Engine and Windchill](#)

Configuring HTTP Server Web Server

To configure HTTP Server, you will modify the Web server configuration file to include references to the Windchill application and configure the server for user authentication. Two authentication methods are provided. Either may be used, but configuring IBM LDAP authentication module is preferred. Perform the following procedures to configure the HTTP Server Web server:

[Configuring HTTP Server](#)

[Configuring IBM LDAP Authentication Module](#) (preferred authentication method)

[Defining Users to HTTP Server](#) (optional authentication method)

Configuring HTTP Server

The HTTP Server httpd.conf configuration file must be modified to deploy Info*Engine and Windchill, and to load and add modules.

Make changes to the file as directed in the following steps:

1. Insert the Windchill Third Party Software CD.
2. Navigate to the Apache/ManualInstall directory and open the directory.
3. Extract the file unixManualOverlay.tar.gz to the *<HTTPServer>* base directory, where *<HTTPServer>* is the directory where the server is installed.
4. Verify that the IBM Plugin installer placed lines similar to the following in httpd.conf:

```
LoadModule was_ap_module <WebSphere_Plugin_Name> /bin/mod_was_ap20_http.so
WebSpherePluginConfig <Path>/plugin-cfg.xml
```

Note: Paths referenced above may vary depending upon your installation.

5. Save your changes and close the httpd.conf file.
6. Change to *<Windchill>/apacheConf/config* and enter the following command, replacing *<path>* with the fully qualified path name to the directory where HTTPServer is installed:

```
ant -DAPACHE_HOME="/<path>" -DpwdFileEnabled=true -f applyApacheWebAppConfig.xml
```

Note: You must have write permissions for *<HTTPServer>* installation directory in order to run the script applyApacheWebAppConfig.xml. If you do not have write permissions, the script will fail.

Configuring IBM LDAP Authentication Module

Info*Engine and Windchill use HTTP user authentication as performed by the Web server. The following procedure allows you to configure HTTP Server to use

the Web Server authentication method. This is the preferred method for authenticating users as you do not need to maintain individual user passwords in two places. If you prefer to define users to HTTP server for authentication, skip this procedure. To configure IBM LDAP authentication module, complete the following steps:

1. Change to `<HTTPServer>/conf`.
2. Copy the `ldap.prop.sample` file to `app-<WebAppName>-ldap.prop`.
3. Open the new file in a text editor and change the properties as described in the following table:

Property	Value
<code>ldap.realm</code>	Windchill
<code>ldap.URL</code>	<p>The LDAP URL to the people tree within the ldap server. This value can be retrieved from the <code>app-<WebAppName>-Auth.conf</code> file.</p> <p>Note: Be sure to convert any instances of "%20" to actual spaces. For example:</p> <p><code>ldap://<host>.ptcnet.ptc.com/ou=something%20with%20spaces</code></p> <p>should be changed to</p> <p><code>ldap://<host>.ptcnet.ptc.com/ou=something with spaces</code></p>
<code>ldap.application.DN</code>	The bind DN for the LDAP server.
<code>ldap.application.password.stashFile</code>	<p>The path to <code>ldap.sth</code> file.</p> <p>Note: The <code>ldap.sth</code> file can be created with the <code>ldapstash</code> command located in <code><HTTPServer>/bin</code> directory.</p> <p>Note: Even if the LDAP server does not require authentication, the IBM LDAP module requires authentication.</p>
<code>ldap.user.name.filter</code>	((&(objectclass=person)(uid=%v1))
<code>ldap.user.cert.filter</code>	((&(objectclass=person)(uid=%v1))

Note: The last two properties default to using the `cn` attribute. Windchill uses the `UID` attribute for login IDs so these need to be modified to ensure `UID` is used.

4. Save and close the file.
5. Open the file `app-<WebAppName>-Auth.conf` in a text editor and add the following block to each `<Location>` block, replacing `<path>` and `<WebAppName>` with the full path to and name of the Web application:

```
<IfModule mod_ibm_ldap.c>  
  
LDAPConfigFile <path>/app-<WebAppName>-ldap.prop  
  
</IfModule>
```

6. Save and close the file.
7. Open the file `additions.conf` and add the following line before any other Include statements to activate the IBM LDAP module:

```
LoadModule ibm_ldap_module modules/mod_ibm_ldap.so
```

8. Save and close the file.
9. Restart the IBM HTTPServer as outlined in the procedure [Restarting HTTP Server](#).

Defining Users to HTTP Server

This is an optional method for authenticating users. If you completed the procedure [Configuring IBM LDAP Authentication Module](#), you should skip this procedure.

To configure the HTTP Server Web server for authentication, you must define the users to be authenticated when Info*Engine or Windchill is accessed.

Info*Engine and Windchill use HTTP user authentication as performed by the Web server. A pair of IDs, therefore, defines Info*Engine or Windchill users: a user ID and a Web server ID. The Info*Engine or Windchill Web server user ID must correspond to the ID authenticated by the Web Server.

At a minimum for a new installation, you must define the Info*Engine and Windchill administrator user. Thereafter, all users intending to access Windchill must be defined to the Web Server for access to be allowed. The examples used in this section illustrate the user ID, `wcadmin`, as the Info*Engine and Windchill user.

