HP ALM Lab Management

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Lab Management Guide

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

- Software Version number, which indicates the software version.
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Contents

Welcome to this Guide

Welcome to HP ALM Lab Management. Lab Management allows users to manage the lab resources and systems they use for Functional and Performance testing in ALM.

This guide describes how to use the Lab Management project. It provides descriptive and conceptual information, step-by-step guidance to help you work with the project, and explanations of reference-oriented material.

How This Guide is Organized

The *HP ALM Lab Management Guide* contains the following chapters:

Part	Description
"Lab Management Administration" on page 21	Describes how to perform Lab Management Administration. **Relevant tasks:** "How to Create Lab Management Administrators" on page 21 and "How to Work with Lab Management Administration" on page 22.
"Project Settings" on page 29	Describes how to define and manage project settings. **Relevant task:** "How to Create a Project" on page 30
"Maintenance Tasks" on page 49	Describes how to manage the automated tasks that monitor the key system components.
"Lab Resources" on page 57	Describes how to define and manage testing hosts, host pools, MI Listeners, and arrange for timeslot testing. **Relevant task:** "How to Manage Lab Resources" on page 59
"PC Test Runs" on page 109	Describes how to view information for PC test runs.
"Usage Reports" on page 117	Describes how to view and analyze information about Performance Center site users and resource usage. **Relevant task:** "How to View Reports and Set Report Filter Criteria" on page 118
"System Health" on page 141	Describes how to monitor the health of the components of the system.
"PC Licenses" on page 145	Describes how to define and view PC licenses.
"Diagnostics Management" on page 153	Describes how to view diagnostic information about the performance of complex environments. **Relevant task:** "How to Add HP Diagnostics Servers" on page 157

Part	Description
"Patch Management" on page 171	Describes how to upload and install patches on hosts. **Relevant task:** "How to Upload Patches to ALM" on page 171
"AUT Host Management" on page 179	Describes how to create,view, and manage AUT hosts and AUT host pools. **Relevant task:** "How to Import AUT Host Data from Excel" on page 179
"Project Management" on page 199	Describes how to migrate a Lab Management system from a staging to a production environment. **Relevant task:** "How to Migrate a Lab Management System from a Staging to a Production Environment " on page 200
"PC Servers" on page 203	Describes how to create, view, and manage Performance Center servers. **Relevant task:** "How to Manage Performance Center Servers" on page 203
"CDA Servers" on page 217	Describes how to create, view, and manage CDA servers. **Relevant task:** "How to Manage CDA Servers" on page 217.
"Lab Service " on page 225	Describes how to install and use HP ALM Lab Service to run ALM tests on remote testing hosts. **Relevant task:** "Using HP ALM Lab Service" on page 230

ALM Help

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

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

ALM Help Guides

The ALM Help 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 the ALM Help	Explains how to use the Help and how it is organized.

Reference	Description
What's New?	Describes the newest features in the latest version of ALM.
Movies	Short movies that demonstrate the main product features. To access, select **Help > Movies**.
Readme	Provides last-minute news and information about ALM.

HP Application Lifecycle Management (ALM) Guides	Description
HP ALM User Guide	Explains how to use ALM to organize and execute all phases of the application lifecycle 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 Lab Management Guide	Explains how to use Lab Management to manage lab resources used for functional and performance testing on remote hosts.
HP ALM Lab Management Troubleshooting Guide	Provides information for troubleshooting problems while working with HP ALM Lab Management.
HP ALM Tutorial	A self-paced guide teaching you how to use ALM to manage the application lifecycle management process.
HP ALM Installation and Upgrade Guide	Describes the installation and configuration processes for setting up ALM Server, and the project upgrade process.
HP ALM Business Views Microsoft Excel Add-in User Guide	Explains how to install and use the Business Views Microsoft Excel Add-in to create and configure business view Excel reports.
Business Process Testing User Guide	Explains how to use Business Process Testing to create business process tests.

HP ALM Performance Center Guides	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 configure and manage Performance Center projects.
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 ALM Extension Guides	Description
HP Enterprise Integration Module for SAP Applications User Guide and Readme	Explains how to use the HP Enterprise Integration module for SAP Solution Manager to work with SAP Solution Manager business blueprints in the HP ALM Requirements module.
HP IDE Connector Customizer Readme	Explains how to use the IDE Connector Customizer to perform customizations necessary for working with Tasktop HP ALM Mylyn Connector, including customizing field mappings between HP ALM projects and the IDE.
HP Application Lifecycle Intelligence User Guide and Readme	Explains how to use ALI's capabilities, reports, and metrics to provide complete ALM traceability.

HP ALM Best Practices Guides	Description
HP ALM Agile Testing Best Practices Guide	Provides best practices for implementing agile testing principles.
HP ALM Business Process Models Best Practices Guide	Provides best practices for working with the Business Models module.

HP ALM Best Practices Guides	Description
HP ALM Database Best Practices Guide	Provides best practices for deploying ALM on database servers.
HP ALM Entities Sharing Best Practices Guide	Provides best practices for sharing entities.
HP ALM Project Planning and Tracking Best Practices Guide	Provides best practices for managing and tracking releases.
HP ALM Project Topology Best Practices Guide	Provides best practices for structuring projects.
HP ALM Upgrade Best Practices Guide	Provides methodologies for preparing and planning your ALM upgrade.
HP ALM Versioning and Baselining Best Practices Guide	Provides best practices for implementing version control and for creating baselines.
HP ALM Workflow Best Practices Guide	Provides best practices for implementing workflows.

HP ALM Performance Center Best Practices Guides	Description
HP Performance Centers 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.

HP ALM API References	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 API References	Description
HP ALM REST API Reference (Technology Preview)	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 COM Custom Test Type Developer Guide	Provides a complete online guide for creating your own testing tool and integrating it into the ALM environment using native COM development tools.
HP ALM .NET Custom Test Type Developer Guide	Provides a complete online guide for creating your own testing tool and integrating it into the ALM environment using a combination of DCOM and .NET classes.

Topic Types

The content in the above mentioned ALM guides is organized by topics. Three main topic types are in use: **Concepts**, **Tasks**, and **Reference**.

Topic Type	Description	Usage
Concepts	Background, descriptive, or conceptual information.	Learn general information about what a feature does.
Tasks	**Instructional Tasks**. Step-by-step guidance to help you work with the application and accomplish your goals. Task steps can be with or without numbering: • **Numbered steps**. Tasks that are performed by following each step in consecutive order. • **Non-numbered steps**. A list of self-contained operations that you can perform in any order.	• Learn about the overall workflow of a task. • Follow the steps listed in a numbered task to complete a task. • Perform independent operations by completing steps in a non-numbered task.
	Use-case Scenario Tasks. Examples of how to perform a task for a specific situation.	Learn how a task could be performed in a realistic scenario.

Topic Type	Description	Usage
Reference	**General Reference**. Detailed lists and explanations of reference-oriented material.	Look up a specific piece of reference information relevant to a particular context.
	User Interface Reference. Specialized reference topics that describe a particular user interface in detail. Selecting Help on this page from the Help menu in the product generally opens the user interface topics.	Look up specific information about what to enter or how to use one or more specific user interface elements, such as a window, dialog box, or wizard.
Troubleshooting and Limitations	**Troubleshooting and Limitations**. Specialized reference topics that describe commonly encountered problems and their solutions, and list limitations of a feature or product area.	Increase your awareness of important issues before working with a feature, or if you encounter usability problems in the software.

Additional Online Resources

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

Resource	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	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. • Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. • To find more information about access levels, go to: http://h20230.www2.hp.com/new_access_levels.jsp • To register for an HP Passport user ID, go to: http://h20229.www2.hp.com/passport-registration.html
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	Opens the Add-ins page, which offers integration and synchronization solutions with HP and third-party tools.

Resource	Description
Tools	Opens the ALM Lab Management Tools add-ins page, which offers integration and synchronization solutions with HP and third-party tools that are installed with ALM on the ALM Server.

ALM Extension Guides

Extensions provide added functionality to HP ALM. If you have a license for an ALM extension, you can utilize the added functionality by enabling the extension on a per project basis. For more details on enabling extensions, refer to the *HP Application Lifecycle Management Administrator Guide*.

To view the list of extensions available with ALM 11.52, or to download documentation for ALM extensions, visit the HP ALM Add-ins page, available from the HP Application Lifecycle Management Add-ins page (**Help > Add-ins**).

Chapter 1: Lab Management at a Glance

This chapter includes:

Lab Management Overview

HP ALM Lab Management enables you to manage the resources that you use for ALM server-side testing.

LM tests can run using different modes of execution. If you are an ALM Edition or Performance Center user, you have access to Functional and Performance test sets which can run immediate or scheduled tests on remote testing hosts. You use LM to deploy and test your builds in an end-to-end fashion, and use Lab Management to manage the testing resources which form the infrastructure of ALM's server-side testing functionality.

Lab Management consists of the following groups of modules:

- **Lab Settings**

  Enable you to manage how resources are monitored, maintained, and distributed to your ALM projects. This group consists of the following modules:

Project Settings	Manage the settings of each of your ALM projects. Define host limit settings and assign host pools to a specific project.
Maintenance Tasks	Monitor the tasks which locate and repair failures in your system's key components.

- **Lab Resources**

  Enable you to create and define the testing hosts and pools available for server-side testing.

Hosts	Create and modify the testing hosts ALM uses to run server-side tests.
Pools	Create and modify pools of testing hosts. Host pools are assigned to ALM projects.
Locations	Define the locations which can be assigned to testing hosts.
Timeslots	Schedule and reserve hosts for manual maintenance work.

- **Performance Center**

  Enable you to manage the resources, settings, and test result data relevant to Performance Center.

PC Test Runs	View test result information for Performance Center tests run across all projects.

Usage Reports	Analyze Performance Center site users and resource usage.
System Health	Track and maintain the health of the system.
PC Licenses	Maintain the Performance Center and Performance Center host licenses.
MI Listeners	Create and modify MI Listeners, which enable you to run performance tests across a firewall.
Diagnostics	Configure the integration of diagnostic modules to enable monitoring and analysis of the performance of complex applications under test.
Patches	Upload application patches so they can be installed on Performance Center servers and hosts.
AUT Hosts	Create and modify the machines which host the Application Under Test (AUT) components.
AUT Host Pools	Create and modify pools of AUT hosts.

- ### Servers

  Enable you to create and configure the servers used for performance testing and test deployment.

PC Servers	Create Performance Center servers and mange how they are used for performance testing.
CDA Servers	Create and modify HP Continuous Delivery Automation (CDA) servers, which enable LM to dynamically deploy environments for server-side testing using the cloud.

Chapter 2: Lab Management Administration

This chapter includes:

Introduction to Lab Management Administration

A Lab Management user must be assigned administrator privileges to perform administrator tasks, such as creating and maintaining hosts and host pools.

Lab Management users are defined or assigned an administrator role in ALM Site Administration. For details on how to create a Lab Management administrator user, see "How to Create Lab Management Administrators" below.

For related task details, see "How to Work with Lab Management Administration" on next page.

How to Create Lab Management Administrators

This task describes how to create a Lab Management administrator user, who is responsible for all **project administration** tasks in Lab Management and in Site Administration.

Note:

- This task is a prerequisite for the task, "How to Work with Lab Management Administration" on next page.
- This task is performed in Site Administration. For details about logging in to and using Site Administration, refer to the *HP Application Lifecycle Management Administrator Guide*.

To create a Lab Management administrator user:

1. Log in to Site Administration.
2. In the **Site Users** tab, create a new user.
3. In the **Lab Management** tab, select the **Lab Management Users** tab. For user interface details, see "Lab Management Tab" on page 24.

4. Add the user you created above, and select the **Project Administrator** option for the new user.

How to Work with Lab Management Administration

This section lists the tasks that a Lab Management administrator can perform.

Some tasks are available only for projects with Performance Center licenses.

This task includes the following steps:

Prerequisites

To perform any of these tasks, you must be a Lab Management administrator. For details on how to create a Lab Management administrator, see "How to Create Lab Management Administrators" on previous page.

Perform initial Performance Center configuration

Immediately after installing the Performance Center components, the relevant component's configuration tool opens, prompting you for initial configuration settings. If this configuration was skipped, you must configure the settings manually before you can start working with Performance Center.

For details, refer to the *HP ALM Performance Center Guide*.

Create Performance Center projects and define project settings

You create projects in Site Administration, and define the limits and other settings for the project in

Lab Management, in the Project Settings module. For details, see "How to Create a Project" on page 30.

Manage and maintain Lab Management lab resources

You manage hosts, host pools, and host locations from the Lab Resources modules. For details, see "How to Manage Lab Resources" on page 59.

When you plan to perform maintenance tasks on the hosts—such as installing patches, rebooting hosts, and so on—it is recommended to reserve these hosts in timeslots. This way, you can be sure that they are available for maintenance. For details, refer to the *HP Application Lifecycle Management User Guide*.

View and manage performance test runs

The test runs from all the Lab Management in the system can be viewed and managed in the Test Runs module. For details, see "PC Test Runs Module Window" on page 110.

View Performance Center usage reports

Performance Center usage reports provide you with an overall analysis of Performance Center site users, resource usage, concurrent resource usage vs. license limitations, timeslot usage, as well as resource usage by duration and runs. For details, see "How to View Reports and Set Report Filter Criteria" on page 118.

You can also export these reports to PDF and Excel format. For details, see "How to Export Reports to PDF or Excel Formats " on page 118.

Upload application patches

Before you can install application patches on Performance Center Servers and hosts, you must upload the patches to the system. For details, see "How to Upload Patches to ALM" on page 171.

Manage Performance Center Servers

You manage Performance Center Servers in Lab Management from the PC Servers module. For details, see "How to Manage Performance Center Servers" on page 203.

Manage Performance Center and Performance Center host licenses

You manage the Performance Center license and Performance Center host license in Lab Management from the Licenses module. For details, see "PC Licenses Module Window" on page 148.

Manage Diagnostic Servers and Mediators

Integrating diagnostics modules with ALM enables monitoring and analysis of the performance of complex applications under test. For details on setting up the diagnostics modules, see "Diagnostics Management" on page 153.

Maintain system health

You track and maintain the health of the system from the System Health module. For details, see "System Health Overview" on page 141.

Change the Performance Center system user

You use the System Identity Utility, installed on the Performance Center Server, to change the Performance Center system user on the Performance Center Server and hosts. For details, refer to

the *HP ALM Performance Center Guide*.

Update the Communication Security passphrase

You use the System Identity Utility, installed on the Performance Center Server, to update the Communication Security passphrase on the Performance Center Server and hosts. For details, refer to the *HP ALM Performance Center Guide*.

Update the secure host communication settings

Initially, you define secure communication settings on each Performance Center host or standalone load generator using the Host Security Setup utility, installed locally on each host or load generator. For details, refer to the *HP ALM Performance Center Guide*.

To update these settings on all the hosts and load generators simultaneously, you can use the Host Security Manager, installed on the Performance Center Server. For details, refer to the *HP ALM Performance Center Guide*.

Configure general Performance Center settings

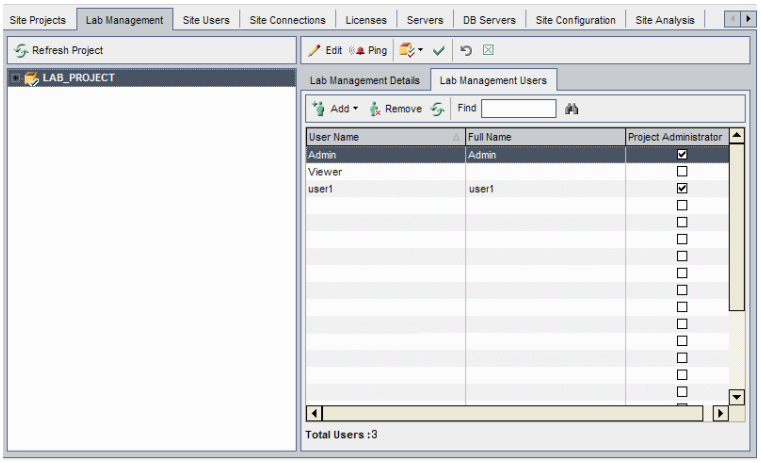
You manage general Performance Center settings in Lab Management. On the masthead, select **Tools > Performance Center General Settings**. For user interface details, see "General Settings Dialog Box" on page 26.

Lab Management Administration User Interface

This section includes:

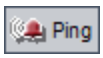
Lab Management Tab

The Lab Management tab in Site Administration enables you to manage LAB_PROJECT project details and define Lab Management users who are responsible for Lab Management administration tasks.



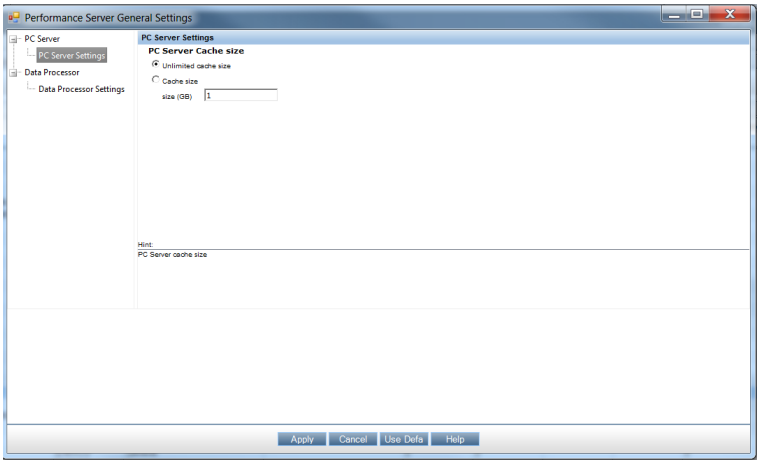
To access	In Site Administration, click the **Lab Management** tab.
Relevant tasks	"How to Create Lab Management Administrators" on page 21
See also	"Introduction to Lab Management Administration" on page 21

User interface elements are described below:

UI Elements	Description
	**Edit Connection String.** Edits the connection string for Lab Management. For details on editing the connection string, refer to the *HP Application Lifecycle Management Administrator Guide*.
	**Ping Project.** Checks whether the project database is accessible from Site Administration.
	**Maintain Project.** Enables you to verify, repair, and upgrade projects. For details, see the *HP Application Lifecycle Management Administrator Guide.*
	**Activate/Deactivate Project.** When you deactivate LAB_PROJECT, users cannot log in to Lab Management. Any users currently connected to the project are forced to log out when you deactivate. LAB_PROJECT is not deleted from the server. In addition, users cannot connect to projects linked to LAB_PROJECT, and currently connected users are disconnected.
	**Restore Lab Project.** Restores access to LAB_PROJECT and adds it to the Lab Management tab in Site Administration. Restoring a LAB_PROJECT allows you to use only Lab Management projects that were created in the restored LAB_PROJECT. For more details on the restore process, refer to the *HP Application Lifecycle Management Administrator Guide*.
	**Remove Lab Project.** Removes LAB_PROJECT from the Lab Management tab in Site Administration. This does not delete LAB_PROJECT from the server and you can restore it if necessary. If the project is still active, you are prompted to deactivate it. Removing LAB_PROJECT deactivates all associated Lab Management projects. These projects can be enabled only by restoring this version of LAB_PROJECT.
Lab Management Details tab	Enables you to view and edit LAB_PROJECT details for working with Lab Management. For more information on the viewing and editing project details, refer to the *HP Application Lifecycle Management Administrator Guide*.
Lab Management Users tab	Enables you to assign users who are responsible for Lab Management administration. For more information, refer to the *HP Application Lifecycle Management Administrator Guide*.

General Settings Dialog Box

This dialog box enables you to define general settings for Performance Center.



To access	In Lab Management, on the ALM masthead select **Tools > Performance Center General Settings**.
Important information	The settings defined here are general settings for the Performance Center system.
Relevant tasks	"How to Work with Lab Management Administration" on page 22
See also	"Introduction to Lab Management Administration" on page 21

User interface elements are described below:

UI Elements	Description
PC Server > PC Server Settings page	Enables you to define Performance Center Server cache setting: • **Unlimited cache size.** The Performance Center Server cache size is unlimited and the cache is not cleaned. • **Cache size**. The Performance Center Server cache size in gigabytes. **Default:** 1GB

UI Elements	Description
Data Processor > Data Processor Settings page	Enables you to define data processor settings: • **Data Processor Timeslot minimum length (minutes).** The minimum amount of time, in minutes, that a data processor timeslot should be allotted. **Default:** 1 minute • **Timeout for pending data processor task (minutes).** The amount of time a data processing task should be allowed to remain in a pending state. **Default:** 30 minutes
Apply	Saves the settings that you have defined.
Use Default	Restores the default Performance Center Server and Data Processor settings.

Chapter 3: Project Settings

This chapter includes:

Project Settings Overview

The Project Settings module enables you to monitor and modify the project settings, including:

- General project details
- Using IP addresses as targets for performance testing
- VUDs Vusers allocation to the project and usage
- Timeslot settings for the project
- Controller settings for the project

For details about how to use Target IP Addresses, see "Using Target IP Addresses" below.

Using Target IP Addresses

Target IP addresses are assigned so that the addresses of all hosts on a given network share a common prefix. The common prefix defines the network portion of the IP address, and the remainder defines the host portion (also referred to as the local portion).

The term network in this context refers to a logical network which might span one or more physical networks. The network portion of an IP address identifies a site and the local portion identifies a single host at that site.

Using Subnet Masks

A site using subnet addressing must specify a 32-bit subnet mask for each network. Each bit in the subnet mask is set to 1 if the network treats the corresponding bit in the IP address as part of the network address or 0 if it treats the corresponding bit in the IP address as part of the host ID.

Consider, for example, the subnet mask

```
11111111 11111111 0000000 0000000
```

(or in decimal form, 255.255.0.0). This subnet mask specifies that the first two octets identify the network and the last two octets identify the host on that network.

The subnet mask 255.255.255.255 (or in binary form, 11111111 11111111 11111111 11111111), which you add when defining individual IP addresses, specifies that all four octets in the IP address identify the network and host as if there were no subnet mask. In practice, this means that null uses the exact IP address to target performance tests.

How to Create a Project

This task describes how to create a project. You create projects in Site Administration, and define project settings in Lab Management.

Note:

- This task is part of a higher level task. For details, see "How to Work with Lab Management Administration" on page 22.
- **Product Feature Movie.** To view a movie that demonstrates how to create a performance testing project, select **Help > Movies** in the ALM main window.

This task includes the following steps:

1. ## Log in to Site Administration

   Open your Web browser and type the ALM URL in the following format:

   ```
   http://<ALM name>[<:port number>]/qcbin
   ```

   In the HP Application Lifecycle Management window, click **Site Administration**.

   Enter your Site Administrator user name and password and click **Login**.

2. ## Create a project domain - optional

   Click the **Create Domain** button and enter a name for the new domain, and click **OK**.

3. ## Create project administrator users

   a. Select the **Site Users** tab, and click the **New User** button. The New User dialog box opens.

   b. Enter the details of the project administrator user, and click **OK**.

   c. Select the user, click **Password** and enter the password. Click **OK**.

