

HP Application Lifecycle Management

Software Version: 11.00

Installation Guide

Document Release Date: November 2010

Software Release Date: November 2010



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Acknowledgements

This product includes software developed by the Apache Software Foundation (<http://www.apache.org>).

This product includes software developed by the JDOM Project (<http://www.jdom.org>).

Documentation Updates

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

- Software Version number, which indicates the software version.
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- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

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

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Table of Contents

Welcome to This Guide	7
How This Guide is Organized.....	7
Documentation Library.....	9
Documentation Library Guides.....	10
Additional Online Resources.....	13
Chapter 1: Before You Install	15
About the ALM Platform Technology.....	16
The Installation Process.....	19
Application Lifecycle Management Editions	23
Installation Checklist	24
ALM Platform Prerequisites.....	27
ALM Client-Side Prerequisites.....	47
Upgrading Projects and Database Schemas.....	51
Chapter 2: Installing ALM Platform	57
About Installing ALM Platform	57
Mounting the File System Repository in a Clustered Environment...58	
Installing ALM Platform.....	60
Installing ALM Platform in Silent Mode	83
Configuring the IIS Mail Service	84
Chapter 3: Installing Quality Center Starter Edition	85
Chapter 4: Deploying ALM Platform on WebLogic.....	97
Deploying ALM Platform on WebLogic.....	98
Undeploying ALM Platform on WebLogic	100
Chapter 5: Deploying ALM Platform on WebSphere	101
Deploying ALM Platform on WebSphere.....	101
Undeploying ALM Platform on WebSphere	103

Chapter 6: Integrating JBoss with Apache	105
About Integrating JBoss with Apache	105
Integrating JBoss with Apache on Windows	106
Integrating JBoss with Apache on Unix Platforms	107
Apache-JBoss Integration Configuration Files	108
Chapter 7: Getting Started	111
Browsing the ALM Platform Program Folder	111
Starting and Stopping ALM Platform Services	113
Starting Application Lifecycle Management.....	114
Registering ALM on a Workstation	118
Chapter 8: Installing HP ALM Add-ins	121
Chapter 9: Verifying the IIS Configuration	123
Configuring IIS 7.0	123
Configuring IIS 6.0	125
Chapter 10: Customizing ALM	129
Customizing the SA Repository and Application	129
Customizing Module Names and Menus.....	131
Chapter 11: Changing the JBoss Heap Memory Size and Port	135
Changing the JBoss Heap Memory Size	135
Changing JBoss Port Numbers	139
Changing Ports Used by JBoss Internal Processes.....	141
Chapter 12: Uninstalling ALM Platform	143
Uninstalling ALM Platform from Windows.....	143
Uninstalling ALM Platform from Unix Platforms	144
Uninstalling ALM Components from a Workstation	144
Appendix A: Troubleshooting ALM Platform Installation	145
Disabling Validation Checks for the Configuration Wizard	146
Checking the Installation and Configuration Log Files	149
ALM Platform Installation Already Exists	150
Database Validator Fails	151
IIS Site Not Responding.....	152
ALM Service Does Not Start	153
JBoss Does Not Start	153
Appendix B: LW-SSO Authentication – General Reference	155
LW-SSO Authentication Overview	155
LW-SSO System Requirements	157
LW-SSO Security Warnings	158
Troubleshooting and Limitations	160

Welcome to This Guide

Welcome to HP Application Lifecycle Management (ALM). ALM empowers IT to manage the core application lifecycle, from requirements through deployment, granting application teams the crucial visibility and collaboration needed for predictable, repeatable, and adaptable delivery of modern applications.

How This Guide is Organized

The *HP Application Lifecycle Management Installation Guide* describes the system prerequisites and installation process for ALM Platform.

It contains the following chapters:

Chapter 1 Before You Install

Provides an overview of the product, and specifies the prerequisites for installing ALM Platform. In addition, it provides an installation checklist and other related information to help ensure that you are fully prepared before starting the installation process.

Chapter 2 Installing ALM Platform

Describes how to install ALM Platform.

Chapter 3 Installing Quality Center Starter Edition

Describes how to install ALM Platform for Quality Center Starter Edition.

Chapter 4 Deploying ALM Platform on WebLogic

Describes how to deploy ALM Platform on the WebLogic application server.

Chapter 5 Deploying ALM Platform on WebSphere

Describes how to deploy ALM Platform on the WebSphere application server.

Chapter 6 Integrating JBoss with Apache

Describes how to configure the Apache Web server to redirect requests to JBoss.

Chapter 7 Getting Started

Describes the contents of the ALM Platform program folder, how to start and stop ALM services, and how to log into ALM.

Chapter 8 Installing HP ALM Add-ins

Describes how to install ALM integration and synchronization solutions with HP and third-party tools.

Chapter 9 Verifying the IIS Configuration

Describes how to verify the Internet Information Server component settings.

Chapter 10 Customizing ALM

Describes how to customize repository and application files, and how to customize the names of ALM modules and menus.

Chapter 11 Changing the JBoss Heap Memory Size and Port

Describes how to change the default heap memory value and port number for a JBoss application server.

Chapter 12 Uninstalling ALM Platform

Describes how to uninstall ALM Platform from your server machine, and to uninstall the client application.

Appendix A Troubleshooting ALM Platform Installation

Troubleshooting suggestions for dealing with issues relating to the ALM Platform installation.

Appendix B LW-SSO Authentication – General Reference

Information relating to Lightweight Single Sign-On (LW-SSO) Authentication.

Documentation Library

The Documentation Library is an online help system that describes how to use ALM. You can access the Documentation Library in the following ways:

- ▶ Click **Documentation Library** in the ALM Help menu to open the Documentation Library home page. The home page provides quick links to the main help topics.
- ▶ Click **Help on this page** in the ALM Help menu to open the Documentation Library to the topic that describes the current page.

Documentation Library Guides

The Documentation Library consists of the following guides and references, available online, in PDF format, or both. PDFs can be read and printed using Adobe Reader, which can be downloaded from the Adobe Web site (<http://www.adobe.com>).

Reference	Description
Using this Documentation Library	Explains how to use the Documentation Library and how it is organized.
What's New?	Describes the newest features in the latest version of ALM. To access, select Help > What's New .
Product Feature Movies	Short movies that demonstrate the main product features. To access, select Help > Product Feature Movies .
Readme	Provides last-minute news and information about ALM.

Application Lifecycle Management Guides

Guide	Description
HP ALM User Guide	Explains how to use ALM to organize and execute all phases of the application life cycle management process. It describes how to specify releases, define requirements, plan tests, run tests, and track defects.
HP ALM Administrator Guide	Explains how to create and maintain projects using Site Administration, and how to customize projects using Project Customization.
HP ALM Tutorial	A self-paced guide teaching you how to use ALM to manage the application life cycle management process.

Guide	Description
HP ALM Installation Guide	Describes the installation and configuration processes for setting up ALM Platform.
HP Business Process Testing User Guide	Explains how to use Business Process Testing to create business process tests.

ALM Performance Center Guides

Guide	Description
HP ALM Performance Center Quick Start	A self-paced guide giving the Performance Center user a high level overview of creating and running performance tests.
HP ALM Performance Center Guide	Explains to the Performance Center user how to create, schedule, run, and monitor performance tests. Explains to the Performance Center administrator how to use Lab Management for overall lab resource management, lab settings management, and system configuration.
HP ALM Performance Center Installation Guide	Describes the installation processes for setting up Performance Center Servers, Performance Center Hosts and other Performance Center components.
HP ALM Performance Center Troubleshooting Guide	Provides information for troubleshooting problems while working with HP ALM Performance Center.
HP Performance Center of Excellence Best Practices	Provides best practices for successfully building and operating Performance Centers of Excellence.
HP Performance Monitoring Best Practices	Provides best practices for monitoring the performance of applications under test.

ALM Best Practices

Guide	Description
HP ALM Database Best Practices Guide	Provides best practices for deploying ALM on database servers.
HP ALM Upgrade Best Practices Guide	Provides methodologies for preparing and planning your ALM upgrade.
HP ALM Business Models Module Best Practices Guide	Provides best practices for working with the Business Models module.

ALM API References

Guide	Description
HP ALM Project Database Reference	Provides a complete online reference for the project database tables and fields.
HP ALM Open Test Architecture API Reference	Provides a complete online reference for the ALM COM-based API. You can use the ALM open test architecture to integrate your own configuration management, defect tracking, and home-grown testing tools with an ALM project.
HP ALM Site Administration API Reference	Provides a complete online reference for the Site Administration COM-based API. You can use the Site Administration API to enable your application to organize, manage, and maintain ALM users, projects, domains, connections, and site configuration parameters.
HP ALM REST API Reference	Provides an online reference for the ALM REST-based API. You can use the REST API to access and work with ALM data.
HP ALM Custom Test Type Guide	Provides a complete online guide for creating your own testing tool and integrating it into the ALM environment.

Additional Online Resources

The following additional online resources are available from the ALM **Help** menu:

Part	Description
Troubleshooting & Knowledge Base	Opens the Troubleshooting page on the HP Software Support Web site where you can search the Self-solve knowledge base. Choose Help > Troubleshooting & Knowledge Base . The URL for this Web site is http://h20230.www2.hp.com/troubleshooting.jsp .
HP Software Support	<p>Opens the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose Help > HP Software Support. The URL for this Web site is www.hp.com/go/hpsoftwaresupport.</p> <p>Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.</p> <p>To find more information about access levels, go to: http://h20230.www2.hp.com/new_access_levels.jsp</p> <p>To register for an HP Passport user ID, go to: http://h20229.www2.hp.com/passport-registration.html</p>
HP Software Web site	Opens the HP Software Web site. This site provides you with the most up-to-date information on HP Software products. This includes new software releases, seminars and trade shows, customer support, and more. Choose Help > HP Software Web site . The URL for this Web site is www.hp.com/go/software .
Add-ins Page	Opens the HP Application Lifecycle Management Add-ins Page, which offers integration and synchronization solutions with HP and third-party tools.

Welcome to This Guide

1

Before You Install

This chapter provides an overview of the installation process, and specifies the prerequisites for installing ALM Platform.

This chapter includes:

- ▶ About the ALM Platform Technology on page 16
- ▶ The Installation Process on page 19
- ▶ Application Lifecycle Management Editions on page 23
- ▶ Installation Checklist on page 24
- ▶ ALM Platform Prerequisites on page 27
- ▶ ALM Client-Side Prerequisites on page 47
- ▶ Upgrading Projects and Database Schemas on page 51

About the ALM Platform Technology

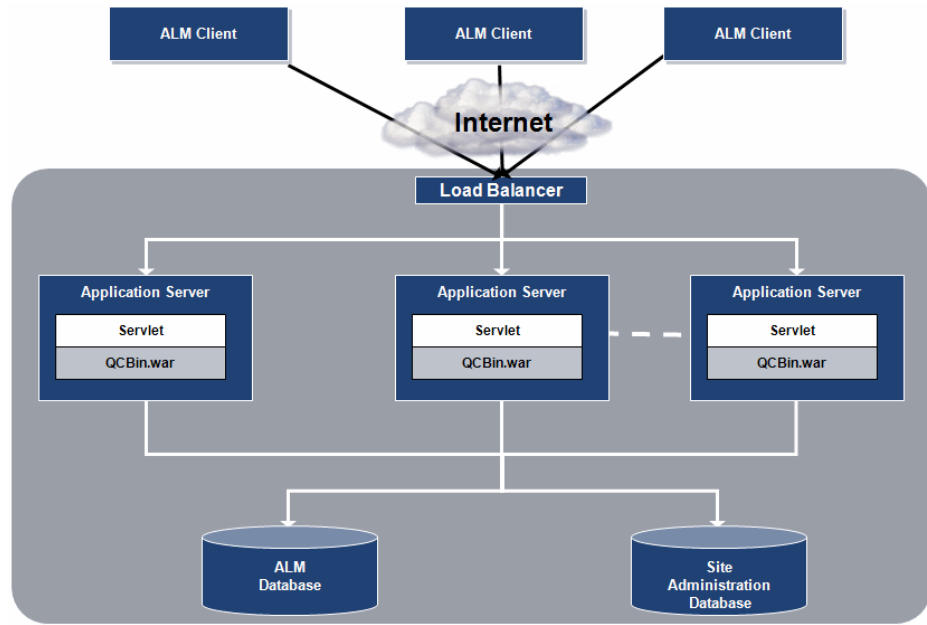
ALM Platform is an enterprise-wide application that is based on Java 2 Enterprise Edition (J2EE) technology. J2EE technology provides a component-based approach to the design, development, assembly, and deployment of enterprise applications. Within the J2EE framework, ALM Platform supports clustering. A **cluster** is a group of application servers that run ALM Platform as if they were a single entity. Each application server in a cluster is referred to as a **node** or a **cluster node**.

Clusters provide mission-critical services to ensure maximum scalability. The load balancing technique within the cluster is used to distribute client requests across multiple application servers, making it easy to scale to an infinite number of users. The cluster of servers can run on Windows, Linux, Solaris, and HP-UX based platforms.

ALM Editions: Clustering is not supported for Quality Center Starter Edition.

Note: To install ALM Platform on cluster nodes, the ALM Platform High Availability option must be included in your purchase agreement. For more information, please contact your sales representative.

The following diagram illustrates how ALM client requests are transmitted within a cluster.



- **HP ALM Client.** When users select Application Lifecycle Management or Site Administration on their client machine, client components are downloaded to their client machine. ALM uses the Component Object Model (COM) interface as an interprocess communicator among the components.
- **Internet.** Client requests are transmitted via the HTTP protocol to the server.
- **Load Balancer.** When working with a load balancer, client requests are transmitted to the load balancer and distributed according to server availability within the cluster.
- **Application Server.** Client requests are dispatched by servlets to the deployed ALM Platform application on the application server. ALM Platform supports JBoss, WebLogic, and WebSphere.

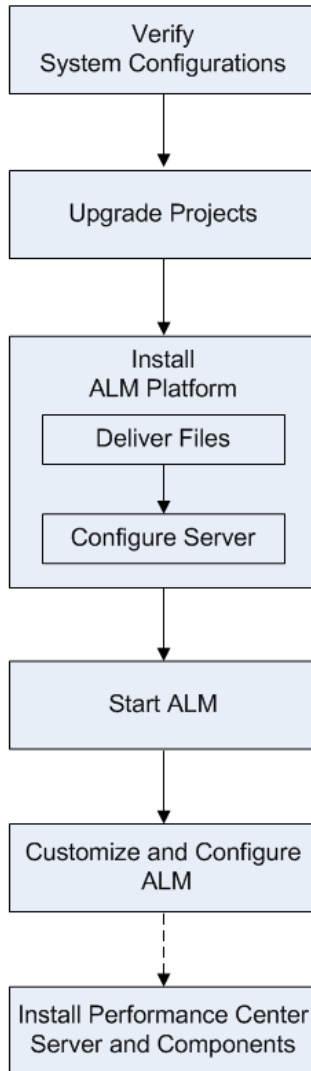
The deployed application contains Application Lifecycle Management, Site Administration, and associated files which are packaged into a Web Application Archive (WAR) file. Client requests from Application Lifecycle Management are dispatched to the **qcbin.war** file.

The Java Database Connectivity (JDBC) interface is used to communicate between the application server and the databases.

- **Databases.** The Application Lifecycle Management schema stores project information. The Site Administration schema stores domain, project, and user data. The schemas can reside on an Oracle or Microsoft SQL Server. For detailed guidelines for deploying ALM Platform on database servers, refer to the *HP ALM Database Best Practices Guide*.

The Installation Process

Installing ALM Platform includes the following steps:



Verify System Configurations

Note: For an up-to-date list of supported system configurations, refer to http://www.hp.com/go/TDQC_SysReq.

Check the following:

- ▶ Ensure that you have all the information for installing ALM Platform on a server machine. For more information, see "Installation Checklist" on page 24.
- ▶ Ensure that you meet the prerequisites for installing ALM Platform on a server machine, and for running ALM on client machines. For more information, see "ALM Platform Prerequisites" on page 27 and "ALM Client-Side Prerequisites" on page 47.

Upgrade Projects

To work with previously created projects, you must upgrade them to your current version of ALM Platform. For more information, see "Upgrading Projects and Database Schemas" on page 51.

Install ALM Platform

- ▶ Installing ALM Platform on your server includes the following stages:
 - ▶ **File delivery.** Install ALM Platform files on the server.
 - ▶ **Server configuration.** Define server configurations.
- ▶ You can install ALM Platform on one of the following systems: Windows, Solaris, Linux, or HP-UX. For more information, see Chapter 2, "Installing ALM Platform."
- ▶ For information on installing ALM Platform for ALM Starter Edition, see Chapter 3, "Installing Quality Center Starter Edition."

- ▶ If you are using JBoss, ALM Platform is automatically deployed on your application server. If you are using a WebLogic or WebSphere application server, you must deploy ALM Platform manually. For more information, see Chapter 4, "Deploying ALM Platform on WebLogic" or Chapter 5, "Deploying ALM Platform on WebSphere."
- ▶ To use ALM Platform on a JBoss application server with an Apache Web server, you need to configure the Apache Web server to redirect requests to the JBoss application server. For more information, see Chapter 6, "Integrating JBoss with Apache."
- ▶ For information on how to uninstall ALM Platform from your server machine, see Chapter 12, "Uninstalling ALM Platform."

Start Application Lifecycle Management

After you install ALM Platform, you launch ALM from your Web browser. For more information, see Chapter 7, "Getting Started."

Customize and Configure ALM

You can customize and configure ALM as follows:

- ▶ You can install ALM add-ins to enhance the existing functionality. For more information, see Chapter 8, "Installing HP ALM Add-ins".
- ▶ You can customize repository and application files, and the names of ALM modules and menus. For more information, see Chapter 10, "Customizing ALM".
- ▶ You can update the heap memory value on the JBoss application server, if there is a change in the number of active projects or concurrent user sessions in ALM Platform. You can also change the JBoss default port number. For more information, see Chapter 11, "Changing the JBoss Heap Memory Size and Port".

- ▶ If you encounter a problem in the Internet Information Server (IIS) component after you install ALM Platform on Windows, you should check the IIS configuration settings. For more information, see Chapter 9, "Verifying the IIS Configuration".
- ▶ Additional suggestions for dealing with issues relating to the ALM Platform installation are described in Appendix A, "Troubleshooting ALM Platform Installation".

Install Performance Center Server and Components

To work with Performance Center, install the Performance Center server and components. For more information, refer to the *HP ALM Performance Center Installation Guide*.

Application Lifecycle Management Editions

HP Application Lifecycle Management (ALM) is also available in three editions which provide subsets of ALM functionality — HP Quality Center Starter Edition, HP Quality Center Enterprise Edition, and HP ALM Performance Center Edition.

HP ALM Edition	Description
HP ALM	Complete HP ALM functionality, providing core functionality for managing the Application Lifecycle and scalable Quality Management for mature organizations and Centers of Excellence (CoE) involved with managing enterprise releases.
HP Quality Center Starter Edition	For quality management teams managing small releases.
HP Quality Center Enterprise Edition	For quality management teams managing medium to large releases.
HP ALM Performance Center Edition	For managing all aspects of large-scale performance testing projects.

For detailed information about the functionality available for each edition, refer to the *HP Application Lifecycle Management User Guide*.

Installation Checklist

Review and verify the following checklist before installing ALM Platform on your server machine. The checklist outlines the information that you must supply during the installation process. For more detailed information on the installation configurations, including permissions and privileges, see "ALM Platform Prerequisites" on page 27.

Check	Information Required
Installation Machine	<ul style="list-style-type: none"> ➤ Operating system version ➤ CPU type ➤ Free disk space ➤ Free memory <p>Where to get information?</p> <p>For the list of supported system environments, refer to: http://www.hp.com/go/TDQC_SysReq.</p>
Setup Paths	<ul style="list-style-type: none"> ➤ Installation path ➤ Deployment path <p>Notes:</p> <ul style="list-style-type: none"> ➤ You can accept the default paths offered by the Installation and Configuration wizards, or enter alternative paths. ➤ The installation path must not include folders with accented characters (for example, ä, ç, ñ). ➤ You must have full permissions on the installation and deployment directories. For more information, see "Permissions Required to Install ALM Platform" on page 29.
License Key	<ul style="list-style-type: none"> ➤ License file ➤ Maintenance key <p>Where to get information?</p> <p>The license file was sent to you by email. The maintenance key appears on the product package.</p>
Cluster Description	<ul style="list-style-type: none"> ➤ Is clustering used? ➤ Cluster hosts

Check	Information Required
Encryption Passphrases	<ul style="list-style-type: none"> ▶ Confidential data storage passphrase <li style="padding-left: 20px;">Note: In a cluster, use the same passphrase on all nodes. ▶ Communication security passphrase
Application Server	<ul style="list-style-type: none"> ▶ Server type (JBoss, WebLogic, or WebSphere) ▶ Server version <p>If you use JBoss:</p> <ul style="list-style-type: none"> ▶ Port number <p>To run JBoss as a service on Windows machines:</p> <ul style="list-style-type: none"> ▶ JBoss service user name ▶ JBoss service user password ▶ JBoss service user domain
Web Server	<ul style="list-style-type: none"> ▶ Server type (IIS or JBoss) <p>If you use IIS:</p> <ul style="list-style-type: none"> ▶ IIS version ▶ Web site
Mail Server	<ul style="list-style-type: none"> ▶ Server type ▶ Server host ▶ Server port
Demo Project	<ul style="list-style-type: none"> ▶ Do you require the Web-based demo application for work with the HP Application Lifecycle Management Tutorial?
Database Server	<ul style="list-style-type: none"> ▶ Database type ▶ Database version ▶ Database server name ▶ Database administrator user name ▶ Database administrator user password ▶ Database port <p>If you use Oracle:</p> <ul style="list-style-type: none"> ▶ Database SID ▶ Default tablespace ▶ Temp tablespace

Check	Information Required
Site Administration	<ul style="list-style-type: none"> ➤ Site Administrator user name ➤ Site Administrator password
Existing Quality Center Installation	<p>If there is an existing Site Administration schema, provide the following information for the existing version:</p> <ul style="list-style-type: none"> ➤ Quality Center version ➤ Quality Center host ➤ Will the same schema be used in the new version? ➤ Database server name ➤ Database administrator user name ➤ Database administrator password ➤ Site Administration database schema name ➤ Site Administration database schema password ➤ Repository folder ➤ Site Administrator user name ➤ Site Administrator password
Repository	<ul style="list-style-type: none"> ➤ Repository folder

ALM Platform Prerequisites

The following prerequisites must be met before you can install ALM Platform on your server machine.

✓	Topics	Page:
	System Configurations	28
	Permissions Required to Install ALM Platform	29
	License File and Maintenance Key	31
	Clustering Configuration	32
	Security Passphrases	32
	Application Server Information	33
	Web Server Information	34
	Mercury Tours Web Application and ALM Demo Project	35
	Mail Server Information	35
	Database Prerequisites for Oracle	35
	Oracle RAC Support	41
	Database Prerequisites for Microsoft SQL	42
	Site Administration Login Credentials	46
	ALM Platform Repository Path	46

For the ALM Platform server installation checklist, see "Installation Checklist" on page 24.

System Configurations

Verify that your server machine meets the ALM Platform system configurations. For the recommended and supported system configurations for your ALM server machine, refer to the *HP Application Lifecycle Management 11.00 Readme*.