For a new installation, you will define your users. However, if this is an upgrade Windchill installation, then verify that your previous Windchill definitions are still defined and make adjustments where necessary using the information in this section as a guideline.

To define users to HTTP server, complete the following steps:

1. Open a command prompt to `<HTTPServer>/bin` directory. The `<HTTPServer>/bin` directory contains the `htpasswd` command which is used to create and add users to the password file.

2. The first time the `htpasswd` command is used, you will include the `-c` option to simultaneously create the password file and add the first user to the file. The Info*Engine and Windchill installation instructions recommend that you define a user named "wadmin". In the following example, the `wtpasswd` file is created within the `<HTTPServer>/conf` directory and the Windchill user, `wadmin`, is added to the file.
3. Once the password file has been created, users can be added and passwords modified with the following form of the command:

```
htpasswd "<HTTPServer>/conf/app-<WebAppName>-Passwd" <user
name>
```

At the prompt, enter a password for user, `<user name>`.

4. Repeat the previous step for each Info*Engine or Windchill user to be authenticated by the HTTP Server Web server.
5. Restart the HTTP Server Web server to effect the user definition changes.

When a user logs into Info*Engine or Windchill, the Web server will verify the user as a valid user ID before granting access to Info*Engine or Windchill.

Configuring WebSphere Servlet Engine

Configuring WebSphere to work with Info*Engine and Windchill involves many manual steps, some executed in the code base and some using the WebSphere administration console. To configure WebSphere servlet engine, complete the following steps:

1. Change to `<Windchill>/codebase/WEB-INF` directory. For example, if Info*Engine and Windchill are installed in `/usr/ptc/Windchill`, then enter the following:

```
cd /usr/ptc/Windchill/codebase/WEB-INF
```

2. In the WEB-INF directory, create the file `ibm-web-ext.xmi`.
3. Add the following lines to `ibm-web-ext.xmi`:

```
<webappext:WebAppExtension xmi:version="2.0" xmlns:xmi="http://www.omg.org/XMI"
  xmlns:webappext="webappext.xmi" xmlns:webapplication="webapplication.xmi"
  xmi:id="WebAppExtension_1" reloadInterval="0" reloadingEnabled ="true"
  defaultErrorPage=""
  additionalClassPath="<Windchill>/codebase/WEB-INF/classes"
  fileServingEnabled="false" directoryBrowsingEnabled="false"
  serveServletsByClassnameEnabled="true">
  <webApp href="WEB-INF/web.xml#WebApp_ID"/>
</webappext:WebAppExtension>
```


In the additionalClassPath value, be sure to replace *<Windchill>* with the Info*Engine and Windchill installation directory. For example, replace it with /usr/ptc/Windchill.

4. Save your changes and close the file.
5. Create the file *<WebApp>.war* using the following command (executed from within the Windchill codebase):

```
jar cvf <WebApp>.war WEB-INF/web.xml WEB-INF/ibm-web-ext.xmi
```

6. Start up the WebSphere server with the following command:

```
<WebSphere>/AppServer/bin/startServer.sh <serverName>
```

The default server name is server1.

7. Connect to the WebSphere administration console and enter any login ID.

The default URL is `http://<WebSphere Host>:9060/ibm/console`

8. From the menu, select **Applications > Install New Application**.
9. Select the **Local file system** radio button, click **Browse** to the right of the **Specify path** text field, and select the *<WebApp>.war* file created in step 5. (See example below.)
10. In the **Context root** field, enter the web application name chosen when Windchill was installed.

Preparing for the application installation

Specify the EAR, WAR or JAR module to upload and install.

Path to the new application.

☒ Local file system

Specify path

[path to]/Windchill.war Browse...

☐ Remote file system

Specify path

Context root

Windchill Used only for standalone Web modules (.war files)

Next Cancel

11. Click **Next**.
12. On the **Preparing for the application installation** page, click **Next**.
13. On the **Application Security Warnings** page, click **Continue**.

14. On the **Install New Application** page, Step 1, select the **Enable class reloading** check box and click **Next**.

Install New Application

Specify options for installing enterprise applications and modules.

Step 1: Select installation options

Step 2: Map modules to servers
Step 3: Map virtual hosts for Web modules
Step 4: Summary

Select installation options

Specify the various options that are available to prepare and install your application.

- ☐ Pre-compile JSP
- Directory to install application:
- ☒ Distribute application
- ☐ Use Binary Configuration
- ☐ Deploy enterprise beans
- Application name:
- ☒ Create MBeans for resources
- ☒ **Enable class reloading**
- Reload interval in seconds:
- ☐ Deploy Web services
- Validate Input off/warn/fail:
- ☐ Process embedded configuration

15. On the **Install New Application** page, Step 2, select both entries in the **Clusters and Servers** box, select the check box for the module in the list below, and click the **Apply** button.

Install New Application

Specify options for installing enterprise applications and modules.