   For more details, see *HP Application Lifecycle Management Administrator Guide*.

4. ## Create a new project

   a. Click the **Site Projects** tab, and select the domain in which you want to create the project.

   b. Click the **Create Project** button, and follow the steps to create the project. When

prompted:

- Add the project administrator users you created above.
- If it is not enabled already, select **ALM Lab Extension**.

For more details, see the *HP Application Lifecycle Management Administrator Guide*.

5. **Assign more project administrators to the project - optional**

   To add additional project administrators:

   a. Click the **Site Projects** tab.

   b. In the **Projects** list on the left, select the project you created.

   c. In the right pane, click the **Project Users** tab.

   d. Add another user, and select **Project Administrator**.

6. **Define the project's settings**

   Projects are created with default settings which you can modify if desired. You define the project settings in Lab Management as follows:

   a. Log in to Lab Management with your administrator user name and password.

   b. On the Lab Management sidebar, under **Lab Settings**, select **Project Settings**.

   c. Define at least the following settings: Host limit, Vuser limit, and Concurrent Run limit

   For user interface details, see " Project Settings Details Dialog Box" on page 36.

   Note: Project administrators can view the project settings in the project in ALM, and can modify some of the project settings. To access the project settings in ALM, on the ALM masthead, select **Tools > Lab Settings**.

7. **Add and customize the project users**

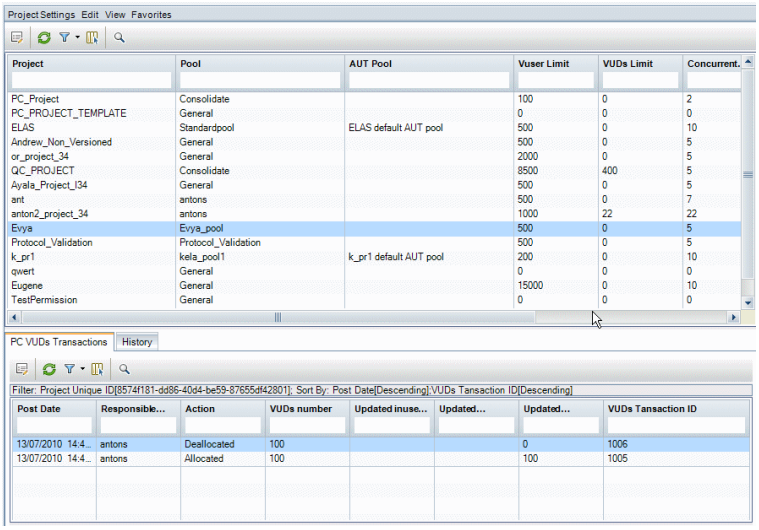
   This step is performed by the project administrator. For details, see *HP Application Lifecycle Management Administrator Guide*.

Project Settings User Interface

This section includes:

Project Settings Module

This module enables you to view and manage all of the projects and their settings.



To access	On the sidebar, under **Lab Settings**, select **Project Settings**.
Important Information	This module displays a list of all of the projects in ALM. Alternatively, you can access project settings from within a particular project.
Relevant tasks	"How to Create a Project" on page 30
See also	"Project Settings Overview" on page 29

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Project Settings module common UI elements>	• **Project Settings module fields.** For field definitions, see "Project Settings Module Fields" on page 35. • **Project Settings module menus and buttons.** For command and button descriptions, see " Project Settings Module Menus and Buttons" on next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HP Application Lifecycle Management User Guide*.
<Project Settings grid>	Displays a list of the projects in ALM and their project settings.
PC VUDs transactions tab	Displays the PC VUDs transactions in each projects. For details, see " Project Settings Details Dialog Box" on page 36.

UI Elements	Description
History tab	Lists changes made to the currently selected project. For more details, see the *HP Application Lifecycle Management User Guide*.

Project Settings Module Menus and Buttons

The Project Settings module enables you to view and manage project settings.

To access	• On the sidebar, under **Lab Settings**, select **Project Settings.** • **Project administrator**: In ALM, on the masthead, select **Tools > Performance Center Project Settings**.
Important information	If you are a project administrator, you can view the current project's settings in ALM. You can also modify some of the settings.

Menus and toolbars of the Project Settings module are described below:

UI Elements (A - Z)	Where	Description
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
Copy URL	Project Settings and <right-click menu>	Copies a selected project and pastes its URL as a link. The project itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the project file or folder. If you are not already logged in, ALM first prompts for login details.
Export	Project Settings and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the project settings in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **All.** Exports all project settings in the grid. • **Selected.** Exports selected project settings in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for project settings in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.
Go to Project Settings	Project Settings	Opens the Go To Project Settings dialog box, enabling you to find a specific project settings record by its ID number.

UI Elements (A - Z)	Where	Description
Grid Filters	View and <right-click menu>	Enables you to filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
Organize Favorites	Favorites	Opens the Organize Favorites dialog box, enabling you to organize the list of favorite views by changing properties or deleting views. For details, see the *HP Application Lifecycle Management User Guide*.
Project Settings Details 	Project Settings and <right-click menu>	Opens the Project Settings Details dialog box, enabling you to view and edit details of the selected project.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the Project Details grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the project setting fields, see "Project Settings Module Fields" on next page.
Set Filter/Sort 	View	Enables you to filter and sort the project settings in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

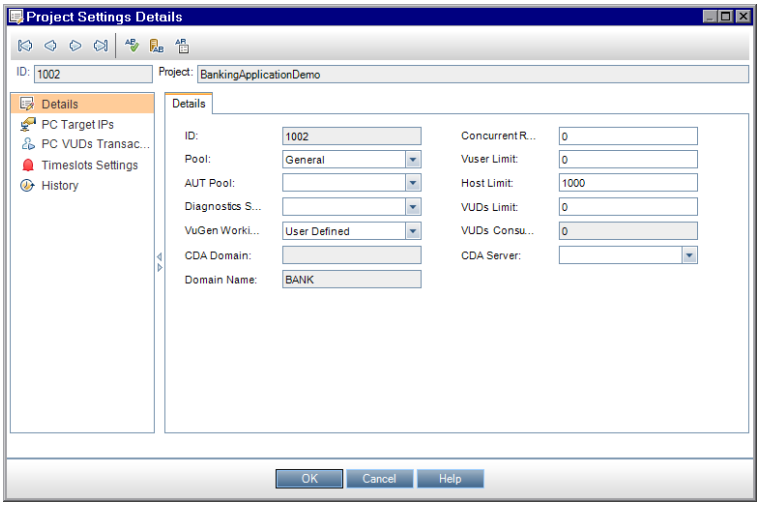
Project Settings Module Fields

This section describes the Project Settings module fields:

Field	Description
AUT Pool	The project's AUT host pool.
CDA Domain	The domain of the CDA server.
CDA Server	The name of the CDA server.
Concurrent Run Limit	The maximum number of concurrent test runs allowed within a project.
Diagnostics Server	The Diagnostics Server defined for the project.
Domain Name	The domain in which the project was created.
Host Limit	The total number of hosts (Controller + load generators) reserved for a timeslot may not exceed this limit.
ID	The project's ID.
Pool	The project's host pool.
Project	The name of the project.
VUDs Consumed	The number of VUDs consumed by the project.
VUDs Limit	The maximum number of VUDs available to the project.
VuGen Working Mode	The mode to use to upload scripts from VuGen: • **Runtime Files mode.** Uploads only the necessary files to replay the script correctly. • **User Defined mode.** Uploads any available files including thumbnail images.
Vuser Limit	The maximum number of Vusers a project can run at once. The total number used by all of the project's concurrent performance tests must not exceed this limit.

Project Settings Details Dialog Box

This dialog box enables you to configure settings for a project.



To access	**In Lab Management:** 1. On the sidebar, under **Lab Settings**, select **Project Settings**. 2. Right-click a project in the grid, and select **Project Settings Details**. **In ALM:** On the ALM masthead, select **Tools > Performance Center Project Settings.**
Important information	The Controller Options page is available only when logged in to a particular project. You cannot set Controller options in Lab Management.
Relevant tasks	"How to Create a Project" on page 30
See also	"Project Settings Overview" on page 29

Common Elements

Common user interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of projects. **Available from:** Lab Management only
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.

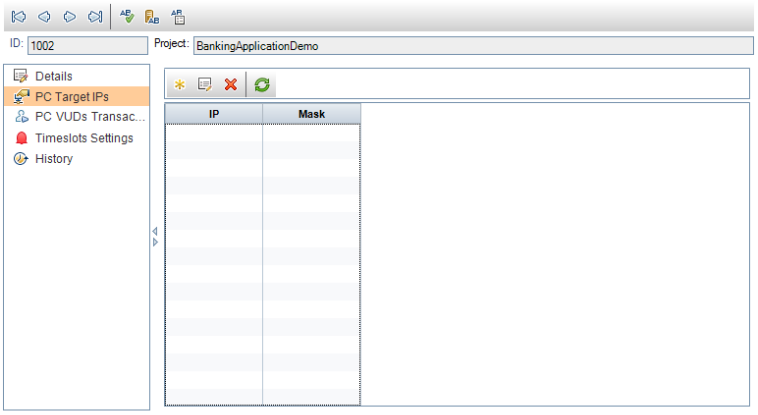
UI Elements	Description
	**Spelling Options.** Enables you to configure how to check the spelling.
Project	The name of the project.

Details Page

This page displays the general details about the selected project. For details, see "Project Settings Module Fields" on page 35.

PC Target IPs Page

This page enables you to define IP addresses to use as targets for performance testing.



Important Information	Target IP can be defined on Performance Center hosts only, and not on standalone load generators.
Relevant tasks	"How to Create a Project" on page 30
See also	"Using Target IP Addresses" on page 29

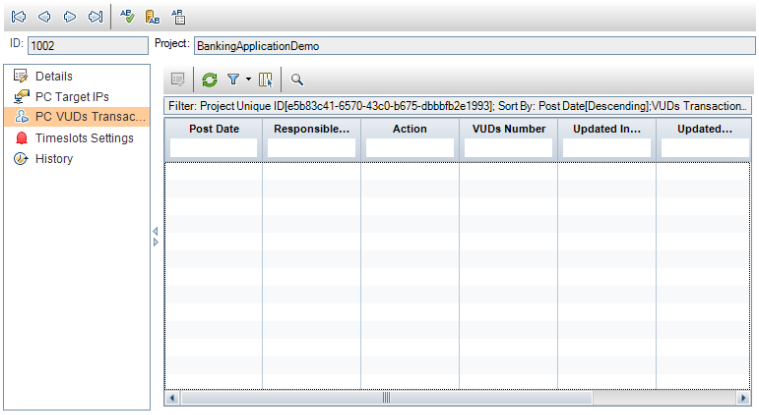
User interface elements are described below:

UI Elements	Description
	**New.** Opens the New Target IP dialog box, enabling you to define an IP to use as a target for performance testing.
	**Edit.** Opens the Target IP Details dialog box, enabling you to view and edit details of the selected target IP.
	**Delete.** Enables you to delete the selected target IPs.
	**Refresh.** Refreshes the grid so that it displays the most up-to-date information.

UI Elements	Description
IP	A target IP address.
Mask	A 32-bit subnet mask for each network.

PC VUDs Transactions Page

This page enables you to follow the PC VUDs transactions in your projects.



User interface elements are described below:

UI Elements (A - Z)	Description
Action	The VUDs action performed. For details about the possible actions, see "VUDs Actions" on next page.
In Use by Run ID	The ID of the test run that is currently running the VUDs.
Owner Run ID	The ID of the test run that originally issued the VUDs.
Post Date	The date that the transaction occurred.
Responsible user name	The user, or automated system process responsible for the transaction.
Token Unique ID	Identifies all actions that belong to the same transaction. **Note:** In one regular run that uses VUDs, there are three actions: Issued, Pending, and Expired. Each of these actions has a different transaction ID, but the same Token ID.
Updated inuse VUDs	The current number of VUDs that are running as a result of the transaction.

UI Elements (A - Z)	Description
Updated Pending VUDs	The current number of VUDs that are in the Pending state as a result of the transaction.
Updated project limit	The project's VUDs limit as a result of the transaction.
VUDs number	The amount of VUDs involved in the action.
VUDs Tansaction ID	The action ID.

VUDs Actions

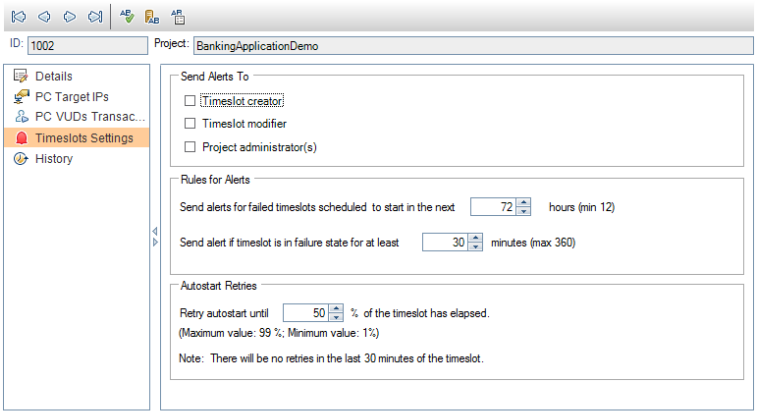
The following table lists the possible VUDs actions.

UI Elements (A - Z)	Description
Allocated	VUDs added to the project's VUDs limit by the administrator.
Deallocated	VUDs removed from the project's VUDs limit by the administrator.
Expired	VUD's removed from the license after their 24 hour active period has ended. **Note:** VUDs that are involved in a performance test that exceeds 24 hours continue to run until completion before expiring.
Issued	VUDs added to a performance test. **Note:** • All VUDs involved in a performance test are considered to be issued from the start of the test, irrespective of whether they have started running or not. • The amount of issued VUDs decreases the project's VUDs limit accordingly. • All unused VUDs are returned to the project's VUDs limit at the conclusion of the test.

UI Elements (A - Z)	Description
Pending	VUDs which have completed a test run but are still available for further use as their 24 hour active period has not yet ended.
Refunded	VUDs which were issued but not used in the test. These VUDs are returned to the project's VUDs limit and may be reissued at a later date.
Reused	Running VUDs that that are taken from VUDs in the Pending state. **Note:** ALM Performance Center first reuses VUDs in the Pending state before issuing new VUDs. For example, assume you define a performance test that includes **100** VUDs, where the current project limit is **200**, and where **25** VUDs are currently in the Pending state. ALM Performance Center first reuses the **25** Pending VUDs and only issues **75** from the license. The new limit will be **125**.

Timeslot Settings Page

This page enables you to configure timeslot settings.



User interface elements are described below:

UI Elements	Description
Send Alerts To	The users who should receive a timeslot alert: • **Timeslot creator.** The user who reserved the timeslot. • **Timeslot modifier.** The user who last modified the timeslot. • **Project administrators.** Administrators of the project in which the timeslot was reserved.

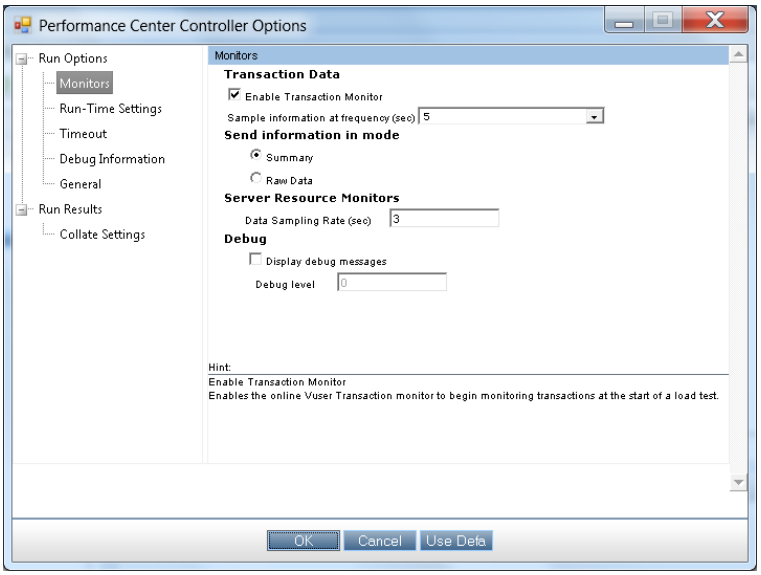
UI Elements	Description
Rules for Alerts	The conditions under which timeslot alerts are sent (both conditions must hold): • **Send alerts for timeslots scheduled to start in the next <XX> hours.** Sends an alert when a timeslot is XX hours within its due time to start. **Default value:** 72 hours **Minimum value:** 12 hours • **Send alert if timeslot is in failure state for at least <XX> minutes.** Sends an alert when the timeslot has been invalid for XX minutes. **Default value:** 30 minutes **Maximum value:** 360 minutes (6 hours)
Autostart Retries	If a performance test linked to a timeslot is scheduled to autostart but does not start running, the system continues to try to autostart the test until it starts running successfully. The **Autostart Retries** option enables you to specify when the system should **stop trying** to autostart the test. In any event, retries are stopped if there are 30 minutes or less left of the timeslot. **Default value:** 50%, that is the system stops retries when half the timeslot has elapsed. **Maximum value:** 99%; **Minimum value:** 1% **Note:** The system tries to restart a performance test up to three times.

History Page

This page lists changes made to the project. For more details, see the *HP Application Lifecycle Management User Guide*.

Performance Center Controller Options Dialog Box

This dialog box enables you to configure global Controller options for your Performance Center project.



To access	On the ALM masthead, select **Tools > Performance Center Controller Options.** **Note:** This page is accessible only from the ALM project itself, and not from Lab Management.
Important information	The Controller is the manager of a performance test. The Controller receives the scripts, their runtime settings, and a list of the load generators to use. The Controller issues instructions to the load generators including which scripts to run, how many Vusers to run per script, and the time at which to start running the Vusers. During the performance test, the Controller displays online monitoring information. At the conclusion of the test run, the Controller collates the data for analysis. Before you run a performance test, you can configure load generator and Vuser options for all your performance tests in the project. Although the default settings correspond to most environments, you can modify the settings to customize the test behavior. The settings apply to all future test runs in the project and generally only need to be set once. The settings apply globally to all the load generators in a performance test.
Relevant tasks	"How to Create a Project" on page 30
See also	"Project Settings Overview" on page 29

Run Options > Monitors

Enables you to activate the Transaction monitor, configure the behavior of the transaction data, and set the data sampling rate, debugging, and frequency settings for the online monitors.

User interface elements are described below:

UI Elements	Description
Transaction Data	Configures the behavior of data for the Transaction, Data Point, and Web Resource online graphs. • **Enable Transaction Monitor.** Select this option to activate the online Vuser Transaction monitor to begin monitoring transactions at the start of a test run. **Sample information at frequency <>.** Select the frequency, in seconds, at which the online monitor samples the data to produce the Transaction, Data Point, and Web Resource online graphs. The higher the frequency, the less network traffic there is. The data is averaged for the frequency period defined, and only one value is sent to the Controller. **Default value:** 5 seconds. **Examples:** ▪ For a small test, use a frequency of 1. ▪ For a large test, use a frequency of 3 - 5. **Note:** You cannot modify these settings during a test run; you must stop the test run before deactivating the monitor or changing its frequency.
Send information in mode	Specifies how to send data back to the Controller. • **Summary.** Sends a summary of the transaction data back to the Controller. • **Raw Data.** Sends all the transaction data back to the Controller in raw form. Sending raw data saves time because the data does not need to be processed. **Note:** When Raw Data is selected, the volume of data being transferred to the Controller may cause more network traffic. If the transfer speed is significant to you, select **Summary**.

UI Elements	Description
Server Resource Monitors	Configures the behavior of the Server Resource monitors. • **Data Sampling Rate.** The period of time (in seconds) between consecutive data sampling. By default, the online monitor samples the data at intervals of three seconds. If you increase the sampling rate, the data is monitored less frequently. This setting applies to all graphs. **Note:** • The sampling rate configured here is applied to all server monitors that you subsequently activate. It is not applied to server monitors that have already been activated. To apply the new sampling rate to activated server monitors, save your performance test and reopen it. • Each type of monitor has a different minimum sampling rate. If the default sampling rate, or the rate set here is less than a monitor's minimum sampling rate, the monitor samples data at its minimum sampling rate. For example, the minimum sampling rate for the Oracle Monitor is 10 seconds. If the data sampling rate is set here at less than 10 seconds, the Oracle Monitor continues to monitor data at 10 second intervals.
Debug	• **Display Debug Messages.** The online monitor provides debugging capabilities. Select this option to display the debug messages in the Output window. • **Debug level.** For the Network monitor, you can indicate the debug (detail) level of messages sent to the log, ranging from 1-9.

Run Options > Run-Time Settings

Enables you to specify runtime settings for your test relating to Vuser quotas, stopping Vusers, and random sequence seed, to prevent system overload, and to control the way in which Vusers stop running.

User interface elements are described below:

UI Elements	Description
Vusers Quota	Vuser quotas prevent your system from overloading. The Vuser quotas apply to Vusers on all load generators. **Number of Vusers that may be initialized simultaneously on all load generators.** Limits the number of Vusers initialized at one time (when you send an Initialize command). **Default value:** 999

UI Elements	Description
When Stopping Vusers	Controls the way Vusers stop running when you manually stop a test run: • **Wait for the current iteration to end before stopping.** (Default option) The Vuser completes the iteration it is running before stopping. The Vusers move to the **Gradual Exiting** status and exit the test run gradually. • **Wait for the current action to end before stopping.** The Vuser completes the action it is running before stopping. The Vusers move to the **Gradual Exiting** status and exit the test run gradually. • **Stop immediately.** The Vusers stop running immediately, moving to the **Exiting** status and exit the test run immediately.
Random advance mode of file type parameter	• **Use random sequence with seed.** Enables you to set a seed number for random sequencing. Select this option if you discover a problem during the test run and want to repeat the test using the same sequence of random values. • **Use seed <#>.** Each seed value represents one sequence of random values used for test execution. Whenever you use this seed value, the same sequence of values is assigned to the Vusers in the test. This setting applies to parameterized Vuser scripts using the Random method for assigning values from a data file. It also affects the random percentage of recorded think time (see information about the Run-Time Settings dialog box in the *HP Virtual User Generator User Guide*).

Run Options >Timeout

Enables you to set timeouts for various Performance Center commands. When a command is issued by the Controller, you can set a maximum time for the load generator or Vuser to execute the command. If the command is not completed within the time limit, the Controller issues an error message.

User interface elements are described below:

UI Elements	Description
Command Timeout (seconds)	**Enable timeout checks.** Enables load generator and Vuser timeout checks described below. **Note:** If this option is not selected, ALM waits an unlimited time for the load generators to connect and disconnect, and for the Initialize, Start Vusers, Duration, and Stop Vusers actions to be executed.