Important: The supported environment information in the *HP Application Lifecycle Management 11.00 Readme* is accurate for the ALM 11.00 release, but there may be updates for ALM 11.00 patches. For the most up-to-date supported environments, refer to the HP Software Web site using the following URL: http://www.hp.com/go/TDQC_SysReq

Consider the following for implementing ALM Platform configurations:

- ▶ You can configure JBoss and WebLogic to work with HTTPS. For more information on configuring JBoss, see HP Software Self-solve knowledge base article KM193181 (<http://h20230.www2.hp.com/selfsolve/document/KM193181>). For more information on configuring WebLogic, see HP Software Self-solve knowledge base article KM201153 (<http://h20230.www2.hp.com/selfsolve/document/KM201153>).

After configuring work with HTTPS, you can choose to configure ALM to use HTTPS for the login process only by setting the **FORCE_LOGIN_SSL_MODE** site configuration parameter. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.

- ▶ In Unix systems, verify that you have a supported kernel by running `uname -a`.
- ▶ ALM Platform can be deployed on a VMware ESX 4.0 server. The system configurations of each virtual machine are the same as the ALM Platform server system configurations.
- ▶ For more information on configuring the database server, refer to the *HP ALM Database Best Practices Guide*.

Permissions Required to Install ALM Platform

Verify that you have the required permissions to install ALM Platform on a server machine.

If you are upgrading from a previous version of Quality Center with a remote repository, on the **File System > Security > Property** setting of the remote repository, add the Quality Center application server service user account with full network access permissions to the remote repository.

This section includes:

- ▶ "Installing on Windows Systems" on page 29
- ▶ "Installing on Unix Systems" on page 30

Installing on Windows Systems

To install ALM Platform on Windows, you must be logged on as a local or domain user with administrator permissions. The user name of the logged on user installing ALM Platform cannot include a pound sign ("#") or accented characters (for example, ä, ç, ñ).

Notes:

- ▶ If the repository is on a remote machine, or to use a Microsoft SQL server with Windows authentication, you must log on as a domain user and local administrator.
- ▶ **Windows 2008:** You must disable User Account Control (UAC) during the installation and configuration of ALM Platform.

You must have the following file system and registry key permissions:

- ▶ Full read permissions for all the files and directories under the directory in which ALM Platform is installed. The installation directory path is specified by the user during installation. By default, ALM Platform writes the installation files to:
C:\Program Files\HP\HP Application Lifecycle Management Platform

- ▶ Full read, write, and execute permissions to the directory on which ALM Platform is deployed. The deployment directory is specified by the user during installation. By default, ALM Platform is deployed on:

Windows 2008: **C:\Users\All Users\HP\ALM**

Windows 2003: **C:\Documents and Settings\All Users\Application Data\HP\ALM**

- ▶ Full read and write permissions to the **repository** directory which contains the **sa** and **qc** directories. The repository path is specified by the user during installation. By default, it is located under the ALM Platform deployment directory. For more information on the repository, refer to the *HP Application Lifecycle Management Administrator Guide*.
- ▶ Full read permissions to the system root (%systemroot%) directory. The installer program writes the product information to the **vpd.properties** file in the system root directory. If you do not have these permissions, you can still install ALM Platform, but you cannot install any patches.
- ▶ Full read and write permissions to the installation and configuration log files directory. Installation and configuration log files are written to:

Windows 2008: **C:\Users\All Users\HP\ALM\log**

Windows 2003: **C:\Documents and Settings\All Users\Application Data\HP\ALM\log**

- ▶ Full read and write permissions to all the keys under **HKEY_LOCAL_MACHINE\SOFTWARE\Mercury Interactive**

Installing on Unix Systems

The following instructions describe the permissions required to install ALM Platform on a Unix system.

Note: The following instructions apply if you are installing as a **root** user. For instructions on how to install without root user permissions, see HP Software Self-solve knowledge base article KM916123 (<http://h20230.www2.hp.com/selfsolve/document/KM916123>).

You must have the following file system permissions:

- ▶ Full read and write permissions for all the files and directories under the directory on which ALM Platform is installed. The installation files are used for configuring the server. By default, the ALM Platform installation files are written to: **/opt/HP/HP_ALM_Platform**.
- ▶ Full read and write permissions to the directory on which ALM Platform is deployed. The deployment directory is specified by the user during installation. By default, ALM Platform is deployed on: **/var/opt/HP/ALM**.
- ▶ Full read and write permissions to the **repository** directory which contains the **sa** and **qc** directories. The repository path is specified by the user during installation. By default, it is located under the ALM Platform deployment directory. For more information on the repository, refer to the *HP Application Lifecycle Management Administrator Guide*.
- ▶ Full read and write permissions to the installation and configuration log files directory. Installation and configuration log files are written to: **/var/opt/HP/ALM/log**.
- ▶ If the file repository is located on a remote machine:
 - ▶ On the file server machine, share the file repository directory so that the **root** user is the owner of the files.
 - ▶ On the ALM Platform machine, or on each cluster node, create a mount directory that points to the file repository directory.

License File and Maintenance Key

Verify that you have the ALM Platform license file and maintenance key.

- ▶ You need to specify the path to the license file. The license file was sent to you by email and has a **.license** file extension by default. If you do not have a valid license file, you can submit a request for an ALM Platform license key by visiting the HP Software Support Web site (<http://www.hp.com/go/hpsupport>) and clicking the Licenses & Passwords link.
- ▶ The maintenance key was supplied to you with the product package when you purchased ALM Platform. This field is not mandatory.

Clustering Configuration

Check with your system administrator whether you are installing ALM Platform on a single node or as a cluster. For more information on cluster nodes, see Chapter 2, "Installing ALM Platform."

Quality Center Starter Edition: Clustering is not supported.

If you are installing ALM Platform on cluster nodes, verify which machine to use as the first node to start the installation, and the number of machines you should use. This depends on the number of users and availability considerations. When installing ALM Platform on additional nodes, install the same version of ALM Platform on all nodes, and insert the same repository and database details that you used on the first node. On Unix systems, you must use the same path description on all nodes.

Note: To install ALM Platform on cluster nodes, the ALM Platform High Availability option must be included in your purchase agreement. For more information, contact your sales representative.

Security Passphrases

Verify that you have passphrases for confidential data and communication security encryption.

For secondary cluster nodes, verify that you have the confidential data encryption passphrase that you used to install the primary cluster.

Performance Center: You must use the same communication security passphrase for the ALM Platform and Performance Center server configurations.

Application Server Information

Verify which application server to use. You can use JBoss, WebLogic or WebSphere.

Quality Center Starter Edition: You can only use a JBoss server.

If you use a JBoss application server, ALM Platform is deployed automatically when the installation process finishes.

If you use a WebLogic or WebSphere application server, you must deploy ALM Platform manually after you install ALM Platform. For more information, see Chapter 4, "Deploying ALM Platform on WebLogic," or Chapter 5, "Deploying ALM Platform on WebSphere."

JBoss Application Server

If you use a JBoss application server, you must verify the following issues:

- ▶ For JBoss on Windows, verify that the user account set to run JBoss as a service is the same as the user account that is used to install ALM Platform. The user must have full administrator privileges on the ALM Platform machine, as described in "Permissions Required to Install ALM Platform" on page 29.
- ▶ For JBoss on Unix systems, verify that the user has full control permissions to run JBoss, as described in "Permissions Required to Install ALM Platform" on page 29.
- ▶ Verify that the JBoss application server heap memory size is sufficient (the default is up to 1024 MB). The maximum JBoss heap value cannot exceed your maximum memory (RAM) size. For information on changing the heap size after installation, see "Changing the JBoss Heap Memory Size and Port" on page 135.

WebLogic/WebSphere Application Server

If you are using a WebLogic or WebSphere application server, verify the following issues:

- ▶ The user account that is used to install and run ALM Platform must have full permissions on the ALM Platform installation directory.
- ▶ If you are upgrading from a previous version of Quality Center, the user account that is used to install and run ALM Platform must have full permissions on the existing Quality Center repository directory.

Web Server Information

Verify and consider the following issues regarding the Web server:

- ▶ If you are using a JBoss application server, you can integrate JBoss with the IIS Web server or with the JBoss Web server during installation.
Quality Center Starter Edition: You can only use a JBoss Web server.
- ▶ If you are using an IIS Web server on a Windows 2008 machine, you must make sure the following role services are installed on the server machine:
 - ▶ ISAPI Extensions
 - ▶ ISAPI Filters
- ▶ If you are using an application server other than JBoss, or JBoss with an Apache Web server, you must deploy the Web server after installation.
- ▶ If you are using an Apache Web server to integrate ALM Platform with JBoss, you can configure the Apache Web server to redirect requests to an application server. The ALM Platform installation DVD includes the appropriate Apache configuration files and the integration files. For information on how to integrate ALM Platform with Apache, see Chapter 6, "Integrating JBoss with Apache."

Mercury Tours Web Application and ALM Demo Project

Verify which additional ALM Platform components you want to install:

- ▶ **Mercury Tours.** This is a sample Web-based travel reservation application that you must install to work with the *HP Application Lifecycle Management Tutorial*.
- ▶ **ALM Demo Project.** This helps you get started with ALM and is a prerequisite for working with the *HP Application Lifecycle Management Tutorial*.

After installation, in Site Administration, import the **ALM_Demo.qcp** file. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.

Mail Server Information

Verify which mail server to use. Ask your system administrator for assistance. If you are using an SMTP Server, check that you have the SMTP Server name and port. The installer checks that the specified mail server name and port are valid and that the mail server is running.

Database Prerequisites for Oracle

Verify that you have the following Oracle database information.

Database type and version	Verify that ALM Platform supports your database type and version. For the list of supported databases, refer to: http://www.hp.com/go/TDQC_SysReq .
Database server name	Verify the name of the database server.
Database user permissions	Verify that you have the database permissions required to install ALM Platform on the Oracle database server. For a list of required permissions, see "User Permissions for Installing ALM Platform on an Oracle Database" on page 37.

<p>Database schema name and password</p>	<ul style="list-style-type: none"> ➤ The default Site Administration database schema name is <code>qcsiteadmin_db</code>. If you want to rename the schema, you can change the name in the configuration wizard. For more information, see step 28 on page 76. ➤ You can create your own ALM Platform user password for accessing the database schema. ➤ If there is an existing database schema, verify whether you want to: <ul style="list-style-type: none"> ➤ Upgrade the existing schema and switch all users to ALM 11.00. ➤ Create a copy of the existing schema and upgrade the copy. This enables you to work with ALM 11.00 and previous versions of Quality Center simultaneously (recommended option). ➤ To install ALM Platform on an existing database schema (second node or upgrade), you must have: <ul style="list-style-type: none"> ➤ The existing database schema name and the database administrator permissions required to install ALM Platform on the database server. ➤ Full read/write permissions on the existing repository (see "Permissions Required to Install ALM Platform" on page 29). ➤ ALM Platform must have access to the previous Site Administration schema repository path. ➤ Full read/write permissions for the ALM Platform user to the previous Site Administration schema repository path.
<p>Database tablespace name and size</p>	<ul style="list-style-type: none"> ➤ Verify the name of the database server, and check the connection to the database server. Ping the database server machine name to test DNS resolution. ➤ Verify you have the tablespace names (default and temporary) and the minimum tablespace sizes for storing the ALM Platform schema. ➤ Verify that the tablespace is not locked.

User Permissions for Installing ALM Platform on an Oracle Database

To install ALM Platform on an Oracle database server, the installing database user must have sufficient permissions to perform certain administrative tasks in Oracle. These tasks include creating the ALM Platform project user schema, copying data between projects, and checking that there is sufficient storage in a specific tablespace.

If you are unable to use the Oracle `system` user due to security reasons, it is recommended that your database administrator create an ALM Platform database administrative user, for example `qc_admin_db`, with the specific privileges required to install ALM Platform.

Your database administrator can create an ALM Platform database administrative user using the example script, `qc_admin_db__oracle.sql`, which is located in the `\utilities\databases\scripts` directory on the installation DVD. This script creates the ALM Platform database administrative user with the recommended grants required on the database. Your database administrator should run the script and create this user on the staging database server.

This sections includes:

- "Database Administrative User Privileges" on page 38
- "Project User Schema Privileges" on page 40

Database Administrative User Privileges

Following are the recommended privileges required by the ALM Platform database administrative user. Additional explanations about these privileges can be found in the notes at the end of the table.

Privilege	Description
CREATE SESSION WITH ADMIN OPTION ⁽¹⁾	ALM Platform uses this privilege to connect to the database as the ALM Platform database administrative user.
CREATE USER	Required to create a new project user schema when creating a new ALM project.
DROP USER	When deleting an ALM project, ALM attempts to remove the database schema from the database server. If there is an insufficient privileges error, ALM ignores the error and requests that the user notify the database administrator to delete (drop) the database user schema.
CREATE TABLE WITH ADMIN OPTION ⁽¹⁾	Required for granting this permission to a newly created ALM Platform project user schema.
CREATE VIEW WITH ADMIN OPTION ⁽¹⁾	Required to create views for ALM projects.
CREATE TRIGGER WITH ADMIN OPTION ⁽¹⁾	Required to create triggers for ALM projects. ALM uses database triggers to collect change history for specific tables.
CREATE SEQUENCE WITH ADMIN OPTION ⁽¹⁾	Required to create sequences for ALM projects.
CREATE PROCEDURE WITH ADMIN OPTION ⁽¹⁾	Required to create stored packages for ALM projects. ALM uses packages to collect change history for specific tables.
CTXAPP Role WITH ADMIN OPTION ⁽¹⁾	Enables ALM to use the Oracle text searching feature. This role exists only if the Oracle text search component was installed and enabled on the database server.

Privilege	Description
SELECT ON DBA_FREE_SPACE ⁽²⁾	Required to check free space on the database server prior to creating a new database schema for Site Administration or a new project.
SELECT ON SYS.DBA_TABLESPACES ⁽²⁾	Required to collect a list of tablespaces that exist on the database server prior to creating a new database schema for Site Administration or a new project.
SELECT ON SYS.DBA_USERS ⁽²⁾	Required to verify the existence of specific database project users. For example, you might want to verify the existence of an Oracle CTXSYS user before creating a new ALM project.
SELECT ON SYS.DBA_REGISTRY ⁽²⁾	Required to verify that the text search component is installed on the database server.
SELECT ON SYS.DBA_ROLES ⁽²⁾	Required to verify that the text search role (CTXAPP) is installed on the database server.
SELECT ANY TABLE WITH ADMIN OPTION ⁽¹⁾ and INSERT ANY TABLE	Required for various administrative operations when upgrading the Site Administration schema during installation using the copy and upgrade method, and for enhancing performance when copying a project that has the same source and target database server.
<p>Notes:</p> <ul style="list-style-type: none"> ➤ ⁽¹⁾ An ALM Platform database administrative user must have privileges with Admin Option. ➤ ⁽²⁾ The SELECT ON SYS privileges can be given directly by the table owner, or through a database application role. To avoid giving these privileges each time, you can grant this role to the ALM Platform database administrative user. The recommended name for this role is QC_SELECT_ON_SYS_OBJECTS. You can create this role using the qc_sys_db__oracle.sql example script, which is located in the \utilities\databases\scripts directory on the installation DVD. You should run this script before you run the qc_admin_db__oracle.sql script. 	

Project User Schema Privileges

When creating a new project or restoring an existing project, ALM creates a project user schema. This user schema hosts all the tables that are used by the project for storing and retrieving data. Following are the required privileges for an ALM Platform project user schema:

Project User Schema Privilege	Description
QUOTA UNLIMITED ON <default tablespace>	Required for creating database objects that are owned by the ALM Platform project user schema. This requirement allows users to create tables in the default tablespace. It replaces the UNLIMITED TABLESPACE system privilege that gave users system privileges to create tables in any tablespace, including the SYSTEM tablespace.
CREATE SESSION	ALM Platform uses this privilege to connect to the database user schema to perform required operations, for example creating database objects such as tables, and using them to insert, retrieve, and delete data from them.
<ul style="list-style-type: none"> ▶ CREATE TABLE ▶ CREATE VIEW ▶ CREATE TRIGGER ▶ CREATE SEQUENCE ▶ CREATE PROCEDURE ▶ CTXAPP Role 	For a description of these privileges, see the table of required ALM Platform database administrative user privileges on page 38.

Tip: The installation DVD contains an example script that describes the recommended permissions required for the ALM Platform database project user schema. This script contains information, and does not need to be run. It is located at `\utilities\databases\scripts\qc_project_db__oracle.sql`.

Oracle RAC Support

Oracle RAC is a way to enhance Oracle database availability, allowing it to interact with more than one database instance.

ALM Platform RAC support includes:

- ▶ Load balancing between Oracle instances.
- ▶ Failover between all specified Oracle RAC nodes at initial connection.

ALM Platform RAC support does not include:

- ▶ TAF (Transparent Application Failover) support. A user failing to complete a request upon an Oracle instance crash is required to perform the activity again with a working Oracle instance.

To enable Oracle RAC support:

- 1** Verify that a file containing information of Oracle database addresses is saved on your ALM Platform machine. On an Oracle client, the file is named **tnsnames.ora**. The file should contain information similar to the following example:

```
OrgRAC =
(DESCRIPTION =
  (ADDRESS_LIST=
    (FAILOVER = on)
    (LOAD_BALANCE = on)
    (ADDRESS= (PROTOCOL = TCP)(HOST = server1)(PORT = 1521))
    (ADDRESS= (PROTOCOL = TCP)(HOST = server2)(PORT = 1521))
    (ADDRESS= (PROTOCOL = TCP)(HOST = server3)(PORT = 1521))
  )
  (CONNECT_DATA=
    (SERVICE_NAME = myrac.yourcompany.com)
  )
)
```

- 2** Verify that you have the address of the TNS server ALM Platform should refer to. For example, OrgRAC.

Database Prerequisites for Microsoft SQL

Verify that you have the following Microsoft SQL database information.

Database type and version	<ul style="list-style-type: none">▶ Verify that ALM Platform supports your database type and version. For the list of supported databases, refer to: http://www.hp.com/go/TDQC_SysReq.▶ Verify the database server authentication type: Windows authentication or Microsoft SQL Server authentication. If you upgrade a project to ALM 11.00, you must use the same type of Microsoft SQL Server authentication that you used before the upgrade.▶ For Microsoft SQL Server Windows Authentication, check that you can log in to the database.
Database server name	Verify the name of the database server.
Database user permissions	Verify that you have the database permissions required to install ALM Platform on the Microsoft SQL database server (not applicable for Windows Authentication). For a list of required permissions, see "User Permissions for Installing ALM Platform on a Microsoft SQL Server" on page 43.

<p>Database schema name and password</p>	<ul style="list-style-type: none"> ▶ The default Site Administration database schema name is <code>qcsiteadmin_db</code>. If you want to rename the schema, you can change the name in the configuration wizard. For more information, see step 28 on page 76. ▶ You can create your own ALM user password for accessing the database schema. ▶ If there is an existing database schema, verify whether you want to: <ul style="list-style-type: none"> ▶ Upgrade the existing schema and switch all users to ALM 11.00. ▶ Create a copy of the existing schema and upgrade the copy. This enables you to work with ALM 11.00 and previous versions of Quality Center simultaneously (recommended option). ▶ To install ALM Platform on an existing database schema (second node or upgrade), you must have: <ul style="list-style-type: none"> ▶ The existing database schema name and the database administrator permissions required to install ALM Platform on the database server. ▶ Full read and write permissions on the existing repository (see "Permissions Required to Install ALM Platform" on page 29). ▶ ALM Platform must have access to the previous Site Administration schema repository path. ▶ Full read/write permissions for the ALM Platform user to the previous Site Administration schema repository path.
---	---

User Permissions for Installing ALM Platform on a Microsoft SQL Server

To install ALM Platform on a Microsoft SQL database server, the installing database user must have sufficient permissions to perform certain administrative tasks in SQL.

If you have the SQL `sa` user, you can use this user to install ALM Platform. If you are unable to use the SQL `sa` user due to security reasons, it is recommended that your database administrator create an ALM Platform database administrative user, for example `td_db_admin`, with the specific privileges required to install ALM Platform.

The `td_db_admin` user must have the **Database Creators** role. You can also grant the `td_db_admin` user the **Security Administrators** role, which will allow it to create a `td` user with only those privileges required for running ALM Platform. Alternatively, you can create a `td` user before installing ALM Platform. To create a `td` user, follow steps 1-3 below, and type `td` as the user name. The `td` user should be assigned the database `db_ddladmin` role. It is important that the `td` user is not assigned any server role.

To create an ALM Platform database administrative user on Microsoft SQL Server:

- 1** Open the **SQL Server Management Studio**.
- 2** In the **Object Explorer** pane, under the ALM Platform database server, expand the **Security** folder.
- 3** Right-click the **Logins** folder, and select **New Login**.
- 4** Type `td_db_admin` as the user name, and select the authentication type (enter password if necessary).
- 5** Click the **Server Roles** tab, and select the **dbcreator** option.
- 6** Click **OK**.

To test the ALM Platform database administrative user (SQL Server Authentication):

- To verify the select sysdatabases table permission in the master database:

```
SELECT name FROM sysdatabases where name=<db_name>
```

- To verify the create database permission:

```
CREATE DATABASE <dbName> -- the database name must not already exist
```

- To verify the drop database permission:

```
DROP DATABASE <database_name> -- the database name must exist
```

- To verify the select syslogins permission:

```
SELECT COUNT(*) FROM master..syslogins WHERE name=<dbOwnerName>
```

Note: The dbOwnerName must be set to **td**.

To test the ALM Platform database administrative user (Windows Authentication):

- To verify the change database context permission:

```
USE <dbName>
```

- To verify the create database permission:

```
CREATE DATABASE <dbName> -- the database name must not already exist
```

- To verify the select on syslogins permission:

```
SELECT COUNT(*) FROM master..syslogins WHERE name='<dbOwnerName>'
```

- ▶ To verify the select on sysusers permission:

```
SELECT COUNT(*) FROM master..sysusers WHERE name='<dbOwnerName>'
```

Site Administration Login Credentials

You define the site administrator name and password when you log in to Site Administration for the first time.

- ▶ For a clean installation, you can use any valid Site Administration user name and password.
- ▶ For an existing database schema, if you are using an existing Site Administration user, the password should be the same as the one in the previous version of Quality Center. In addition, the project directory should point to your existing domain repository.

ALM Platform Repository Path

The location of the repository directory is specified by the user during installation. The default location on Windows 2003 is **C:\Documents and Settings\All Users\Application Data\HP\ALM\repository**. You must have full control permissions on the ALM Platform repository path as described in "Permissions Required to Install ALM Platform" on page 29.

ALM Client-Side Prerequisites

The following prerequisites must be met before you can download HP Application Lifecycle Management to a client machine.

✓	Topics	Page:
	System Configurations	47
	Permissions Required to Download ALM Client	48
	Internet Explorer Configuration	49

System Configurations

Verify that client machines meet the ALM system configurations. For the supported and recommended system configurations for ALM clients, refer to the *HP Application Lifecycle Management 11.00 Readme*.

Important: The supported environment information in the *HP Application Lifecycle Management 11.00 Readme* is accurate for the ALM 11.00 release, but there may be updates for ALM 11.00 patches. For the most up-to-date supported environments, refer to the HP Software Web site using the following URL: http://www.hp.com/go/TDQC_SysReq

In addition, the following must be installed on client machines:

- Visual C++ 2005 SP1 ATL Security Update Redistributable
- Microsoft .NET Framework 3.5 (SP1)

Notes:

- ▶ If you are integrating ALM with other HP testing tools, you must modify the DCOM permissions on your client machine. For more information, see HP Software Self-solve knowledge base article KM187086 (<http://h20230.www2.hp.com/selfsolve/document/KM187086>).
 - ▶ You can work with the ALM client using a remote desktop.
 - ▶ For customers using remote or mass distribution mechanisms, ALM client components can be deployed locally on workstations by running a self-extracting **msi** file. You build the **msi** file by running the **HP ALM Client MSI Generator** on the **More HP Application Lifecycle Management Add-ins** page. For more information on running add-ins, see Chapter 8, "Installing HP ALM Add-ins".
-

Permissions Required to Download ALM Client

Installing and running an ALM client does not require special permissions.