Step 2: Map modules to servers

Step 1: Select installation options
Step 3: Map virtual hosts for Web modules
Step 4: Summary

Map modules to servers

Specify targets such as application servers or clusters of application servers where you want to install the modules co your application. Modules can be installed on the same application server or dispersed among several application sei specify the Web servers as targets that will serve as routers for requests to this application. The plug-in configuration (plugin-cfg.xml) for each Web server is generated based on the applications which are routed through it.

Clusters and Servers:

☒ WebSphere:cell=awangNode01Cell,node=awangNode01_server=server1
☒ WebSphere:cell=awangNode01Cell,node=webserver1_node=server=webserver1

Select	Module	URI	Server
<input checked="" type="checkbox"/>	Windchill.war	Windchill.war, WEB-INF/web.xml	WebSphere:cell=awangNode01Cell,node=awangNode01,s

16. Accept the defaults for all remaining pages.
17. Click **Logout** on the menu bar at the top of the console page.
18. Click **Save**.
19. Shut down the WebSphere server using the following command:

```
<WebSphere>/AppServer/bin/stopServer.sh <serverName>
```

The default server name is server1.

20. Change to the following directory:

```
<WebSphere>/AppServer/profiles/<profilename>/installedApps/<cellname>/<WebApp.ear>
```

21. Copy the file <WebApp>.war/WEB-INF/ibm-web-bnd.xmi to <Windchill>/codebase/WEB-INF.
22. Replace the <WebApp>.war directory with a symbolic link to <Windchill>/codebase.

Note: Remove this link prior to uninstalling WebSphere or the Web Application. If you do not, all files under <Windchill>/codebase will be deleted during the uninstall process.

23. Start the WebSphere server using the following command:

```
<WebSphere>/AppServer/bin/startServer.sh <serverName>
```

The default server name is server1.

24. Connect and log on to the WebSphere administration console as you did in Step 7.
25. From the menu, select **Applications > EnterpriseApplications**.
26. Click the link for the Windchill application in the **Name** column.
27. Under **Related Items**, click the **Web modules** link.

General Properties

* Name

Windchill_war

Binary Management

* Application binaries

`${APP_INSTALL_ROOT}/awangNode`☐ Use metadata from binaries☒ Enable distribution

Validation

warn

Class Loading and File Update Detection

* Class loader mode

Parent First

* WAR class loader policy

Module

☒ Enable class reloading

Reloading interval

3

Startup Options

* Starting weight

1

☐ Enable background application☒ Create MBeans for resources**Additional Properties**

- [Session management](#)
- [Application profiles](#)
- [Libraries](#)
- [Target mappings](#)
- [Last participant support extension](#)
- [View Deployment Descriptor](#)
- [Provide JMS and EJB endpoint URL information](#)
- [Publish WSDL files](#)
- [Provide HTTP endpoint URL information](#)
- [Map virtual hosts for Web modules](#)
- [Map modules to servers](#)

Related Items

- [Web modules](#)
- [EJB Modules](#)
- [Connector Modules](#)