UI Elements	Description
Load Generator	Load generator timeout limits: • **Connect operation (sec).** The amount of time (in seconds) that elapses before connecting to any load generator. If a connection is not successful within this time, the status of the load generator changes to **Failed**. **Default connection timeout:** 30 seconds • **Disconnect operation (sec).** The amount of time that elapses before disconnecting from any load generator. If the load generator does not disconnect within this time, the status of the load generator changes to **Failed**. **Default disconnection timeout:** 120 seconds
Vusers	Vuser timeout limits: • **Init stage (sec).** The timeout value for the Initialize action. **Default time limit:** 180 seconds • **Run stage (sec).** The timeout value for the Start Vusers action. **Default time limit:** 120 seconds • **Pause stage (sec).** The timeout value for the Duration action. **Default time limit:** 120 seconds • **Stop stage (sec).** The timeout value for the Stop Vusers action. **Default time limit:** 120 seconds **Note:** Calculations consider the number of active Vusers and their influence on the timeout values. For example, 1000 Vusers trying to initialize take much longer than 10 Vusers. An internal value is added to the specified timeout value based on the number of active Vusers.

Run Options > Debug Information

Enables you to select the type of information to trace during a test run. According to the selection here, trace files are created and are used to gather information for debugging purposes.

User interface elements are described below:

UI Elements	Description
Enable the following traces	The trace flags related to performance testing problems that you are encountering: • **General.** Performs a general trace during the test run. • **File Transfer.** Traces problems with the transfer of files during the test run. • **Incoming communication.** Traces incoming communication during the test run. • **Outgoing communication.** Traces outgoing communication during the test run. **Note:** The Performance Center agent and the Controller create some temporary files that collect information such as the parameter file sent to the Vuser, the output compilation file, and the configuration file. The Performance Center agent files are saved in **brr** folders in the **TMP** or **TEMP** directory of the agent machine. The Controller files are saved in **lrr** folders in the **TMP** or **TEMP** directory of the Controller machine. At the end of the test run, all of these files are automatically deleted.

Run Options > General

Enables you to select a mode for allocating multiple IP addresses when IP spoofing is enabled.

For details about the **Test Options Dialog Box**, see the *HP ALM Performance Center Guide*.

User interface elements are described below:

UI Elements	Description
Multiple IP Address Mode	The Controller can allocate an IP address one of the following ways: • **IP address allocation per process.** Allocates IP addresses per process. • **IP address allocation per thread.** Allocates IP addresses per thread, resulting in a more varied range of IP addresses in a test run. **Examples:** • Web Vusers require IP address allocation per process. • WinSock Vuser IP addresses can be allocated per thread or per process.

Run Results > Collate Settings

Enables you to specify behavior related to collation of the run results.

User interface elements are described below:

UI Elements	Description
Output Message Database	• **Add output.mdb to RawResults.zip if it is smaller than RawResults.zip size (MB).** Collator process adds **output.mdb** to **RawResults.zip** only if it is smaller in size than the **RawResults.zip** file size specified. • **Always exclude output.mdb from RawResults.zip.** Collator process always excludes **output.mdb** from **RawResults.zip**.
Timeout	• **Collate timeout in minutes.** The maximum amount of time the collate process should continue running without progress. • **Diagnostics collate timeout in minutes**. The maximum amount of time the collate process should continue running without progress when collating results with Diagnostics data.

Chapter 4: Maintenance Tasks

This chapter includes:

Maintenance Tasks Overview

To run server-side tests in ALM, the lab system must be up and functioning correctly. Scheduled automated maintenance tasks provide constant monitoring of the system's key components in order to detect system failures. You use the Maintenance Tasks module to check the status of the system.

The following table describes the maintenance tasks:

UI Elements (A - Z)	Description
Check Host Task	Verifies the host installation, and updates the host status to either **Operational** or **Non-Operational**. **Default frequency:** Every 24 hours
Data Processor Task	Sets and updates a data processing queue for any of the following actions: Analyzing a test run, recalculating the SLA, or adding test runs to a trend report. **Default frequency:** Every minute
Handle Non Polling Functional Hosts	Checks the Last Poll Time field of all registered Functional testing hosts. If a testing host has not been active for a long time, this task changes the status of the testing host to **Idle** or **Non-Operational**.
OFW Status Update Task	Updates the real status (**Operational** or **Non-Operational**) of a host that is located over a firewall. **Default frequency:** Every 15 minutes
Orphan Run Task	Identifies orphan test runs during and outside of the active timeslot. **Default frequency:** Every 15 minutes

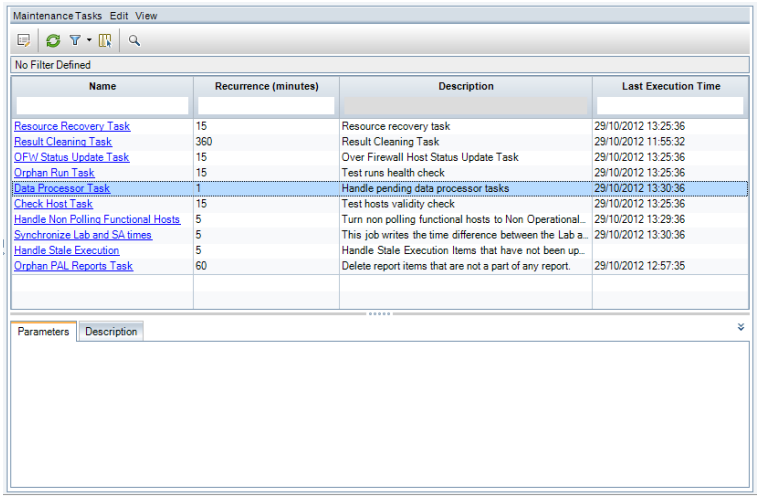
UI Elements (A - Z)	Description
Resource Recovery Task	Performs predefined validation tests on Controllers and load generators that are in the **Non-Operational** state. If the host passes the test, its status changes to **Operational**. • **Controller validation tests.** Tests the OTA connection, ability to run, and available disk space. • **Load Generator validation tests.** Tests the connection to the agent. The task parameters should be within the following guidelines: • **MIN_APPLICATION_DIR_DISK_SPACE:** Between 10 and 1000 • **CHECK_LG_TIMEOUT:** Between 1 and 15 • **MAX_RETRIES:** Between 1 and 1000 **Default frequency:** Every 15 minutes **Note:** For load generators over a firewall, this is performed by the OFW Status Update task (see above).
Result Cleaning Task	Cleans test run results from Controllers or load generators in the following instances: • If the results have already been collated. • There are old performance tests whose results were not collated. • If the performance test was deleted. The **RESULT_EXPIRY_DAYS** task parameter should be between 1 and 1000. **Default frequency:** Every 6 hours
Synchronize Lab and SA times	Finds the time difference between Lab Management and Site Administrator and enters it into the parameter **SA_LAB_TIME_DIFF_MILLIS** in the **DATACONST** table.

Maintenance Tasks User Interface

This section includes:

Maintenance Tasks Module Window

This module displays information about maintenance tasks performed by the system.



To access	On the sidebar, under **Lab Settings**, select **Maintenance Tasks**.
See also	"Maintenance Tasks Overview" on page 49

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Maintenance Task tab UI elements>	• **Maintenance Task fields.** For field definitions, see "Maintenance Task Fields" below. • **Maintenance Task menus and buttons.** For command and button descriptions, see "Maintenance Task Menus and Buttons" on next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu, and sidebar, see the *HP Application Lifecycle Management User Guide*.
<Maintenance tasks grid>	Displays a list of maintenance tasks. For details, see "Maintenance Tasks Overview" on page 49.
Parameters tab	Displays a description of the selected maintenance task.
Description tab	Displays parameter information for the selected maintenance task. Right-click the text box to display a toolbar for formatting and spell-checking the text.

Maintenance Task Fields

The following fields are available in the Maintenance Tasks tab:

Field (A - Z)	Description
Description	A description of the maintenance task.
ID	The maintenance task ID.
Last Execution Time	The last time the maintenance task was executed.
Name	The maintenance task name. For a list of the maintenance task types, see "Maintenance Tasks Overview" on page 49.
Recurrence (minutes)	The frequency of the maintenance task.

Maintenance Task Menus and Buttons

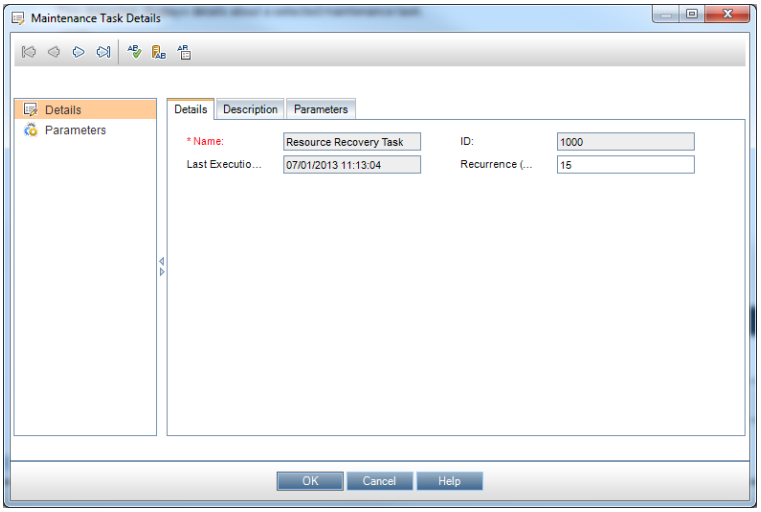
User interface elements are described below:

UI Elements (A - Z)	Where	Description
Copy URL 	Maintenance Tasks and <right-click menu>	Copies a selected maintenance task and pastes its URL as a link. The task itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the task file or folder. If you are not already logged in, ALM first prompts for login details.
Export	Maintenance Tasks and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the tasks in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML file. Choose one of the following options: • **All.** Exports all tasks in the grid. • **Selected.** Exports the selected tasks in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for tasks in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.
Go to Maintenance Task 	Maintenance Tasks	Opens the Go To Maintenance Task dialog box, enabling you to find a specific task by its ID number. You can only go to tasks that are available in the current filter.
Grid Filters	View and <right-click menu>	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Information Panel	View and <right-click menu>	Shows/hides the Information Panel in the lower area of the module.
Maintenance Tasks Details 	Maintenance Tasks and <right-click menu>	Opens the Maintenance Task Details dialog box, enabling you to view and edit details of the task.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the System Health fields, see "Maintenance Task Fields" on page 51.
Set Filter/Sort 	View	Enables you to filter and sort the tasks in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

Maintenance Task Details Dialog Box

This dialog box displays details about a selected maintenance task.



To access	1. On the sidebar, under **Lab Settings**, select **Maintenance Tasks**. 2. Select a maintenance task from the grid and click the **Maintenance Task Details button**  .
See also	"Maintenance Tasks Module Window" on page 51 "Maintenance Task Fields" on page 51 "Maintenance Tasks Overview" on page 49

User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of hosts.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Details tab	Lists the details of the currently selected maintenance task. For more information, see "Maintenance Task Fields" on page 51.
Description tab	Displays the description of the selected maintenance task.

UI Elements	Description
Parameters tab	Displays parameters in a grid along with their values and descriptions. For more information, see "Maintenance Tasks Overview" on page 49.

Chapter 5: Lab Resources

This chapter includes:

Lab Resources Overview

The Lab Resources modules enable you to define the testing resources used for LM server-side testing.

When using ALM without Lab Management, users must control tests from their local computer. Once testing hosts are set up in Lab Management, users can use ALM to schedule and execute tests on remote servers without requiring user intervention. You use Lab Management to set up the testing hosts and host pools that you use for your project.

The following table lists the testing resources available in Lab Management:

Resource	Description
Testing Hosts / Hosts	Testing hosts are used to run tests and to process the data collected from those tests. You can define hosts as Functional hosts, Performance hosts, or both. Functional and Performance hosts can have the following purposes: **Functional hosts (ALM Edition only)** • **Business Process Testing.** A testing host on which business process tests are run. • **QuickTest Professional.** A testing host on which QuickTest Professional is run. • **Service Test.** A testing host on which Service Test is run. • **System Test.** A testing host on which System Test is run. • **Unified Functional Testing.** A testing host on which Unified Functional Testing is run. • **VAPI-XP.** A testing host on which VAPI-XP is run. **Note:** You must register a testing host with LM to make it available for functional testing. See "Using HP ALM Lab Service" on page 230. **Performance hosts** • **Controller.** A testing host used to manage a performance test. During a test run, the Controller issues instructions to the load generators, including which scripts to run, how many Vusers to run per script, and when to start and stop running them. There is only one Controller per test. • **Load generator.** A testing host on which Vusers run during a test. There can be any number of load generators for a given test. • **Data processor.** A testing host used for processing and publishing data gathered during a test run. **Note:** • To provide greater flexibility (especially where resources are scarce), you can allocate a Performance host with dual purposes as a Controller and load generator. In general, this is not a recommended practice and is only appropriate for tests that have a very small number of Vusers. When allocating hosts, the system tries to use single function hosts before dual-purpose Controller and load generator hosts. • Although it is possible to set a host as both a Controller and a data processor, it is recommended to set up a separate host for data processing. • A host that is located over a firewall or is a UNIX host can be used as a load generator only.

Resource	Description
Host Pools	A host pool is a group of testing hosts. Each project has one host pool. When managing a host pool, it is important to understand the total available resources. The pool must contain at least one Controller, one load generator, and one data processor. Because hosts can have dual functionality, it is recommended that a pool contains, among the other hosts, at least one host that can be dedicated fully for Controller functionality. **Available from:** Lab Management only.
Host Locations	When selecting hosts for testing, host location might be taken into consideration because hosts in a pool can be located across a wide physical area. Hosts located over a firewall can be designated as load generators only. **Available from:** Lab Management only.
MI Listeners	MI Listeners serve as routers between the Controller and a Performance Agent, thus enabling you to run Vusers over a firewall, and collect server monitor data and application diagnostics data over a firewall. The MI Listener receives data from the Performance Agent at regular intervals. During the course of the test run, the Controller takes the data from the MI Listener to process as runtime data. The MI Listeners are only available for load generators. For detailed information about configuring Lab Management to work with firewalls, refer to the section about working with firewalls in the *HP ALM Performance Center Installation Guide*. **Available from:** The Performance Center modules in Lab Management only.

For details about managing lab resources, see "How to Manage Lab Resources" below.

How to Manage Lab Resources

This section describes how to manage lab resources needed for designing and running performance tests.

Note:

- Testing hosts for a particular project can also be viewed in the ALM project itself.
- **Product Feature Movie.** To view a movie that demonstrates how to set up the lab resources required for running a performance test, select **Help > Movies** in the ALM main window.
- **ALM Editions**: Functional testing host management is available only for ALM Edition.

This task describes how to:

- "Add lab resources" on next page
- "Import host data from Excel " on page 61
- "Modify/View lab resource details" on page 63

- "Check host connections to testing hosts" on page 64
- "Reboot hosts" on page 64
- "Install patches on hosts" on page 64
- "Reconfigure hosts" on page 65
- "End processes on a Performance host" on page 65
- "Link hosts to host pools" on page 65

Add lab resources

Before you design and run tests, you must add the required resources to ALM. These include the hosts, the host pools to which the hosts belong, the location of the hosts, and MI Listeners for load generators that are located over a firewall. For an overview of lab resources, see "Lab Resources Overview" on page 57.

Before adding testing hosts, ensure the following:

- Testing tools were installed on your testing hosts.
- If a testing host you are adding is in a remote location, make sure that the location was added in the **Lab Resources > Locations** module.
- If a testing host you are adding is over a firewall, the host must communicate with a Performance host through an MI Listener. Make sure that the MI Listener was added in the **Lab Resources > MI Listeners** module.
- HP ALM Lab Service has been installed on testing hosts you are adding. For task details, see "Installing HP ALM Lab Service" on page 225.

Tip: You can use the Import Hosts feature to import a list of hosts from an Excel file into ALM. For details, see "Import host data from Excel " on next page.

To add a lab resource:

1. **Create a new resource.**
   - In Lab Management, under **Lab Resources**, select the relevant resource module, and click the **New <Resource>**  button. See "New Testing Host Dialog Box" on page 79.
   - In ALM, under **Lab Resources**, select the **Hosts** module, and click the **New Host**  button. See "New Testing Host Dialog Box" on page 79. Hosts created in ALM are private hosts and can only exist in one host pool at a time.
2. **Register the testing host.** For security reasons, a testing host must be registered using HP ALM Lab Service before it can be used. After the testing host has been registered, the testing host registration must be approved from within Lab Management.

   To download and install HP ALM Lab Service, select **Help > Tools** to open the Tools add-in page, and click the appropriate link. For task details, see "Using HP ALM Lab Service" on page 230.

Note: Lab Service and the ALM server to which you are connecting must be of the same version in order to be compatible. If your version of Lab Service is not the same as the ALM server to which you are connecting, ALM and Lab Management display your testing tool as **Unavailable** in the Hosts/Testing Hosts grid.

Import host data from Excel

You can import a list of hosts from an Excel file (.xls or .csv) into ALM.

1. Ensure that the Excel file is set up so that the columns can be recognized and mapped by the Import feature.
   - The first row of the Excel file must contain the field names, or corresponding logical names, that appear in the table below. (Logical names are not case sensitive.)

     Some fields are mandatory, others are required or optional.

     - **Mandatory** indicates a field that **must** appear in the Excel file. If you omit this field, the import fails. If you omit a value in one of the rows of this field's column, the import of that specific row fails.
     - **Required** indicates a field that **should** appear in the Excel file. If you omit this field, the code adds the field with the default value for all rows. If you include the field, but omit a value in one of the rows of this column, the code adds the default value for that row.
     - **Optional** indicates a field does not have to appear in the Excel file. Omitting this field has no effect on the import procedure.
   - Fields representing virtual, reference, and invalid fields are ignored.
   - Empty columns are allowed.

   Set up the columns and values in the file as follows:

Field name	Logical Name	Value	Field for
HOST_NAME Mandatory	**Name**	Any string	The valid name of the host machine.
HOST_ PURPOSE Mandatory	**Purpose**	Controller, Load Generator, QTP, Sprinter, and so on.	The purpose of the testing host. **Note:** This can be any combination of the options. Options should be separated with a semicolon and be without spaces. **Example:** Controller; Data Processor; QTP

Field name	Logical Name	Value	Field for
HOST_STATE Required	**Status**	○ Operational ○ Non-Operational ○ Unavailable **Default:** Operational	The host state.
HOST_ INSTALLATION Required	**Installation**	○ Unix Load Generator ○ Windows Host ○ Windows Standalone LG **Default:** Windows Host	The type of host installation. **Note:** There is a double space in: ○ "Windows<*space*><*space*>Host" ○ "Unix <*space*><*space*>Load Generator"
HOST_ PRIORITY Required	**Priority**	○ 1-Lowest Priority ○ 2, 3 … 8 ○ 9-Highest Priority **Default:** 5	The priority of the host.
HOST_SSL_ ENABLED Required	**Enable SSL**	○ Y ○ N **Default:** N	SSL-enabled
HOST_ USERNAME Optional	**Username**	Any string	The user name for logging in to the host.
HOST_ PASSWORD Optional	**Password**	Any string	The user password for logging in to the host.
HOST_ DOMAIN Optional	**Domain**	Any string	The host domain.

Field name	Logical Name	Value	Field for
HOST_ DESCRIPTION Optional	**Description**	Any string	The host description.

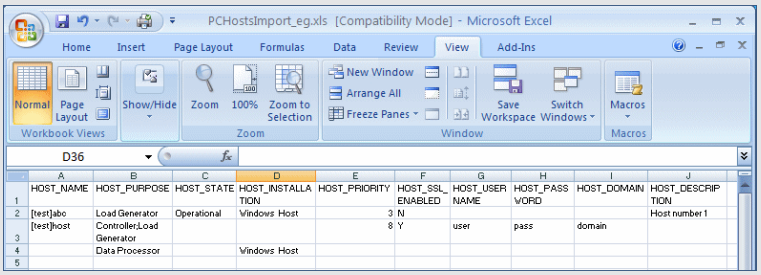
The fields specified in the table below must not be included in the Excel file. During the import of each host, these fields are assigned default values.

Field name	Default value assigned
Belongs to pools	General
Location	Default
MI Listener	None

Note: If data for these fields is included in the Excel file, the data is ignored. Default values that are not relevant for a particular host must be modified manually in the Hosts module.

Example:

The following image illustrates an Excel file set up with the following AUT hosts: **[test] abc**, **[test]host**, and a third host whose name was not provided.



2. Import the hosts:

   a. Under Lab Resources, select **Hosts**.

   b. In the Hosts module, select **Hosts** > **Import**.

   c. Browse to the Excel file containing the hosts, and click **Open**.

   At the end of the import process, a report displays the import results, and the imported hosts are listed in the Hosts module. Hosts that are not imported successfully must be added manually.

Modify/View lab resource details

To modify or view a lab resource's details, in the relevant Lab Resources module, right-click the

resource in the grid and select **<Resource>Details**. See "Lab Resources Modules User Interface" on page 66.

Check host connections to testing hosts

Under Lab Resources, select **Hosts**. Right-click a host in the grid, and select **Check Host**.

The Task Manager opens, and the overall result of each check performed on the host, **Passed** or **Failed**, is displayed.

You can view the progress of the host check in the Hosts module's **Check Host Status** tab.

Note: The only test which can be run on a Functional host is **Ping to Host**.

Based on the purpose and location of the host, the following checks are performed on the host:

Check Performed	Load Generator Host				Controller Host	Data Processor Host	Functional Host
	Regular	UNIX	Standalone	OFW			
Ping to Host	Yes	Yes	Yes	N/A	Yes	Yes	Yes
Installed Patches	Yes	N/A	N/A	N/A	Yes	Yes	N/A
Services	Yes	N/A	N/A	N/A	Yes	Yes	N/A
Performance	Yes	N/A	N/A	N/A	Yes	Yes	N/A
Over Firewall Status	N/A	N/A	N/A	Yes	N/A	N/A	N/A

Alternatively, you can perform the above checks, together with an additional connectivity check from the host to a particular URL. Right-click a host in the grid, select **Check Connectivity to URL**, and enter the URL.

Examples:

- Regular URL: `http://www.website.com`
- Machine name: `machine22` or `http://machine22`

Reboot hosts

Under Lab Resources, select **Hosts**. Right-click the host in the grid that you want to reboot, and select **Reboot Host**.

Install patches on hosts

Notes:

- To install patches on a host, you first need to have uploaded the patches to ALM. For details, see "How to Upload Patches to ALM" on page 171.

- Patches can be installed on a host only when the host state is **idle**.
- You can only install patches on Performance hosts.

Under Lab Resources, select **Hosts**. Right-click the host in the grid on which to install the patch and select **Install Patch**.

For user interface details, see "Select Patch to Install Dialog Box" on page 92.

Reconfigure hosts

Note: You can only reconfigure Performance hosts.

Reconfiguring a host resets the host license, the Performance Center system user (IUSR_METRO), and the Communication Security passphrase on the host machine.

To reconfigure a host, under **Lab Resources,** select **Hosts**. Right-click the host in the grid that you want to reconfigure, and select **Reconfigure Host**.