Note: Installing Site Administration requires that you have administrator privileges on your machine.

To enable ALM to work with HP testing tools as well as various other integrations and third-party tools, you must register ALM components on your client machine, by running the HP ALM Client Registration add-in. To install the add-in you must log in to the client machine with administrator privileges. For more information, see "Registering ALM on a Workstation" on page 118.

Internet Explorer Configuration

Before you download Application Lifecycle Management on a client machine, you must perform the following configurations to the Internet Explorer browser on the client machine.

- ▶ Configure the Custom Level security settings. The Custom Level security setting should be configured for the specific zone of the ALM Platform server.
- ▶ Set Internet Explorer as the default Web browser. This ensures that external links to ALM entities will open in ALM.

To configure security settings on the client machine:

- 1** In Internet Explorer, select **Tools > Internet Options**. The Internet Options dialog box opens.
- 2** Click the **Security** tab. The Web content zone of the ALM Platform server (**Internet** or **Local intranet**) is automatically selected. Click **Custom Level**.
- 3** In the Security Settings dialog box, configure the following settings:

Under **.NET Framework-reliant components**:

- ▶ Set **Run components not signed with Authenticode** to **Enable**.
- ▶ Set **Run components signed with Authenticode** to **Enable**.

Under **ActiveX controls and plug-ins**:

- ▶ Set **Run ActiveX controls and plug-ins** to **Enable**.
- ▶ Set **Download signed ActiveX controls** to **Enable** or **Prompt**.

Note: You do not need to enable **Download signed ActiveX controls** if you install the ALM client by using the HP ALM Client MSI Generator Add-in on the More HP Application Lifecycle Management Add-ins page. This allows you to install all ALM modules on a client machine without downloading them through a browser. For more information on installing add-ins, see Chapter 8, "Installing HP ALM Add-ins".

4 On **Windows Vista** and **7**:

- a** Add the ALM Platform server site to the Trusted Sites security zone.
- b** Disable the **Protected Mode** for the Trusted Sites security zone (Windows Vista default).

5 Click **OK**.

To set Internet Explorer as the default web browser:

- 1** In Internet Explorer, select **Tools > Internet Options**. The Internet Options dialog box opens.
- 2** Click the **Programs** tab.
- 3** Under **Default web browser**, make sure that Internet Explorer is set as the default browser. If not, click the **Make default** button.

Upgrading Projects and Database Schemas

This section describes how to upgrade your projects and existing database schemas to ALM 11.00.

To upgrade from a previous Quality Center version with minimal interruption to your system operations, you should be familiar with the considerations and recommendations involved in the upgrade process. For information on upgrade methodology, see *HP Application Lifecycle Management Upgrade Best Practices*.

Performance Center: To work with projects created in previous Performance Center versions, you must upgrade your projects to align them with the required configurations of ALM. For details, see the *HP Application Lifecycle Management Performance Center Installation Guide*.

This section includes:

- ▶ Upgrading Projects from Previous Versions and Editions
- ▶ Upgrading Version Control
- ▶ Upgrading Existing Schema

Upgrading Projects from Previous Versions and Editions

The following table describes the process required for working with a previously created project. For more information on upgrading projects, refer to the *HP Application Lifecycle Management Administrator Guide*.

Caution: Before upgrading a project for which a Quality Center extension is enabled, you must first install the updated version of the extension on ALM Platform 11.00. Upgrading a project before installing the updated extension may render the project unusable.

From version:	To ALM 11.00:
Quality Center 10.00	<ol style="list-style-type: none"> 1 Install ALM Platform 11.00. The installation process updates your schema. 2 Upgrade your projects using ALM Site Administration 11.00.
Quality Center 9.2	<ol style="list-style-type: none"> 1 If you are working with Microsoft SQL Server 2000 database server, you must migrate your database to a supported database. For more information, consult your database administrator. 2 Install ALM Platform 11.00. The installation process updates your database schema. 3 Upgrade your projects using ALM Site Administration 11.00.
Quality Center 9.0	Projects must first be upgraded to Quality Center 9.2 or Quality Center 10.00.
Quality Center 8.x, TestDirector 8.0, or TestDirector 7.6	Projects must first be upgraded to Quality Center 9.2.

From version:	To ALM 11.00:
Quality Center Starter Edition 11.00	<ol style="list-style-type: none"> 1 If you are upgrading to HP ALM Quality Center Enterprise Edition or HP ALM, migrate your Microsoft SQL Server 2005 Express database to a supported database. For more information, consult your database administrator. 2 Install HP ALM Quality Center Enterprise Edition or HP ALM on a supported operating system. When upgrading an existing Site Administration database schema, you must use the migrated database name. 3 You do not need to upgrade your projects.
Quality Center Enterprise Edition 11.00	If you are upgrading to HP ALM, you do not need to upgrade your projects.

Upgrading Version Control

Upgrading Quality Center 10.00 version control enabled projects. Version control enabled projects from Quality Center 10.00 cannot be upgraded to ALM 11.00 while there are checked out entities. All entities must be checked in in Quality Center 10.00.

Upgrading from legacy version control projects. To work with projects from Quality Center 9.0 or Quality Center 9.2 that use version control, you must first upgrade to Quality Center 10.00, migrate legacy version control data, and then upgrade to ALM 11.00. For information on migrating legacy version control data to Quality Center 10.00, see HP Software Self-solve knowledge base article KM632120 (<http://h20230.www2.hp.com/selfsolve/document/KM632120>).

Upgrading Existing Schema

If you are upgrading to ALM 11.00 from a previous Quality Center version, during the installation process, you must provide the name of the existing database schema, and choose one of the following schema upgrade options:

- ▶ **Upgrade existing schema.** Uses the existing Site Administration database schema. Choose this option if you want to upgrade the existing schema and switch all users to ALM 11.00. If you choose this option, you cannot work with projects or users created in previous versions of Quality Center until you upgrade them to ALM 11.00.
- ▶ **Upgrade a copy of the existing schema.** Creates a copy of the existing Site Administration database schema, and upgrades the copy. This is the recommended option as it enables you to work in ALM 11.00 with new and upgraded projects, and to continue to work in your previous version of Quality Center with projects that have not been upgraded. This allows you to upgrade your existing projects incrementally. For further notes and guidelines on upgrading a copy of the existing schema, see "Guidelines for Upgrading a Copy of the Existing Schema" on page 55.

Note: The new database schema is created in the same tablespace as the existing Site Administration database.

For more information on using an existing database schema, see "Database Prerequisites for Oracle" on page 35, or "Database Prerequisites for Microsoft SQL" on page 42.

Guidelines for Upgrading a Copy of the Existing Schema

If a Site Administration database schema exists on your database server machine and you choose to upgrade a copy of the existing schema, consider the following guidelines:

ALM users	After you install ALM Platform 11.00, if you add or delete users, or update user details in your previous version of Quality Center, you must make the same changes in ALM 11.00.
ALM configuration parameters	After you install ALM Platform 11.00, if you modify configuration parameters in your previous version of Quality Center, you must make the same changes in ALM 11.00.
Server node configuration	If you are working with server nodes, in the Servers tab in Site Administration for ALM 11.00, you must reconfigure the settings for the ALM Platform log file and the maximum number of database connections.
ALM Platform repository path	The repository path in your previous version must be defined as a network path, so that it can be accessed by both the previous Quality Center server and by ALM Platform 11.00. Make sure that different repository paths are defined for both versions.
DATACONST table	The following constants must be set as network paths in the DATACONST table: <code>db_directory</code> , <code>tests_directory</code> , <code>unix_db_directory</code> , and <code>unix_tests_directory</code> . This enables them to be accessed by both the previous Quality Center server and by ALM Platform 11.00.

2

Installing ALM Platform

This chapter describes how to install ALM Platform. It also describes how to install ALM Platform silently.

Note: For information on installing ALM Platform for Quality Center Starter Edition, see Chapter 3, "Installing Quality Center Starter Edition".

This chapter includes:

- ▶ About Installing ALM Platform on page 57
- ▶ Mounting the File System Repository in a Clustered Environment on page 58
- ▶ Installing ALM Platform on page 60
- ▶ Installing ALM Platform in Silent Mode on page 83
- ▶ Configuring the IIS Mail Service on page 84

About Installing ALM Platform

You can install ALM Platform on a single node or as a cluster. When you install ALM Platform on cluster nodes, all nodes must be identical. For example, all nodes must use the same application server, operating system, ALM Platform directory location, and Site Administration database. In addition, you must install the same version of ALM Platform on all nodes.

If you are working in a clustered environment on a Unix system, you must mount the file system repository before you start the ALM Platform installation process. For more information, see "Mounting the File System Repository in a Clustered Environment" on page 58.

Note: When you are installing ALM Platform on a secondary node of a cluster, you are not required to set up the database, because it was set up when you installed the primary node. Some of the dialog boxes described in this installation procedure are needed only for the primary node and are not displayed if you are installing a secondary node.

Mounting the File System Repository in a Clustered Environment

When working in a clustered environment on a Unix system, you must mount the file system repository before you start the ALM Platform installation process. The mount to the file system repository should not use any cache mechanisms.

To mount a file system repository in Linux:

- **NFS mounts:** When using NFS mounts, modify the `/etc/fstab` file as follows:

```
<source> <target> nfs sync,noac 0 0
```

- **SMBFS mounts:** When using SMBFS (mounted from a Windows machine), modify the `/etc/fstab` file as follows:

```
<source> <target> smbfs  
credentials=/root/.smbpasswd,rw,gid=<GID>,uid=<UID>,  
fmask=0777,dmask=0777 0 0
```

For example:

```
//ALMPlatform/QCrepository /mnt/ALMrepository smbfs
credentials=/root/.smbpasswd,rw,gid=10,uid=almsadmin,
fmask=0777,dmask=0777 0 0
```

Where:

- ▶ //ALMPlatform/QCrepository is the UNC of the source path.
- ▶ uid=almsadmin is a domain user. Note that qcadmin must be a user on the Windows server, and must belong to the Administrators group.
- ▶ /mnt/ALMrepository is the local folder.

The almsadmin in this example must be defined in the credential file (`/root/.smbpasswd`) as follows:

```
username = almsadmin
password = <almsadmin-password>
```

Edit the `/etc/samba/smb.conf` file and change the **workgroup** value to a domain name (for example: HPALM).

To mount a file system repository in Solaris:

NFS mounts: When using NFS mounts, modify the `/etc/vfstab` file as follows:

```
<source> - <target> nfs - yes sync,noac
```

Installing ALM Platform

This section describes how to install ALM Platform 11.00.

Before installing ALM Platform, consider the following:

- ▶ Verify that you meet the installation specifications in the "ALM Platform Prerequisites" on page 27.
- ▶ If you are upgrading your projects and existing database schemas to ALM Platform 11.00, see "Upgrading Projects and Database Schemas" on page 51.
- ▶ If you encounter problems during the ALM Platform installation process, see Appendix A, "Troubleshooting ALM Platform Installation," for troubleshooting suggestions.

To install ALM Platform:

- 1** If you have been working with a previous version of Quality Center, back up your existing projects before installing the new version. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.
- 2** Log in to the ALM Platform host machine with the appropriate permissions. For a list of required permissions, see "Permissions Required to Install ALM Platform" on page 29.
- 3** If Quality Center or ALM Platform is installed on the machine, uninstall it. For more information, see Chapter 12, "Uninstalling ALM Platform."
- 4** If you are installing ALM Platform on a Windows system, make sure the following services are started on the machine:
 - ▶ Secondary Logon
 - ▶ Windows Management Instrumentation

- 5** Insert the HP ALM Platform 11.00 Software installation DVD into the DVD drive and run the appropriate **setup** file for your platform.

If you are installing on a Unix system, make sure that the **DISPLAY** environment variable is properly configured on the ALM Platform host machine, and that the machine from which you are installing is running an X-server (for example, **Exceed**). If the variable is not configured, the installation is run in console mode.

- 6** The HP ALM Platform Installation wizard launches on the Welcome page. Click **Next**.

- 7** The License Agreement page opens.

Read the license agreement. To accept the terms of the license agreement, select **I Agree**.

Click **Next**.

- 8** The Customer Information page opens. Type your **Name** and **Organization**. Click **Next**.

- 9** The Select Installation Folder page opens. Specify the location to which you want to deliver ALM Platform installation files. To browse possible locations, click the **Browse** button, select a location, and click **OK**.

Make sure to enter a unique name for the installation folder. The same name of an existing folder in a different lettercase is not considered unique.

For more information on the required installation directory permissions, see "Permissions Required to Install ALM Platform" on page 29.

Click **Next**.

- 10** The Confirm Installation page opens.

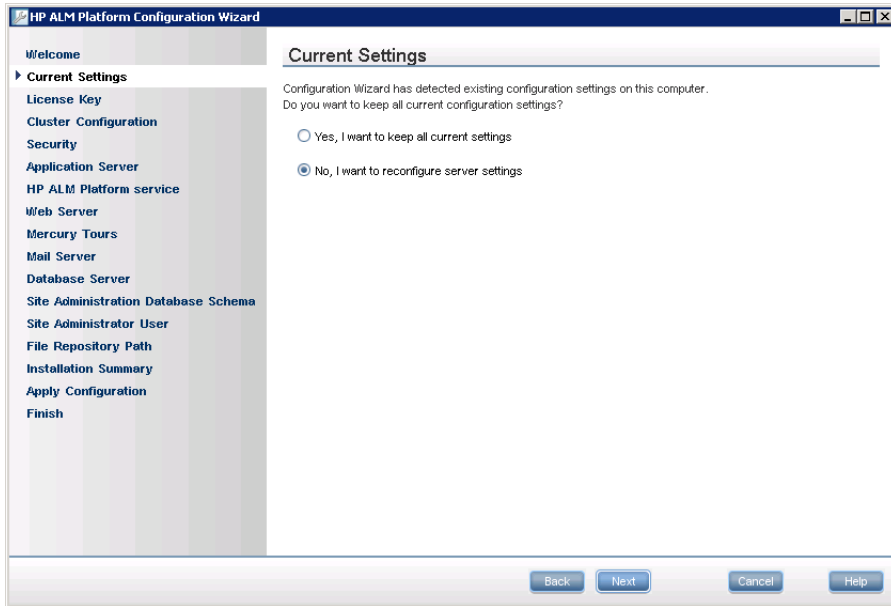
To review or change any settings, click **Back**.

To accept the settings and start the installation process, click **Next**. The ALM Platform files are installed on the server machine.

When the installation process completes, the Installation Complete page opens. Click **Finish**.

- 11** The ALM Platform Configuration Wizard launches on the Welcome page. Click **Next**.

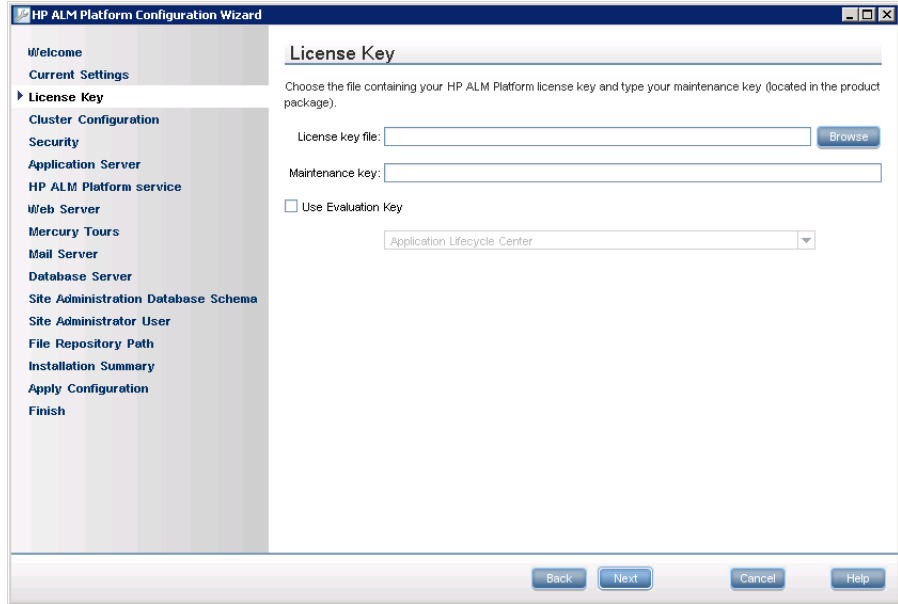
- 12** If the Configuration wizard detects settings from a previous ALM Platform installation, the Current Settings page opens.



- ▶ Select **Yes** to use the current settings as default settings for the current installation. You can make changes to any of the default settings during the wizard.
- ▶ Select **No** to clear all settings in the Configuration wizard.

Click **Next**.

13 The License Key page opens.



License key file. Select one of the following options:

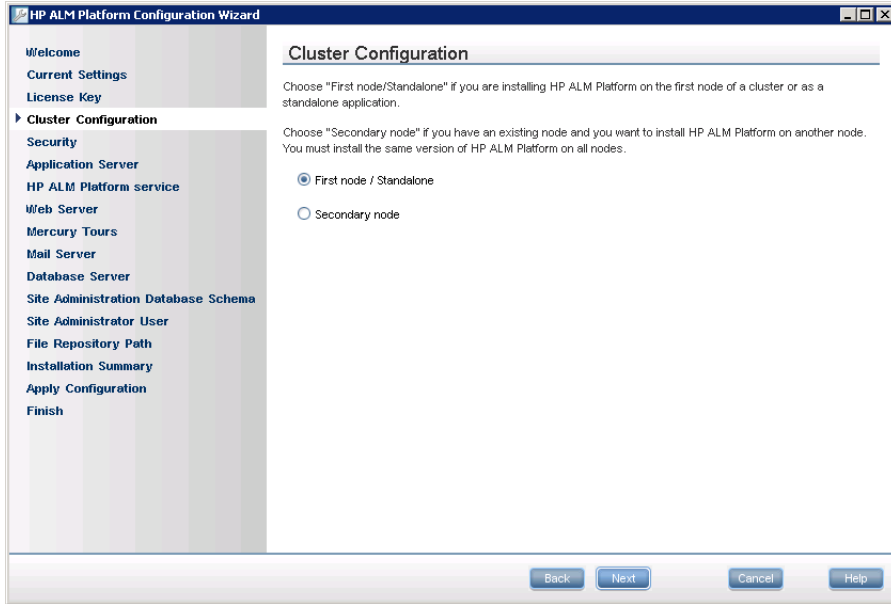
- Select the ALM Platform license file path.
- If you do not have a license file, select **Use Evaluation Key** for a 30-day trial version of ALM Platform, and select an ALM edition. For more information on ALM editions, see "Application Lifecycle Management Editions" on page 23.

Maintenance key. Type the maintenance number supplied to you when you purchased ALM Platform.

For more information on the license file and maintenance key, see "License File and Maintenance Key" on page 31.

Click **Next**.

14 The Cluster Configuration page opens.



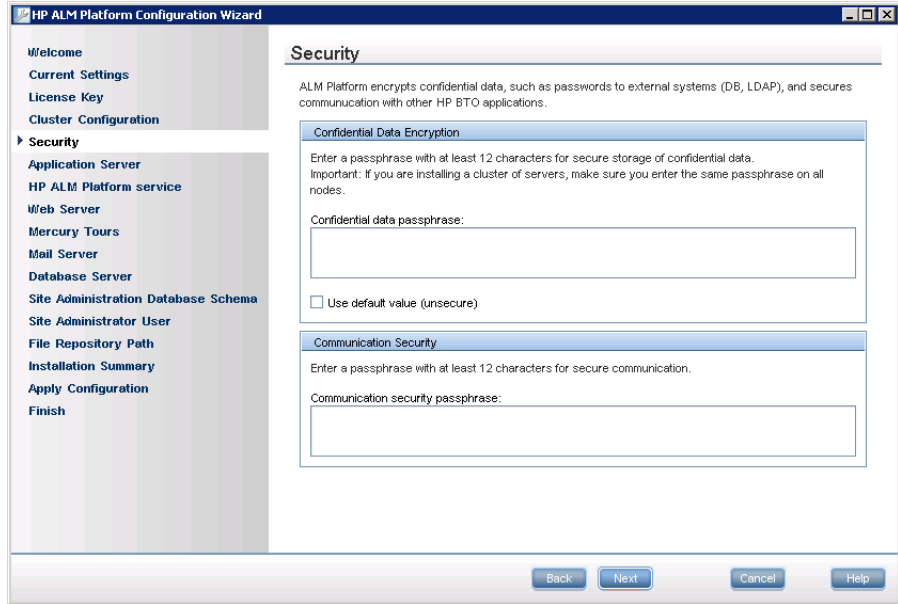
Select a node configuration option:

- ▶ **First node/Standalone.** Installs ALM Platform on the first node of a cluster or as a standalone application.
- ▶ **Secondary node.** If you have an existing node, installs ALM Platform on another node to create a cluster.

For more information on cluster configuration, see "Clustering Configuration" on page 32.

Click **Next**.

15 The Security page opens.



Passwords for accessing external systems (databases and LDAP) are stored by ALM Platform after encryption. Enter a **Confidential data passphrase** that ALM Platform uses to encrypt the information.

Make a note of the passphrase for future support calls.

Notes:

- If you are installing ALM Platform on a cluster, you must use the same passphrase for all nodes.
 - After completing the server configuration wizard, you cannot change the confidential data encryption passphrase.
-

Select **Use default value** to use the ALM Platform default confidential data encryption passphrase.

Caution: By selecting this option, the encrypted information is more vulnerable to unauthorized access.

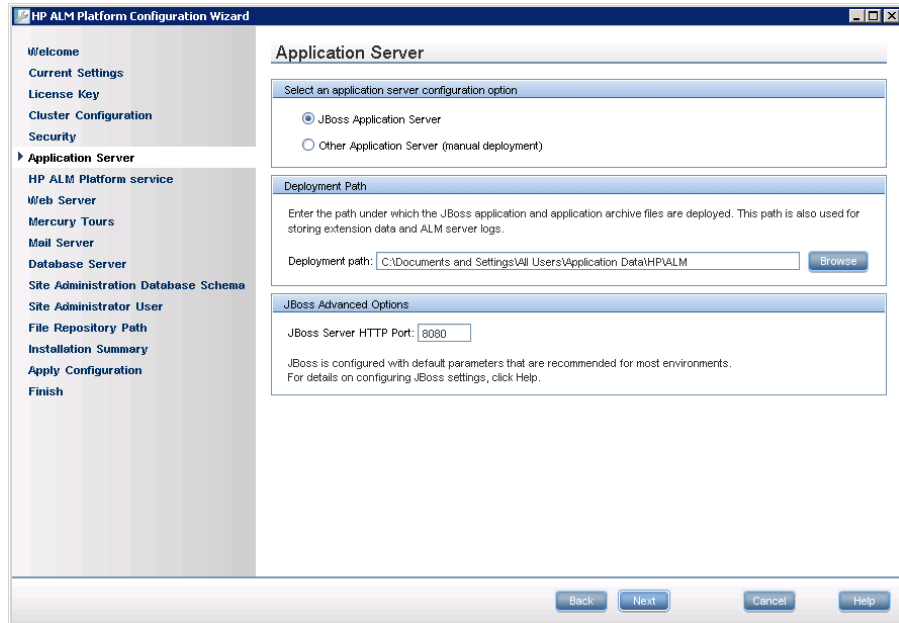
- 16** Communication between ALM Platform and other HP BTO applications is enabled after authentication by a Single Sign-On (SSO) token. Enter a **Communication security passphrase** that ALM Platform uses to encrypt the SSO token. For more information on the SSO token, see Appendix B, "LW-SSO Authentication – General Reference."
-

Notes:

- ▶ The communication security passphrase is stored as the value of the **COMMUNICATION_SECURITY_PASSPHRASE** site configuration parameter. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.
 - ▶ **Performance Center:** You must use the same communication security passphrase for the Performance Center server configuration.
-

Click **Next**.