Apply

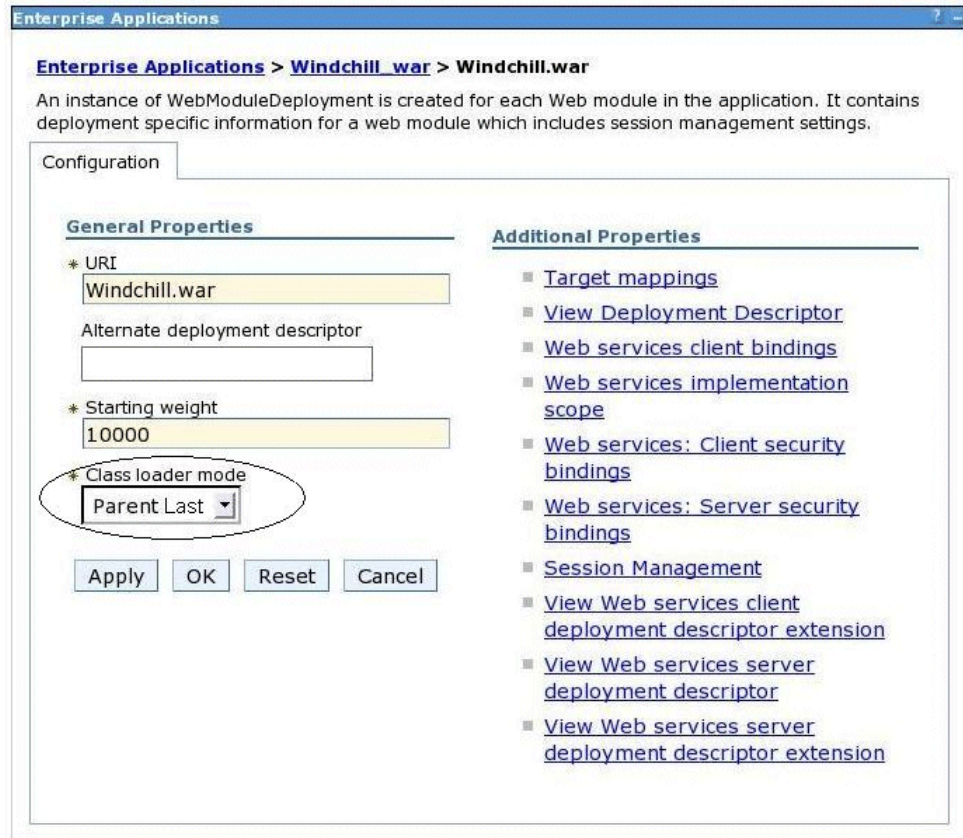
OK

Reset

Cancel

28. Click the link for the Windchill Web module under the **URI** column.

29. Change the value in the **Class loader mode** drop-down list to **Parent Last**.



30. Click **Apply**.

31. Click **Save** in the **Messages** box at the top of the console page.

Configuring Info*Engine and Windchill

To configure Info*Engine and Windchill with WebSphere and the HTTP Server, there are some common steps to complete and then, depending on whether you are using Info*Engine as a standalone product or in conjunction with Windchill, there are additional steps to complete.

Common Steps for the Initial Configuration and for Subsequent Configurations after Windchill Maintenance Updates

For the initial configuration, complete the following steps regardless of whether you are using Info*Engine as a standalone product or in conjunction with Windchill:

1. Log in as the Info*Engine and Windchill owner.
2. Move the file `<Windchill>/srclib/commons-logging.jar` to the `<Windchill>/lib` directory.

3. Open `<Windchill>/srclib/infoenginejars.xml` in a file editor and delete the following line:

```
<unjar dest="${temp.dir}" src="${srclib.dir}/commons-logging.jar"/>
```

4. Rebuild the Windchill third party JAR files with the following command:

```
ant -f <Windchill>/srclib/windchill3rdPartyJars.xml
```

Note: Modifying files within the Windchill installation directory (as directed in the previous steps) is considered a Windchill customization. To ensure that maintenance updates to files in the Windchill installation directory do not overwrite your changes, follow the maintenance best practices as described in the *Windchill Maintenance Installation and Configuration Guide*. The best practices include setting up a `<Windchill>/wtSafeArea/siteMod` directory structure where you store all modified files. In the case of this procedure, include the updated `infoenginejars.xml` file in the `<Windchill>/wtSafeArea/siteMod/srclib` directory and the moved `commons-logging.jar` file the `<Windchill>/wtSafeArea/siteMod/lib` directory.

The maintenance update process does not account for the movement of files from one directory to another nor does it rebuild the third party JAR files. Therefore, after you complete any maintenance update, check to ensure that the moved file (`<Windchill>/srclib/commons-logging.jar`) was not reintroduced and rebuild the third party JAR files.

Step for Windchill Configuration

When you are using Windchill, complete the following step in addition to all steps documented for deploying Windchill as described in the *Windchill Installation and Configuration Guide - Windchill*:

1. Use the `xconfmanager` utility located in `<Windchill>/bin` to check the port number setting to ensure that the correct port is set if you are not using the default port number of 80 and to check the correct application name. Check the values for following properties:

```
wt.webserver.port
```

```
wt.webapp.name
```

You can display current values of properties using the `-d` option. If changes are needed, make changes using the `xconfmanager` utility `-s` option and propagate the changes using the `-p` option.

To view a description of the available `xconfmanager` options, use the `-h` option. For more information on this utility, see the *Windchill System Administrator's Guide*.

Steps for Standalone Info*Engine

Complete the following steps only when you are using Info*Engine as a standalone product:

In this section, you will edit the Compiler Classpath servlet entry property to add the classpath to Info*Engine servlet.jar file.

1. Open the Info*Engine Property Administrator in a Web browser on the host where Info*Engine is installed using the URL, `http://localhost:<port number>/<appl_name>/infoengine/jsp/admin/index.jsp`. Where *<port number>* is the port number of the Info*Engine server. Where *<appl_name>* is the URL application value you specified when you configured Info*Engine. For example, if you are using the default port number, the local host, and Windchill as the application name, enter the following:

`http://localhost/Windchill/infoengine/jsp/admin/index.jsp`

2. The Info*Engine Property Administrator login window opens. The **Base URI** value is pre-populated with the base established when you installed Info*Engine. To complete the login, enter the **Principal**, and **Password** values that you specified for the LDAP Directory **Administrator Distinguished Name** and **Administrator Password** when you installed Info*Engine. For example, the following picture shows the **Principal** value as "cn=Manager,l=myLocation,o=myCompany".



PTC Shaping Innovation

Info*Engine

Property Administrator

Tue Apr 10 09:55:49 CDT 2001 [Help]

Base URI: amero/dc=myHost,dc=myLocation,dc=myCompany,dc=com

Principal: cn=Manager,l=myLocation,o=myCompany

Password: a000000

OK

3. Click **OK**. The Service and Adapters window opens and the configured services and adapter entries display.



4. Select the servlet **Services** entry, for example, **com.myCompany.MyLocation.MyHost.servlet**.

5. The servlet entry form displays.

To obtain a description of any property that is defined in this form, you can click the property label. The property name, value, and description display in a new browser window.

6. Locate the **Task Compiler Properties** section on the form and click **Edit** to edit the **Compiler Classpath** entry.
7. In the text box, add the full path to the servlet.jar file and click **OK**.