End processes on a Performance host

To end a process on a Performance host, under **Lab Resources,** select **Hosts**. Select a host, and in the **Processes** tab, select the process and click  .

Link hosts to host pools

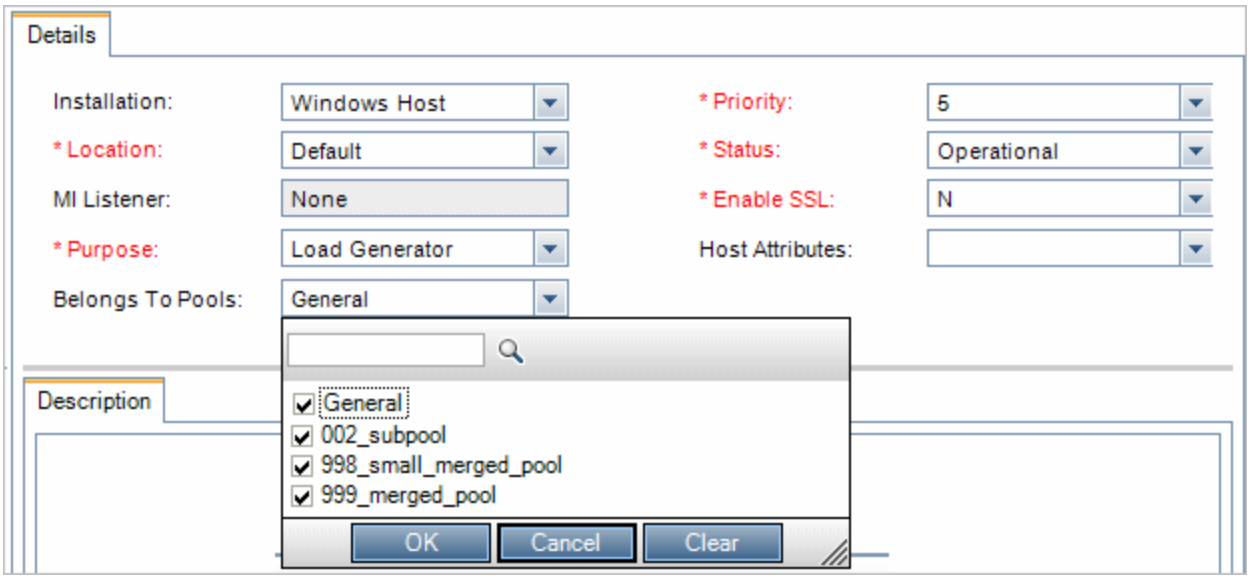
Note: Host pool management is only available in Lab Management. It is not available in ALM.

You can populate host pools with hosts in one of the following ways:

- **Hosts module.** You can link a host to one or more host pools.
- **Pools module.** You can link one or more hosts to a particular host pool.

To link a host to one or more host pools from the **Hosts** module:

1. Under Lab Resources, select **Hosts**.
2. Right-click a host in the grid, and select **Host Details**.
3. Click the down arrow adjacent to **Belongs to Pools**, and select pools in which to include the host. Click **OK**.



To link one or more hosts to a host pool from the **Pools** module:

1. On the Lab Management sidebar, under Lab Resources, select **Host Pools**.
2. Select a host pool in the grid.
3. In the **Linked Hosts** tab, click **Add Hosts to Pool**  . Select hosts from the grid and click **Add**.

Lab Resources Modules User Interface

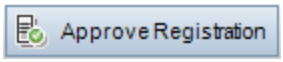
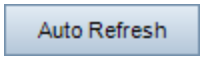
This section includes:

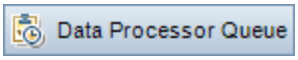
Lab Resources Module Menus and Buttons

The Lab Resources modules enable you to manage the lab resources used for test execution.

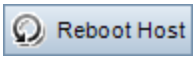
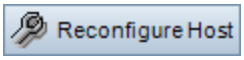
Important information	• Some resources are available only in Lab Management. Only a user with administrator privileges can manage those resources. • Non-administrator users in Lab Management can view host details and host pool details belonging to their projects, and can reconfigure, reboot, and check host connectivity on hosts. • This topic relates to all of the Lab Resources modules: ▪ Hosts ▪ Pools ▪ Locations ▪ MI Listeners (available in the **Performance Center** group) All lab resources are generically referred to as <Resource>.
Relevant tasks	"How to Manage Lab Resources" on page 59

Common menus and toolbars of the Lab Resources modules are described below:

UI Elements (A - Z)	Where	Description
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
	Hosts/Testing Hosts module	Enables you to approve the registration of a testing host, making it available for test execution. **Note:** If the Registration Auto Approve field for the selected host is set to **Y**, this button is disabled.
	Hosts/Testing Hosts module	Refreshes the grid automatically every 30 seconds.
	Hosts/Testing Hosts module	Performs the same checks as the **Check Host** button, as well as connectivity to any given URL.

UI Elements (A - Z)	Where	Description
	Hosts/Testing Hosts module	For Functional hosts, checks that the purposes associated with the selected testing host are valid. Results are displayed in the Task Manager dialog box, along with a list of validation results. For Performance hosts, checks connectivity between the selected host and other machines in the system.
	Hosts/Testing Hosts module	Opens the Data Processor Queue window, enabling you to view the pending data processing requests. **Note:** Available only for hosts with Performance purposes.
Delete 	Edit and <right-click menu>	Deletes the resource selected in the grid. **Note:** You cannot delete an MI Listener that is being used by a host.
<Resource> Details 	Toolbar and right-click menu	Opens the <Resource> Details dialog box, enabling you to view and edit details of the selected resource.
Export	Toolbar and <right-click menu>	Opens the Export All Grid Data dialog box, enabling you to export the resources in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Select one of the following options: • **All.** Exports all resources in the grid. • **Selected.** Exports selected resources in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for a resource in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.
Go to <Resource> 	Toolbar	Opens the Go To <Resource> dialog box, enabling you to find a specific resource by its ID number. You can only go to resources that are in the current filter.

UI Elements (A - Z)	Where	Description
Grid Filters	View and <right-click menu>	Enables you to filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Import	Hosts/Testing Hosts module	Enables you to import a list of lab hosts from an Excel file (.xls or .csv) into ALM (.xls or .csv format).
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
	Hosts module	Opens the Install Patch dialog box, enabling you to select patches to install on the selected hosts. For details, see "Select Patch to Install Dialog Box" on page 92. **Note:** • You cannot use the Install Patch feature on Controller and Load generator hosts if they are in the **Running** state. You can only install patches when these hosts are idle. • You should use this feature to install ALM certified patches only. • Available only for hosts with Performance purposes. **Available from:** Lab Management only.
New <Resource> 	Toolbar	Enables you to add a resource.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HP Application Lifecycle Management User Guide*.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.

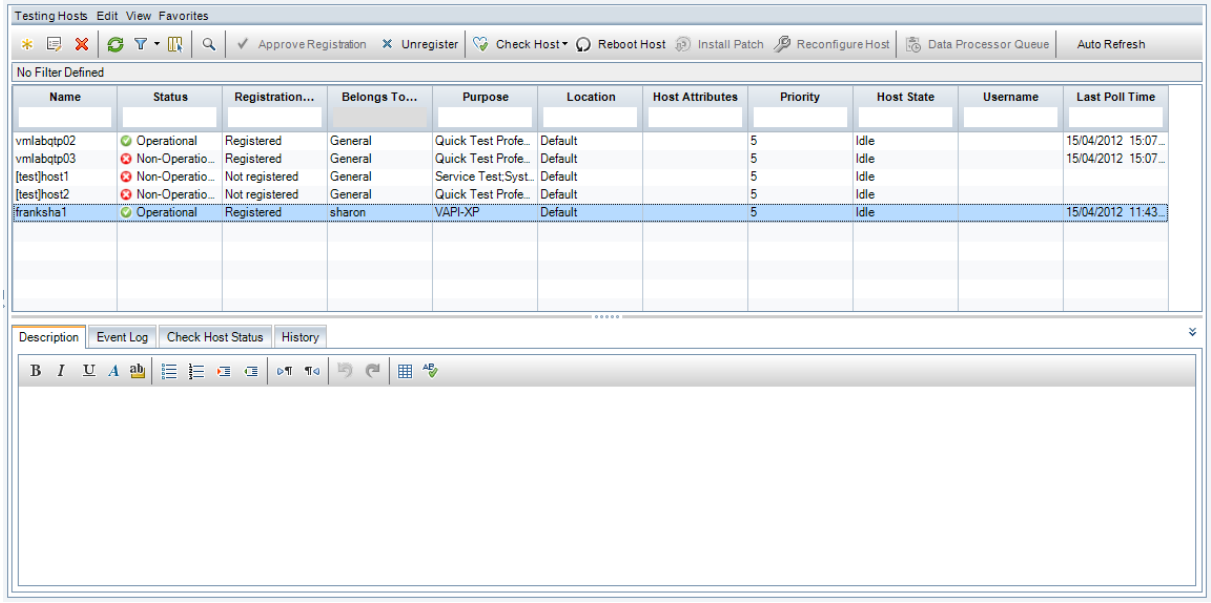
UI Elements (A - Z)	Where	Description
	Hosts/Testing Hosts module	Enables you to remotely reboot host machines. **Note:** • You cannot reboot Controller and Load generator hosts while they are in the **Running** state. You can only reboot these hosts when they are idle. • You cannot reboot a UNIX load generator host. • Available only for hosts with Performance purposes.
	Hosts/Testing Hosts module	Resets the following on the selected host machine: • Host license • System user (IUSR_METRO) • Communication Security passphrase **Note:** • You can reconfigure only one host at a time. • Available only for hosts with Performance purposes.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the <Resource> grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Set Filter/Sort 	View	Enables you to filter and sort the resources in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
	Hosts/Testing Hosts module	Enables you to unregister a testing host, making it unavailable for test execution.
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

Hosts Module

Hosts/Testing Hosts Module Window

This module enables you to view and manage the hosts used for test execution.



To access	**Lab Management:** On the sidebar, under **Lab Resources**, select **Hosts.** **ALM:** On the sidebar, under **Lab Resources**, select **Testing Hosts**.
Important information	Some elements are visible only for Performance hosts. **Lab Management:** The Hosts module displays a list of all of the hosts available. **ALM:** The Testing Hosts module displays a list of all of the hosts in the project's host pool. **ALM Editions**: Some functionality related to Functional testing host management is available only for ALM Edition.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Hosts module common UI elements>	• **Host module fields.** For field definitions, see "Hosts Fields" on page 74. • **Host module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 67.

UI Elements	Description
<Hosts grid>	Displays a list of the hosts in ALM.
Description tab	Describes the currently selected host. **Tip:** Right-click in this area to display a toolbar for formatting and spell-checking the text.
Event Log tab	Displays detailed information about the tasks performed on the selected host, the action status, and a description of any errors. For details, see the "Event Log" on page 83.
Installed PC Components tab	Displays a list of the PC components installed on the host machine, including versions and patches. **Note:** Available only for hosts with Performance purposes. To refresh the grid, click  .
Installed Programs tab	Displays a list of all of the programs installed on the host machine. Details include the version, the publisher of the software, and the date it was installed in the host machine. **Note:** Available only for hosts with Performance purposes. To refresh the grid, click  .
Processes tab	Displays detailed information about the processes and resource usage of the selected host. **Note:** Available only for hosts with Performance purposes. For details, see "Processes Page" on page 85.
Services tab	Displays the services running on the host machine. **Note:** Available only for hosts with Performance purposes. For details, see " Services Page" on page 86.
Check Host Status tab	Displays the status of each step of the host checks. To see host check status details, right click a line in the Check Host Status tab, and select **Check Hosts Status Details**. For details, see " Check Host Status Fields" on page 88.

UI Elements	Description
Over Firewall tab	For hosts over a firewall, enables you to configure advanced over-firewall settings. For details, see " Over Firewall Page" on page 89. **Note:** Available only for hosts with Performance purposes.
History tab	Lists changes made to the currently selected host. For more details, see the *HP Application Lifecycle Management User Guide*.

Hosts Fields

This section describes the host fields. In Lab Management, you can modify the fields of private and public hosts. In ALM, only the fields of private hosts can be modified.

Field (A - Z)	Description
Active Timeslot ID	The ID of the timeslot for which this host is reserved, and which is now open.
Belongs to Pools	The host pools to which the host is assigned. Host pools enable you to control which hosts are allocated to which projects. When allocating hosts for a test, the system allocates hosts from the project's host pool. Hosts must be assigned to at least one pool. **Note:** Private hosts can be assigned to only one pool. **Available from:** Lab Management only.
Description	A description of the host.
Enable SSL	Indicates whether the Load Generator host will communicate with the Controller via SSL (Secure Socket Layer) or not. **Note:** The load generator uses SSL to communicate with the Controller during runtime only. For non runtime functionality, such as including collating results, the load generator does not use SSL as the communication protocol. Relevant only for load generator hosts located over a firewall.

Field (A - Z)	Description
Host Attributes	The system attributes of the host. **Example:** Memory, strength, installed components **Tip:** You can customize the host attributes in Lab Management. For details, refer to the *HP Application Lifecycle Management Administrator Guide*.
Host ID	The ID of the host.
Host State	The current activity on the host. • **Idle.** Indicates that the host is not being used. • **Installing.** Indicates that a patch is being installed on the host. • **Rebooting.** Indicates that the host is rebooting. • **<Run states>.** Indicates the host state during a performance test run. • **<Data processing states>.** Indicates the state of the host during a data processing task.
Host Version	The version of the Lab Service agent installed on the testing host. **Caution:** If the Lab Service agent installed on the testing host is not the same version as the ALM server, the testing host status is set to **Unavailable** and you are unable to execute server-side tests. To reactivate the testing host, upgrade the Lab Service agent to the current version and reset the status in the Testing Host grid to **Operational**.

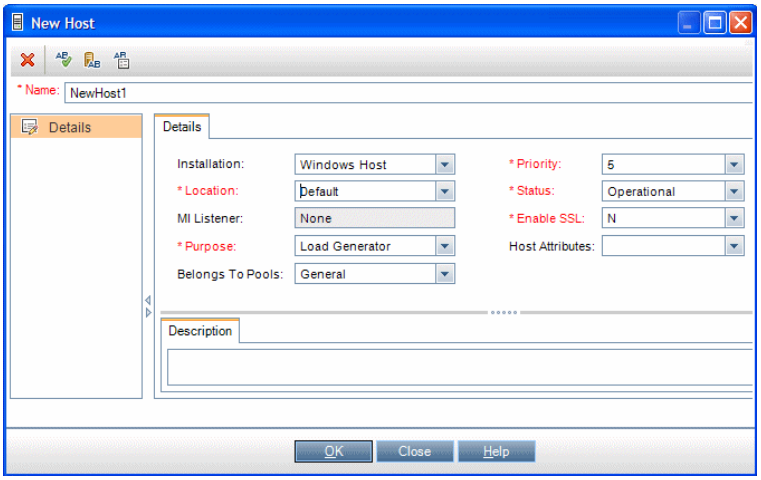
Field (A - Z)	Description
Installation	The installation type of the host. The following types are available: • **Windows UFT**. Indicates that this host has Unified Functional Testing installed. HP Unified Functional Testing (UFT) comprises the product formerly known as HP QuickTest Professional and the product known as HP Service Test. ▪ Functionality provided by QuickTest is now known as GUI testing in UFT. ▪ Functionality provided by Service Test is also known as API testing in UFT. **Note:** If you select Windows UFT, Service Test and QTP are selected as default purposes. Windows UFT installations must include at least one of these default purposes. • **Unix Load Generator.** Indicates that this Unix host is used as a Load Generator for performance tests. • **Windows Host.** Indicates that this Windows host can be used for performance purposes (Controller, Load Generator, or Data Processor), or for general functional testing (System Test, Vapi-XP, etc.). • **Windows Standalone LG.** Indicates that this Windows host is used as a standalone Load Generator for performance tests. **Note:** You cannot modify this field for an existing host.
Last Configuration Check	The last configuration check performed.
Last Connectivity Check	The last connectivity check performed.
Last Installation Check	The last installation check performed.
Last Performance Check	The last performance check performed.
Last Poll Time	The last poll performed.

Field (A - Z)	Description
Last Run Timeslot ID	The ID of the timeslot during which a performance test ran or data processing occurred on the host.
Location	The location of the host. For example, locations can be defined according to physical areas. The location also determines whether the host is located over a firewall. If so, you need to select an MI Listener that will enable data collection.
MI Listener	The IP address or name of the MI Listener that enables data collection. Relevant only for hosts located over a firewall.
Name	The name of the host. **Note:** The name should be entered without the hostname suffix.
Password	The password of the Performance Center system user on the host machine. **Default:** P3rfoRm@1nce **Note:** • The Performance Center system user name and password are displayed only for UNIX hosts and for any hosts that were migrated from earlier versions of Performance Center. • The system user name and password of newly added Windows hosts (details are not displayed here) are the same as the system user name and password of the rest of the Performance Center system.
Priority	A rank assigned to the host. The higher the priority you give the host, the more likely the host will be allocated to a test. There are a number of criteria to consider when assigning priority. The main considerations are whether the host is a dedicated machine or a shared resource, and the type of hardware installed on the machine.
Privacy Type	The privacy type of the host. You can modify all hosts in Lab Management, including private hosts. In ALM, you can only create and modify private hosts within the project's pool. **Note:** Available only in Lab Management.

Field (A - Z)	Description
Purpose	The testing tools available on the host. For example: Controller, Load generator, Data processor, QuickTest Professional, Sprinter, and so on. **Note:** • If the host machine is located over a firewall, or is a UNIX machine, it cannot function as a Controller or Data processor. • If you selected **Windows Standalone LG** or **Unix Load Generator** as the installation option, **Load Generator** is automatically selected as the purpose for the host and the other options are disabled.
Registration Auto Approve	Indicates whether the testing host will be automatically approved after it is registered by HP ALM Lab Service. For more details, see "Using HP ALM Lab Service" on page 230.
Registration Status	The status of the host's registration. To be able to use the host for testing, you must first register the host using HP ALM Lab Service and the host must be approved by a Lab Administrator in Lab Management. For more details, see "Using HP ALM Lab Service" on page 230. **Note:** You cannot change the **Status** of the host to "Operational" if the **Registration Status** is "Not registered".
Status	The status of the host. An indicator is displayed next to the host name, indicating its current status. The possible statuses are: • **Operational.** The host machine is up and running. • **Non-operational.** The host machine is down. • **Unavailable**. There is no information available about the status of the host.
Username	The name of the system user on the host machine. **Default:** IUSR_METRO **Note:** • The system user name and password are displayed only for UNIX hosts and for any hosts that were migrated from earlier versions of Lab Management. • The system user name and password for newly added Windows hosts (details are not displayed here) are the same as the system user name and password of the rest of the Lab Management system.

New Testing Host Dialog Box

This dialog box enables you to create a testing host.



To access	• **Lab Management**: Under Lab Resources, select **Hosts**. Then click the **New Testing Host** button. • **ALM:** Under Lab Resources, select **Testing Hosts**. Then click the **New Testing Host** button.
Important information	• You can create new public hosts in Lab Management only. Hosts created in ALM are considered private hosts and are added directly to the project's host pool. You can modify private hosts in ALM. • You can only create a host over a firewall if it is given the **Load Generator** purpose.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

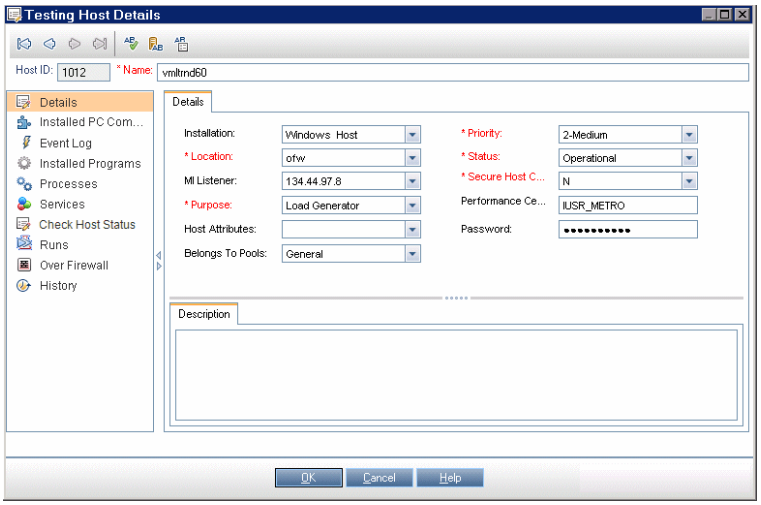
User interface elements are described below:

UI Elements	Description
	Clear All Fields. Clears the data.
	Spell Check. Checks the spelling for the selected word or text box.
	Thesaurus. Displays a synonym, antonym, or related word for the selected word.

UI Elements	Description
	**Spelling Options.** Enables you to configure how to check the spelling.
Name	The name of the new host. **Tip:** Give the host a meaningful name. This can be derived from the location, purpose, type, identity, or operating system of the host. The more information provided with the name, the easier it is to use and maintain the system. Make sure that the name is easy to remember and not too long. **Caution:** For remote hosts being used for functional tests,this must be the name of the computer without the domain name. If the name entered does not match the name of the host you are trying to register, registration will fail.
Details	Required fields are marked with an asterisk (*) and are displayed in red. For details on the available host fields, see "Hosts Fields" on page 74.

Testing Host Details Dialog Box

This dialog box displays details about a selected host.



To access	• **Lab Management:** Under Lab Resources, select **Hosts**. Right-click on a host in the grid and select **Testing Host Details**. • **ALM:** Under Lab Resources, select **Testing Hosts**. Right-click on a host in the grid and select **Testing Host Details**.
Important information	• This dialog box is available both in Lab Management and in ALM. • Some UI elements are available only for **Performance hosts**.

Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

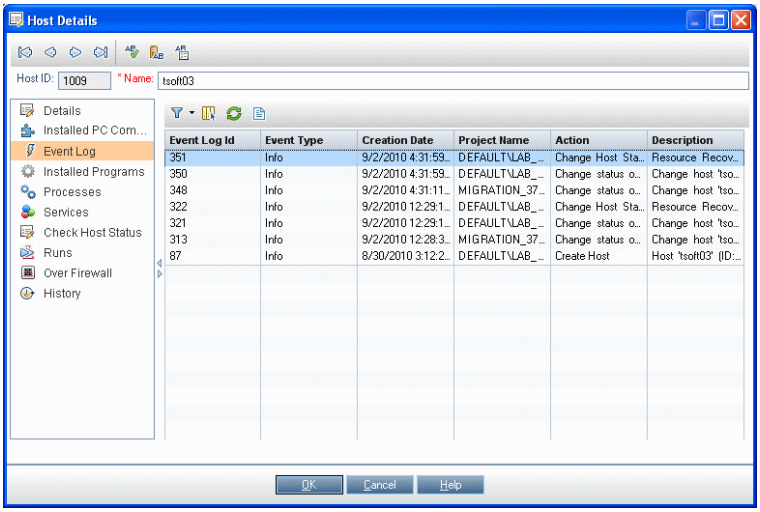
User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of hosts.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Host ID	The ID of the host.
Name	The name of the host.
Details	Lists the details of the currently selected host. For details on the available fields, see "Hosts Fields" on page 74.
Installed PC Components	Displays a list of the Performance Center components installed on the host, including version and patches. **Note:** • Use the navigation bar at the bottom of the page to view all the entries. • Available only for hosts with Performance purposes.
Event Log	Displays detailed information about the tasks performed on the selected host, the event status, and a description of any errors. For details, see "Event Log" on page 83.
Installed Programs	Displays a list of all of the programs installed on the host machine. Details include the version, the publisher of the software, and the date it was installed in the host machine. **Note:** • Use the navigation bar at the bottom of the page to view all the entries. • Available only for hosts with Performance purposes.