17 The Application Server page opens.



Select one of the following application server configuration options:

- **JBoss Application Server.** Select this option to work with JBoss.
 - In the **JBoss Server HTTP Port** box, you can change the JBoss server HTTP port number. The default port is 8080.

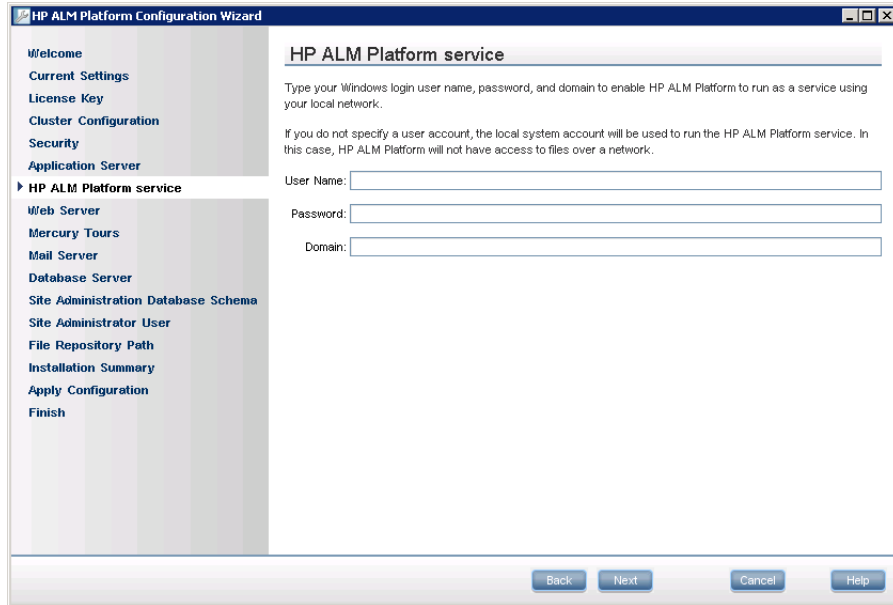
Note: You can update the heap memory value and port number on the JBoss application server after you have installed ALM Platform. For details, see Chapter 11, "Changing the JBoss Heap Memory Size and Port."

- **Other Application Server.** Select this option to work with WebLogic or WebSphere.

- 18 In the **Deployment path** box, specify the location in which you want to deploy ALM Platform application files. To browse possible locations, click the **Browse** button, select a location, and click **OK**.

Click **Next**.

- 19 If you selected **JBoss Application Server**, the HP ALM Platform service page opens.



Type the **User name**, **Password**, and **Domain** to be used to run JBoss as a service. This enables the JBoss service to access your local network.

Notes:

- To use a Microsoft SQL server with Windows authentication, the JBoss user must be the same as the logged on user, and must be a domain user and local administrator.
 - If the repository is on a remote machine, the JBoss user must be a domain user and local administrator.
-

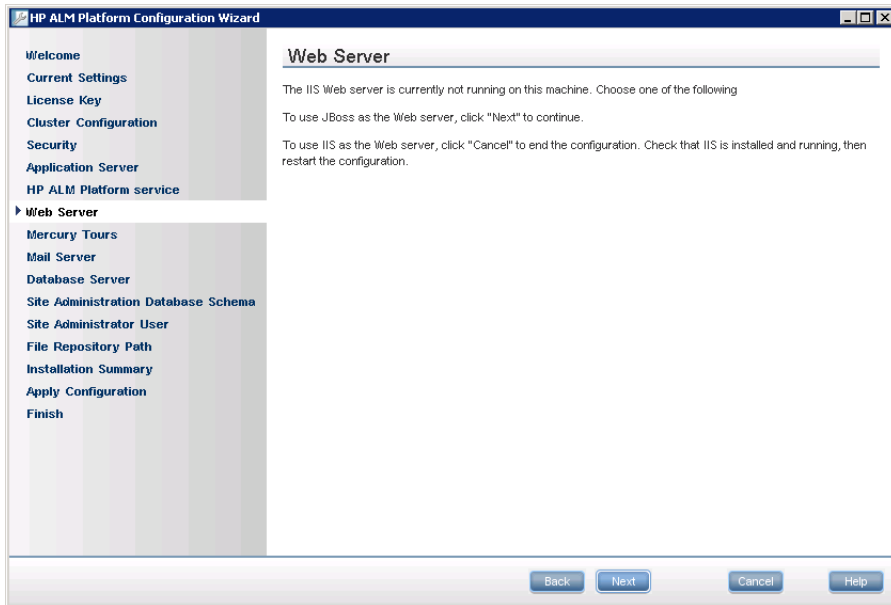
If you leave these fields blank, the local system account is used to run the JBoss service, and the JBoss service does not have access to your local network. This means that the repository and the database must be on the local machine.

For more information about user permissions, see “JBoss on Windows” on page 33.

Click **Next**.

- 20** If the IIS Web server is installed on your machine, proceed to step 21 on page 71.

If the IIS Web server is not installed on your machine, the Web Server page opens.

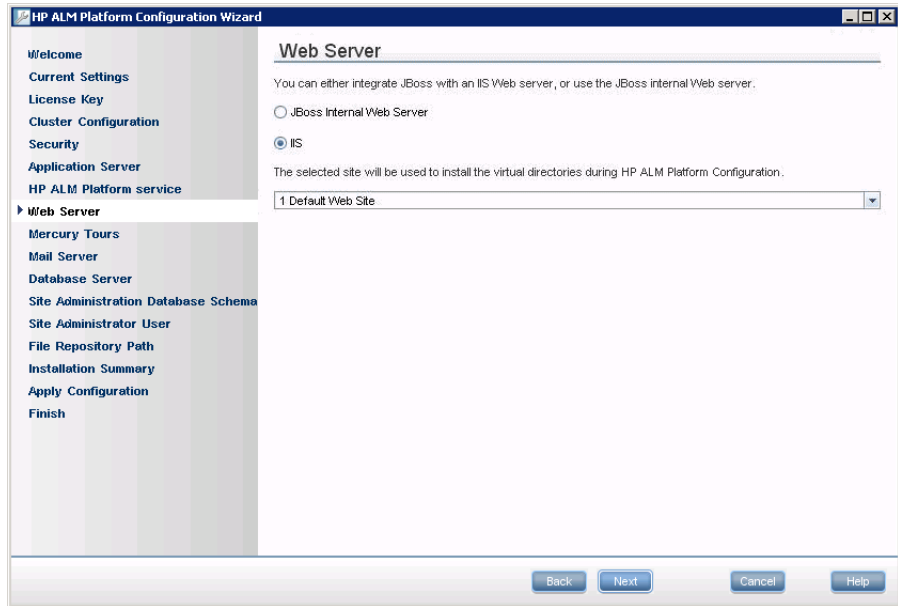


The ALM Platform installation can integrate JBoss with the IIS Web server or with the JBoss Web server. Alternatively, you can manually integrate JBoss with the Apache Web server. For more information, see Chapter 6, "Integrating JBoss with Apache." By default, ALM Platform integrates JBoss with the IIS Web server.

Choose one of the following options:

- To use JBoss as the Web server, click **Next** to continue the installation. Proceed to step 22 on page 72.
- To use IIS as the Web server, click **Cancel** to end the installation. Check that IIS is installed and running, then rerun the ALM Platform Server Configuration Wizard.

- 21** If the IIS Web server is installed on your machine, the Web Server Configuration page opens.



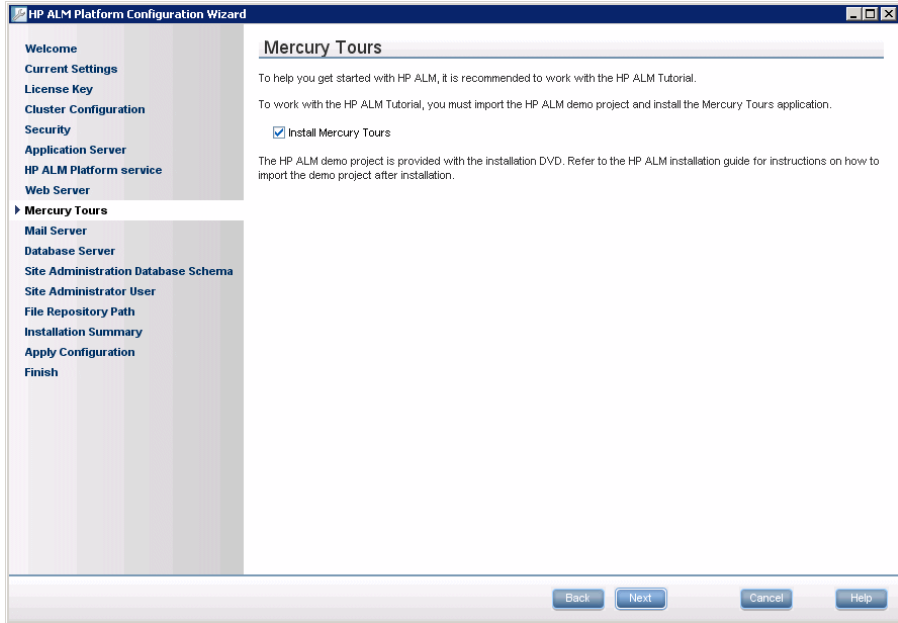
Select the Web server that you want to integrate with JBoss. For more information on the Web server options, see "Web Server Information" on page 34.

If you selected **IIS**, select the IIS Web site that you want ALM Platform to use. It is recommended that you use the **Default Web Site**.

Note: For information on how to redirect requests to JBoss from an IIS server on a remote machine, see HP Software Self-solve knowledge base article KM190530 (<http://h20230.www2.hp.com/selfsolve/document/KM190530>).

Click **Next**.

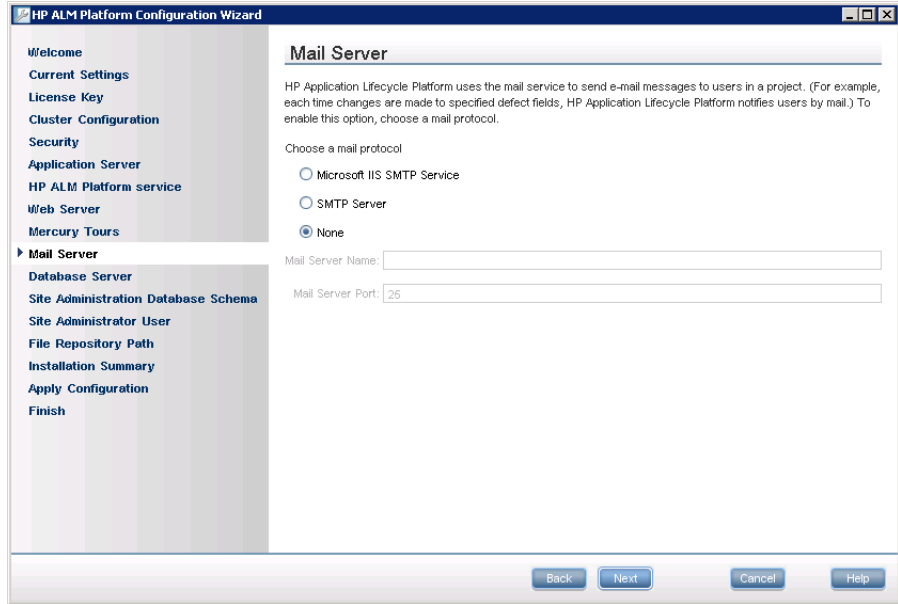
22 The Mercury Tours page opens.



To help you get started with ALM, install the sample Web-based travel reservation application, Mercury Tours. This is a prerequisite for working with the *HP Application Lifecycle Management Tutorial*.

Note: It is recommended that you import the ALM Demo Project available with the ALM Platform 11.00 installation DVD. Importing this project enables you to run all lessons in the *HP Application Lifecycle Management Tutorial*. In Site Administration, import the **ALM_Demo.qcp** file. For more information, refer to the *HP HP Application Lifecycle Management Administrator Guide*.

Click **Next**.

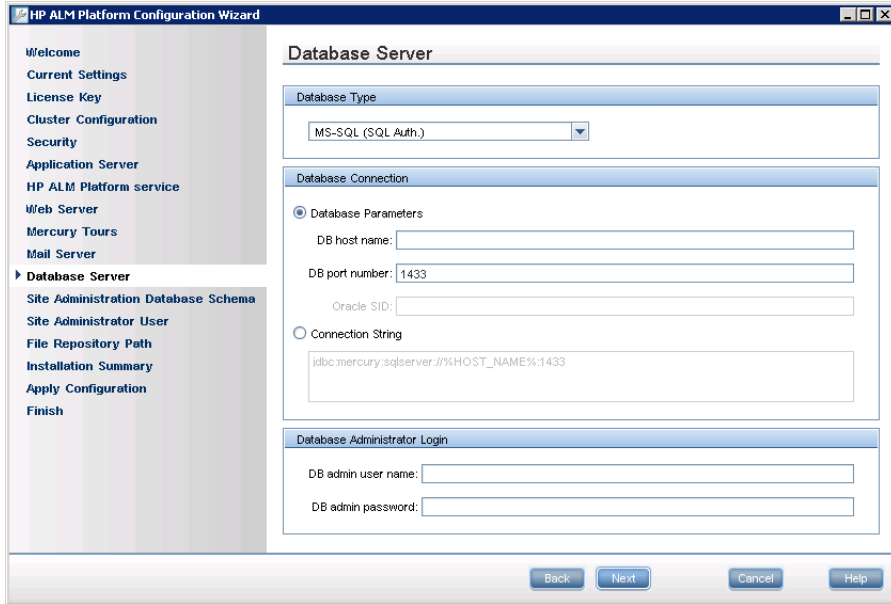
23 The Mail Server page opens.

To enable ALM Platform to send emails to users in an ALM project, choose a mail protocol. For **SMTP Server**, type the server name.

If you selected **Microsoft IIS SMTP Service**, you must configure the Microsoft IIS SMTP service. For more information, see "Configuring the IIS Mail Service" on page 84.

Click **Next**.

24 The Database Server page opens.



Under Database Type, select the database type for the Site Administration database schema.

If you select a Microsoft SQL Server, choose the authentication type:

- ▶ **Microsoft SQL Server (SQL Server Auth.).** Authenticates the user to the database using a database user name and password.
- ▶ **Microsoft SQL Server (Windows Auth.).** Windows authentication relies on the user being authenticated by the operating system.

For more information on database requirements, see "Database Prerequisites for Oracle" on page 35, and "Database Prerequisites for Microsoft SQL" on page 42.

Note: When upgrading a project to ALM 11.00, you must use the same type of SQL authentication that you used before the upgrade.

25 Under Database Connection, specify database connection information.

To use an Oracle RAC database, proceed to step 26.

Select one of the following options:

- ▶ **Database Parameters.** Select this option to enter database server information using the following fields:
 - ▶ **DB host name.** Type the database server name. For example, dbsrv01.
 - ▶ **DB port number.** Type the database server port number, or accept the default port number.
 - ▶ **Oracle SID.** Type the Oracle system identifier. This is an Oracle parameter that identifies the specific Oracle instance on the host machine on which the Oracle server is installed.
- ▶ **Connection String.** Select this option to type a formulated database server connection string.

26 To use an Oracle RAC database, select **Connection String**, and enter a connection string, specifying the location of the **tnsnames.ora** file, and the TNS server that ALM Platform should refer to. Use the following example:

```
jdbc:HP:oracle:TNSNamesFile=<ALM Platform server>\tnsnames.ora;  
TNSServerName=OrgRAC
```

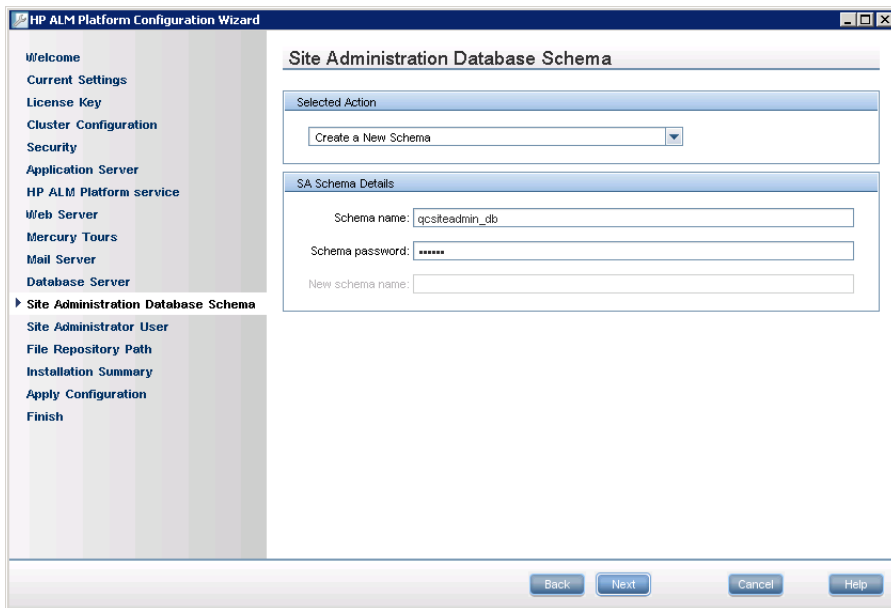
For more information on prerequisites for Oracle RAC support, see "Oracle RAC Support" on page 41.

Note: Verify that the **ORACLE_RAC_SUPPORT** site configuration parameter is set to "Y". For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.

- 27** Under Database Administrator Login, specify the following database connection information (Not applicable for **Microsoft SQL Server Windows Authentication**):
- ▶ **DB admin user name.** Type the name of the user with the administrative permissions required to install ALM Platform on the database server.
 - ▶ **DB admin password.** Type the database administrator password.

Click **Next**.

- 28** The Site Administration Database Schema page opens.



Under **Selected Action**, choose whether to create a new database schema, or to upgrade an existing database schema from a previous version of Quality Center.

If you chose to upgrade an existing database schema, select one of the following schema upgrade options:

- **Upgrade existing schema.** Uses the existing Site Administration database schema. Choose this option if you want to upgrade the existing schema and switch all users to ALM 11.00.
- **Upgrade a copy of the existing schema.** Creates a copy of the existing Site Administration database schema, and upgrades the copy. Choose this option to work in ALM 11.00 and previous versions of Quality Center simultaneously.

Caution: Consider carefully before deciding which schema upgrade option to use. For more details on the schema upgrade options, and additional notes and guidelines, see "Upgrading Existing Schema" on page 54.

29 For ALM Platform on an **Oracle** database:

If you are installing ALM Platform on a secondary node, or if the Site Administration database already exists, the new database schema is created in the same tablespace as the existing schema. Proceed to step 31.

Type the following information:

- **Default Tablespace.** Select a default storage location from the list.
- **Temporary Tablespace.** Select a temporary storage location from the list.

30 Under SA Schema Details, type the following information:

- ▶ **Schema name.** Type a Site Administration database schema name, or accept the default schema name.

Note: When upgrading an existing Site Administration database schema to work in ALM 11.00, you must use the same name that you used before the upgrade.

- ▶ **Schema password.** For **Microsoft SQL Server (SQL Auth.):**
ALM Platform uses the td user to create the Site Administration database schema. For more details on the td user, see "User Permissions for Installing ALM Platform on a Microsoft SQL Server" on page 43.

Type a password for the td user that complies with your organization's password policy, or keep the default tdttd password.

- ▶ **New Schema name.** If you selected **Upgrade a copy of the existing schema**, type a name under which the upgraded copy of the database schema is created.

Click **Next**.

31 The Site Administrator User page opens.

The screenshot shows a window titled "HP ALM Platform Configuration Wizard" with a sidebar on the left and a main content area on the right. The sidebar contains a list of steps: Welcome, Current Settings, License Key, Cluster Configuration, Security, Application Server, HP ALM Platform service, Web Server, Mercury Tours, Mail Server, Database Server, Site Administration Database Schema, Site Administrator User (selected), File Repository Path, Installation Summary, Apply Configuration, and Finish. The main content area is titled "Site Administrator User" and contains the following text: "Type user name and password to be used when logging in to Site Administration. This is not the same as the Site Administration database schema name and password." Below this text are three input fields: "User name:", "Password:", and "Retype password:". At the bottom of the window are four buttons: "Back", "Next", "Cancel", and "Help".

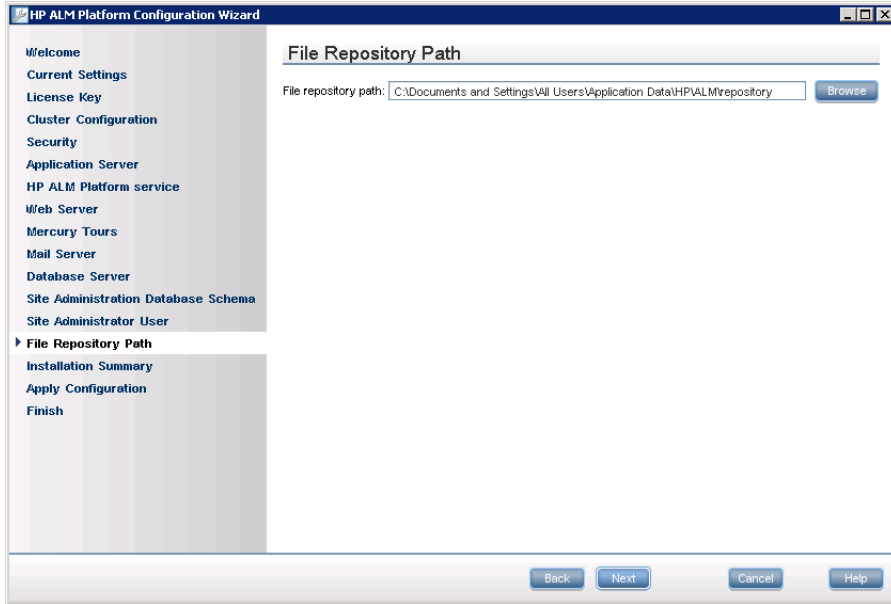
You use the site administrator name and password that you define in this dialog box to log in to Site Administration for the first time. After installation, you can change the site administrator or add other site administrators. Type a site administrator **User name** (maximum length 60 characters) and **Password**, and retype the password to confirm.

Notes:

- It is important that you remember the site administrator user name and password as otherwise you cannot log in to Site Administration.
- For an existing database schema, if you are using an existing user, the password should be the same as the one in the previous version of Quality Center. For more information, see "Site Administration Login Credentials" on page 46.

Click **Next**.

32 The File Repository Path page opens.



In the **File repository path** box, click the browse button to choose a repository path, or accept the default path.