The servlet.jar file is located in the lib directory where Info*Engine is installed. For example, if the Info*Engine installation directory is /opt/ptc/Windchill, then the text box should contain the following:

```
/opt/ptc/Windchill/codebase/WEB-INF/classes:  
/opt/ptc/Windchill/lib/servlet.jar
```

8. At the bottom of the form, click **OK** to save your changes.
9. Log out of the Property Administrator. To ensure that your changes are used, you must also restart your servlet engine. Restarting WebSphere is described in the next section.

Restarting the WebSphere and HTTP Server

Use the information in the following sections to restart WebSphere and HTTP Server.

Restarting WebSphere

To stop and restart WebSphere, perform the following steps:

1. Change directory to *<WebSphere>/AppServer/bin* directory, where *<WebSphere>* is the directory where the WebSphere is installed. For example, if the installation directory is */usr/WebSphere*, then enter the following:

```
cd /usr/WebSphere/AppServer/bin
```

2. Use the following commands to stop and restart WebSphere:

```
./stopServer.sh server1
```

```
./startServer.sh server1
```

Restarting HTTP Server

To stop and restart the HTTP Server, perform the following steps:

1. Change directory to *<HTTPServer>/bin* directory, where *<HTTPServer>* is the directory where the server is installed. For example, if the installation directory is */usr/HTTPServer*, then enter the following:

```
cd /usr/HTTPServer/bin
```

2. Use the `apachectl` command to stop and start the server as follows:

```
./apachectl stop
```

```
./apachectl start
```


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Configuring Apache and Tomcat With Other Options

This chapter provides additional instructions to configure Tomcat and Apache for other options.

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Before You Begin

The typical installation and configuration scenario for Apache is that Apache is installed on the same machine as Info*Engine (local) and configured to support HTTP requests. Tomcat must be installed on the Info*Engine machine, as this is the only scenario PTC supports at this time. There are, however, other scenarios you may have for your environment, for example, running Apache on a machine other than Info*Engine (remote), reinstalling Apache after its initial installation, or running Apache in a more secure environment such as HTTPS.

The additional instructions in this chapter include:

- [Setting Up Apache Ant](#) -- Apache Ant is a Java-based build tool used by PTC to configure and reconfigure Apache (and Tomcat) for Info*Engine and Windchill.
- [Configurations When Apache is Installed Remotely](#) -- Instructions for configuring Apache when it is installed on a different machine than Info*Engine.
- [Running Tomcat and Apache As Windows Services](#) -- Setting up Tomcat and Apache as a Windows service using Ant.
- [Apache and Info*Engine Installed With Different Users](#) -- Setting permissions for Apache when the installation user for Apache and Info*Engine are different.
- [Installing Apache A Second Time](#) -- Configurations for a subsequent installation of Apache that overlays the initial version installed.
- [Configuring a Non-PTC Apache \(manual install\)](#)-- Configurations for using an existing Apache installation with Windchill.
- [Specifying Web Server Authentication](#) -- Using Ant commands to specify various web server authentication items for Apache.

For information on setting up HTTPS on Windchill and Apache, see the Completing Configurations - Manual Steps chapter in the *Windchill Installation and Configuration Guide - Windchill* and the Windchill Considerations for Security Infrastructures in the *Windchill System Administrator's Guide*.

Setting Up Apache Ant

Apache Ant is a Java-based build tool that has been bundled (and installed) with Info*Engine. It is located in the root level of the Info*Engine installation directory. It is also available on the Windchill Third Party Software CD.

To use Ant, it must be located on the machine where the configurations are to take place, the access permissions must be set appropriately, and the environment variables set for Ant. At that point, Ant can be executed from the command line.

1. Install Ant -- If the configurations are taking place on a machine other than the Info*Engine machine, or if the user performing the configurations does

not have sufficient access permissions to the Ant files in the Info*Engine directory, then you must install Ant to a new location.

- a. Select location where Ant should be installed (different machine or new directory on the Info*Engine machine) and create an installation directory for Ant, for example:

Windows: C:\ptc\Windchill_8.0\ant

UNIX: /opt/ptc/Windchill_8.0/ant

- b. Insert the Windchill Third Party Software CD in the CD-ROM.
 - c. Copy the ant.tar.gzip file for UNIX or the ant.zip file for Windows from the /Apache/ManualInstall/ directory to the Ant directory.
 - d. Set the access permissions as required for the install user.
2. Uncompress the Ant file. Ant is packaged as a compressed file and it must be uncompressed before it can be used in application. This step must be performed for all installations of Ant, including the Ant files located in the Info*Engine installation directory.

Windows

- unzip ant.zip

UNIX

- gunzip ant.tar.gzip
- tar -xf ant.tar.gzip

3. Set the following environment variables:

ANT_HOME = <Ant installation directory>

JAVA_HOME= <J2SE SDK install directory>

PATH -- update to include <ANT_HOME>\bin

- On Windows, <ANT_HOME> is %ANT_HOME%
- On UNIX, <ANT_HOME> is \$ANT_HOME

Note: This note applies only to an installation of Info*Engine with Windchill. These environment variable settings are not required once Windchill Services is installed and delivers the windchill shell. The windchill shell sets the necessary environment variables for you, at which point, Ant can be run. Once the windchill shell is available and if you have reason to use Ant after Windchill Services is installed, then run the Ant command from the windchill shell.