UI Elements	Description
Processes	Displays detailed information about the processes and resource usage of the selected host. For details, see "Processes Page" on page 85. **Note:** • Use the navigation bar at the bottom of the page to view all the entries. • Available only for hosts with Performance purposes.
Services	Displays the services running on the host machine. For details, see " Services Page" on page 86. **Note:** • Use the navigation bar at the bottom of the page to view all the entries. • Available only for hosts with Performance purposes.
Check Hosts Status	Displays the status of each step of the host checks. To see host check status details, right click a line in the Check Host Status tab, and select **Check Host Status Details**. For details, see " Check Host Status Fields" on page 88.
Runs	Displays detailed information about test runs performed on the selected host. For details, see "PC Test Runs Module Window" on page 110. **Note:** Use the navigation bar at the bottom of the page to view all the entries.
Over Firewall	For hosts over a firewall, enables you configure advanced over-firewall settings. For details, see " Over Firewall Page" on page 89. **Note:** Available only for hosts with Performance purposes.
History	Lists changes made to the currently selected host. For more details, see the *HP Application Lifecycle Management User Guide*.

Event Log

The Event Log displays the events that occur in a project, reporting the source and severity of each event.



To access	Use one of the following: • Select **Tools > Event Log**. • Select the **Event Log** tab. Available from the following modules: ▪ **In Lab Management.** Hosts, PC Test Runs, Timeslots, PC Servers. ▪ **In the ALM project.** Timeslots (Grid view only), Hosts, Test Runs.
Important information	• The Event Log is only available in the Grid view. • The Event Log displays information for the relevant selection. That is, it displays events for an entire project, timeslot, host, server, and so on. • The time interval in days that deletable events remain in the EVENT_LOG database table is determined by the EVENT_LOG_PURGE_PERIOD_DAYS parameter. For details, see the *HP Application Lifecycle Management Administrator Guide*.

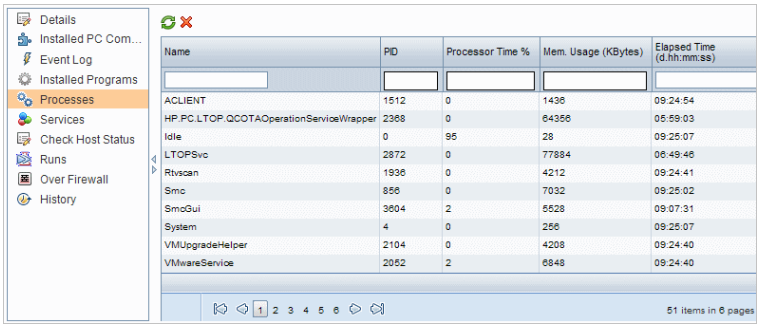
User interface elements are described below:

UI Elements (A - Z)	Description
	**Set Filter.** Enables you to filter and sort the resources in the event log. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Description
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the event log, and their order. For more details, see the *HP Application Lifecycle Management User Guide*.
	**Refresh.** Refreshes the event log so it displays the most up-to-date information.
	**Export.** Opens the Export All Grid Data dialog box, enabling you to export the resources in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document.
Action	The category of action where the event occurred. **Example**. Create Server
Context	The specific entity where the event occurred. **Example**. PC Server: VM05
Creation Date	The date and time the event was logged.
Description	A description of the event.
Event Log ID	The event ID.
Event Name	The name of the event.
Event Type	An indication of the event's severity. From most to least severe: error, warning, or info.
Flow Context ID	A GUID that indicates a unique action which relates to several events. For example, running a test.
Module	The ALM module where the event originated. **Example**. Testing
Project Name	The project in which the event occurred.
Responsible	The user, or automated system process responsible for the event.
Source	The system element where the event originated.
Sub Module	The ALM sub module where the event occurred. **Example**. Test Lab

Processes Page

This page displays detailed information about the processes and resource usage of the selected host.



To access	• **From the Hosts module:** On the sidebar, under **Lab Resources**, select **Hosts**. In the information panel, select **Processes**. • **From the Host Details dialog box:** On the sidebar, under **Lab Resources**, select **Hosts**. Right-click a host and select Host Details. In the Host Details dialog box, select **Processes**.
Important information	• ALM is unable to display processes and resource usage information for UNIX machines or Windows Standalone Load Generators. • The Processes page is available only for Performance hosts.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

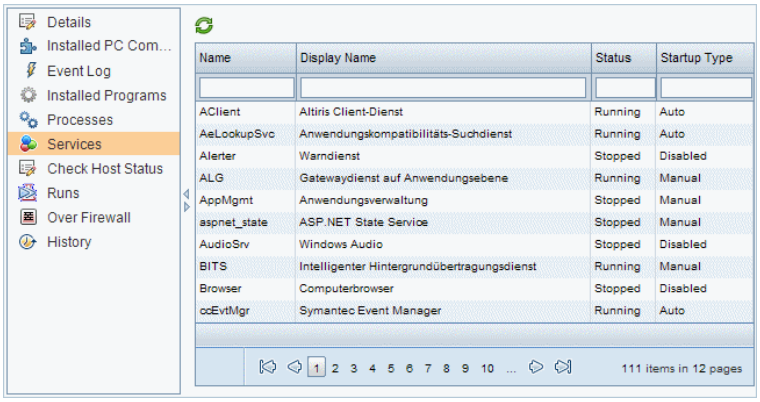
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Refresh.** Refreshes the grid so it displays the most up-to-date information.
	**Kill Process.** Ends the process selected in the grid. • **Hosts module.** Kill Process permissions are required to end the selected process. • **Lab Management Servers module.** A user with Viewer permissions has the ability to end the selected process.
Auto Refresh	Refreshes the grid automatically after the selected time interval has passed.

UI Elements	Description
<Processes grid>	Displays the following details about the processes: • **Name.** The name of the process. • **PID.** The process ID. • **Processor Time (%).** The percentage of processor time used by the process. • **Memory Usage (KBytes).** The amount of memory (in kilobytes) used by the process. • **Elapsed Time (d.hh:mm:ss).** The amount of elapsed time since the start of the process, where **d** is the number of days and **hh:mm:ss** is the number of hours, minutes, and seconds that have elapsed.
<Navigation area>	Enables you to navigate through the pages of entries in the grid. The total number of entries is displayed on the right of the navigation area. Located at the bottom of the page.

Services Page

This page displays the services on the selected host.



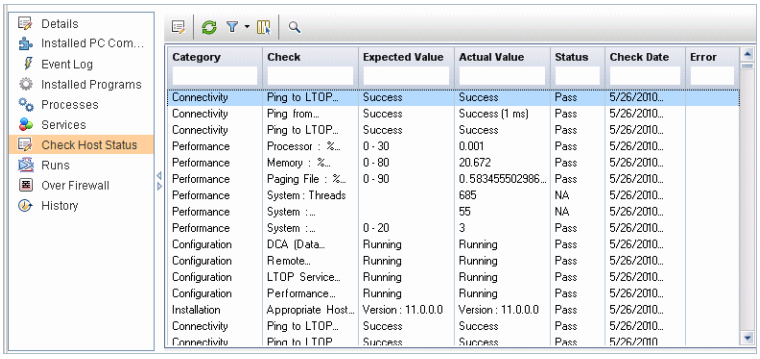
To access	• **Hosts module:** On the sidebar, under **Lab Resources**, select **Hosts**. In the Information Panel, select **Services**. • **Host Details dialog box:** On the sidebar, under **Lab Resources**, select **Hosts**. Right-click a host and select **Host Details.** In the Host Details dialog box, select **Services**.
Important information	The Services page is available only for Performance hosts.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Refresh.** Refreshes the grid so it displays the most up-to-date information.
Name	The name of the service.
Display Name	The full name of the service.
Status	The status of the service: **Running** or **Stopped**.
Startup Type	The way the service is set to start up: • **Auto.** Service starts up automatically. • **Disabled.** Service is disabled. • **Manual.** Service must be started manually.
<Navigation area>	Located at the bottom of the page, enables you to navigate through the pages of entries in the grid. The total number of entries is displayed on the right of the navigation area.

Check Host Status Page

This page displays the status of checks on the selected host.



To access	• From the **Hosts** module: On the sidebar, under **Lab Resources**, select **Hosts**. Select a host, and in the information panel, select **Check Host Status**. • **From the Host Details dialog box:** On the sidebar, under **Lab Resources**, select **Hosts**. Right-click a host and select **Host Details.** In the Host Details dialog box, select **Check Host Status**.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Check Host Status Details.** Opens the Check Host Status Details dialog box, enabling you to view each check's details. For field details, see " Check Host Status Fields" below.
	**Refresh.** Refreshes the grid so it displays the most up-to-date information.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for a check. For details, see the *HP Application Lifecycle Management User Guide*.
<Check Host Status grid>	Displays the status of the host checks. Click  to select columns to display in the grid. For details about the fields, see " Check Host Status Fields" below.

Check Host Status Fields

The following fields are displayed in the Check Host Status page:

Field (A - Z)	Description
Actual Value	Actual value resulting from the host connectivity check.
Category	The areas in which the Check Host feature checks the host: • Configuration • Connectivity • Installation • Performance
Check	The sub-areas in which the Check Host feature checks the hosts. For example, sub-areas in the Performance check are **Processor**, **Memory**, **System**.

Field (A - Z)	Description
Check Date	The date the host was checked.
Check Result ID	The ID of each step of the host check.
Error	If an error occurred during the check, displays the error.
Expected Value	Value expected to result from the host check.
Status	Indicates whether the host check passed or failed.

Over Firewall Page

This page displays communication settings between the Performance Center load generator host and the MI Listener, and enables you to configure advanced over-firewall settings for the selected load generator host.

To access	• **From the Hosts module:** On the sidebar, under **Lab Resources**, select **Hosts**. In the information panel, select **Over Firewall**. • **From the Host Details dialog box:** On the sidebar, under **Lab Resources**, select **Hosts**. Right-click a host and select **Host Details.** In the Host Details dialog box, select **Over Firewall**.
Important information	• This page displays information if the location of the host is defined to be over a firewall. • A host over a firewall can be used only as a load generator host. • The Over Firewall page is available only for Performance hosts.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

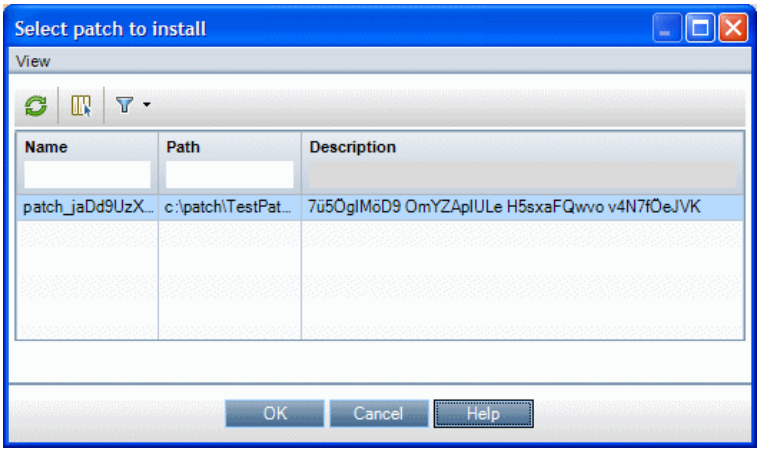
User interface elements are described below:

UI Elements (A - Z)	Description
Connection Timeout (seconds)	The length of time that the agent waits before retrying to connect to the MI Listener machine. If zero, the connection is kept open from the time the agent is run. **Default**: 20 seconds. **Note:** This is a required field.
Connection Type - TCP/HTTP	Select either **TCP** or **HTTP**, depending on the configuration you are using. **Default:** TCP
HTTP	HTTP settings for the HTTP connection type: • **Proxy Name.** The name of the proxy server. This field is mandatory if the **Connection Type** option is set to **HTTP.** • **Proxy Port.** The proxy server connection port. This field is mandatory if the **Connection Type** option is set to **HTTP.** • **Proxy Username.** The user name of a user with connection rights to the proxy server. • **Proxy password.** The password of the user with connection rights to the proxy server. • **Proxy domain.** The user's domain, if defined in the proxy server configuration. This option is required only if NTLM is used.
MI Listener Password	The password required to connect to the MI Listener machine.
MI Listener User Name	The user name required to connect to the MI Listener machine.

UI Elements (A - Z)	Description
Polling Timeout (seconds)	To verify the state of the load generator located over a firewall, ALM checks when last the load generator connected to the MI Listener. If the load generator has not connected to the MI Listener machine for a period of time longer than the amount of time set in the **Polling Timeout**, Lab Management changes the state of the load generator to **Resource Failure**. **Default:** 60 seconds **Note:** • This is a required field. • Polling Timeout is an ALM setting. It is not set in the Performance Center agent. • Polling Timeout needs to be longer than the Connection Timeout, described below.
Use secure connection	Enables connection using the Secure Sockets Layer (SSL) protocol. **Default:** Disabled • **Check server certificates.** Authenticates the SSL certificates that are sent by the server. Select **Medium** to verify that the server certificate is signed by a trusted Certification Authority. Select **High** to verify that the sender IP matches the certificate information. This setting is available only if **Use Secure Connection** is set to **True**. • **Private Key password.** The password that may be required during the SSL certificate authentication process. This option is relevant only if the **Client Certificate Owner** option is enabled. • **Use client certificate.** Enable to load the SSL certificate (if required by the server to allow the connection to be made). This option is relevant only if the Use Secure Connection option is enabled. **Default:** Disabled

Select Patch to Install Dialog Box

This dialog box enables you to install patches on Performance hosts.



To access	1. On the Lab Management sidebar, under **Lab Resources**, select **Hosts**. 2. Right-click the host grid and select **Install Patch**. **Tip:** You can install a patch on multiple hosts simultaneously. To select multiple hosts, hold down the CTRL key on your keyboard while selecting the hosts.
Important information	• You can install patches in Lab Management only. • To install patches on a host, the patches first need to have been uploaded to ALM. For details, see "How to Upload Patches to ALM" on page 171.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

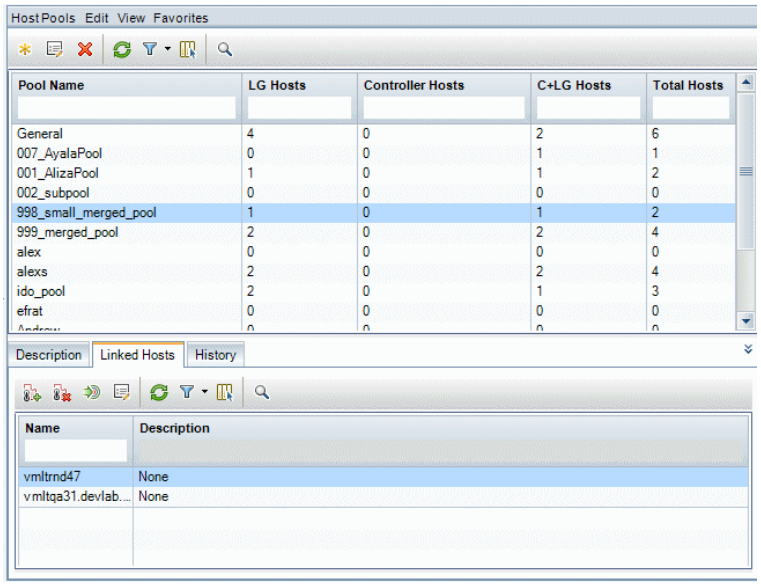
User interface elements are described below:

UI Elements	Description
<Patches grid>	Displays the patches available in ALM to install on the selected host.

Pools Module

Pools Module Window

This module enables you to view and manage host pools.



To access	On the Lab Management sidebar, under **Lab Resources**, select **Pools**.
Important information	A host pool is a groups of hosts. Each project has one host pool. **HP ALM Performance Center Edition:** When managing a host pool with performance hosts, it is important to understand the total available resources. The host pool must contain at least one Controller, one load generator, and one data processor. Because hosts can have dual functionality, it is recommended that a pool contains, among the other hosts, at least one host that can be dedicated fully for Controller functionality. A private host can only exist in one pool at a time. You can add hosts to a host pool in a few different ways. See "How to Manage Lab Resources" on page 59.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Host Pools module common UI elements>	• **Pools module fields.** For field definitions, see "Pools Fields" below. • **Pools module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 67.
<Host Pools grid>	Displays a list of the host pools defined in ALM.
Description tab	Describes the currently selected host pool. **Tip:** Right-clicking in this area displays a toolbar for formatting and spell checking the text.
Linked Hosts tab	Enables you to add hosts to the selected pool and remove hosts from the pool. For details, see "Linked Hosts Page" on page 98.
History tab	Lists changes made to the currently selected host pool. For more details, see the *HP Application Lifecycle Management User Guide*.

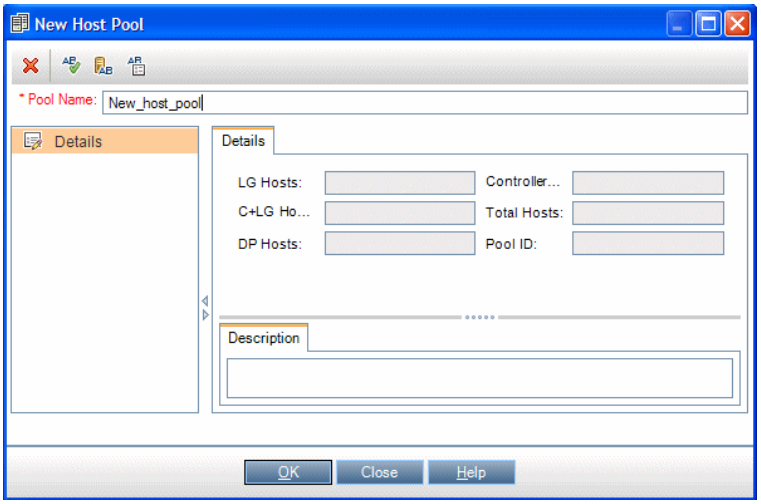
Pools Fields

This section describes the host pool fields:

Field (A - Z)	Description
C+LG Hosts	The number of hosts with both Controller and Load generator purposes in the host pool.
Controller Hosts	The number of Controller hosts in the host pool.
Description	A description of the host pool.
DP Hosts	The number of Data processor hosts in the host pool.
LG Hosts	The number of Load generator hosts in the host pool.
Pool ID	The ID of the host pool.
Pool Name	The name of the host pool. **Note:** The name may contain up to 255 characters, excluding spaces, periods, and any of the following characters: : ; * \ / " ~ & ? { } $ % | < > + = ^ [ ] ( )
Total Hosts	The total number of hosts in the host pool.

New Host Pool Dialog Box

This dialog box enables you to add a host pool to ALM.



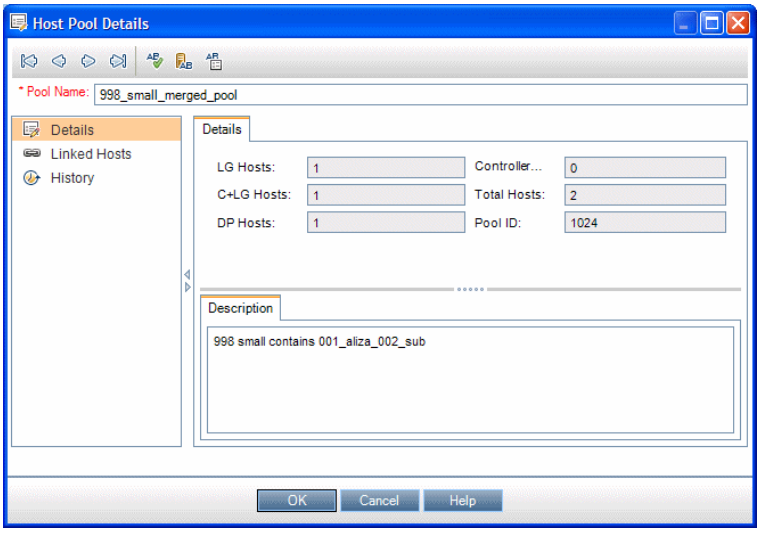
To access	1. On the Lab Management sidebar, under **Lab Resources**, select **Pools.** 2. In the Pools module, click the **New Host Pool** button.
Important information	Each project has one host pool, which must contain at least one Controller, one Load generator, and one data processor host.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below:

UI Elements	Description
	Clear All Fields. Clears the data.
	Spell Check. Checks the spelling for the selected word or text box.
	Thesaurus. Displays a synonym, antonym, or related word for the selected word.
	Spelling Options. Enables you to configure how to check the spelling.
Pool Name	The name for the new host pool.
Details	Required fields are marked with an asterisk (*) and are displayed in red. For details on the available host pool fields, see "Pools Fields" on previous page.

Host Pool Details Dialog Box

This dialog box displays details about a selected host pool.



To access	1. On the Lab Management sidebar, under **Lab Resources**, select **Pools**. 2. Right-click a host pool in the grid and select **Host Pool Details**.
Important information	• A host pool is a groups of hosts. Each project has one host pool. • When managing a host pool, it is important to understand the total available resources. The pool must contain at least one Controller, one Load generator, and one data processor. Because hosts can have dual functionality, it is recommended that a pool contain, among the other hosts, at least one host that can be dedicated fully for Controller functionality. • A private host can only exist in one pool at a time.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

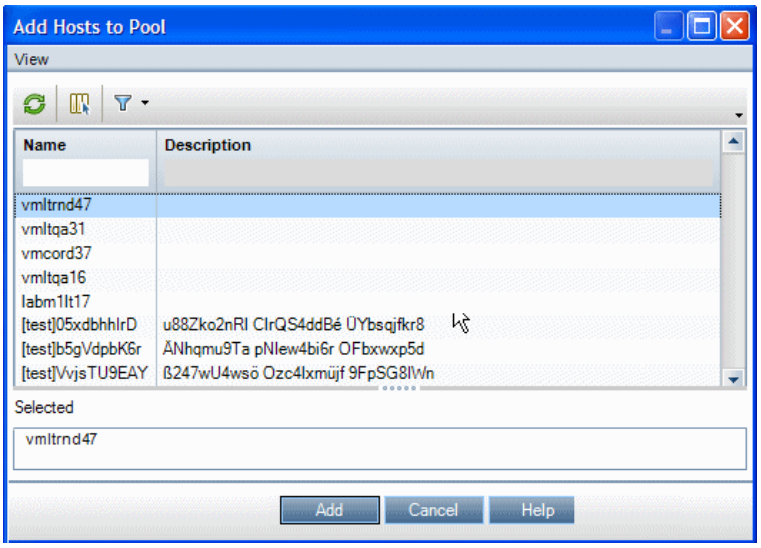
User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of host pools.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.