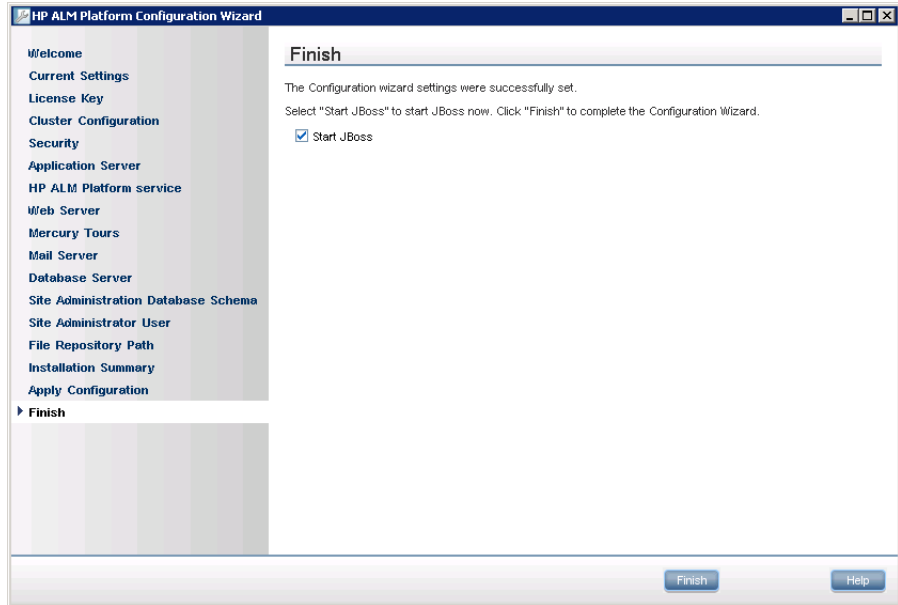
Make sure to enter a unique name for the repository folder. The same name of an existing folder in a different lettercase is not considered unique.

For more information on the Repository path, see "ALM Platform Repository Path" on page 46.

Note: To work with cluster nodes, make sure that all nodes have access to the file repository path.

Click **Next**.

- 33** The Installation Summary page opens. To change any settings, click **Back**.
To accept the settings and start the configuration process, click **Next**.
- 34** The Finish page opens.



If your application server is other than JBoss, proceed to step 35.

If your application server is JBoss, choose one of the following options:

- Select the **Start JBoss** checkbox to start the JBoss server now.
- Clear the **Start JBoss** checkbox to manually start the JBoss server later.

Click **Finish**.

- 35** If you are prompted to restart your computer, you can choose to restart your computer at a later time, but you must restart your computer before you use ALM. You must also restart your computer before you install any ALM related files, such as integration add-ins.

Note: To work with ALM Platform, you may need to disable conflicting applications that are running on the ALM Platform machine. For a list of these applications, see HP Software Self-solve knowledge base article KM176429 (<http://h20230.www2.hp.com/selfsolve/document/KM176429>).

- 36** If you selected to use the JBoss application server, ALM Platform and Mercury Tours are automatically deployed on your application server. If you use a WebLogic or WebSphere application server, you must deploy ALM Platform and Mercury Tours manually.

The war files are located in the **deployment** folder of the ALM Platform deployment directory.

For more information on deploying ALM Platform, see Chapter 4, "Deploying ALM Platform on WebLogic," or Chapter 5, "Deploying ALM Platform on WebSphere."

- 37** If you selected the IIS Web server, from the Windows **Start** menu, select **Run**, and type the IISReset command.

Caution: The Configuration Wizard creates the **qcConfigFile.properties** file that contains ALM Platform configuration data. This file must not be removed from the <**Common AppData directory**>\HP\ALM\conf folder.

Installing ALM Platform in Silent Mode

You can install ALM Platform using a silent installation. A silent installation runs the entire setup process in the background without requiring you to navigate through the setup screens and input your selections. Instead, all configuration parameters are assigned values that you define in a configuration file. To run silent installations for different configurations, you can create multiple configuration files.

Note: When running an installation in silent mode, no messages are displayed. Instead, you can view installation information in the log file, including information on whether the installation was successful. The installation log file can be found under the `%tmp%` directory for Windows platforms. The log file can also be found under the home directory (`~`) of the user installing ALM Platform for Unix platforms.

To run a silent installation:

- 1 Uninstall any previous installations of Quality Center from the server machine.
- 2 Create a configuration file.

You can create a configuration file by recording installation values during an installation. After installing ALM Platform, the `qcConfigFile.properties` configuration file is saved in the following path:

`<ALM Platform deployment path>/HP/ALM/conf`

- 3 From the command line, run the appropriate silent setup file for your platform on the installation DVD:
 - **Windows systems:** `run_silent.bat`
 - **Unix systems:** `silent.sh`

In the command line, add the `-c <configuration file>` parameter to specify the path of the configuration file.

Optionally, add the `-i` parameter to specify an alternative installation path.

Configuring the IIS Mail Service

If you selected **Microsoft IIS SMTP Service** in the Mail Server Properties dialog box, you must configure the Microsoft IIS SMTP service.

To configure the IIS mail service:

- 1** Open the Internet Information Services (IIS) Manager window.
- 2** In the Tree pane, right-click **Default SMTP Virtual Server** and choose **Properties**. The Default SMTP Virtual Server Properties dialog box opens.
- 3** In the Access tab, click the **Connection** button. The Connection dialog box opens. Choose **All except the list below** and click **OK**.
- 4** Click the **Relay** button. The Relay Restrictions dialog box opens. Choose **All except the list below** and click **OK**.
- 5** Click **OK** to close the Default SMTP Virtual Server Properties dialog box.

3

Installing Quality Center Starter Edition

This chapter describes how to install ALM Platform for Quality Center Starter Edition.

Note: During the installation process, the following components are installed: JBoss application server, JBoss web server, and Microsoft SQL 2005 Express. If Microsoft SQL Server 2005 or 2008 is installed on the server machine, you can use the existing installation, by providing the database administrator name and password.

Before installing ALM Platform, consider the following:

- Verify that you meet the installation specifications in the "ALM Platform Prerequisites" on page 27.
- If you encounter problems during the ALM Platform installation process, see Appendix A, "Troubleshooting ALM Platform Installation," for troubleshooting suggestions.

To install Quality Center Starter Edition:

- 1** Log in to the ALM Platform server machine with the appropriate permissions. For a list of required permissions, see "Permissions Required to Install ALM Platform" on page 29.
- 2** If Quality Center or ALM Platform is installed on the machine, uninstall it. For more information, see Chapter 12, "Uninstalling ALM Platform."

- 3** Make sure the following services are started on the machine:
 - ▶ Secondary Logon
 - ▶ Windows Management Instrumentation
- 4** Insert the HP ALM Platform 11.00 Software installation DVD into the DVD drive and run the **setup.exe** file for Windows 32-bit.
- 5** The HP ALM Platform Installation wizard launches on the Welcome page. Click **Next**.
- 6** The License Agreement page opens.

Read the license agreement. To accept the terms of the license agreement, select **I Agree**.

Click **Next**.
- 7** The Customer Information page opens. Type your **Name** and **Organization**. Click **Next**.
- 8** The Select Installation Folder page opens. Specify the location to which you want to deliver ALM Platform installation files. To browse possible locations, click the **Browse** button, select a location, and click **OK**.

For more information on the required installation directory permissions, see "Permissions Required to Install ALM Platform" on page 29.

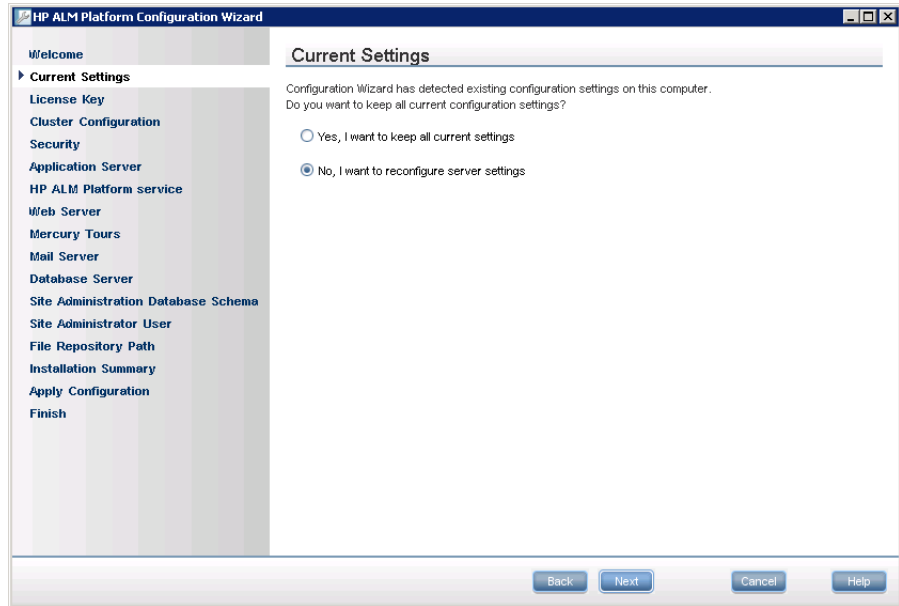
Click **Next**.
- 9** The Confirm Installation page opens.

To review or change any settings, click **Back**.

To accept the settings and install the application files, click **Next**. The ALM Platform files are installed on the server machine.

When the installation process completes, the Installation Complete page opens. Click **Finish**.
- 10** The ALM Platform Configuration Wizard launches on the Welcome page. Click **Next**.

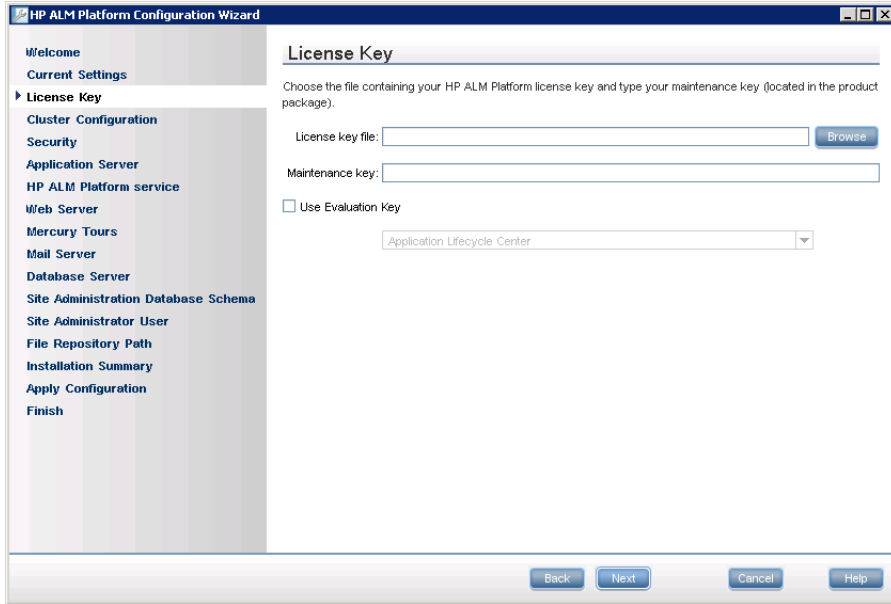
- 11 If the Configuration wizard detects settings from a previous ALM Platform installation, the Current Settings page opens.



- Select **Yes**, to use the current settings as default settings for the current installation. You can make changes to any of the default settings during the wizard.
- Select **No**, to clear all settings in the Configuration wizard.

Click **Next**.

12 The License Key page opens.



License key file. Select one of the following options:

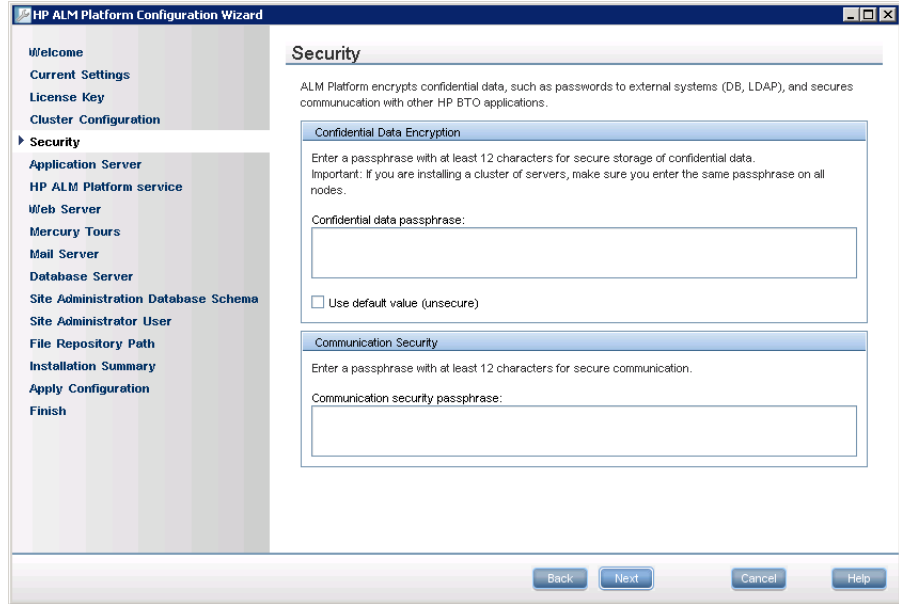
- ▶ Select the ALM Platform license file path.
- ▶ If you do not have a license file, select **Use Evaluation Key** for a 30-day trial version of ALM Platform, and select an ALM edition. For more information on ALM editions, see "Application Lifecycle Management Editions" on page 23.

Maintenance key. Type the maintenance number supplied to you when you purchased ALM Platform.

For more information on the license file and maintenance key, see "License File and Maintenance Key" on page 31.

Click **Next**.

13 The Security page opens.



Passwords for accessing external systems (databases and LDAP), are stored by ALM Platform after encryption. Enter a **Confidential data passphrase** that ALM Platform uses to encrypt the information.

Make a note of the passphrase for future support calls.

Notes:

- If you are installing ALM Platform on a cluster, you must use the same passphrase for all nodes.
 - After completing the server configuration wizard, you cannot change the confidential data encryption passphrase.
-

Select **Use default value** to use the ALM Platform default confidential data encryption passphrase.

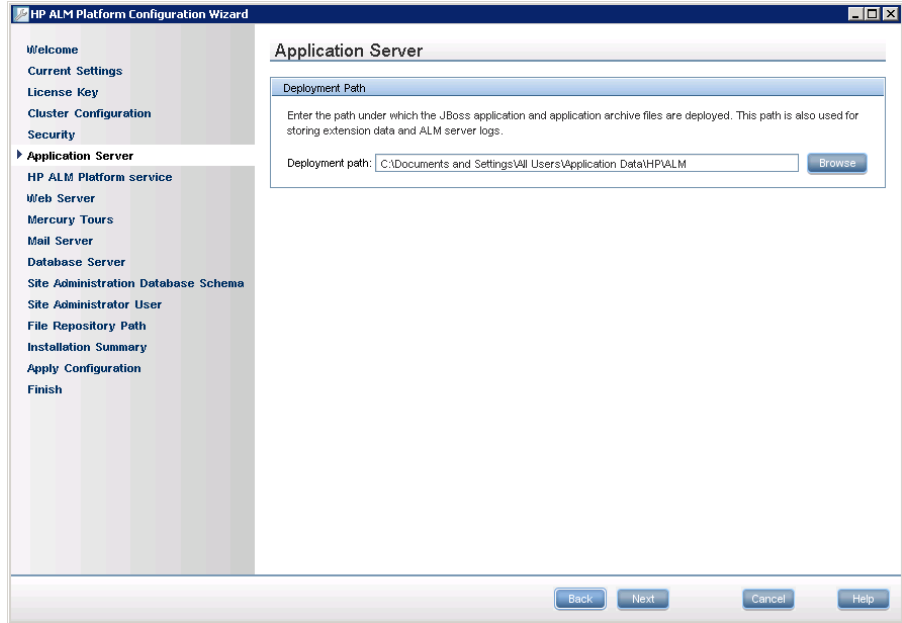
Caution: By selecting this option, the encrypted information is more vulnerable to unauthorized access.

- 14** Communication between ALM Platform and other HP BTO applications is enabled after authentication by a Single Sign-On (SSO) token. Enter a **Communication security passphrase** that ALM Platform uses to encrypt the SSO token. For more information on the SSO token, see Appendix B, "LW-SSO Authentication – General Reference."
-

Notes:

- ▶ The communication security passphrase is stored as the value of the **COMMUNICATION_SECURITY_PASSPHRASE** site configuration parameter. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.
 - ▶ **Performance Center:** You must use the same communication security passphrase for the Performance Center server configuration.
-

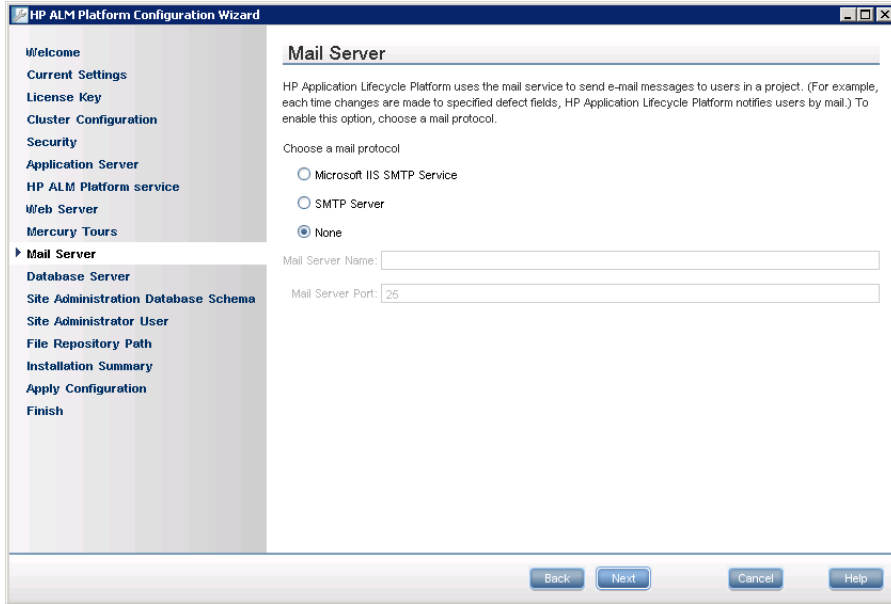
Click **Next**.

15 The Application Server page opens.

Specify the location in which you want to deploy ALM Platform application files. To browse possible locations, click the **Browse** button, select a location, and click **OK**.

Click **Next**.

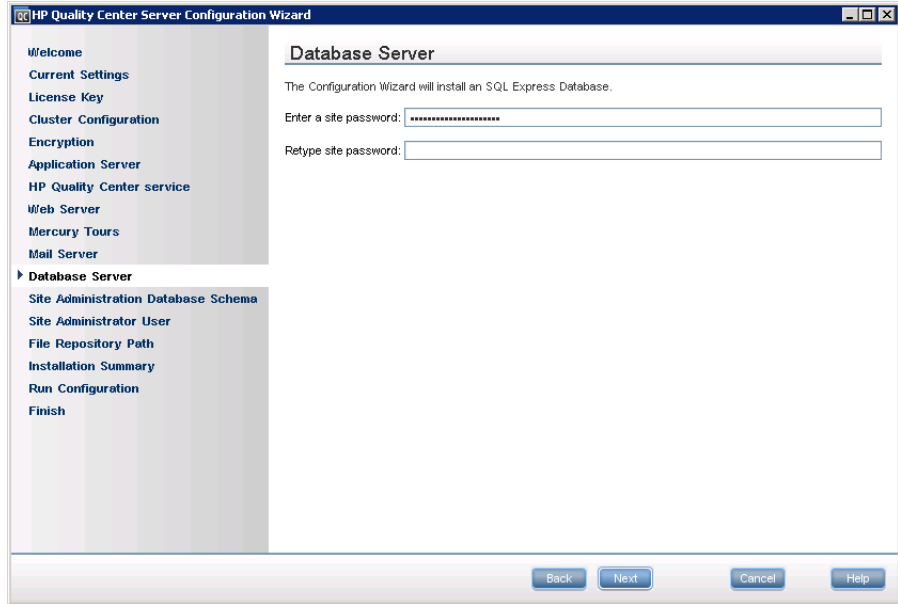
16 The Mail Server page opens.



To enable ALM Platform to send emails to users in an ALM project, choose a mail protocol. For **SMTP Server**, type the server name.

If you selected **Microsoft IIS SMTP Service**, you must configure the Microsoft IIS SMTP service. For more information, see "Configuring the IIS Mail Service" on page 84.

Click **Next**.

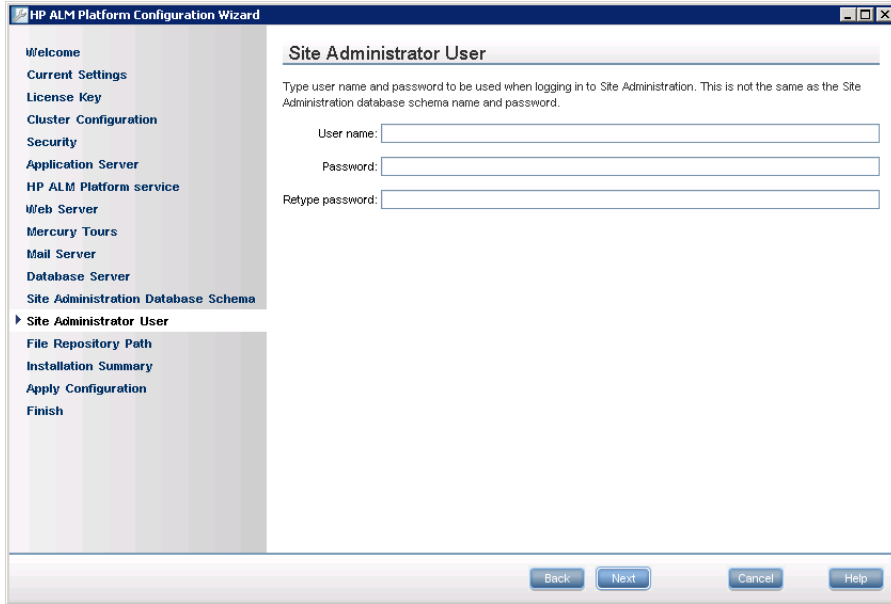
17 The Database Server page opens.

If a Microsoft SQL database is not installed on the server machine, the Configuration Wizard installs Microsoft SQL Express. Enter and confirm a password for the default **sa** database administrator.

If a Microsoft SQL database is installed on the server machine, enter the database administrator name and password.

Click **Next**.

18 The Site Administrator User page opens.



You use the site administrator name and password that you define in this dialog box to log in to Site Administration for the first time. After installation, you can change the site administrator or add other site administrators from Site Administration.

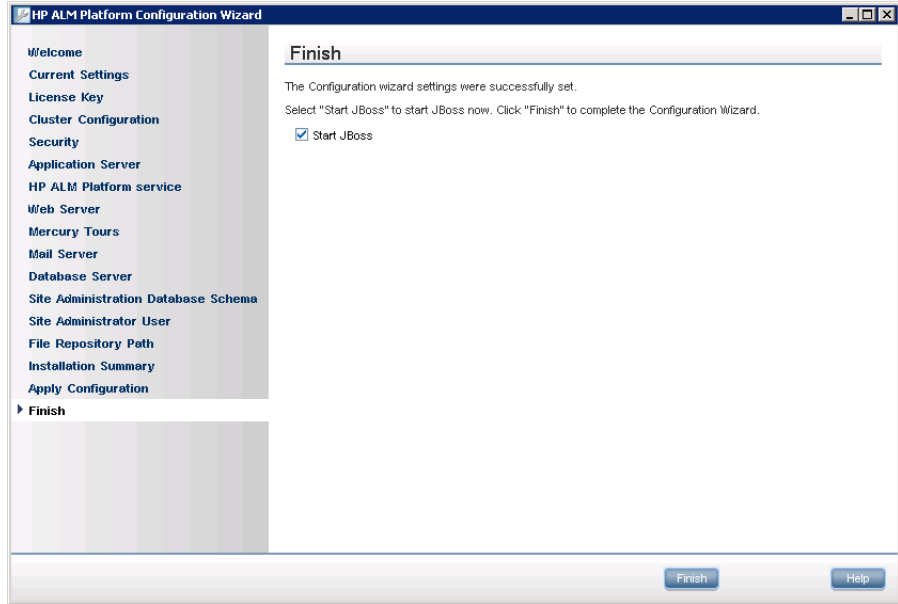
Type a site administrator **User name** (maximum length 60 characters) and **Password**, and retype the password to confirm.