4. To test Ant, at the command prompt execute the following command:

```
ant -help
```

You can also use the help command to review the other execution options available with Ant and to verify the Ant syntax.

Configurations When Apache is Installed Remotely

If you have elected to run Apache on a remote system (on a machine different than Info*Engine, also known as a split configuration), then Apache must be able to recognize changes to the Windchill configuration environment and the Apache user account must have read privileges to the Windchill codebase directory. As changes occur in the Windchill configuration that impact the running environment, the changes are not automatically applied to the Apache installation. Consequently, you must manually update Apache with the most current Windchill environment settings.

Apache must be updated with changes to the Windchill installation whenever the Tomcat and Windchill configuration files are modified, such as when a Windchill application is installed or modified. During a Windchill application installation, environment settings particular to the installation are captured and applied to the Tomcat and Windchill configuration files. Therefore, for the same changes to be recognized by Apache, the configuration files must be copied to the Apache machine and updated using Ant.

Theoretically, these instructions should be executed following the installation of any Windchill application in order to capture the most current changes made to the Windchill configuration. However, if you are installing a suite of Windchill products, then you can simply perform these instructions after all the Windchill products are installed (or a group of them are installed) to capture the most recent environment changes.

To implement these instructions you will use the Apache Ant utility.

1. Install Apache using the Apache installer and the instructions provided to perform the installation.
2. Install and configure Apache Ant for the machine where Apache is installed. See [Setting Up Apache Ant](#).
3. Copy the content of the <Info*Engine>/apacheConf/config directory to a directory of choice on the Apache machine.

The apacheConf/config directory contains configuration files for Tomcat and Windchill. The content of these files is dynamic and changes to accommodate the installation of a Windchill application.

4. Change directory to the location where you copied the apacheConf/config files on the Apache machine.

5. Execute the following Ant command (entire string on one line) to apply the most recent Tomcat and Windchill changes to Apache.

```
ant -f applyApacheWebAppConfig.xml
-DAPACHE_HOME=<file path to Apache installation>
-DdocBase=<file path to Windchill codebase>
```

6. Create a shared file system of the Windchill codebase directory for Apache that meets your site requirements. There are several methods available to establish a shared file system, use a method appropriate for your site. The objective is to allow Apache to access the contents of the Windchill codebase directory.

- Set access for the shared file system so that the Apache user account has read permission to the Windchill codebase directory. For example:

Windows: C:\ptc\Windchill_8.0\codebase (where C:\ptc\Windchill_8.0 is the default installation directory for Windchill)

UNIX: /opt/ptc/Windchill_8.0/codebase (where /opt/ptc/Windchill_8.0 is the default installation directory for Windchill)

Note: To complete a split configuration when you are installing a Windchill solution, additional steps are required after Windchill is installed. For additional information, see the *Windchill Installation and Configuration Guide - Windchill*.

Running Tomcat and Apache As Windows Services

To set up Tomcat or Apache to run as a Windows service, complete these instructions.

Running Tomcat as a Windows Service

Ant is used as the mechanism to set up Tomcat as a Windows service:

Install Service

Execute the Ant command from the Tomcat root directory:

```
ant -f config.xml installService
-DJAVA_HOME=<SDK install directory>
-DserviceName=<ServiceName>
```

Where *<SDK install directory>* is the full path to the directory where J2SE SDK is installed and *<ServiceName>* is a unique name you apply to reference this service.

For additional information about this option, execute the following command:

```
ant -f config.xml -projecthelp
```

Uninstall Service

```
ant -f config.xml uninstallService -DserviceName=<ServiceName>
```

Where *<SDK install directory>* is the full path to the directory where J2SE SDK is installed and *<ServiceName>* is a unique name you apply to reference this service.

Running Apache as a Windows Service

Instructions to configure Apache as a Windows service have been provided using the Apache Ant command and without the Ant command.

Without Ant

Execute this command from the Apache/bin directory:

```
apache -k install -n <ServiceName>
```

Where *<ServiceName>* is a unique name to reference this service.

If you have Apache Ant installed, you can implement using the Ant command.

With Ant

Execute the Ant command from the Apache root directory:

```
ant -f config.xml installService -DserviceName=<ServiceName>
```

Where *<ServiceName>* is a unique name to reference this service.

Uninstalling the Apache Windows Service

Instructions to uninstall the Apache Windows service have been provided using the Apache Ant command and without the Ant command.

Uninstall without Ant

Execute this command from the *<Apache>/bin* directory.

```
apache -k uninstall -n <ServiceName>
```

Where *<ServiceName>* is the name you gave the Apache Windows service when you created it.

Uninstall with Ant

Execute this command from the *<Apache>* directory.

```
ant -f config.xml uninstallService -DserviceName <ServiceName>
```

Where *<ServiceName>* is the name you gave the Apache Windows service when you created it.