UI Elements	Description
	**Spelling Options.** Enables you to configure how to check the spelling.
Pool Name	The name of the host pool.
Details	Lists the details of the selected host pool. For details on the available fields, see "Pools Fields" on page 94.
Linked Hosts	Enables you to add hosts to the selected pool and remove hosts from the pool. For details, see "Linked Hosts Page" on next page.
History	Lists changes made to the currently selected host pool. For more details, see the *HP Application Lifecycle Management User Guide*.

Add Hosts to Pool Dialog Box

This page enables you to select hosts to add to a host pool.



To access	• **From the Pools module:** On the Lab Management sidebar, under **Lab Resources**, select **Pools**. In the information panel, select Linked Hosts and click the **Add Hosts to Pool** button. • **From the Host Pool Details dialog box:** On the Lab Management sidebar, under **Lab Resources**, select **Pools**. Right-click a host pool and select **Host Pool Details.** In the Host Pool Details dialog box, select **Linked Hosts** and click the **Add Hosts to Pool** button.
Important information	Alternatively, you can link a single host to multiple host pools from the **Belongs To Pools** field in the host's details. For details, see "Hosts Fields" on page 74.

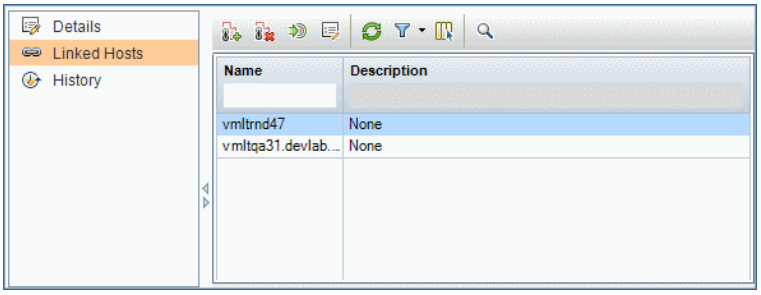
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Refresh All.** Refreshes the grid so it displays the most up-to-date information.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	Adds the selected hosts to the host pool.
<Hosts grid>	Lists the hosts available to add to the host pool.
Selected	Displays the hosts selected to add to the pool.

Linked Hosts Page

This page enables you to add hosts to a host pool, and remove hosts from a pool.



To access	• **From the Pools module:** On the Lab Management sidebar, under **Lab Resources**, select **Pools**. In the information panel, select **Linked Hosts**. • **From the Host Pool Details dialog box:** On the Lab Management sidebar, under **Lab Resources**, select **Pools**. Right-click a host pool and select **Host Pool Details.** In the Host Pool Details dialog box, select **Linked Hosts**.

Important information	The Linked Hosts page enables you to link multiple hosts to a host pool. Alternatively, you can link a single host to multiple host pools from the **Belongs To Pools** field in the host's details. For details, see "Hosts Fields" on page 74.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

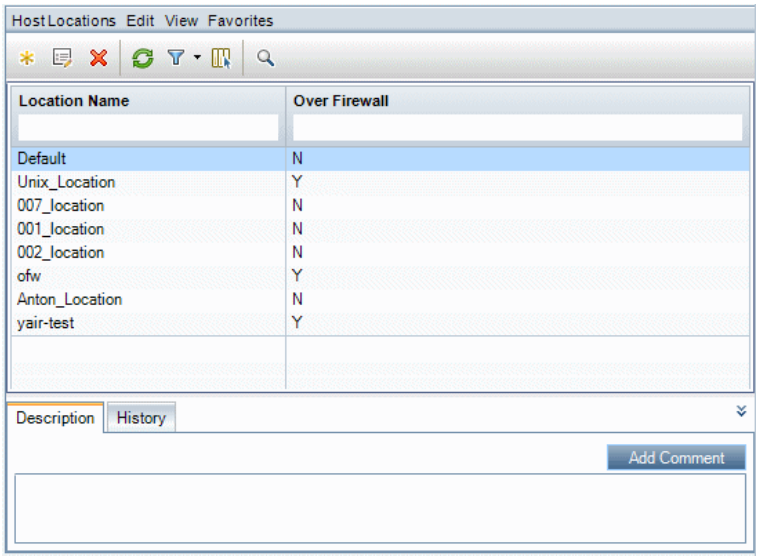
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Add Hosts to Pool.** Opens the Add Hosts to Pool dialog box, enabling you to select hosts to add to the host pool. For details, see " Add Hosts to Pool Dialog Box" on page 97.
	**Remove Host.** Removes the selected hosts from the host pool.
	**Go to Host.** Displays the selected linked host in the Hosts module.
	**Host Details.** Opens the Host Details dialog box, enabling you to view details about the selected linked host. For details, see " Testing Host Details Dialog Box" on page 80.
	**Refresh All.** Refreshes the grid so it displays the most up-to-date information.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for a host. For details, see the *HP Application Lifecycle Management User Guide*.
<Linked Hosts grid>	Lists the hosts that belong to the host pool.

Locations Module

Locations Module Window

This module enables you to view and manage host locations.



To access	On the Lab Management sidebar, under **Lab Resources**, select **Locations.** **Note:** The Locations module is only available from Lab Management.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Locations module common UI elements>	• **Locations module fields.** For field definitions, see "Locations Fields" on next page. • **Locations module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 67.
<Host Locations grid>	Displays a list of the host locations defined in ALM.
Description tab	Describes the currently selected host location. **Tip:** Right-clicking in this area displays a toolbar for formatting and spell checking the text.
History tab	Lists changes made to the currently selected host location. For more details, see the *HP Application Lifecycle Management User Guide*.

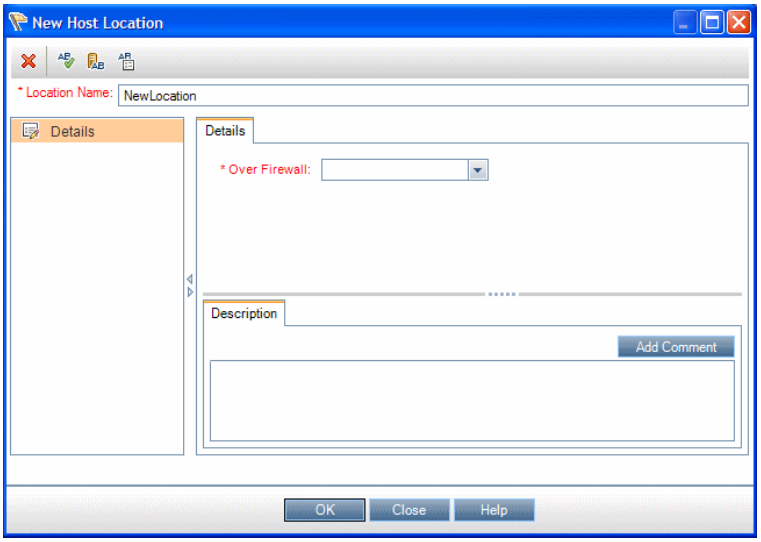
Locations Fields

This section describes the host location fields:

Field (A - Z)	Description
Description	A description of the host location.
Location ID	The ID of the host location.
Location Name	The name of the host location. The name should have a logical connection to the host location.
Over Firewall	Indicates whether the host location is over a firewall.

New Host Location Dialog Box

This dialog box enables you to add a host location to ALM.



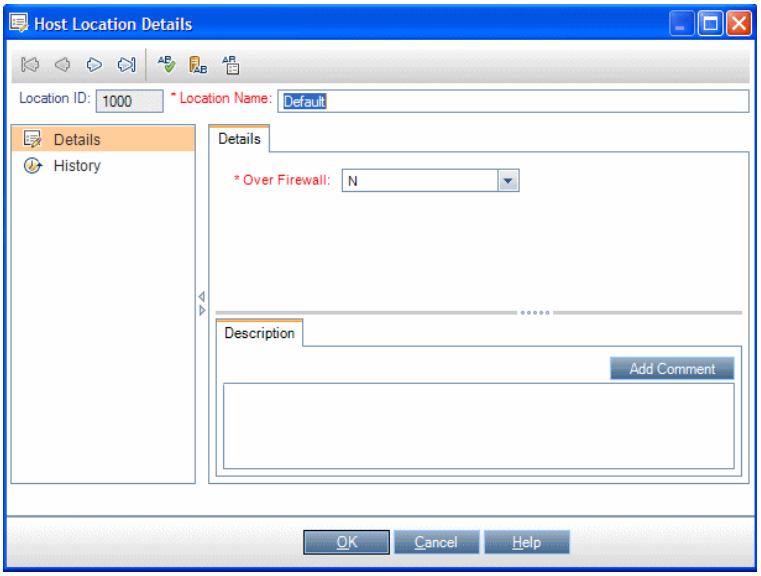
To access	1. On the Lab Management sidebar, under **Lab Resources**, select **Locations.** 2. In the Locations module, click the **New Host Location** button.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below:

UI Elements	Description
	**Clear All Fields.** Clears the data.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Location Name	The name for the new host location.
Details	Required fields are marked with an asterisk (*) and are displayed in red. For details on the available host location fields, see "Locations Fields" on previous page.

Host Location Details Dialog Box

This dialog box displays details about a selected host location.



To access	1. On the Lab Management sidebar, under **Lab Resources**, select **Locations.** 2. Right-click a location in the grid and select **Host Location Details**.
Important information	Host locations must be defined before you can select them in a host's details.

Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

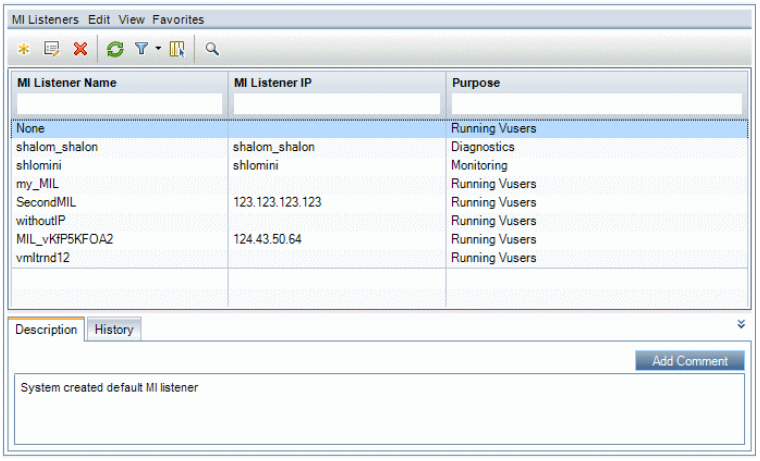
User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of host locations.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Location ID	The ID of the host location.
Location Name	The name of the host location.
Details	Lists the details of the currently selected host location. For details on the available fields, see "Locations Fields" on page 101.
History	Lists changes made to the currently selected host location. For more details, see the *HP Application Lifecycle Management User Guide*.

MI Listeners Module

MI Listeners Module Window

This module enables you to view and manage MI Listeners. MI Listeners enable running performance tests on hosts over a firewall and collecting server monitor data and application diagnostics data over a firewall.



To access	On the Lab Management sidebar, under **Performance Center**, select **MI Listeners**. The MI Listeners module is only available from Lab Management.
Important information	• For detailed information about configuring ALM to work with firewalls, see the section about working with firewalls in the *HP ALM Performance Center Installation Guide*. • If an MI Listener is being used by a host, it cannot be deleted.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
<MI Listeners module common UI elements>	• **MI Listeners module fields.** For field definitions, see "MI Listener Fields" on next page. • **MI Listeners module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 67.
<MI Listeners grid>	Displays a list of the MI Listeners in ALM.

UI Elements (A - Z)	Description
Description tab	Describes the currently selected MI Listener. **Tip:** Right-clicking in this area displays a toolbar for formatting and spell checking the text.
History tab	Lists changes made to the currently selected MI Listener. For more details, see the *HP Application Lifecycle Management User Guide*.

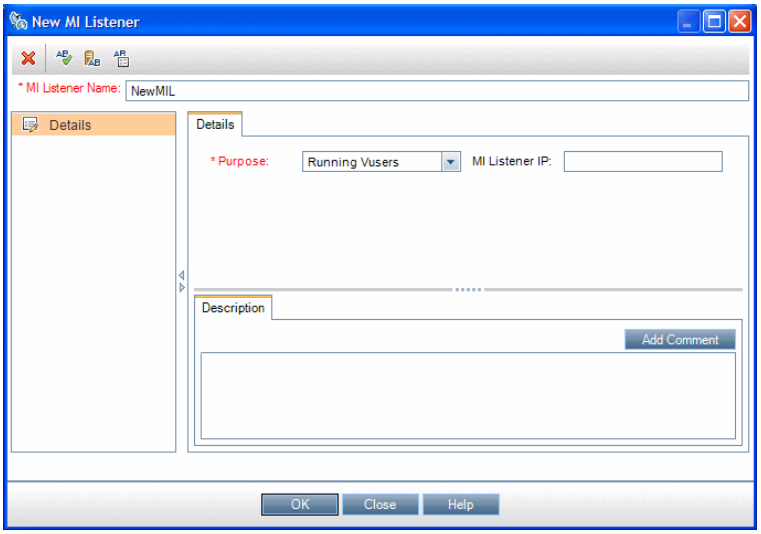
MI Listener Fields

This section describes the MI Listener fields:

Field (A - Z)	Description
Description	A description of the MI Listener.
MI Listener ID	The ID of the MI Listener.
MI Listener IP	The IP address of the MI Listener. **Note:** If you have two different IP addresses for the same MI Listener—one for internal communication with the Controller and a second for public communication with a Load generator located over a firewall—enter the **internal IP address** here. Enter the public IP address in the **MI Listener Name** field (see below).
MI Listener Name	The name of the MI Listener. **Note:** If you have two different IP addresses for the same MI Listener—one for internal communication with the Controller and a second for public communication with a Load generator located over a firewall—enter the **public IP address** here. Enter the internal IP address in the **MI Listener IP** field (see above).
Purpose	The role designated to the MI Listener: • Diagnostics data collection over a firewall • Monitoring over a firewall • Running hosts over a firewall

New MI Listener Dialog Box

This dialog box enables you to add an MI Listener to ALM.



To access	1. On the Lab Management sidebar, under **Performance Center**, select **MI Listeners.** 2. In the MI Listeners module, click the **New MI Listener** button.
Important information	MI Listeners enable running Vusers over a firewall and collecting server monitor data and application diagnostics data over a firewall.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

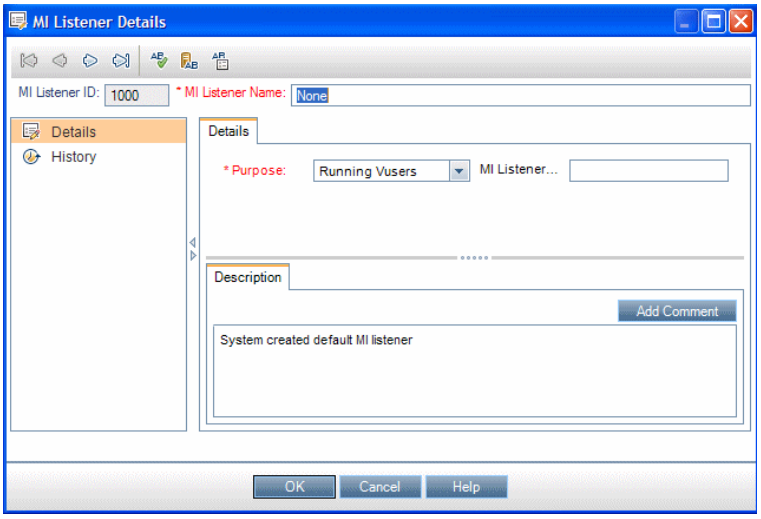
User interface elements are described below:

UI Elements	Description
	Clear All Fields. Clears the data.
	Spell Check. Checks the spelling for the selected word or text box.
	Thesaurus. Displays a synonym, antonym, or related word for the selected word.
	Spelling Options. Enables you to configure how to check the spelling.

UI Elements	Description
MI Listener Name	The name for the new MI Listener.
Details	Required fields are marked with an asterisk (*) and are displayed in red. For details on the available MI Listener fields, see "MI Listener Fields" on page 105.

MI Listener Details Dialog Box

This dialog box displays details about the selected MI Listener.



To access	1. On the Lab Management sidebar, under **Performance Center**, select **MI Listeners.** 2. Right-click an MI Listener in the grid and select **MI Listener Details**.
Important information	MI Listeners enable running tests on hosts over a firewall and collecting server monitor data and application diagnostics data over a firewall.
Relevant tasks	"How to Manage Lab Resources" on page 59
See also	"Lab Resources Overview" on page 57

User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of MI Listeners.
	**Spell Check.** Checks the spelling for the selected word or text box.

UI Elements	Description
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
MI Listener ID	The ID of the MI Listener.
MI Listener Name	The name of the MI Listener.
Details	Details the currently selected MI Listener. For details on the available fields, see "MI Listener Fields" on page 105.
History	Lists changes made to the currently selected MI Listener. For more details, see the *HP Application Lifecycle Management User Guide*.

Chapter 6: PC Test Runs

This chapter includes:

PC Test Runs Module Overview

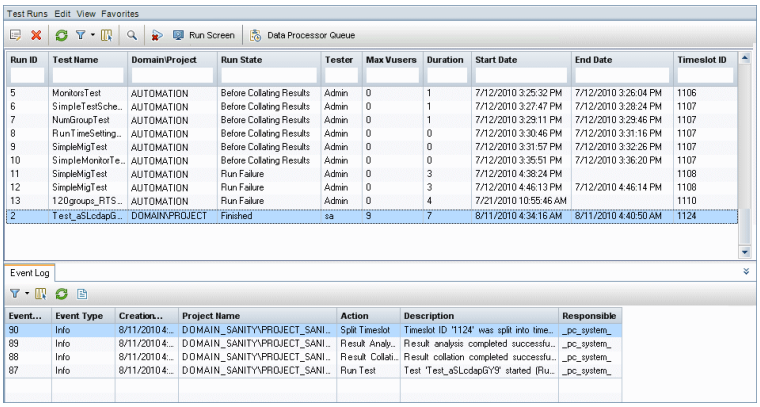
The PC Test Runs module displays information for all test runs across all projects in the system. It enables you to view detailed information relating to the run state of the test, the Vusers involved, as well as host and timeslot information. You can use the Event Log to drill down and view details of specific events for each test.

PC Test Runs User Interface

This section includes:

PC Test Runs Module Window

This module displays information for individual test runs across all projects in the system.



To access	On the Lab Management sidebar, under **Performance Center**, select **PC Test Runs.**

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<PC Test Runs module common UI elements>	• **PC Test Runs module fields.** For field definitions, see "PC Test Runs Module Fields" below. • **PC Test Runs module menus and buttons.** For command and button descriptions, see "PC Test Runs Module Menus and Buttons" on page 112. • ALM **main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HP Application Lifecycle Management User Guide*.
<PC Test Runs grid>	Displays a list of test runs across all projects, displaying detailed information for each test run.
<Information panel>	Located in the lower area of the module. Displays the Event Log tab. For more information, refer to the *HP ALM Performance Center Guide*.

PC Test Runs Module Fields

The following fields are available in the PC Test Runs module:

Field	Description
Average Vusers	The average number of concurrently running Vusers during the run.
Controller	The Controller involved in the test run.

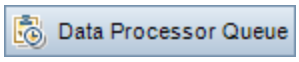
Field	Description
Domain/Project	The test's domain and project.
Duration	The time, in minutes, that the test took to run. **Note:** You should not manually edit this field.
End Date	The end date of the run. **Note:** You should not manually edit this field.
Involved Vusers	The number of Vusers that were initialized at least once during the run.
Load Generators	The load generators involved in the test run.
Max Vusers	The maximum number of concurrently running Vusers during the run.
Project ID	The test's project ID.
Run ID	The identification number of the test run. This number is automatically generated by the system when the load test starts running.
Run Name	The test run name.
Run State	The state of the test run. If a test is stuck in a particular state, you can change it.
Start date	The start date of the run. **Note:** You should not manually edit this field.
Start time	The start time of the run. **Note:** You should not manually edit this field.
Temp Results Directory Path	The path of the directory where the test results are temporarily stored.
Test Name	The name given to the test when it was created.
Tester	The name of the user running the test.
Consume VUDs	The number of VUDs used in the test run.
Timeslot ID	The ID of the test run timeslot.

PC Test Runs Module Menus and Buttons

This section describes the menus and buttons available in the PC Test Runs module.

To access	On the Lab Management sidebar, under **Performance Center**, select **PC Test Runs.**

Common menus and toolbars of the PC Test Runs module are described below:

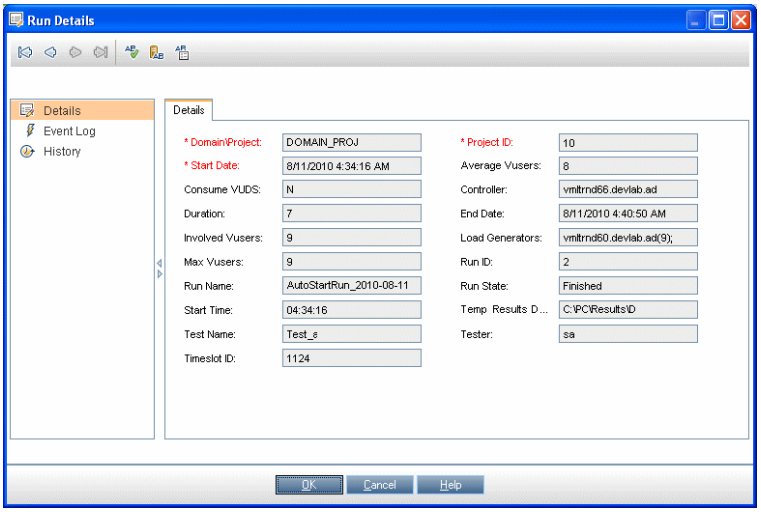
UI Elements	Where	Description
Stop Run 	<right-click menu>	Stops a currently running test. **Note:** Only enabled when the selected test run is in the **Initializing**, **Running** or **Stopping** states.
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
Copy URL 	Runs and <right-click menu>	Copies a selected test run and pastes its URL as a link. The test run itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the test run file or folder. If you are not already logged in, ALM first prompts for login details.
Delete 	Edit and <right-click menu>	Deletes the selected test run. **Note:** Only enabled when the selected test run is not in one of the active states.
	<right-click menu>	If you analyze a test run after it has run, or recalculate the SLA, or add the test run to a trend report, then the action is added to a data processing queue, enabling you to see when the action is performed.
Export	Runs and <right-click menu>	Opens the Export All Grid Data dialog box, enabling you to export the test runs in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **All.** Exports all test runs in the grid. • **Selected.** Exports selected test runs in the grid.