Note: It is important that you remember the site administrator user name and password as otherwise you cannot log in to Site Administration.

Click **Next**.

19 The Installation Summary page opens. To change any settings, click **Back**. To accept the settings and start the configuration process, click **Next**.

20 The Finish page opens.



Choose one of the following options:

- Select the **Start JBoss** checkbox to start the JBoss server now.
- Clear the **Start JBoss** checkbox to manually start the JBoss server later.

Click **Finish**.

- 21** If Microsoft SQL Server Express is already installed on the machine, you are prompted to enter the administrator name and password.
- 22** If you are prompted to restart your computer, you can choose to restart your computer at a later time, but you must restart your computer before you configure or use ALM Platform. You must also restart your computer before you install any ALM Platform related files, such as integration add-ins.

Note: To work with ALM Platform, you may need to disable conflicting applications that are running on the ALM Platform machine. For a list of these applications, see HP Software Self-solve knowledge base article KM176429 (<http://h20230.www2.hp.com/selfsolve/document/KM176429>).

Caution: The Configuration Wizard creates the **qcConfigFile.properties** file that contains ALM Platform configuration data. This file must not be removed from the <**Common AppData directory**>\HP\ALM\conf folder.

4

Deploying ALM Platform on WebLogic

To work with ALM Platform on a WebLogic application server, you must deploy ALM Platform after installation. You also need to undeploy and redeploy ALM Platform when installing patches or updating ALM Platform files.

Notes:

- ▶ You can change the WebLogic user name without having to reinstall ALM Platform. For more information, see HP Software Self-solve knowledge base article KM195708 (<http://h20230.www2.hp.com/selfsolve/document/KM195708>).
 - ▶ When ALM Platform is deployed on a WebLogic application server, a **ClassNotFoundException** Java exception might occur when one of the internal Java classes is not found. For more information, see HP Software Self-solve knowledge base article KM524610 (<http://h20230.www2.hp.com/selfsolve/document/KM524610>).
-

This chapter includes:

- ▶ Deploying ALM Platform on WebLogic on page 98
- ▶ Undeploying ALM Platform on WebLogic on page 100

Deploying ALM Platform on WebLogic

This section describes how to deploy ALM Platform on a WebLogic application server.

Note: When restarting the ALM Platform application on WebLogic, you must restart the WebLogic domain on which ALM Platform is deployed, rather than restarting the ALM Platform application in the WebLogic console.

To deploy ALM Platform on WebLogic:

1 In the `setDomainEnv.cmd` file, update the **CLASSPATH** line:

- ▶ On **Windows** systems:

In the `setDomainEnv` file, add to the following line:

```
set POST_CLASSPATH=%POST_CLASSPATH%;  
%DATABASE_CLASSPATH%;%ARDDIR%\xqrl.jar;
```

the phrase:

```
<BEA>\modules\com.bea.core.apache.xercesImpl_2.8.1.jar;  
<BEA>\modules\com.bea.core.apache.xalan_2.7.0.jar;
```

where **<BEA>** is the WebLogic directory.

- ▶ On **Unix** systems:

In the `setDomainEnv` file, add to the following line:

```
POST_CLASSPATH="${POST_CLASSPATH}${CLASSPATHSEP}  
${DATABASE_CLASSPATH}${CLASSPATHSEP}${ARDDIR}/xqrl.jar
```

the phrase:

```
${CLASSPATHSEP}<BEA>/modules/com.bea.core.apache.xercesImpl_2.8.1.jar  
${CLASSPATHSEP}<BEA>/modules/com.bea.core.apache.xalan_2.7.0.jar
```

where **<BEA>** is the WebLogic directory.

- 2 Stop and start WebLogic.
- 3 Navigate to the ALM Platform deployment directory, and open the `\deployment` folder. By default, the deployment directory is:
`C:\Documents and Settings\All Users\Application Data\HP\ALM` on Windows, or `/var/opt/HP/ALM` on Unix systems.
- 4 Copy the `mtours.war` and `qcbn.war` files to the `<WebLogic home>/server` or `<WebLogic domain home>/servers` directory.

Note: The `mtours.war` file is only available if you installed Mercury Tours.

- 5 Start **Admin Server** on the WebLogic domain.
- 6 Log in to the WebLogic Server Administration Console. The default address is `http://<WebLogic server machine name>:7001/console`. Perform the following steps:
 - a If necessary, click **Lock & Edit**.
 - b In the left pane of the console, click the **Deployments** node.
 - c In the right pane, click **Install**.
 - d In the Install Application Assistant, click **Current Location: <WebLogic machine name>**.
 - e Navigate to the `<WebLogic home>/server` or `<WebLogic domain home>/servers` directory, and select the `qcbn.war` file.
 - f Click **Next**.
 - g Choose **Install this deployment as an application**, and click **Next**.
 - h In the **Optional Settings** page, make sure that the name of the deployment is `qcbn`, and click **Next**.
 - i Click **Finish**.
 - j Click **Activate Changes**.
 - k Click the **Deployments** node.

- l** Select the **qcbn** Web Application, and choose **Start > Servicing all requests**.
- m** Repeat to deploy **mtours.war**.
- 7** When the deployment process completes, start ALM Platform. For more information, see "Starting and Stopping ALM Platform Services" on page 113.

Undeploying ALM Platform on WebLogic

If you install a patch or update the `qcbn.war` file, you need to undeploy and redeploy the war file for the changes to take effect in ALM Platform.

To undeploy ALM Platform on WebLogic:

- 1** Log in to the WebLogic Server Administration Console. The default address is **http://<WebLogic server machine name>:7001/console**. Perform the following steps:
 - a** If necessary, click **Lock & Edit**.
 - b** In the left pane of the console, click the **Deployments** node.
 - c** Select the **qcbn** Web Application, and click **Stop**.
 - d** Select the **qcbn** Web Application, and click **Delete**.
 - e** Click **Yes** to confirm.
 - f** Click **Activate Changes**.
 - g** Repeat to undeploy **mtours.war**.
- 2** Delete the war files from the `<WebLogic home>/server` or `<WebLogic domain home>/servers` directory.

5

Deploying ALM Platform on WebSphere

To work with ALM Platform on a WebSphere application server, you must deploy ALM Platform after installation. You also need to undeploy and redeploy ALM Platform when installing patches or updating ALM Platform files.

This chapter includes:

- Deploying ALM Platform on WebSphere on page 101
- Undeploying ALM Platform on WebSphere on page 103

Deploying ALM Platform on WebSphere

This section describes how to deploy ALM Platform on a WebSphere application server.

Note: Verify the default maximum upload file size on the WebSphere application server. If the **qcbn.war** file size is larger than the default file size, you must increase the default maximum upload file size accordingly.

To deploy ALM Platform on WebSphere:

- 1** Start the WebSphere application server.
- 2** Launch the WebSphere Administrative Console.
- 3** In the left pane, select **Servers > Server Types > WebSphere application servers**.

- 4** In the Application servers table, click your Web server link. For example, server1.
- 5** In the Configuration tab, under **Server-specific Application Settings**, make sure the **Classloader policy** field is set to **Multiple**.
- 6** Perform the following steps to deploy the ALM Platform **qcbin.war** and **mtours.war** files:
 - a** In the console navigation tree, select **Applications > New application > New Enterprise Application**.
 - b** Enter the full remote file system path of the **qcbin.war** file, that was created during the installation of ALM Platform. For example:
`<deployment directory>\ALM\deployment\qcbin.war`
 - c** Select **Fast Path**.
 - d** On the Context root for Web modules panel, type **qcbin** as the context root of the Web module.
 - e** On the subsequent panels, choose the default options, and click **Next** until you reach the Summary panel.
 - f** On the Summary panel, verify the settings, and click **Finish**.
 - g** If the application installs successfully, a confirm message is displayed. Click **Save**.
 - h** If you installed **Mercury Tours**, repeat to deploy **mtours.war**.
- 7** In the left pane of the console, select **Applications > Application Types > WebSphere enterprise applications**.
- 8** In the Enterprise Applications table, click the **qcbin.war** link.
- 9** Click the **Class loading and update detection** link.
- 10** Make sure the following settings are selected:
 - Class loader order: **Classes loaded with local class loader first (parent last)**
 - WAR class loader policy: **Single Class loader for application**
- 11** In the Enterprise Applications table, start the deployed **qcbin** application.
- 12** Stop and start WebSphere.

- 13** When the deployment process completes, start ALM Platform. For more information, see "Starting Application Lifecycle Management" on page 114.

Undeploying ALM Platform on WebSphere

If you install a patch or update the **qcbn.war** file, you need to undeploy and redeploy the war file for the changes to take effect in ALM Platform.

To undeploy ALM Platform on WebSphere:

- 1** Start the WebSphere application server.
- 2** Launch the WebSphere Administrative Console and perform the following steps to undeploy the war files:
 - a** In the Administrative Console, choose **Applications > Enterprise Application**.
 - b** Select **qcbn.war** and click **Stop**.
 - c** Select **qcbn.war** and click **Uninstall**.

6

Integrating JBoss with Apache

To use ALM Platform with an Apache Web server, you need to configure the Apache Web server to redirect requests to the JBoss application server.

This chapter includes:

- About Integrating JBoss with Apache on page 105
- Integrating JBoss with Apache on Windows on page 106
- Integrating JBoss with Apache on Unix Platforms on page 107
- Apache-JBoss Integration Configuration Files on page 108

About Integrating JBoss with Apache

When you install ALM Platform, it does not automatically configure Apache to redirect requests to the JBoss application server. You must perform this configuration manually. The ALM Platform installation DVD contains all the required files to enable you to configure the Apache-JBoss integration on Windows or Unix platforms.

All requests handled by the Apache Web server are redirected to a Tomcat server (which is a Servlet container delivered with JBoss). The communication between Apache and JBoss is implemented by using the AJP13 protocol, using an appropriate connector (called **mod_jk**).

Integrating JBoss with Apache on Windows

You must integrate JBoss on the Apache Web server for Windows.

To integrate JBoss with Apache:

- 1** Install ALM Platform with JBoss as the application server and Web server.
- 2** Install the Apache Web server.
- 3** Navigate to the **<Apache Home directory>\conf** directory.
- 4** Navigate to **ApacheIntegration\windows**, located on the ALM Platform DVD. The **qc_integration** folder is displayed.
- 5** Copy the **qc_integration** folder and its contents to the **<Apache Home directory>\conf** directory.
- 6** Under the **<Apache Home directory>\conf\qc_integration** directory, create a **log** folder, if it does not already exist.
- 7** Download **mod_jk.so** module compatible with your Apache Web server's version from <http://tomcat.apache.org/download-connectors.cgi>, and copy it to the **<Apache Home directory>\conf\qc_integration** directory.
- 8** Rename the **mod_jk** module as **mod_jk.so**. For example, if you downloaded **mod_jk-1.2.27-httpd-2.2.10.so**, rename it as **mod_jk.so**.
- 9** Add the following lines to the **httpd.conf** file in the **<Apache Home directory>\conf** directory:

```
#ALM Platform integration:This includes points to the Jboss-Apache #configuration
file (for ALM Platform)
#Load mod_jk module
LoadModule  jk_module conf\qc_integration\mod_jk.so
Include conf\qc_integration\mod_jk.conf
```

- 10** Restart the Apache Web server.

You can now connect to your ALM Platform site using the following URL:
`http://<ALM Platform server name>[:<port number>]/qcbn.`

For more details regarding the Apache-Jboss integration configuration files, see "Apache-JBoss Integration Configuration Files" below.

Integrating JBoss with Apache on Unix Platforms

You must integrate JBoss on the Apache Web server for Unix platforms.

To integrate JBoss with Apache on Unix platforms:

- 1** Install ALM Platform with JBoss as the application server and Web server.
- 2** Install the Apache Web server.
- 3** Navigate to the <Apache Home directory>/conf directory.
- 4** Navigate to **ApacheIntegration/UnixLike**, located on the ALM Platform DVD. The **qc_integration** folder is displayed.
- 5** Copy the **qc_integration** folder and its contents to the <Apache Home directory>/conf directory.
- 6** Under the <Apache Home directory>\conf\qc_integration directory, create a **log** folder, if it does not already exist.
- 7** Download **mod_jk.so** module compatible with your Apache Web server's version from <http://tomcat.apache.org/download-connectors.cgi>, and copy it to the <Apache Home directory>/conf/qc_integration directory.
- 8** Rename the **mod_jk** module as **mod_jk.so**. For example, if you downloaded **mod_jk-1.2.27-httpd-2.2.10.so**, rename it as **mod_jk.so**.
- 9** Add the following lines to the **httpd.conf** file in the <Apache Home directory>/conf directory:

```
#Quality Center integration:This includes points to the Jboss-Apache
#configuration file (for Quality Center)
#Load mod_jk module
LoadModule jk_module conf/qc_integration/mod_jk.so
Include conf/qc_integration/mod_jk.conf
```

- 10** Restart the Apache Web server.

You can now connect to your ALM Platform site using the following URL:
[http://<ALM Platform server name>\[:port number\]/qcbn](http://<ALM Platform server name>[:port number]/qcbn).

For more details regarding the Apache-Jboss integration configuration files, see "Apache-JBoss Integration Configuration Files" below.

Apache-JBoss Integration Configuration Files

The following files are related to the Apache-JBoss integration:

- ▶ **mod_jk.so.** This file is the connector between the Apache Web server and the Tomcat component delivered with JBoss.
- ▶ **httpd.conf.** This is the configuration file for the Apache Web server.

After integrating JBoss with Apache, the following lines can be found in the file:

On Windows systems:

```
LoadModule jk_module conf\qc_integration\mod_jk.so
Include conf\qc_integration\mod_jk.conf
```

On Unix systems:

```
LoadModule jk_module conf/qc_integration/mod_jk.so
Include conf/qc_integration/mod_jk.conf
```

- ▶ **workers.properties.** This file defines a Tomcat instance that waits to execute requests on behalf of a Web server (in this case Apache).

The content of the file defines a worker (an instance of Tomcat) that handles ALM Platform requests (in this case the worker name is `jboss0_ajp13_qc`.)

```
# Defining a worker named jboss0_ajp13_qc and of type ajp13
# Note that the name and the type do not have to match.
worker.list=jboss0_ajp13_qc
worker.jboss0_ajp13_qc.port=8009
worker.jboss0_ajp13_qc.type=ajp13
worker.jboss0_ajp13_qc.host=localhost
worker.jboss0_ajp13_qc.lbfactor=50
worker.jboss0_ajp13_qc.cachesize=10
worker.jboss0_ajp13_qc.cache_timeout=600
worker.jboss0_ajp13_qc.socket_keepalive=1
worker.jboss0_ajp13_qc.socket_timeout=300
```

- **mod_jk.conf.** This is a configuration file containing information describing which requests are redirected from Apache to the Tomcat instance. It also contains the path to the **workers.properties** file and general configuration issues.

On Windows systems:

```
# Where to find workers.properties
# Update this path to match your conf directory location (put workers.properties next
to httpd.conf)
JkWorkersFile conf\qc_integration\workers.properties
# Where to put jk logs
# Update this path to match your logs directory location (put mod_jk.log next to
access_log)
JkLogFile    conf\qc_integration\log\mod_jk.log
# Set the jk log level [debug/error/info]
JkLogLevel   info
# Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y] "
# JkOptions indicate to send SSL KEY SIZE,
JkOptions    +ForwardKeySize +ForwardURICompat -ForwardDirectories
#Order to flush response output stream whenever flushed in tomcat
JkOptions    +FlushPackets
# JkRequestLogFormat set the request format
# JkRequestLogFormat    "%w %V %T"
# Send everything for context /examples to worker named worker1 (ajp13)
JkMount /memory jboss0_ajp13_qc
JkMount /memory/* jboss0_ajp13_qc
JkMount /jk jboss0_ajp13_qc
JkMount /jk/* jboss0_ajp13_qc
JkMount /qcbn jboss0_ajp13_qc
JkMount /qcbn/* jboss0_ajp13_qc
```

On Unix systems:

```
# Where to find workers.properties
# Update this path to match your conf directory location (put workers.properties next
to httpd.conf)
JkWorkersFile conf/qc_integration/workers.properties
# Where to put jk logs
# Update this path to match your logs directory location (put mod_jk.log next to
access_log)
JkLogFile conf/qc_integration/log/mod_jk.log
# Set the jk log level [debug/error/info]
JkLogLevel info
# Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y] "
# JkOptions indicate to send SSL KEY SIZE,
JkOptions +ForwardKeySize +ForwardURICompat -ForwardDirectories
#Order to flush response output stream whenever flushed in tomcat
JkOptions +FlushPackets
# JkRequestLogFormat set the request format
# JkRequestLogFormat "%w %V %T"
# Send everything for context /examples to worker named worker1 (ajp13)
JkMount /memory jboss0_ajp13_qc
JkMount /memory/* jboss0_ajp13_qc
JkMount /jk jboss0_ajp13_qc
JkMount /jk/* jboss0_ajp13_qc
JkMount /qcbn jboss0_ajp13_qc
JkMount /qcbn/* jboss0_ajp13_qc
```

7

Getting Started

This chapter introduces ALM Platform options and resources. It also explains how to start Application Lifecycle Management.

This chapter includes:

- Browsing the ALM Platform Program Folder on page 111
- Starting and Stopping ALM Platform Services on page 113
- Starting Application Lifecycle Management on page 114
- Registering ALM on a Workstation on page 118

Browsing the ALM Platform Program Folder

In Windows, after the ALM Platform setup process is complete, the following items are added to your HP ALM Platform program folder (**Start > Programs > HP ALM Platform**):

Option (A-Z)	Description
ALM Platform	Opens the Application Lifecycle Management application. For more information, refer to the <i>HP Application Lifecycle Management User Guide</i> .
Extension Deployment Tool	Enables you to deploy HP ALM Platform extensions.

Option (A-Z)	Description
Mercury Tours	<p>Opens a sample flight reservation Web application. This Web application is used as a basis for the HP Application Lifecycle Management Tutorial. For more information, refer to the <i>HP Application Lifecycle Management Tutorial</i>.</p> <p>Note: This application is only available if you selected it during the ALM Platform installation.</p>
Online Documentation	<p>Opens the Documentation Library, providing access to ALM guides and references that are available online, in PDF format, or both.</p>
Readme	<p>Opens the HP Application Lifecycle Management Readme, which provides the latest news and information about ALM.</p>
Server Configuration Wizard	<p>Runs the HP ALM Platform Configuration Wizard, enabling you to reconfigure ALM Platform.</p> <p>Caution: Use this option only if you have not yet started work in ALM.</p>
Server Deployment Wizard	<p>Redeploys ALM Platform. Run after making changes to the Site Administration repository or application folders. For more information, see Chapter 10, "Customizing ALM."</p>
Site Administration	<p>Opens the Site Administration application. For more information, refer to the <i>HP Application Lifecycle Management Administrator Guide</i>.</p>

Note: If you are using an application server other than JBoss, only ALM Platform and Mercury Tours are available in the program folder.

Starting and Stopping ALM Platform Services

This section describes how to start or stop ALM Platform services.

To start or stop ALM Platform services from Windows:



In the system tray, right-click the ALM Platform icon and choose **Start ALM Platform** or **Stop ALM Platform**.

Tip: If you are working with JBoss, you can also start and stop ALM Platform from the **HP ALM Platform** service in the Services manager.

To start or stop ALM Platform services from non-Windows systems:

- If you are working with JBoss, run the following commands:

To start:	<ALM deployment directory>/jboss/bin/run.sh start
To stop:	Use one of the following options: <ul style="list-style-type: none"> ➤ <ALM deployment directory>/jboss/bin/run.sh stop (or Ctrl-C in console) ➤ kill <jboss process ID>

- If you are working with WebLogic, run the following commands:

To start:	<WebLogic installation directory>/user_projects/domains/ <ALM domain name>/startWeblogic.sh
To stop:	Use one of the following options: <ul style="list-style-type: none"> ➤ <WebLogic installation directory>/user_projects/domains/ <ALM domain name>/stopWeblogic.sh ➤ kill <weblogic process ID>

- ▶ If you are working with WebSphere, run the following commands:

To start:	<WebSphere installation directory>/WebSphere/AppServer/bin/startServer.sh <WebSphere server name>
To stop:	<WebSphere installation directory>/WebSphere/AppServer/bin/stopServer.sh <WebSphere server name>

Starting Application Lifecycle Management

You launch HP Application Lifecycle Management (ALM) on your workstation from your Web browser.

You can work with multiple versions of ALM side-by-side on a workstation. This includes multiple ALM 11.00 clients connecting to different ALM Platform servers, and a single Quality Center 10.00 or 9.2 client.

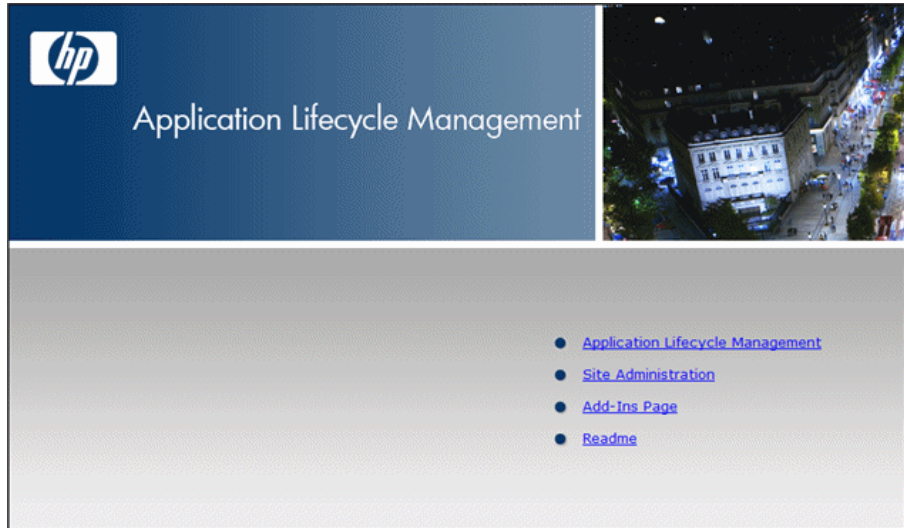
Notes:

- ▶ You can work with only one version of Site Administration on a workstation simultaneously. Before opening Site Administration, close other versions of Site Administration and Quality Center running on the machine.
 - ▶ To enable you to log in to Application Lifecycle Management, you must first create a project in Site Administration. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.
 - ▶ To enable ALM to work with HP testing tools as well as third-party and custom tools, you must run the **HP ALM Client Registration** add-in, that registers ALM components on the client machine. For more information, see "Registering ALM on a Workstation" on page 118.
-

To start Application Lifecycle Management:

- 1 Open your Web browser and type your ALM Platform URL `http://<ALM Platform server name>[:port number]/qcbn`.

The Application Lifecycle Management Options window opens.