Running Tomcat in Development Mode

When developers are working on customizations to either Info*Engine or a Windchill solution, you can run Tomcat in development mode. In this mode, Tomcat automatically recompiles JSP files when changes are made.

To change to development mode:

1. Start a windchill shell and change to the Tomcat installation directory.
2. Enter the following command:

```
ant -f config.xml configureJspEngine -Dmode=dev
```

After development is complete, return to normal operation by entering:

```
ant -f config.xml configureJspEngine -Dmode=prod
```

Apache and Info*Engine Installed With Different Users

If you installed Apache and Info*Engine using different user accounts, and Apache and Info*Engine are installed on the same machine (for example, if on a UNIX machine you installed Apache as a root user and Info*Engine as a non-root user), then the Info*Engine user account will not have privileges to update the Apache files. In this case, use the following instructions to configure Apache for Info*Engine.

To execute these commands, Apache Ant must be installed

1. Log in as the user that installed Apache.
2. Change directory to *<Windchill>/apacheConf/config* to access the files referenced in the command string.
3. From the command line, execute the following command:

```
ant -f applyApacheWebAppConfig.xml -DAPACHE_HOME=<Apache>
```

Where *<Apache>* is the directory location where Apache is installed.

Note: Use this same command to add authentication rules for either Windchill PDMLink or Pro/INTRALINK 8.0 when either of these Windchill solutions have been installed and the **Add Servlet Authentication Rules for Apache** installation option was not selected.

Installing Apache A Second Time

If you installed Apache a second time (in a new location or in the same location but chose not to preserve the initial configuration), or you bypassed the option to configure Apache when you installed Info*Engine, then use the following instructions to configure Apache for Info*Engine.

To execute these commands, Apache Ant must be installed:

1. Change directory to `<Windchill>/apacheConf/config` to access the files referenced in the command string.
2. Execute the following from the command line:

```
ant -f applyApacheWebAppConfig.xml -DAPACHE_HOME=<Apache>
```

Where `<Apache>` is the directory location where Apache is installed.

Configuring a Non-PTC Apache (manual install)

If you already have Apache installed and it meets the version criteria defined in the Windchill 7.0 matrices, then you can use this version of Apache for Windchill with some minor alterations.

In order for your version of Apache to work with Windchill:

- The Apache binary must be configured so that it functions properly for Info*Engine (without any intervention or modification using PTC products).
- Apache must include the appropriate LDAP authentication modules (Apache `mod_auth_ldap` for Apache 2.0.x, `auth_ldap` for Apache 1.3.x) and the conf files must load them properly. PTC does not provide the module files to support this scenario.
- Apache must include the `mod_jk` module and the conf files must load properly. Also, the configuration line that loads `mod_jk` must precede the configuration line that includes `tomcat.conf`. PTC does not provide the `mod_jk` files to support this scenario.



Caution: Warning for Windows users. An installation of Apache on or under a Windows drive letter obtained by using the Windows Map Network Drive utility (for example, Windows Explorer > Tools) is not supported. Apache does not operate reliably when located on a mapped drive. Instead, select a local drive such as C or D for installation.

Complete the following instructions to alter your Apache installation for Windchill. After these changes are applied, the PTC installers and Ant scripts will be able to modify your version Apache in the same manner and with the same updates as the PTC-supplied Apache.

1. Configure your Apache so that the PTC installers can process it.

PTC has provided files to overlay and add to your Apache installation. The files are located on the Windchill Third Party Software CD in the Apache/ManualInstall directory. These files must be expanded into your Apache installation to enable the PTC installers to configure your Apache.

- a. Insert the Windchill Third Party Software CD.
 - b. Navigate to the Apache/ManualInstall directory.
 - c. Expand the compressed files into the *<Apache>* directory (root level).
 - Windows: Unzip the files.
 - UNIX: Gunzip and untar the files.
2. Edit the *<Apache>/conf/httpd.conf* file and add the following lines:

```
AddDefaultCharset Off  
  
BrowserMatch "MSIE" force-no-vary
```

Note: The BrowserMatch entry is used to address a Microsoft Internet Explorer bug that impacts Windows clients.

3. Save your changes and close the file.

This completes the changes for your Apache.

Specifying Web Server Authentication

PTC has provided several methods (Ant scripts) to improve and simplify the configuration of the Apache Web server for Windchill. A commonly used script is the webAppConfig.xml Ant script. For example, it is used by the installers (along with config.xml) to perform the configuration of Apache's management of the Info*Engine Web application. Other webAppConfig.xml uses include:

- Manages the generation (and regeneration) of the app-*<Web application>-Auth.conf* and app-*<Web application>.conf* files. These files contain the authentication parameters for the Windchill products. They are reproduced in their entirety each time an update occurs, thus, manual changes applied to the files are lost.
- Ensures that the Web application settings that apply to the Windchill system are applied to all the entries in the app-*<Web application>-Auth.conf* file.

During the update, the webAppConfig.xml script retains the existing data in the file while it applies the new changes saving you the effort of entering the data that already exists.