UI Elements	Where	Description
Find 	View	Opens the Find dialog box, enabling you to search for test runs in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.
Go to Run 	Runs	Opens the Go To Run dialog box, enabling you to find a specific test run by its ID number. You can only go to test runs that are in the current filter.
Go to Timeslot 	<right-click menu>	Opens the Timeslots module, displaying the timeslot for the selected test run.
Grid Filters	View and <right-click menu>	Enables you to filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
Organize Favorites	Favorites	Opens the Organize Favorites dialog box, enabling you to organize the list of favorite views by changing properties or deleting views. For details, see the *HP Application Lifecycle Management User Guide*.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Run Details 	Runs and <right-click menu>	Opens the Run Details dialog box, enabling you to view and edit details of the selected test run.
Run Screen 	<right-click menu>	Opens the Performance Test Run screen, enabling you to view and manage the test run. For more information, refer to the *HP ALM Performance Center Guide*. **Note:** Only enabled when test run is in the **Running** state.

UI Elements	Where	Description
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the test run fields, see "PC Test Runs Module Fields" on page 110.
Set Filter/Sort 	View	Enables you to filter and sort the test runs in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.

Run Details Dialog Box

This dialog box displays test run details.



To access	1. On the Lab Management sidebar, under **Performance Center**, select **PC Test Runs**. 2. Right-click a test run in the grid, and select **Run Details.**

User interface elements are described below:

UI Elements (A - Z)	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of projects.

UI Elements (A - Z)	Description
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Details	Displays the details of the selected test run. For more details, see "PC Test Runs Module Fields" on page 110.
Event Log	Lists the events that occurred during the selected test run. For more details, see "Event Log" on page 83.
History	Lists changes made to the selected test run. For more details, see the *HP Application Lifecycle Management User Guide*.

Chapter 7: Usage Reports

This chapter includes:

Usage Reports Overview

The ALM Performance Center Usage Reports module provides you with an overall analysis of Performance Center. The analysis includes site users, resource usage, concurrent resource usage vs. license limitations, timeslot usage, and resource usage by duration and runs.

The following table provides a description of each report:

Report	Description
Resource Summary	Provides aggregate data regarding the way projects used the various resources of the system.
Concurrency vs. License	Provides details of concurrent resource usage per project, as well as information regarding how system resources were used within license limitations.
Timeslot Usage	Provides information about the reservation and usage of resources associated with timeslots.
Resource by Duration	Provides general information about the usage of your system resources over the selected time frame. You can view statistics for total usage by project, or per user within a project.
Resource by Runs	Provides general information about the test runs. You can view statistics for total usage by project, or per user within a project.
VUDs License Usage per Project	Provides information about VUD usage per day for each selected project.
Daily VUDs License Usage	Provides information about VUD usage per day, aggregated across all projects.

For information about how to view the reports, see "How to View Reports and Set Report Filter Criteria" on next page.

How to View Reports and Set Report Filter Criteria

This task describes how to view the Usage Reports and how to set their filter criteria. The filter criteria defines which projects are to be included in the reports and over which time frame to display results.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

To learn more about ALM Performance Center reports, see "Usage Reports Overview" on previous page.

1. **Select the desired report to view**

   In Lab Management, under **Performance Center** select **Usage Reports** to view the ALM Performance Center reports tree. From the tree, select the desired report to view.

   For a description of each report's user interface elements, see "Usage Reports User Interface" on next page.

2. **Filter the projects to include in the report**

   Perform the following steps:

   a. Click the **Select Projects** button  adjacent to the Projects box.

   b. In the Project Selection dialog box, use the arrow buttons to select single or multiple projects from the **Available projects** list.

   Note: You must select at least one project to generate a report.

3. **Select the desired time range for the report**

   Select the desired time frame for the report from the **Time Frame** drop-down list. In addition to the given options, you can set a custom time frame.

   For an explanation of the given time frames, see "Usage Report Time Frames" on next page.

4. **Update the report to reflect the new filter settings**

   Click **Generate.** The report displays the information for the selected projects and time frame.

How to Export Reports to PDF or Excel Formats

The following task describes how to export a Performance Center report to either PDF or Excel format.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

Export a report to PDF

To export a report to a PDF file, click the **Export to PDF** icon  in the upper right corner of the report.

Export a report to an editable Excel file

To export a report to an editable Excel file, click the **Export to Excel** icon  in the upper right corner of the report.

Usage Report Time Frames

The following table provides an explanation of the time frames available for report selection.

Time Frame	Explanation
Today	From 00.00 to 23.59 of the current day
Yesterday	From 00.00 to 23.59 of the previous day
This week	From Monday to Sunday of the current week
Previous week	From Monday to Sunday of the previous week
This month	From beginning to end of the current calendar month
Previous month	From beginning to end of the previous calendar month
This quarter	The current quarter
Previous quarter	The previous quarter
This year	From January to December of the current year
Previous year	From January to December of the previous year

Usage Reports User Interface

When viewing the Usage reports in a resolution of 1024x768, to see all user interface controls, collapse the ALM modules and/or the reports selection tree.

This section includes:

Project Selection Dialog Box

This dialog box enables you to select projects to be included in the reports.

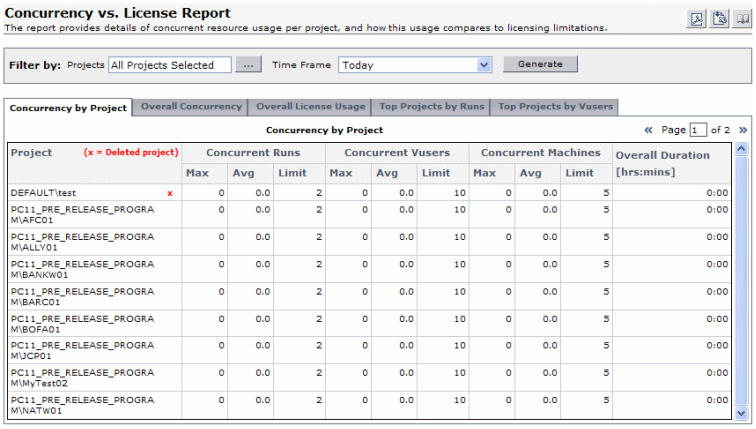
To access	In any of the reports, click the **Select Projects** button  adjacent to the Projects box.
Important information	At least one project must be selected in order to generate a report.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	Filters the **Available projects** list. The filter supports partial text entries.
	Click to select or deselect individual projects respectively.
	Click to select or deselect all projects respectively.
Available projects list	Projects that are available for selection.
Selected projects list	The projects that have already been selected. **Default:** All the available projects are automatically selected.

Concurrency vs. License Report

The Concurrency vs. License Report provides details of concurrent resource usage per project, as well as information regarding how system resources were used within license limitations.



To access	1. Select **Performance Center> Usage Reports**. 2. In the list of Usage Reports, select **Concurrency vs. License**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
	Generates the report.
Concurrency by Project tab	Contains a table that displays concurrent resource usage information for each selected project. For more information, see "Concurrency by Project Table" on next page.
Filter by: Projects	Click the browse button by this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
Overall Concurrency tab	Contains a table that displays concurrent resource usage information aggregated over all selected projects, as well as aggregated over all projects in the system. For more information, see "Overall Concurrency Table" on page 123.

UI Elements (A - Z)	Description
Overall License Usage tab	Contains a graph that displays maximum and average Runs and Vuser usage as a percentage of the Performance Center license limitations, allowing the administrator to determine the percentage of the Performance Center license that is actually used. The usage is aggregated over all selected projects, as well as aggregated over all projects in the system. For more information, see "Overall License Usage Graph" on page 124.
Top Projects by Runs tab	Contains a graph that displays the maximum and average number of concurrent runs per project as a percentage of the project limit, which is defined in the project settings (**Lab Settings** > **Project Settings**). This helps the administrator identify those projects that run most efficiently within their given limitations. For more information, see "Top Projects by Runs Graph" on page 125.
Top Projects by Vusers tab	Contains a graph that displays the maximum and average number of concurrent running Vusers per project as a percentage of the project limit, which is defined in the project settings (**Lab Settings** > **Project Settings**). This helps the administrator identify those projects that run most efficiently within their given limitations. For more information, see "Top Projects by Vusers Graph" on page 126.

Concurrency by Project Table

Important Information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Concurrent Machines Avg	The average number of concurrent running machines (controllers and load generators) in all of the project's concurrent test runs.
Concurrent Machines Limit	The maximum number of concurrent running machines allowed for this project as defined in the project settings (**Lab Settings** > **Project Settings**).
Concurrent Machines Max	The maximum number of concurrent running machines (controllers and load generators) in all of the project's concurrent test runs.

UI Elements (A - Z)	Description
Concurrent Runs Avg	The average number of concurrent test runs for the project. For the purposes of this report, a single test run is considered a concurrent run.
Concurrent Runs Limit	The maximum number of concurrent runs allowed for this project as defined in the project settings (**Lab Settings** > **Project Settings**). For the purposes of this report, a single test run is considered a concurrent run.
Concurrent Runs Max	The maximum number of concurrent test runs for the project. For the purposes of this report, a single test run is considered a concurrent run.
Concurrent Vusers Avg	The average number of concurrent running Vusers in all of the project's concurrent test runs.
Concurrent Vusers Limit	The maximum number of concurrent running Vusers allowed for this project as defined in the project settings (**Lab Settings** > **Project Settings**).
Concurrent Vusers Max	The maximum number of concurrent running Vusers in all of the project's concurrent test runs.
Overall Duration	The total time tests were run in the project. This value shows the actual amount of time the system was used to run load tests, and not concurrent duration.
Project	The project name. Deleted projects are also included in the report and are indicated with a red x.

Overall Concurrency Table

Important Information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Concurrent Machines Avg	The average number of concurrent running machines.
Concurrent Machines Max	The maximum number of concurrent running machines.

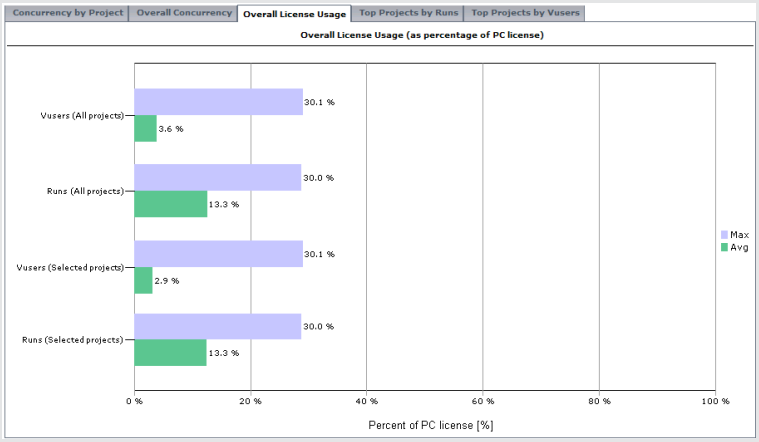
UI Elements (A - Z)	Description
Concurrent Runs Avg (License %)	The average number of concurrent runs. The value in brackets is the average number of concurrent runs as a percentage of the Performance Center license.
Concurrent Runs Max (License %)	The maximum number of concurrent runs. The value in brackets is the maximum number of concurrent runs as a percentage of the Performance Center license.
Concurrent Runs PC License	The maximum number of concurrent runs allowed by the Performance Center license.
Concurrent Vusers Avg (License %)	The average number of concurrent running Vusers. The value in brackets is the average number of concurrent running Vusers as a percentage of the project Performance Center license.
Concurrent Vusers Max (License %)	The maximum number of concurrent running Vusers. The value in brackets is the maximum number of concurrent running Vusers as a percentage of the Performance Center license.
Concurrent Vusers PC License	The maximum number of concurrent running Vusers allowed by the Performance Center license.
Overall Duration	The total time tests were run aggregated over all the projects.
Project	All Projects or Selected Projects.

Overall License Usage Graph

X-axis	Maximum and average percentage of Performance Center license being used.
Y-axis	Vuser and runs usage aggregated over all projects as well as only selected projects.

Example

In the following example the maximum number of Vusers for all projects in the system used just 30.1% of the Performance Center license, while the average number of Vusers for all projects used just 3.6% of the license. This tells the administrator that a significant portion of the Performance Center license is not being used.



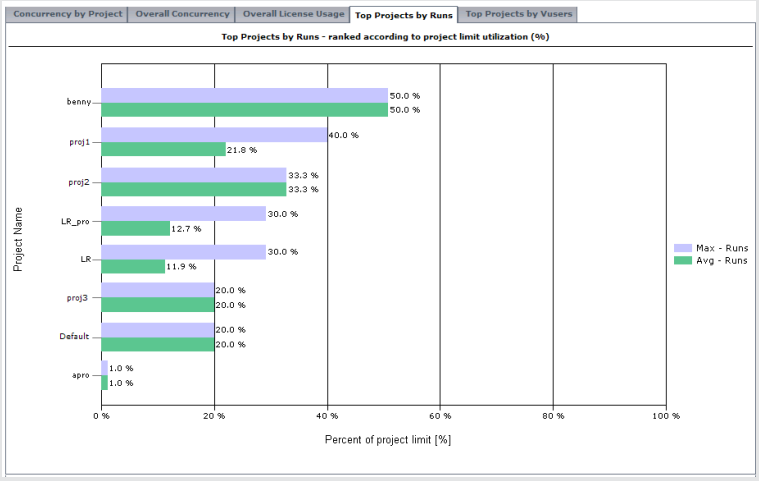
Top Projects by Runs Graph

Top Projects by Runs Graph

Important Information	In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
X-axis	Maximum and average percentage of allowed concurrent runs being used.
Y-axis	Projects displayed in descending order according to the maximum number of concurrent runs.

Example

In the following example the Max - Runs value for the project **LR_pro** is 30%. This means that the maximum number of concurrent runs for this project reached 30% of its limit. The Avg - Runs value for this project shows that the average number of concurrent runs reached 12.7% of its limit. These values tell the administrator that a significant portion of the project's defined limit of concurrent runs is not being utilized.

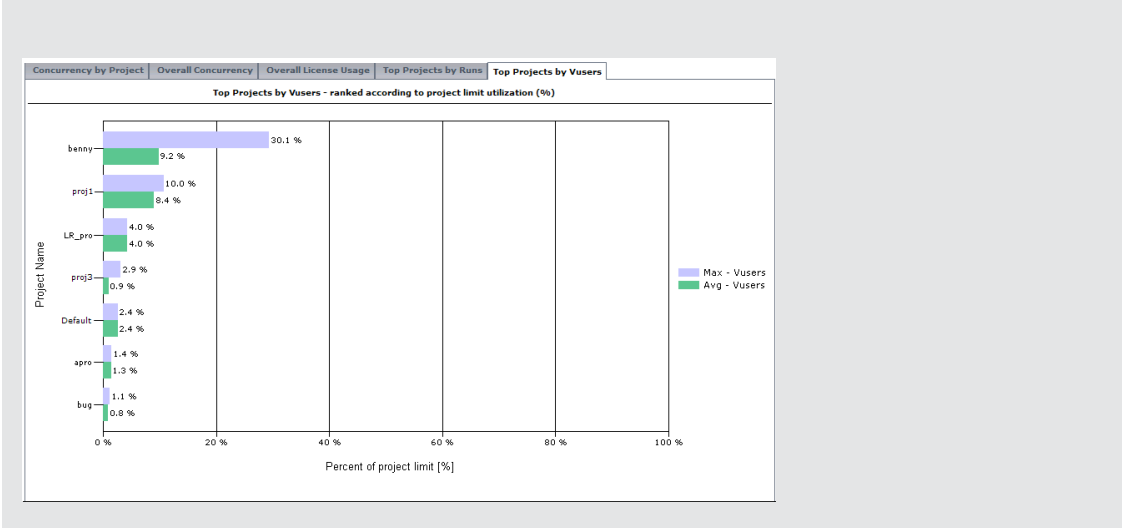


Top Projects by Vusers Graph

Important Information	In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
X-axis	Maximum and average percentage of allowed concurrent running Vusers being used.
Y-axis	Projects displayed in descending order according to the maximum number of concurrent running Vusers.

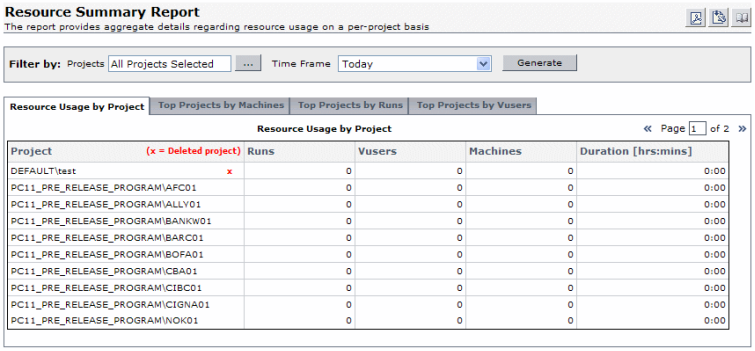
Example

In the following example, the Max - Vusers value for the project **proj1** is 10%. This means that the maximum number of concurrent running Vusers for this project reached 10% of its limit. The Avg - Vusers value for this project shows that the average number of concurrent running Vusers reached 8.4% of its limit. These values tell the administrator that a significant portion of the project's defined limit of concurrent running Vusers is not being utilized.



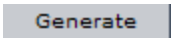
Resource Summary Report

The Resource Summary Report provides aggregate data regarding the way projects used the various resources of the system.



To access	1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Resource Summary**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
	Generates the report.

UI Elements (A - Z)	Description
Filter by: Projects	Click the browse button to the right of this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
Resource Usage by Project tab	Contains a table that provides resource usage information for each selected project. For more information, see "Resource Usage by Project Table" below.
Top Projects by Machines tab	Contains a graph which displays the number of machines used per project, aggregated over all the runs. **X-axis.** The number of machines used per project. **Y-axis.** Projects displayed in descending order according to the number of machines used. **Note:** In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
Top Projects by Runs tab	Contains a graph that displays the number of test runs per project. **X-axis.** The number of test runs per project. **Y-axis.** Projects displayed in descending order according to the number of test runs. **Note:** In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
Top Projects by Vusers tab	Contains a graph that displays the number of Vusers per project, aggregated over all the runs. **X-axis.** The number of Vusers per project. **Y-axis.** Projects displayed in descending order according to the number of Vusers.

Resource Usage by Project Table

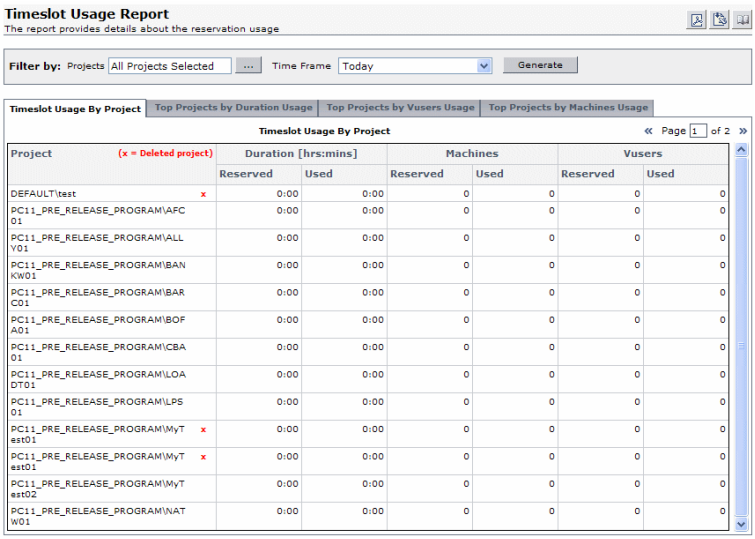
Important information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Duration	The total time tests were run in the project.
Machines	The total number of machines that were used in the project, aggregated over all the runs.
Project	The project name. Deleted projects are also included in the report and are indicated by a red x.
Runs	The total number of test runs in the project, aggregated over all the tests.
Tests	The number of load tests in the project.
Vusers	The total number of Vusers in the project, aggregated over all the runs.

Timeslot Usage Report

The Timeslot Usage Report provides information about the reservation and usage of resources associated with timeslots.



To access	1. Select **Performance Center> Usage Reports**. 2. In the list of Usage Reports, select **Timeslot Usage**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
Generate	Generates the report.
Filter by: Projects	Click the browse button by this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
Timeslot Usage by Project tab	Contains a table that displays reservation and usage information for duration, machines, and Vusers per project. For more information, see the "Timeslot Usage by Project Table" on next page.
Top Projects by Duration Usage tab	Contains a graph that displays reservation and usage information for timeslot duration per project. It allows the administrator to see which projects most efficiently use their reserved duration. **X-axis.** The total amount of reserved and used duration for each project. **Y-axis.** Projects displayed in descending order according to their duration usage. **Note:** In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
Top Projects by Machines Usage tab	Contains a graph that displays reservation and usage information for timeslot machines per project. It allows the administrator to see which projects most efficiently use their reserved number of machines. **X-axis.** The total amount of reserved and used machines for each project. **Y-axis.** Projects displayed in descending order according to their Vusers usage. **Note:** In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.

UI Elements (A - Z)	Description
Top Projects by Vusers Usage tab	Contains a graph that displays reservation and usage information for timeslot Vusers per project. It allows the administrator to see which projects most efficiently use their reserved number of Vusers. **X-axis.** The total amount of reserved and used Vusers for each project. **Y-axis.** Projects displayed in descending order according to their machines usage. **Note:** In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.

Timeslot Usage by Project Table

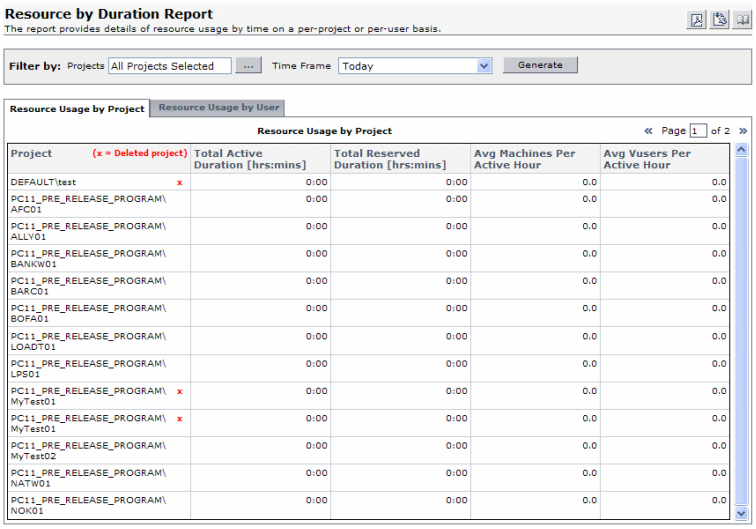
Important information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
Duration Reserved	The amount of time reserved for the project.
Duration Used	The amount of time used within the project.
Machines Reserved	The number of machines reserved for the project.
Machines Used	The number of machines used in the project.
Project	The project name. Deleted projects are also included in the report and are indicated by a red x.
Vusers Reserved	The number of Vusers reserved for the project.
Vusers Used	The number of Vusers used in the project.