The Application Lifecycle Management Options window contains the following links:

Option	Description
Application Lifecycle Management	Opens the ALM application. For more information, refer to the <i>HP Application Lifecycle Management User Guide</i> .
Site Administration	Opens the Site Administration application. For more information, refer to the <i>HP Application Lifecycle Management Administrator Guide</i> .
Add-ins Page	Opens the HP Application Lifecycle Management Add-ins page. For more information, see "Installing HP ALM Add-ins" on page 121.
Readme	Opens the ALM Readme, which provides the latest news and information about ALM.

- 2 Click the **Application Lifecycle Management** link. Each time ALM is run, it carries out a version check. If it detects a newer version, it downloads the necessary files to your machine.

Windows Vista and 7: If you do not have administrator privileges on your machine, and a Security Warning displays, click **Don't Install**. You will be redirected to the Install screen.

Follow the on-screen instructions.

Note: If files are downloaded, but the Login window does not display, you must install a Microsoft Hotfix on your machine. For more information, see HP Software Self-solve knowledge base article KM905289 (<http://h20230.www2.hp.com/selfsolve/document/KM905289>).

After the ALM version has been checked and files have been updated as necessary, the Application Lifecycle Management Login window opens.

- 3** In the **Login Name** box, type your user name.
- 4** In the **Password** box, type the password. If you cannot remember your password, click the **Forgot Password** link. For more information, refer to the *HP Application Lifecycle Management User Guide*.
- 5** Select the **Automatically log in to my last domain and project on this machine** check box if you want ALM to automatically log in to the last project in which you were working.
- 6** Click **Authenticate**. ALM verifies your user name and password and determines which domains and projects you can access. If you specified automatic login, ALM opens.

If authentication fails, check your user name and password are correct and try again.

- 7** In the **Domain** list, select a domain. By default, the last domain in which you were working is displayed.
- 8** In the **Project** list, select a project. By default, the last project in which you were working is displayed.
- 9** Click **Login**. ALM opens and displays the module in which you last worked during your previous session.

Registering ALM on a Workstation

To enable you to work with other HP testing tools as well as third-party and custom tools, ALM must be registered on the client machine.

Note: If you are running previous versions of Quality Center on your machine, before registering ALM, make sure that all instances of Quality Center and any Quality Center integration tools are closed.

For a list of the tools that require registering ALM on a machine, see "Tools that Require Registering ALM Client Components" on page 120.

To register ALM on a workstation:

- 1** Log on to the machine as a local user or a domain user with administrator privileges. Ensure that you have the registry and file system permissions listed below.

Windows Vista and 7: Open the Web browser as administrator.

- 2** Run **HP ALM Client Registration** from the **HP Application Lifecycle Management Add-ins** page. For more information, see Chapter 8, "Installing HP ALM Add-ins."
- 3** Close and reopen the Web browser.

Permissions Required to Register ALM on a Workstation

You must have full read and write permissions on the following registry keys:

- **HKEY_CLASSES_ROOT**
- **HKEY_CURRENT_USER\Software**
- **HKEY_LOCAL_MACHINE\SOFTWARE**

You must have the following file system permissions:

- Full read and write permissions on the **HP\ALM-Client** deployment folder. This is located at:
 - **Windows Vista and 7:** %ALLUSERSPROFILE%
 - **Windows XP:** C:\Documents and Settings\All Users\Application Data
- Full read and write permissions to the **Temp** (%TEMP% or %TMP%) directory. The installer program writes installation and log files to this directory. This is generally located at **C:\Documents and Settings\<username>\Local Settings\Temp.**

Tools that Require Registering ALM Client Components

The following tools require that ALM client components are registered on a client machine.

HP ALM Add-ins	<ul style="list-style-type: none"> ▶ QuickTest Professional Add-in ▶ Microsoft Word Add-in ▶ Microsoft Excel Add-in ▶ HP Screen Recorder Add-in ▶ Service Test Add-in ▶ HP ALM Synchronizer ▶ Defects and Requirements Exchange with HP Service Manager and HP ALM
HP ALM Extensions	<ul style="list-style-type: none"> ▶ HP Business Process Testing Enterprise Extension <p>Note: Required only if working with QTP/STM agents remotely.</p>
Other	<ul style="list-style-type: none"> ▶ QuickTest Professional tests <p>Note: Required to run tests, and to submit defects from the Run Results Viewer.</p>

8

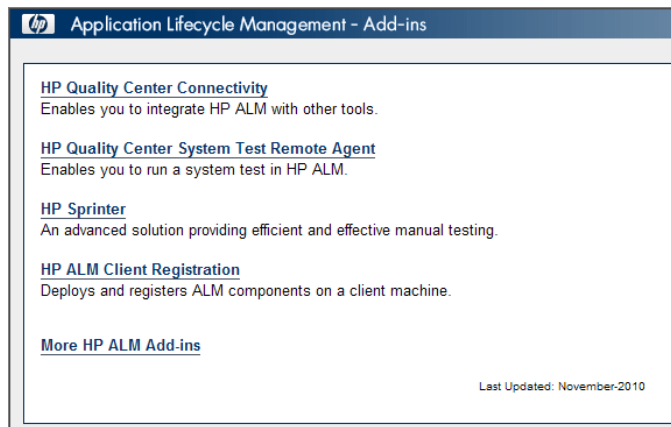
Installing HP ALM Add-ins

HP Application Lifecycle Management offers integration and synchronization solutions with HP and third-party tools. To integrate ALM with other tools, you may need to install appropriate add-ins from the HP Application Lifecycle Management Add-ins page.

Note: If you are integrating ALM with another tool, you can verify that you are using a supported version. On the Add-ins page, click the **More HP Application Lifecycle Management Add-ins** link, and choose the appropriate integrations matrix.

To install an ALM add-in:

- 1 Click **Add-ins Page** in the Application Lifecycle Management Options window or choose **Help > Add-ins Page** in the ALM main window. The HP Application Lifecycle Management Add-ins page opens.



The following ALM add-ins are available:

- ▶ **HP Quality Center Connectivity.** Enables you to integrate ALM with other tools.
 - ▶ **HP Quality Center System Test Remote Agent.** Enables you to run a system test on a machine. You can run a system test to retrieve a machine's system information, view a captured desktop image of a test run on a machine, or restart a machine.
 - ▶ **HP Sprinter.** Provides advanced functionality and a variety of tools to assist in the manual testing process.
 - ▶ **More HP ALM Add-ins.** Enables you to install additional add-ins. The add-ins include integration and synchronization solutions with HP and third-party tools.
- 2 Click an add-in link. A page with additional information about the add-in opens. If you click the More HP ALM Add-ins link, the More HP ALM Add-ins page opens, enabling you to select additional add-ins.
 - 3 Click the add-in guide link (where applicable) for instructions on using the add-in.
 - 4 Click the **Download Add-in** link to download and install the add-in. Follow the instructions on your screen.

9

Verifying the IIS Configuration

If you encounter a problem in the Internet Information Server (IIS) component after you install ALM Platform on Windows, check the IIS configuration settings.

This chapter includes:

- Configuring IIS 7.0 on page 123
- Configuring IIS 6.0 on page 125

Configuring IIS 7.0

The ALM Platform installation creates the IUSR_<COMPUTER NAME> account. IIS uses this account to redirect users from IIS to ALM when they open ALM.

To check the IIS account:

- 1** From the **Start** menu, choose **Control Panel > Administrative Tools > Internet Information Services (IIS) Manager**. The Internet Information Services (IIS) Manager window opens.
- 2** Expand the tree in the left pane, if needed, and select the directory in which your ALM virtual directory is located. This is the IIS Web site that was selected during the ALM Platform installation (for example, **Default Web Site**). For more information, see Chapter 2, "Installing ALM Platform."
- 3** Select the ALM virtual directory (by default, **quality_center**), and in the right pane, click the **Authentication** icon.

The Authentication pane contains three methods for setting up the user account used by IIS to authenticate user access: Anonymous Authentication, Basic Authentication, and Windows Authentication.

► **Anonymous Authentication.**

If **Anonymous Authentication** is enabled, when a user logs on to <ALM Platform server>/qcbn, IIS redirects the connection from IIS to ALM.

To check or change this account, right-click Anonymous Authentication, and select **Edit**. The user account for IIS anonymous access is IUSR_<COMPUTER NAME>.

► **Windows Authentication.**

The Integrated Windows Authentication method is best suited for an intranet environment. IIS uses the current Windows user information on the client machine to authenticate the user according to the Windows domain.

► **Basic Authentication.**

If **Basic authentication** is enabled, when a user logs on to <ALM Platform server>/qcbn, IIS authenticates the user according to the Windows domain.

To check the Windows domain for basic authentication, right-click Basic Authentication, and select **Edit**. The Edit Basic Authentication Settings dialog box opens. If a domain is defined in the **Domain Name** box, the client can access IIS with any user account from that domain. If no domain is defined, the local domain is used, and the client can access IIS with any local user account.

When basic authentication is enabled, the Web browser transmits user accounts across the network in an unencrypted form.

Configuring IIS 6.0

This sections includes:

- "IIS Account Settings" on page 125
- "ALM Virtual Directory Settings" on page 127

IIS Account Settings

The ALM Platform installation creates the IUSR_<COMPUTER NAME> account. IIS uses this account to redirect users from IIS to ALM when they open ALM.

To check the IIS account:

- 1** From the **Start** menu, choose **Control Panel > Administrative Tools > Internet Information Services (IIS) Manager**. The Internet Information Services (IIS) Manager window opens.
- 2** Expand the tree in the left pane, if needed, and select the directory in which your ALM virtual directory is located. This is the IIS Web site that was selected during the ALM Platform installation (for example, **Default Web Site**). For more information, see Chapter 2, "Installing ALM Platform."
- 3** Right-click the ALM virtual directory (by default, **quality_center**) and choose **Properties**. The quality_center Properties dialog box opens.
- 4** Click the **Directory Security** tab.
- 5** In the Anonymous Access and Authentication Control section, click the **Edit** button. The Authentication Methods dialog box opens.

The Authentication Methods dialog box contains four methods for setting up the user account used by IIS to authenticate user access: anonymous access, integrated Windows authentication, basic authentication, and .Net Passport authentication.

► **Anonymous Access Authentication.**

If **Enable Anonymous access** is selected, when a user logs on to <ALM Platform server>/qcbn, IIS redirects the connection from IIS to ALM.

To check or change this account, click the Anonymous Access **Edit** button. The user account for IIS anonymous access is IUSR_<COMPUTER NAME>.

► **Integrated Windows Authentication.**

The Integrated Windows Authentication method is best suited for an intranet environment. IIS uses the current Windows user information on the client machine to authenticate the user according to the Windows domain.

► **Basic Authentication.**

If **Basic authentication** is selected, when a user logs on to <ALM Platform server>/qcbn, IIS authenticates the user according to the Windows domain.

To check the Windows domain for basic authentication, select the **Basic authentication** check box and click **Yes** to confirm. Then, click the Basic Authentication **Edit** button. The Basic Authentication Domain dialog box opens. If a domain is defined in the **Domain Name** box, the client can access IIS with any user account from that domain. If no domain is defined, the local domain is used, and the client can access IIS with any local user account.

When basic authentication is selected, the Web browser transmits user accounts across the network in an unencrypted form.

► **.Net Passport Authentication.**

When **.NET Passport authentication** is selected, requests coming into IIS must contain .NET Passport credentials either on the query string or within a cookie.

ALM Virtual Directory Settings

Verify that the default virtual directory (by default, **quality_center**) is configured properly.

To check the configuration for the ALM virtual folders:

- 1** From the **Start** menu, choose **Programs > Administrative Tools > Internet Information Services (IIS) Manager**. The Internet Information Services (IIS) Manager window opens.
- 2** Expand the tree in the left pane, if needed, and select the directory in which your ALM virtual directory is located. This is the IIS Web site that was selected during the ALM Platform installation (for example, **Default Web Site**). For more information, see Chapter 2, "Installing ALM Platform."
- 3** Right-click the ALM virtual directory (by default, **quality_center**) and choose **Properties**. The **quality_center** Properties dialog box opens. In the **Virtual Directory** tab, verify that the following options are set:
 - **Read** is selected.
 - **Script source access**, **Write**, and **Directory browsing** are cleared.
 - The **Application name** box is enabled and the **Remove** button is visible.
 - **Scripts and Executables** is selected in the **Execute Permissions** list.
 - **DefaultAppPool** is selected in the **Application Protection** list.
- 4** Click **OK** to close the **quality_center** Properties dialog box.

10

Customizing ALM

You can customize various aspects of HP Application Lifecycle Management (ALM), by creating or configuring system files.

This chapter includes:

- ▶ Customizing the SA Repository and Application on page 129
- ▶ Customizing Module Names and Menus on page 131

Customizing the SA Repository and Application

Customization of the Site Administration repository and the **qcbn** application must be performed in the ALM Platform deployment directory. For example, if you edit **.xsl** mail stylesheets, or create custom test types. After customizing any of the files in the deployment directory, you must redeploy ALM.

Caution: You must not modify, add, or delete files in the ALM Platform installation directory.

This section includes:

- ▶ Customizing the Site Administration Repository
- ▶ Customizing the qcbn Application

Customizing the Site Administration Repository

Perform the following procedure to customize the Site Administration repository.

To customize the Site Administration repository:

- 1** On the ALM Platform machine, open a file browser, and navigate to **<ALM installation path>\data\sa**.
- 2** Open another file browser, and navigate to **<ALM repository path>\customerData**.
- 3** In the installation directory, navigate to the file that you want to customize.
- 4** In the repository directory, under **customerData**, create the same folder structure that contains the file in the installation directory.
- 5** Copy the file from the installation directory, and paste the file in the appropriate folder in the repository directory.
- 6** Edit the file in the repository directory.
- 7** Run the **Server Deployment Wizard**:
 - On **Windows** systems: Choose one of the following:
 - ▶ **Start > HP ALM Platform > Server Deployment Wizard**
 - ▶ **<installation path>\bin\run_server_deploy_tool.bat**
 - On **Unix** systems: **<installation path>/bin/run_server_deploy_tool.sh**

Customizing the qcbn Application

Perform the following procedure to customize the qcbn application.

To customize the qcbn application:

- 1** On the ALM Platform machine, open a file browser, and navigate to **<ALM installation path>\application\20qcbn.war**.
- 2** Open another file browser, and navigate to **<ALM deployment path>\application\20qcbn.war**.
- 3** In the installation directory, navigate to the file that you want to customize.

- 4 In the deployment directory, under **20qcbn.war**, create the same folder structure that contains the file in the installation directory.
- 5 Copy the file from the installation directory, and paste the file in the appropriate folder in the deployment directory.
- 6 Edit the file in the deployment directory.
- 7 Run the **Server Deployment Wizard**:
 - On **Windows** systems: Choose one of the following:
 - **Start > HP ALM Platform > Server Deployment Wizard**
 - **<installation path>\bin\run_server_deploy_tool.bat**
 - On **Unix** systems: **<installation path>/bin/run_server_deploy_tool.sh**
- 8 If you use a WebLogic or WebSphere application server, manually deploy the updated **war** file from the **<deployment path>\deployment** folder. For more information, see Chapter 4, "Deploying ALM Platform on WebLogic," or Chapter 5, "Deploying ALM Platform on WebSphere."
- 9 Repeat the procedure on each cluster node.

Customizing Module Names and Menus

You can customize the names of the Application Lifecycle Management modules, and the Tools and Help menus, by modifying the **ALM-Client.exe.config** file on the ALM Platform machine.

To customize ALM:

- 1 On the ALM Platform machine, extract the **ALM-Client.exe.config** file from **Client.cab**. This file is located in:
 - For JBoss users:
<ALM deployment path>\jboss\server\default\deploy\20qcbn.war\Install
 - For other application server users:
<ALM deployment path>\deployment\20qcbn.war\Install
- 2 Open the **ALM-Client.exe.config** file (this is in **.xml** format).

- 3 To delete ALM modules or rearrange their order, locate the <Modules> section of the file, and delete or move the selected module section as required.

Note: To customize a module name, add the **REPLACE_TITLE** parameter in the **Site Configuration** tab in Site Administration. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.

- 4 You can change or delete the Document Generator item in the Tools menu. This is defined in the Tools section of the file. In the same section, you can also add new items to the Tools menu.

The following is the syntax of an entry in the Tools line:

```
<TDFrame
  Tools="<Tool_Name>,{<Tool_ID>}"
  Workflow="{<Workflow_ID>}"
  Parameters="<parameters>"
/>
```

- 5 To change, delete, or rearrange the list of items in the Help menu, change the default names, IDs, and URLs listed in the OnlineHelpItem line. The following is the syntax of an entry in the OnlineHelpItem line:

```
<OnlineHelpItem
  ID="<Help_ID>"
  Name="<Help_Name>"
  Url="<Help_URL>"
```

To create a separator line between two items in the Help menu, use the following syntax:

```
<OnlineHelpItem
  ID="<Help_ID>"
  Name="<Help_Name>"
  Url="<Help_URL>"
  IsFirstInGroup="true" />
```

Note: The first two menu items in the Help menu, **Help on this page** and **Documentation Library**, and the last Help menu item, **About HP Application Lifecycle Management Software**, cannot be moved or changed. They do not have corresponding entries in the **QualityCenter.exe.config** file. The above step only affects the menu items between them.

- 6 Unzip the **Client.cab** file to a temporary folder named **Client** which must be under the temp folder. For example, C:\temp\Client.
- 7 Replace the **ALM-Client.exe.config** file with the modified file.
- 8 Store the temporary folder on a logical drive, for example X, by running the following command:

```
subst [X]: <temp folder>
```

For example, subst X: C:\temp

- 9 Create a new **Client.cab** file with the command:

```
cabarc -r -p -P Client\ -s 6144 N <temp folder>\Client.cab X:\Client\*.*
```

Note: To use this command you must first download **cabsdk.exe** (the Cabinet Software Development Kit) from the Microsoft Download Center.

- 10 Add a class 3 digital signature to the new **Client.cab** file.

Note: The digital signature must be a signature of a trusted provider.

- 11** Under `<ALM deployment path>\application\20qcbin.war`, create a new **Installation** folder, if it does not already exist.
- 12** Save the new cab file under the **Installation** folder.
- 13** Run the **Server Deployment Wizard**:
 - On **Windows** systems: Choose one of the following:
 - **Start > HP ALM Platform > Server Deployment Wizard**
 - `<installation path>\bin\run_server_deploy_tool.bat`
 - On **Unix** systems: `<installation path>/bin/run_server_deploy_tool.sh`
- 14** If you use a WebLogic or WebSphere application server, manually deploy the updated **war** file from the `<ALM deployment path>\deployment` folder. For more information, see Chapter 4, "Deploying ALM Platform on WebLogic," or Chapter 5, "Deploying ALM Platform on WebSphere."
- 15** Repeat the procedure on each cluster node.

11

Changing the JBoss Heap Memory Size and Port

After installing ALM Platform, you can update the heap memory value on the JBoss application server if there is a change in the number of active projects or concurrent user sessions in ALM Platform. You can also change the JBoss default port number.

This chapter includes:

- ▶ Changing the JBoss Heap Memory Size on page 135
- ▶ Changing JBoss Port Numbers on page 139

Changing the JBoss Heap Memory Size

If you select JBoss as the application server during the ALM Platform installation, you can specify the memory heap value that is used by the JBoss server, or accept the default value (1024-1536 MB).

After you install ALM Platform, you may need to change the JBoss heap memory values. For example, you may want to increase the JBoss heap size if there is an increase in the number of active projects in ALM Platform, or an increase in the number of concurrent user sessions.

Note: The maximum JBoss heap value cannot exceed your maximum memory (RAM) size.

This section includes the following topics:

- Changing the JBoss Heap Size on Windows
- Changing the JBoss Heap Size on Unix Systems

Changing the JBoss Heap Size on Windows

You can change the JBoss heap memory size on Windows server machines by uninstalling the ALM Platform service, modifying the heap size in the **InstallJbossService.bat** file, and reinstalling the ALM Platform service. You also need to modify the **run.bat** file to make sure that it is synchronized with the service.

To change the JBoss heap memory size on Windows:

- 1 Verify that all users have logged out from ALM projects, and stop the ALM Platform service.
- 2 Open Command Prompt, and navigate to the `<deployment_path>\jboss\bin` folder. By default, the deployment path is (on Windows 2008): `C:\Users\All Users\HP\ALM`
- 3 To uninstall the existing service, run the following command:

```
InstallJbossService.bat -uninstall
```

- 4 To change the JVM memory allocation, perform the following:
 - a Open the **InstallJbossService.bat** file, and modify the heap and perm size parameter as required. For example, if the heap memory is currently 1024 MB:

```
set JAVA_OPTS=%JAVA_OPTS% -Xms1024m -Xmx1024m  
-XX:MaxPermSize=256m
```

you can increase the heap size to 1536 MB as follows:

```
set JAVA_OPTS=%JAVA_OPTS% -Xms1536m -Xmx1536m  
-XX:MaxPermSize=256m
```

- b Save and close the **InstallJbossService.bat** file.

5 To reinstall the service with the modified heap size parameter, perform the following:

a Run the following command:

```
InstallJbossService.bat -c "default"
```

b From the **Start** menu, choose **Control Panel > Administrative Tools > Services**, and verify that the service has been installed.

c Start the **HP ALM Platform** service.

d Check that the specified heap size is shown as total memory. Open your Web browser, and type the following URL:

```
http://<ALM Platform server name>:<port number>/qcbn/debug
```

Note: If you are working with cluster nodes, the ALM Platform server name should be the node machine name, and you must perform the above steps on each node.

6 To modify the **run.bat** file, perform the following:

a Navigate to the **<deployment_path>\jboss\bin** folder.

b In the **run.bat** file, change the heap size so that it is synchronized with the heap size changes you made in the **InstallJbossService.bat** file.

c Save and close the **run.bat** file.

Changing the JBoss Heap Size on Unix Systems

You can change the JBoss heap memory size on Unix systems by modifying the `run.sh` file.

To change the JBoss heap memory size on Unix systems:

- 1** Navigate to the `<deployment_path>/jboss/bin` folder. By default, the deployment path is: `/var/opt/HP/ALM`
- 2** To change the JVM memory allocation, perform the following:
 - a** Open the `run.sh` file, and modify the heap and perm size parameter as required. For example, if the heap memory is currently 1024 MB:

```
JAVA_OPTS="$JAVA_OPTS -Xms1024m -Xmx1024m  
-XX:MaxPermSize=256m"
```

you can increase the heap size to 1536 MB as follows:

```
JAVA_OPTS="$JAVA_OPTS -Xms1536m -Xmx1536m  
-XX:MaxPermSize=256m"
```

- b** Save and close the `run.sh` file.
- 3** Verify that all users have logged out from ALM projects, and restart the ALM Platform service by running:
 - a** `run.sh stop`.
 - b** `run ps -ef | grep java` (to make sure that the JBoss server has stopped)
 - c** `run.sh start`

- 4 Check that the specified heap size is shown as total memory. Open your Web browser, and type the following URL:

`http://<ALM Platform server name>:<port number>/qcbn/debug`

Note: If you are working with cluster nodes, the ALM Platform server name should be the node machine name, and you must perform the above steps on each node.

Changing JBoss Port Numbers

After you install ALM Platform, you may need to change the port number on the JBoss application server, if the port has been reserved or is already in use. You can change the port by updating the port number in the **server.xml** file.

If you are using JBoss as your application server and as your Web server, the port number is shared, so you only need to change the port number on the application server. If the IIS Web server is installed on your machine, you must also change the port number on the IIS Web server.

You must also update the port number in the **qcConfigFile.properties** file.