Note: When either Windchill PDMLink or Pro/INTRALINK 8.0 has been installed and the **Add Servlet Authentication Rules for Apache** installation option was not selected, then the ant script described in [Apache and Info*Engine Installed With Different Users](#) must be run to complete the Apache configuration.

The following sub-sections provide instructions to implement various Info*Engine authentication strategies using the webAppConfig.xml Ant script.

Specifying a Resource (URL) to Authenticate

By default, Info*Engine does not configure Apache to require authentication of the Info*Engine URLs. Info*Engine does not require authentication. To specify that a given directory, file, or servlet (and URL within the Info*Engine Web application), be authenticated by Apache, you can execute the following command to set authentication for Info*Engine. The command must be run from the Apache root directory and the command string must be entered on one line:

```
ant -f webAppConfig.xml addAuthResource
-DappName=<Web application name>
-Dresource=<relative URL of resource to authenticate>
```

Where *<Web application name>* is the Web name you assigned to Info*Engine and where *<relative URL of resource to authenticate>* is the relative path from the Web application to the resource to authenticate, for example, the section for the URL after `http[s]://hostname:port/.../<Web application name>/...` The *<relative URL of resource to authenticate>* can be a directory, for example, `wtcore/jsp`, in which case it applies to everything in that directory, or a particular file, for example, `foo/info.html`.

For example, to require authentication to access the IE servlet in an installation where the Web application name is MyInfoEngine, the command would look like:

```
ant -f webAppConfig.xml addAuthResource -DappName=MyInfoEngine
-Dresource=servlet/IE
```

Specifying an LDAP URL for Authentication

To specify an LDAP URL to use as the basis of authentication from Apache, issue the following command. The command string must be entered on one line:

```
ant -f webAppConfig.xml regenWebAppConf
-DappName=<Web application name> -DldapUrl=<LDAP URL>
```

This command can also be used to change the LDAP URL used for authentication, for example, changing from the Aphelion Directory to a corporate LDAP.

To add users to the LDAP, consult the *Aphelion Directory 2003.2 Administration Guide*.

Specifying a Bind DN for the LDAP URL

To specify a bind DN and password through which the LDAP URL should be accessed, for example, when the LDAP does not allow anonymous bind access, then issue the following command. The command string must be entered on one line:

```
ant -f webAppConfig.xml regenWebAppConf
-DappName=<Web application name>
-DanonBind=false -DbindDn=<bindDN>
-DbindPwd=<bindPassword>
```

Specifying a Password File

Although LDAP is a preferred means of password management as compared to a password file, there are cases where the use of a supplementary password file is appropriate.

One example where a password file is useful is when a read-only LDAP directory (for example, corporate directory) is used as the primary basis of authentication and some pseudo-users such as system administration are desired. Info*Engine can easily access information from multiple LDAP directory, but typical Web servers, including Apache, do not provide a means to authenticate a single resource (URL) using information in multiple LDAP directories. A solution to this issue in this case is to define passwords for the few pseudo-users in a password file and point apache at the corporate LDAP for the remaining corporate users.

To accomplish this, issue the following command. The command string must be entered on one line:

```
ant -f webAppConfig.xml regenWebAppConf
-DappName=<Web application name>
-DpwdFileEnabled=true
-DpwdFilename=<desired name of password file>
```

This command specifies that Apache use the given password file as a basis of authentication, and create the file if it does not exist (should reside in the Apache conf directory). It will not, however, add users to the password file; to do this use the Apache htpasswd command.

The htpasswd command, which is located in the <Apache>/bin directory, is used to define users to the Apache Web server. To add more users to the wtpasswd file or to modify passwords in the file, use the following format of the command:

```
htpasswd "<Apache>/conf/wtpasswd" <user name>
```

At the prompt, enter a password for user, <user name>.

Note: The quotation marks are required if the Apache installation directory path you enter in place of <Apache> contains spaces.

Configure Authentication Realm Name

The authentication realm name appears in the authentication name and password log in dialog window. The default value is Windchill. To change this value, the variable must be manually configured.

To change the realm name, the ant command is executed from the command line. The command must be run from the Apache root directory:

```
ant -f webAppConfig.xml regenWebAppConf -DappName=<your Web  
application name> -DauthRealm=<your realm name>
```

Where *<your Web application name>* is the Web application name you assigned, for example, Windchill. Where *<your realm name>* is a value of your choice.

VI

Troubleshooting Section

A

Troubleshooting the Installation

This appendix provides information to assist you in troubleshooting the installations described in this guide.

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Troubleshooting Your Installation

Troubleshooting tips related to installing the Windchill products are listed in the [About Installing Windchill Products](#) chapter.

The product log files can be helpful when troubleshooting your installation. The following is a list of some of the product log files:

- Tomcat -- *<Tomcat>/logs*
- Apache -- *<Apache>/logs*
- Info*Engine -- *<Info*Engine>/logs*
- Aphelion on Windows -- *<Aphelion>/usr/var/lde/PTCLdap/PTCLdap_logs/*
where *<Aphelion>* is the Aphelion mapped drive.
- Aphelion on UNIX -- */opt/lde/var/lde/PTCLdap/PTCLdap_logs/*

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