To change the port number on the JBoss application server:

- 1** Change the port number in the `server.xml` file.
 - a** Navigate to `<deployment_path>\jboss\server\default\deploy\jbossweb.sar`, and open the `server.xml` file in a text editor.
 - b** Change the port number. For example, if `Connector port="8080"`, you can change it to `Connector port="8081"`.
- 2** Stop the JBoss application server. For more information on stopping and starting JBoss, see "Starting and Stopping ALM Platform Services" on page 113.
- 3** Restart JBoss.
- 4** Log in to ALM using the new port number.

To change the port number on the IIS Web server:

- 1** From the **Start** menu, choose **Programs > Administrative Tools > Internet Information Services (IIS) Manager**. The Internet Information Services (IIS) Manager window opens.
- 2** Expand the tree in the left pane, and stop the default Web site by right-clicking **Default Web Site**, and selecting **Stop**. The service is marked **(Stopped)**.
- 3** Right-click **Default Web Site** and select **Properties**.
- 4** Click the **Web Site** tab, change the port number in the **TCP Port** box, and click **OK**.
- 5** To restart the default Web site, right-click **Default Web Site**, and select **Start**.
- 6** When you open ALM, type the new port number in your ALM URL:
`http://<ALM Platform server name>:<port number>/qcbn`
For example, if you changed the port from 8080 to 8081 on server Lab1, type: `http://Lab1:8081/qcbn`

To update the port number in the `qcConfigFile.properties` file:

- 1** Open the `qcConfigFile.properties` file. The file is saved in the following path: `<ALM Platform deployment path>/HP/ALM/conf`
- 2** Update the port number in the `jbossPort` line.
- 3** If you use a JBoss Web server, update also the `webServerPort` line.

Changing Ports Used by JBoss Internal Processes

JBoss uses the following default ports for its internal processes: **1090, 1098, 1099, 4444, 4445, 4446, 4712, 4713, 8009, 8083.**

If the ports are already in use by other processes, you can either release the the ports, or change the ports that JBoss uses.

To change ports used by JBoss internal processes:

- 1** Navigate to `<deployment_path>\jboss\server\default\conf\bindingservice.beans\META-INF`, and open the `bindings-jboss-beans.xml` file in a text editor.
- 2** Change port numbers as required.
- 3** Stop the JBoss application server. For more information on stopping and starting JBoss, see "Starting and Stopping ALM Platform Services" on page 113.
- 4** Restart JBoss.

12

Uninstalling ALM Platform

You can uninstall ALM Platform from your server machine. When uninstalling ALM Platform, projects are not deleted. You can also uninstall ALM components from a workstation that has been used to access Application Lifecycle Management.

This chapter includes:

- Uninstalling ALM Platform from Windows on page 143
- Uninstalling ALM Platform from Unix Platforms on page 144
- Uninstalling ALM Components from a Workstation on page 144

Uninstalling ALM Platform from Windows

This section describes how to uninstall ALM Platform from your Windows server machine.

To uninstall ALM Platform from Windows:

- 1** Make sure that the application server is running.
- 2** To open the HP ALM Platform Uninstall Wizard, you can:
 - Choose **Control Panel > Add/Remove Programs**, select **HP ALM Platform**, and click the **Change/Remove** button. Follow the instructions on your screen.
 - Locate the ALM Platform home directory ([drive]:\HP\ALM-Platform). In the **_uninst** subdirectory, double-click **uninstall.exe**.
- 3** Click **Next**. Follow the instructions on your screen.

Uninstalling ALM Platform from Unix Platforms

This section describes how to uninstall ALM Platform from your Unix server machine.

Note: To uninstall ALM Platform, use the same user that installed ALM Platform.

To uninstall ALM Platform from Unix platforms:

- 1 Make sure that the application server is running.
- 2 Type the following command at the system prompt:

```
/[directory]/[ALM_Platform_deployment_directory]/_uninst/uninstall.bin
```

The HP ALM Platform Uninstall wizard opens.

- 3 Click **Next**. Follow the instructions on your screen.

Uninstalling ALM Components from a Workstation

When you run ALM on your client computer, client components are downloaded to your workstation. You can use the client uninstall utility to remove all ALM client components, including files and registry keys. To download the utility, see HP Software Self-solve knowledge base article KM176290 (<http://h20230.www2.hp.com/selfsolve/document/KM176290>).

If the workstation is used to access ALM after the utility has been run, all necessary components are downloaded from the ALM Platform server.

A

Troubleshooting ALM Platform Installation

This chapter contains troubleshooting suggestions for issues relating to the ALM Platform installation.

This chapter includes:

- Disabling Validation Checks for the Configuration Wizard on page 146
- Checking the Installation and Configuration Log Files on page 149
- ALM Platform Installation Already Exists on page 150
- Database Validator Fails on page 151
- IIS Site Not Responding on page 152
- ALM Service Does Not Start on page 153
- JBoss Does Not Start on page 153

Disabling Validation Checks for the Configuration Wizard

The ALM Platform Configuration Wizard automatically performs validation checks to verify that particular system configurations requirements are met. If ALM Platform configuration does not complete due to a failed validation, you can disable selected validation checks and rerun the ALM Platform Configuration Wizard.

Caution: You should disable validation checks only if you are sure that the validation result is wrong.

Notes:

- ▶ To resolve failures that occur during the ALM Platform Installation Wizard, see "Checking the Installation and Configuration Log Files" on page 149, or "ALM Platform Installation Already Exists" on page 150.
 - ▶ For troubleshooting tips on database validations, see "Database Validator Fails" on page 151.
-

To disable configuration validators and rerun the ALM Platform Configuration Wizard:

- 1 In the ALM Platform installation directory, open the `run_after_finish.bat` or `run_after_install.sh` file for editing.

Tip: On Windows, you can access the file from **Start > Programs > HP ALM Platform > Server Configuration Wizard**.

2 Locate the **rem set SKIP_VALIDATIONS** line, and do the following:

- a** Remove the **rem** command.
- b** After the equal sign, add one or more of the arguments to disable selected validations. For example, to disable the JBoss user validation, the line should be as follows:

```
set SKIP_VALIDATIONS=-wJBossUserValidator
```

For a complete list of validators and their descriptions, see "Configuration Validators" on page 147.

3 Save and close the file.

4 Run the file.

Configuration Validators

Validator	Checks	To disable
Operating system and license	Checks that the operating system is supported.	-wOsValidator
Existing installation	Checks if an older version of ALM Platform or Quality Center is installed. For troubleshooting tips, see "ALM Platform Installation Already Exists" on page 150.	-wPreviousInstallationValidator
License file	Checks license file key.	-wLicenseTypeValidator
Security passphrases	Checks encryption passphrases.	-wEncryptionStepValidator
Mail server	Checks that the mail server name is valid.	-wMailServerValidator
JBoss settings	Checks if JBoss can be installed with the defined settings.	-wJBossValidator
JBoss user	Checks if the JBoss user exists and has the required permissions.	-wJBossUserValidator

Validator	Checks	To disable
Database connectivity	Checks database connectivity.	-wDbSettingsStepValidator
Database settings	Checks Site Administration database settings.	-wSaSchemaValidator
Site administrator	Checks site administrator user settings.	-wSiteAdminUserValidator
Repository folder	Checks that the repository folder is accessible, and has sufficient space.	-wRepositoryValidator

Checking the Installation and Configuration Log Files

If you encounter problems installing ALM Platform, check for errors in the following log files:

Unix File Delivery Logs

Log	Path
Native package installation log	/var/log/<date>_HP_ALM_Platform.ALMPlatform_install_log.txt
Installation sequencer wizard log	/var/log/<date>_HP_ALM_Platform_11.00.000_iHP_log
Prerequisites log	/var/log/<date>_HP_ALM_Platform_11.00.000_prerequisites_iHP_log.txt

Windows File Delivery Logs

Log	Path
Custom actions logs	%temp%\ihp_custom_batches.log %temp%\iHP.Runtime.CustomActions.HP_Application_Lifecycle_Management_Platform.log

Application Logs

Log	Path
Configuration logs	Windows 2003: C:\Documents and Settings\All Users\Application Data\HP\ALM\log Windows 2008: C:\Users\All Users\HP\ALM\log Unix: C:\var\opt\HP\ALM\log
Schema creation logs	<ALM Platform deployment folder>\log\sa
JBoss server logs	<ALM Platform deployment folder>\jboss\server\default\log

ALM Platform Installation Already Exists

If during installation, an error message displays that an ALM Platform installation already exists, you should verify that ALM Platform is not installed, and that there are no traces of an old installation.

To verify that ALM Platform is not installed:

- 1** From the **Start** menu, choose **Control Panel > Add/Remove Programs**.
- 2** In the program list, check for **HP Quality Center** or **HP Application Lifecycle Management Platform**.
- 3** If either appears in the program list, click **Remove**, and follow the instructions on your screen.
- 4** After you uninstall ALM Platform, check that the `<ALM Platform home>\application` directory was deleted. If it was not deleted, delete the directory before you install ALM Platform.

To remove traces of an old ALM Platform installation:

- 1** Navigate to the system root (`%systemroot%`) directory (on Unix systems, go to the `/home` directory).
- 2** Make a backup of the `vpd.properties` file.
- 3** In a text editor, open the `vpd.properties` file and delete any lines that mention **ALM Platform**.

Database Validator Fails

During ALM Platform configuration, if the database validator fails, perform the following checks:

- ▶ Check that the input parameters are correct.
- ▶ Check that the Site Administration schema name was provided.
- ▶ If upgrading a Microsoft SQL Server site schema, check whether the same authentication type was used as the one used in the previous installation.

To check whether the parameters are correct:

- 1 Read the error message that displays during installation, and try to understand and resolve the problem from the root cause.
- 2 For further clarifications, check with your database administrator.
- 3 If no error was found and you are sure that the parameters are correct, disable the DB parameters validator as described in "Disabling Validation Checks for the Configuration Wizard" on page 146.

To check that the Site Administration schema name was provided:

- 1 Open a database query tool.
- 2 Make sure the **PROJECTS** table exists in the schema. This table exists in the Site Administration schema only and not in the project schema.

To check the SQL authentication type of a previous installation (when upgrading an SQL Server site schema):

- 1 Navigate to the ALM Platform home directory, and open the **\application** folder. By default, the home directory is **C:\Program Files\HP\ALM Platform** on Windows, and **/opt/HP/HP_ALM_Platform** on Unix systems.
- 2 Extract the contents of **qcbn.war** into a temp file, and open the **siteadmin.xml** file in a text editor.
- 3 Search for the "native" property. If its value is set to "Y", Windows authentication was used. Make sure that the new installation uses the same authentication type (Microsoft SQL Server authentication or Windows authentication) as the previous installation.

IIS Site Not Responding

If you are using an IIS Web server and a message displays that the IIS site is not responding, verify that JBoss is running and that IIS was configured successfully.

To verify that JBoss is running:

- 1 Wait approximately 20 minutes in case the machine is slow, or JBoss and IIS are running slowly.
- 2 Open your Web browser and type your JBoss URL. By default, this is `http://localhost:8080/qcbin`.
- 3 Check if the ALM Welcome page is displayed.

If the Welcome page is displayed, the problem is within IIS.

If the Welcome page is not displayed, the problem is within JBoss. Follow the steps described in "JBoss Does Not Start" on page 153.

To check the IIS configuration:

- 1 Open the IIS manager (choose **Start > Run**, and type `inetmgr`).
- 2 Select the Web site that was selected during installation. The default Web site used during installation is **Default Web Site**. For more information on selecting the IIS Web site, see step 21 on page 71.
- 3 Check that the Web site contains a folder named **quality_center**. If there is no **quality_center** folder, you must reconfigure ALM Platform.
- 4 Select the **Default Web Site** directory, click **Properties** the **ISAPI Filters** icon.
- 5 Check that the **quality_center** folder is listed as a filter. If the filter is not enabled, reconfigure ALM Platform.
- 6 For IIS 6.0, click the **Web Service Extensions** folder, and make sure that the **QC** extension exists and is allowed.

If the **QC** extension is not allowed, select **QC** and click **Allow**.

If the **QC** extension does not exist, select **All unknown ISAPI extensions** and click **Allow**.

ALM Service Does Not Start

Problem: On a Windows 2003 system, the HP Application Lifecycle Management service does not start.

Reason: The file **mscvr71.dll** cannot be located by the Java Virtual Machine. This is due to changes in Microsoft's policy concerning DLLs. For more information, see: http://msdn.microsoft.com/library/default.asp?url=/library/en-us/vclib/html/_CRT_C_Run.2d.Time_Libraries.asp

Solution: Choose one of the following:

- In **Environment Variables**, under **System variables**, add to the **Path** variable the path **%JAVA_HOME%\bin**.
- Copy **%JAVA_HOME%\bin\mscvr71.dll** to any of the folders defined in the **Path** variable.
- Copy **%JAVA_HOME%\bin\mscvr71.dll** to **%ALLUSERSPROFILE%\Application Data\HP\ALM\jboss\bin**.

JBoss Does Not Start

If you are using a JBoss application server, and a message displays that JBoss does not start, perform the following checks:

- Check memory allocation.
- Check that JBoss works.
- Check the JBoss service user.
- Check that there are no JBoss script errors.

To check memory allocation:

- 1** Check that a JBoss boot log is created. The log is located in **<Deployment folder>\jboss\server\default\log\boot.log**.

If no log is created, it is likely that the service could not start due to a memory allocation problem.

- 2** Confirm that the problem is related to memory allocation, by running the **run.bat** script, located under **<Deployment folder>\jboss\bin\run.bat**

If the problem is related to memory allocation, JBoss will not start, and an error message states that JVM could not allocate the defined heapsize.

- 3 To solve the memory allocation problem, change the JBoss memory settings until JBoss starts. For more information, see "Changing the JBoss Heap Memory Size" on page 135.

To check JBoss works:

- 1 Wait about 20 minutes in case the machine is slow, or JBoss and IIS are working slowly.
- 2 Open your Web browser and type your JBoss URL. By default, this is `http://localhost:8080/qcbin`.
- 3 Check if the ALM Welcome page is displayed.

If the Welcome page is not displayed, the problem is within JBoss. Check the other JBoss troubleshooting options.

To check the JBoss service user:

- 1 Open the Services control panel (choose **Start > Run**, and type `services.msc`).
- 2 Right-click the **HP Application Lifecycle Management** service, and click **Properties**.
- 3 Click the **Log On** tab.
- 4 Enter the user information and restart the service.

To check if the JBoss script has an error:

- 1 Run Jboss manually. Open the command window, (choose **Start > Run**, and type `cmd`).
- 2 Change the folder to `<ALM Platform deployment folder>/jboss/bin`.
- 3 Run `run.bat`.
- 4 Check if there are any errors.

B

LW-SSO Authentication – General Reference

This chapter contains information relating to Lightweight Single Sign-On (LW-SSO) Authentication.

This chapter includes:

- ▶ LW-SSO Authentication Overview on page 155
- ▶ LW-SSO System Requirements on page 157
- ▶ LW-SSO Security Warnings on page 158
- ▶ Troubleshooting and Limitations on page 160

LW-SSO Authentication Overview

LW-SSO is a method of access control that enables a user to log on once and gain access to the resources of multiple software systems without being prompted to log on again. The applications inside the configured group of software systems trust the authentication, and there is no need for further authentication when moving from one application to another.

The information in this section applies to LW-SSO version 2.2 and 2.3.

LW-SSO Token Expiration

The LW-SSO Token's expiration value determines the application's session validity. Therefore, its expiration value should be at least the same value as that of the application session expiration value.

Recommended Configuration of the LW-SSO Token Expiration

Each application using LW-SSO should configure token expiration. The recommended value is 60 minutes. For an application that does not require a high level of security, it is possible to configure a value of 300 minutes.

GMT Time

All applications participating in an LW-SSO integration must use the same GMT time with a maximum difference of 15 minutes.

Multi-domain Functionality

Multi-domain functionality requires that all applications participating in LW-SSO integration configure the `trustedHosts` settings (or the `protectedDomains` settings), if they are required to integrate with applications in different DNS domains. In addition, they must also add the correct domain in the `lwso` element of the configuration.

Get SecurityToken for URL Functionality

To receive information sent as a `SecurityToken` for URL from other applications, the host application should configure the correct domain in the `lwso` element of the configuration.

LW-SSO System Requirements

The following table lists LW-SSO configuration requirements:

Application	Version	Comments
Java	1.5 and higher	
HTTP Servlets API	2.1 and higher	
Internet Explorer	6.0 and higher	Browser should enable HTTP session cookie and HTTP 302 Redirect functionality
FireFox	2.0 and higher	Browser should enable HTTP session cookie and HTTP 302 Redirect functionality
JBoss Authentica-tions	JBoss 4.0.3 JBoss 4.3.0	
Tomcat Authentica-tions	Standalone Tomcat 5.0.28 Standalone Tomcat 5.5.20	
Acegi Authentica-tions	Acegi 0.9.0 Acegi 1.0.4	
Spring Security Authentication	Spring Security 2.0.4	
Web Services Engines	Axis 1 - 1.4 Axis 2 - 1.2 JAX-WS-RI 2.1.1	

LW-SSO Security Warnings

This section describes security warnings that are relevant to the LW-SSO configuration:

- ▶ **Confidential `initString` parameter in LW-SSO.** LW-SSO uses Symmetric Encryption to validate and create a LW-SSO token. The **`initString`** parameter within the configuration is used for initialization of the secret key. An application creates a token, and each application using the same **`initString`** parameter validates the token.

Caution:

- ▶ It is not possible to use LW-SSO without setting the **`initString`** parameter.
 - ▶ The **`initString`** parameter is confidential information and should be treated as such in terms of publishing, transporting, and persistency.
 - ▶ The **`initString`** parameter should be shared only between applications integrating with each other using LW-SSO.
 - ▶ The **`initString`** parameter should have a minimum length of 12 characters.
-
- ▶ **Enable LW-SSO only if required.** LW-SSO should be disabled unless it is specifically required.
 - ▶ **Level of authentication security.** The application that uses the weakest authentication framework and issues a LW-SSO token that is trusted by other integrated applications determines the level of authentication security for all the applications.

It is recommended that only applications using strong and secure authentication frameworks issue an LW-SSO token.

- **Symmetric encryption implications.** LW-SSO uses symmetric cryptography for issuing and validating LW-SSO tokens. Therefore, any application using LW-SSO can issue a token to be trusted by all other applications sharing the same **initString** parameter. This potential risk is relevant when an application sharing an **initString** either resides on, or is accessible from, an untrusted location.
- **User mapping (Synchronization).** The LW-SSO framework does not ensure user mapping between the integrated applications. Therefore, the integrated application must monitor user mapping. We recommend that you share the same user registry (as LDAP/AD) among all integrated applications.

Failure to map users may cause security breaches and negative application behavior. For example, the same user name may be assigned to different real users in the various applications.

In addition, in cases where a user logs onto an application (AppA) and then accesses a second application (AppB) that uses container or application authentication, the failure to map the user will force the user to manually log on to AppB and enter a user name. If the user enters a different user name than was used to log on to AppA, the following behavior can arise: If the user subsequently accesses a third application (AppC) from AppA or AppB, then they will access it using the user names that were used to log on to AppA or AppB respectively.

- **Identity Manager.** Used for authentication purposes, all unprotected resources in the Identity Manager must be configured with the **nonsecureURLs** setting in the LW-SSO configuration file.

Troubleshooting and Limitations

Known Issues

This section describes known issues for LW-SSO authentication.

- ▶ **Security context.** The LW-SSO security context supports only one attribute value per attribute name.

Therefore, when the SAML2 token sends more than one value for the same attribute name, only one value is accepted by the LW-SSO framework.

Similarly, if the IdM token is configured to send more than one value for the same attribute name, only one value is accepted by the LW-SSO framework.

- ▶ **Multi-domain logout functionality when using Internet Explorer 7.** Multi-domain logout functionality may fail when the browser used is Internet Explorer 7 and the application is invoking more than three consecutive HTTP 302 redirect verbs in the logout procedure.

In this case, Internet Explorer 7 may mishandle the HTTP 302 redirect response and display an **Internet Explorer cannot display the webpage** error page instead.

As a workaround, it is recommended to reduce, if possible, the number of application redirect commands in the logout sequence.

Limitations

Note the following limitations when working with LW-SSO authentication:

- ▶ **Client access to the application.**

If a domain is defined in the LW-SSO configuration:

- ▶ The application clients must access the application with a Fully Qualified Domain Name (FQDN) in the login URL, for example, `http://myserver.companymain.com/WebApp`.
- ▶ LW-SSO cannot support URLs with an IP address, for example, `http://192.168.12.13/WebApp`.

- ▶ LW-SSO cannot support URLs without a domain, for example, `http://myserver/WebApp`.

If a domain is not defined in the LW-SSO configuration: The client can access the application without a FQDN in the login URL. In this case a LW-SSO session cookie is created specifically for a single machine without any domain information. Therefore, the cookie is not delegated by the browser to another, and does not pass to other computers located in the same DNS domain. This means that LW-SSO does not work in the same domain.

- ▶ **LW-SSO framework integration.** Applications can leverage and use LW-SSO capabilities only if integrated within the LW-SSO framework in advance.
- ▶ **Multi-Domain Support.**
 - ▶ Multi-domain functionality is based on the HTTP referrer. Therefore, LW-SSO supports links from one application to another and does not support typing a URL into a browser window, except when both applications are in the same domain.
 - ▶ The first cross domain link using **HTTP POST** is not supported.

Multi domain functionality does not support the first **HTTP POST** request to a second application (only the **HTTP GET** request is supported). For example, if your application has an HTTP link to a second application, an **HTTP GET** request is supported, but an **HTTP FORM** request is not supported. All requests after the first can be either **HTTP POST** or **HTTP GET**.

- ▶ **LW-SSO Token size:**

The size of information that LW-SSO can transfer from one application in one domain to another application in another domain is limited to 15 Groups/Roles/Attributes (note that each item may be an average of 15 characters long).

- ▶ Linking from Protected (HTTPS) to non-protected (HTTP) in a multi-domain scenario:

Multi domain functionality does not work when linking from a protected (HTTPS) to a non-protected (HTTP) page. This is a browser limitation where the referrer header is not sent when linking from a protected to a non-protected resource. For an example, see: <http://support.microsoft.com/support/kb/articles/Q178/0/66.ASP>

- ▶ Third-Party cookie behavior in Internet Explorer:

Microsoft Internet Explorer 6 contains a module that supports the "Platform for Privacy Preferences (P3P) Project," meaning that cookies coming from a Third Party domain are by default blocked in the Internet security zone. Session cookies are also considered Third Party cookies by IE, and therefore are blocked, causing LW-SSO to stop working.

To solve this issue, add the launched application (or a DNS domain subset as *.mydomain.com) to the Intranet/Trusted zone on your computer (in Microsoft Internet Explorer, select **Menu > Tools > Internet Options > Security > Local Intranet > Sites > Advanced**), which causes the cookies to be accepted.

Caution: The LW-SSO session cookie is only one of the cookies used by the Third Party application that is blocked.

- ▶ **SAML2 token.**

- ▶ Logout functionality is not supported when the SAML2 token is used.

Therefore, if the SAML2 token is used to access a second application, a user who logs out of the first application is not logged out of the second application.

- ▶ The SAML2 token's expiration is not reflected in the application's session management.

Therefore, if the SAML2 token is used to access a second application, each application's session management is handled independently.

- **JAAS Realm.** The JAAS Realm in Tomcat is not supported.
- **Using spaces in Tomcat directories.** Using spaces in Tomcat directories is not supported.

It is not possible to use LW-SSO when a Tomcat installation path (folders) includes spaces (for example, Program Files) and the LW-SSO configuration file is located in the **common\classes** Tomcat folder.

- **Load balancer configuration.** A load balancer deployed with LW-SSO must be configured to use sticky sessions.