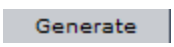
Resource by Duration Report

The Resource by Duration Report provides general information about the usage of your system resources over the selected time frame. You can view statistics for total usage by project, or per user within a project.



To access	1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Resource Usage by Duration**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
	Generates the report.
Filter by: Projects	Click the browse button by this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
Resource Usage by Project tab	Contains a table that displays resource usage per project over the selected time frame. For more information, see "Resource Usage by Project Table" on next page.

UI Elements (A - Z)	Description
Resource Usage by User tab	Contains a table that displays resource usage per user. For more information, see "Resource Usage by User Table" below.

Resource Usage by Project Table

Important information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
Avg Machines per Active Hour	The average number of machines used per active hour. **Note:** An active hour refers to the actual running time of your tests within the selected time frame.
Avg Vusers per Active Hour	The average number of running Vusers per active hour. **Note:** An active hour refers to the actual running time of your tests within the selected time frame.
Project	The project name. Deleted projects are also included in the report and are indicated by a red x.
Total Active Duration	The total time tests were run during reserved timeslots. **Note:** Active Duration refers to the actual running time of your tests within the selected time frame.
Total Reserved Duration	The total time reserved in the Timeslots page, by the project.

Resource Usage by User Table

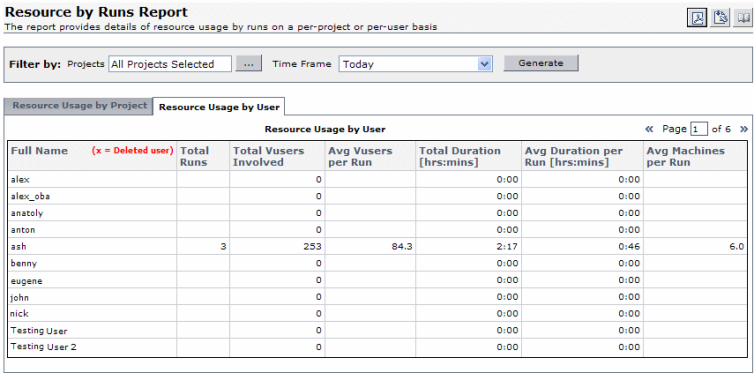
Important information	• Only users with privileges in the selected projects are shown. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
Avg Hosts per Active Hour	The average number of hosts used per active hour. **Note:** An active hour refers to the actual running time of your tests within the selected time frame.
Avg Vusers per Active Hour	The average number of running Vusers per active hour. **Note:** An active hour refers to the actual running time of your tests within the selected time frame.
Full Name	The name of the user. Deleted users are also included in the report.
Total Active Duration	The total time tests were run during reserved timeslots. **Note:** Active Duration refers to the actual running time of your tests within the selected time frame.
Total Reserved Duration	The total time reserved in the Timeslots page, by the user.

Resource Usage by Runs Report

The Resource Usage by Runs Report provides general information about the test runs. You can view statistics for total usage by project, or per user within a project.



To access	1. Select **Performance Center** > **Usage Reports** 2. In the list of Usage Reports, select **Resource Usage by Runs**
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
Generate	Generates the report.
Filter by: Projects	Click the browse button by this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
Resource Usage by Project tab	Contains a table that displays test run statistics per project over the selected time frame. For more information, see "Resource Usage by Project Table" below.
Resource Usage by User tab	Contains a table that displays test run statistics per user. For more information, see "Resource Usage by User Table" on next page.

Resource Usage by Project Table

Important information	• Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Avg Duration per Run	The average time used for the listed runs.
Avg Machines per Run	The average number of machines used per run.
Avg Vusers per Run	The average number of Vusers used per run.
Project	The project name. Deleted projects are also included in the report and are indicated by a red x.
Total Duration	The total time used by the listed runs.
Total Runs	The total number of runs in the project.

UI Elements (A - Z)	Description
Total Vusers Involved	The total number of Vusers in the project.

Resource Usage by User Table

Important information	• Runs of users that have been deleted from the system, or who no longer have any privileges, are also included in the table. • Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Avg Duration per Run	The average time used for the listed runs.
Avg Machines per Run	The average number of machines used per run.
Avg Vusers per Run	The average number of Vusers used per run.
Full Name	The name of the user. Deleted users are also included in the report.
Total Duration	The total time used by the listed runs.
Total Runs	The total number of runs associated with the user.
Total Vusers Involved	The total number of Vusers associated with the user.

VUDs License Usage per Project Report

The VUDs License Usage per Project Report provides information about VUD usage per day for each selected project.

To access	1. Select **Performance Center** > **Usage Reports**. 2. In the list of Usage Reports, select **VUDs License Project Usage**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
Generate	Generates the report.
Filter by: Projects	Click the browse button by this field to select which project to include in the report.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.
VUDs per Project tab	Contains a table that provides information about daily VUD usage per selected project. For more information see "VUDs per Project Table" below.
VUDs Transactions tab	Contains a table that provides information about VUDs per transactions. For more information, see "VUDs Transactions Table" on next page.

VUDs per Project Table

Important information	• Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
Allocated	The amount of VUDs that were allocated to the project at the start of the day.
Consumed	The amount of VUDs that were consumed during the day.
Date	The date for which VUD usage information is shown.
New Value	The amount of VUDs that were remaining at the end of the day.
Project	The name of the project.

VUDs Transactions Table

Important information	• Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Action	The current state of the VUDs.
Date	The date for which VUD information is displayed.
In Use	The number of VUDs that are currently running.
New Limit	The number of VUDs that are currently available to the project.
Pending	The number of VUDs that are available for running.
Project	The project name. Deleted projects are also included in the report and are indicated by a red x.
Run ID	The run ID.
Test Name	The performance test name.
Unique ID	A unique ID that identifies VUDs from their issue to their expiration.
User	The user that performed the transaction.
Value	The amount of VUDs that are in the state indicated in the **Action** column.

Daily VUDs License Usage Report

The Daily VUDs License Usage Report provides overall VUD usage information aggregated for all projects for a specific day.

To access	1. Select **Performance Center** > **Usage Reports**. 2. In the list of Usage Reports, select **Daily VUDs License Site Usage**.
Relevant tasks	"How to View Reports and Set Report Filter Criteria" on page 118

User interface elements are described below:

UI Elements (A - Z)	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
Generate	Generates the report.
Daily VUDs Usage tab	Contains a table that displays daily VUD usage information. For more information, see "Daily VUDs Usage Table" below.
Filter by: Time Frame	Select the desired time frame for the report. For an explanation of the given time frames, see "Usage Report Time Frames" on page 119.

Daily VUDs Usage Table

Important information	• Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

User interface elements are described below:

UI Elements (A - Z)	Description
Added	The amount of VUDs that were added on the day.
Consumed	The amount of VUDs that were used on the day.
Date	The date for which VUD usage information is shown.
New Value	The amount of VUDs that were remaining at the end of the day.

Chapter 8: System Health

This chapter includes:

System Health Overview

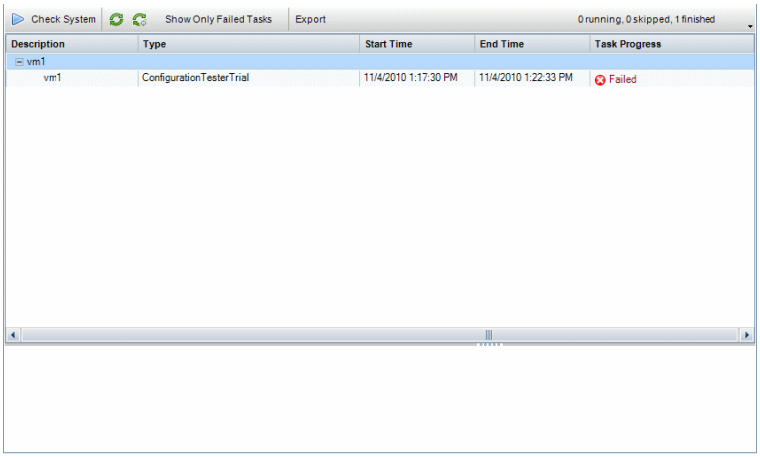
To design and run performance tests in ALM, the Performance Center system must be running properly. The System Health module enables you to run tasks that validate that the components of the system are communicating with each other, allowing you to maintain the system in a healthy state.

System Health User Interface

This section includes:

System Health Module Window

This module displays information about the ALM Performance Center system health maintenance tasks and overall system checks, and enables you to run a full validation on your ALM Performance Center system.



To access	On the Lab Management sidebar, under **Performance Center**, select **System Health**.
See also	"System Health Overview" on previous page

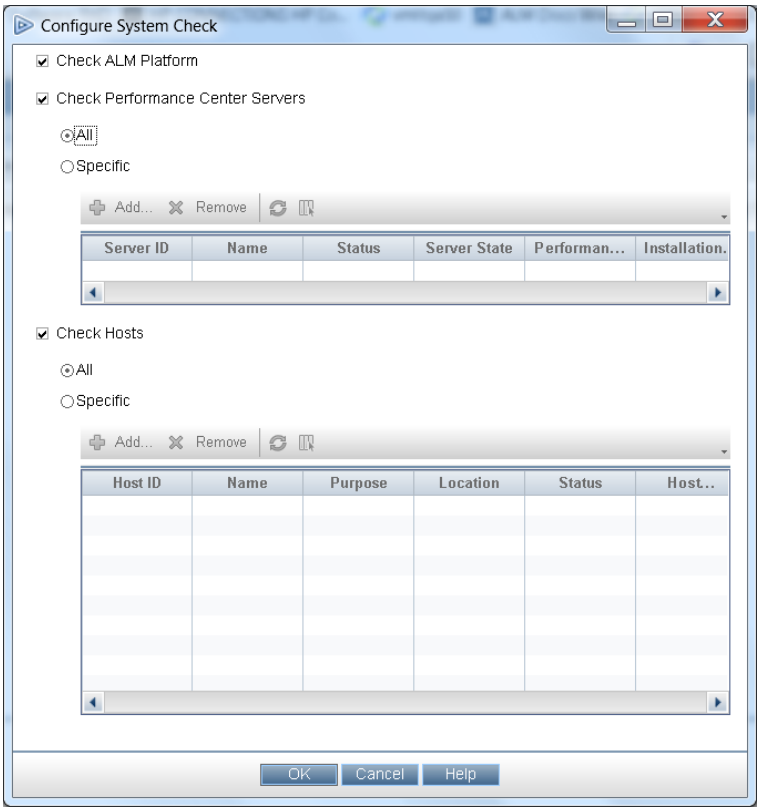
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
Check System	Opens the configure system check dialog box, enabling you to select servers and hosts in the ALM-Performance Center system to include in the system check. For details, see "Configure System Check Dialog Box" on next page.
	Refresh All. Refreshes the grid so that it displays the most up-to-date information. If **Auto Refresh** is enabled, this button is disabled.
	Set Auto Refresh On/Off. When enabled, automatically refreshes the grid every 5 seconds so that it displays the most up-to-date task information.
Show Only Failed Tasks	Displays the system check results that have a failed status only.

UI Elements	Description
Export	Opens the Export Grid Data dialog box, enabling you to export the results of the system check as a Microsoft Excel worksheet. Choose one of the following options: • **All.** Exports all tasks in the grid. • **Selected.** Exports selected tasks in the grid.
<Results grid>	Displays the progress and results of the system check.

Configure System Check Dialog Box

This dialog box enables you to select which ALM-Performance Center system components (servers and hosts) to include when doing a system check.



To access	On the Lab Management sidebar, under **Performance Center**, select **System Health**. Click Check System.
Important information	• The system check is performed on Performance Center Servers and hosts that are in an operational state only. • The system check is performed on hosts with the Controller purpose only.
See also	"System Health Overview" on page 141

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
Check ALM Platform	Includes the ALM server in the system check.
Check Performance Center Servers	Includes operational Performance Center Servers in the system check. • **All.** Includes all of the operational Performance Center Servers in the system check. • **Specific.** Enables you to select operational Performance Center Servers to include in the system check.
Check Hosts	Includes operational Performance Center hosts with the Controller purpose in the system check. • **All.** Includes all of the operational Performance Center hosts with the Controller purpose in the system check. • **Specific.** Enables you to select operational Performance Center hosts with the Controller purpose to include in the system check.
<Performance Center Server grid>	Lists the Performance Center Servers that you selected to include in the system check, and displays their details.
<Performance Center host grid>	Lists the Performance Center hosts that you selected to include in the system check, and displays their details.

Chapter 9: PC Licenses

This chapter includes:

HP ALM Performance Center PC Licenses Overview

To work with HP ALM Performance Center, each of the following licenses must be defined:

License	Description
ALM License	The ALM license is configured as part of the ALM installation process and is managed in Site Administration. For more information about the ALM license, see the *HP Application Lifecycle Management Administrator Guide*.

License	Description
Performance CenterLicense	There are two types of Performance Center licenses: • **PC.** This license is limited by the total number of concurrent runs or Vusers, and may have an expiration date. • **PC_VUDS.** A Virtual User Day (VUD) license provides you with a specified number of Vusers (VUDs) that you can run an unlimited number of times within a 24 hour period (the Virtual User Day). At the end of a Virtual User Day, the remaining number of licensed VUDs is calculated by subtracting the number of used VUDs, or in the case of concurrent usage, the maximum number of concurrent running VUDs, from the total number of licensed VUDs. For example, a user has a license that allows him to run 1,000 VUDs. He creates a performance test that requires 200 Vusers and runs for 45 minutes. He runs the test at 8:00 am, 10:00 am, 2:00 pm, and at 4:00 pm. In each case, the test finishes before the next one begins. Because there is no concurrent Vuser usage, he can re-use the same 200 VUDs for each test run, meaning that at the end of the 24-hour period, only 200 VUDs are deducted from the license, leaving 800 for future use. However, if the user starts the second run at 8:30 am, the first test is still running before the second test initializes. This overlap requires 400 Vusers to run concurrently (200 for each test). At the end of the day, 400 VUDs are deducted from the license, because that is the highest number of concurrent Vusers. The total left for future use is 600 VUDs. **Note:** ▪ The Performance Center and Host licenses are configured directly after installation of the Performance Center Server. You configure the licenses using the PC Licenses Module window. For more information, see "PC Licenses Module Window" on page 148. ▪ You can run VUDs on HP developed protocols, with the exception of: COM/DCOM, VB Com, VB Vuser, VB Script Vuser, VB.NET Vuser, and VB.NET Template. ▪ You cannot run VUDs on SDK protocols. ▪ You cannot run VUDs on a GUI Vuser script, such as UFT Professional scripts. ▪ When using a VUD based Performance Center license, a Host license is not relevant.

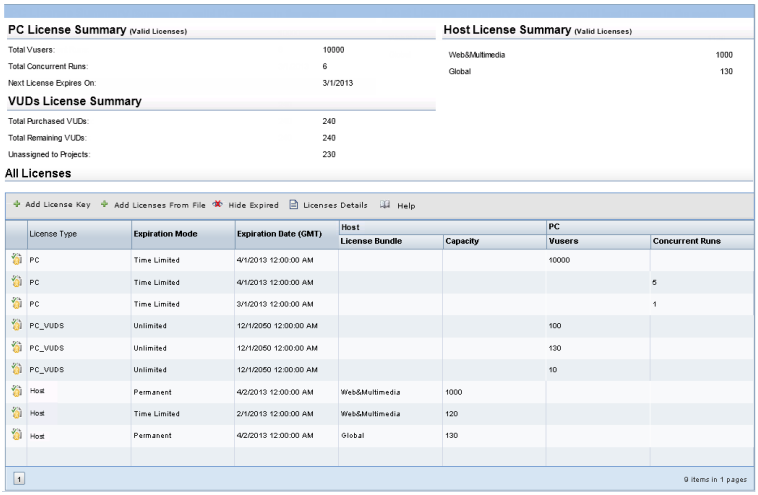
License	Description
Host License	The Host license defines the limits of Vuser use per protocol on the host. There are two host license Vuser types: • **<bundle type> Bundle**.Each bundle contains a collection of protocols. When you select a protocol bundle, this section displays a list of included protocols. • **Global.** The global license lets you run all Vuser types, provided you stay within the total limit. The number following "Global" indicates the total number of Vusers purchased. **Note:** The Performance Center and Host licenses are configured directly after installation of the Performance Center Server. You configure the licenses using the PC Licenses Module window. For more information, see "PC Licenses Module Window" on next page.

PC Licenses User Interface

This section includes:

PC Licenses Module Window

This page enables you to view summaries of your Performance Center and VUD-based licenses, as well as host license information.



To access	On the Lab Management sidebar, under **Performance Center**, select **PC Licenses**.
Relevant tasks	"How to Work with Lab Management Administration" on page 22
See also	"HP ALM Performance Center PC Licenses Overview" on page 145

PC License Summary Area

Displays summary information for all valid Performance Center licenses.

User interface elements are described below:

UI Elements	Description
Total Vusers	Total Vusers of all licenses.
Total Concurrent Runs	The total number of Vusers that can run simultaneously.
License Expires On	Indicates the expiration date of the next license that is due to expire.

VUDs License Summary Area

Displays summary information for all VUD-based licenses.

User interface elements are described below:

UI Elements	Description
Total Purchased VUDs	Total number of purchased VUDs.

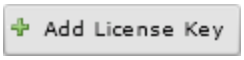
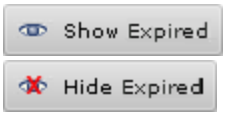
UI Elements	Description
Total Remaining VUDs	Total number of remaining VUDs.
Unassigned to Projects	Total number of unassigned VUDs.

Host License Summary Area

Displays protocol bundles and capacity information for all host licenses.

All Licenses Area

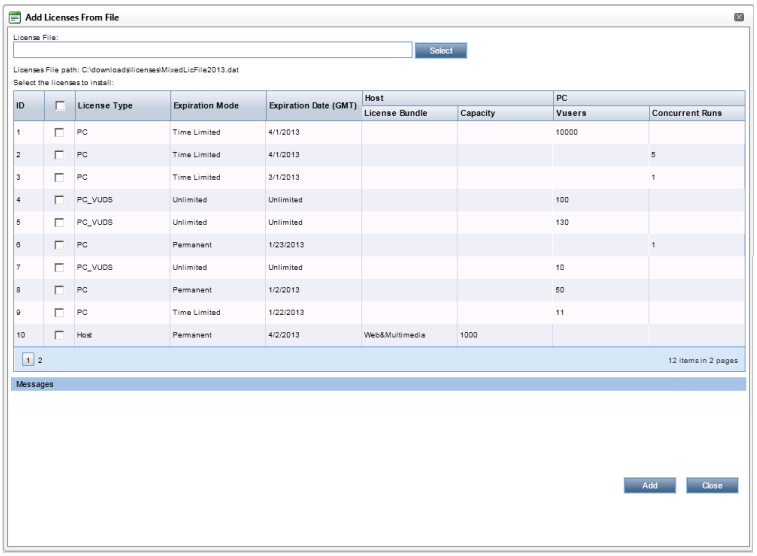
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	Enables you to install a single license key at a time. Click to open the Add New License dialog box and type the new license key. **Note:** You can only add a license if you have the required permissions.
	Opens the Add Licenses for File dialog box enabling you to install multiple license keys simultaneously. For user interface details, see "Add Licenses from File Dialog Box" on next page.
	Click to display all licenses or to hide expired licenses.
	Click to open the Licenses Details dialog box which displays the following information: • **Date Assigned.** The date the license was added to the system. • **License Key.** The license key. • **Type.** The license type. To export details to an Excel file, click **Export to Excel**. **Note:** You can only view license details if you have the required permissions.
License Type	The type of license available for the license key you selected. Values include: **PC**, **PC_VUDS**, and **Host**. For more details, see "HP ALM Performance Center PC Licenses Overview" on page 145.

UI Elements	Description
Expiration Mode	• **Permanent** • **Time Limited.** The license is limited by an expiration date. • **Temporary.** A Time Limited license that is granted for a predefined number of days after product installation.
Expiration Date (GMT)	The expiration date and time of the license.
Host	• **License Bundle.** Indicates the name of the Vuser protocol bundle to which the license applies. The license enables the Controller to run Vusers of any protocol that is included in the protocol bundle. • **Capacity.** Indicates the maximum number of Vusers that can be run simultaneously from the LoadRunner Controller.
PC	• **Vusers.** The number of Vusers. • **Concurrent Runs.** The maximum number of test runs that can run simultaneously.

Add Licenses from File Dialog Box

This dialog box enables you to install multiple Performance Center license keys simultaneously.



To access	On the Lab Management sidebar, under **Performance Center**, select **PC Licenses**. Click Add Licenses From File.
Important	You can only add a license if you have the required permissions.

Relevant tasks	"How to Work with Lab Management Administration" on page 22
See also	"HP ALM Performance Center PC Licenses Overview" on page 145

User interface elements are described below:

UI Elements	Description
License File	Click **Select** and then select the license file.
Select the licenses to install	Select the check boxes for the licenses to install.
ID	Indicates a sequential ID number.
License Type	The type of license available for the license key you selected. Values include: **PC**, **PC_VUDS**, and **Host**. For more details, see "HP ALM Performance Center PC Licenses Overview" on page 145.
Expiration Mode	• **Permanent** • **Time Limited.** The license is limited by an expiration date. • **Temporary.** A Time Limited license that is granted for a predefined number of days after product installation.
Expiration Date	Indicates the GMT date and time the license expires.
Host	• **License Bundle.** Indicates the name of the Vuser protocol bundle to which the license applies. The license enables the Controller to run Vusers of any protocol that is included in the protocol bundle. • **Capacity.** Indicates the maximum number of Vusers that can be run simultaneously from the LoadRunner Controller.
PC	• **Vusers.** The number of Vusers. • **Concurrent Runs.** The maximum number of test runs that can run simultaneously.
Add	Installs the selected licenses.

Chapter 10: Diagnostics Management

This chapter includes:

J2EE/.NET Diagnostics Overview

The HP Diagnostics integration with HP Application Lifecycle Management (ALM) allows you to monitor and analyze the performance of Java 2 Enterprise Edition (J2EE), .NET-connected, SAP, Oracle, and other complex environments.

During a performance test, you can drill down into HP Diagnostics data for the whole test or for a particular transaction. After the test, you can use HP LoadRunner Analysis to analyze offline diagnostics data generated during the test.

Monitoring Server Requests

When configuring a performance test to use J2EE/.NET Diagnostics, you can instruct ALM to capture a percentage of server requests which occur outside the context of any Vuser transaction.

The benefit of enabling this functionality is that calls into a back-end VM can be captured even in the case where:

- The probe is not capturing RMI calls
- RMI calls cannot be captured (perhaps because an unsupported application container is being used)
- The application uses some other mechanism for communications between multiple VMs

For more information about working with diagnostics for J2EE and .NET, see the *HP Diagnostics User Guide*.

ERP/CRM Diagnostics Overview

The following sections provide an overview of ERP/CRM diagnostics.

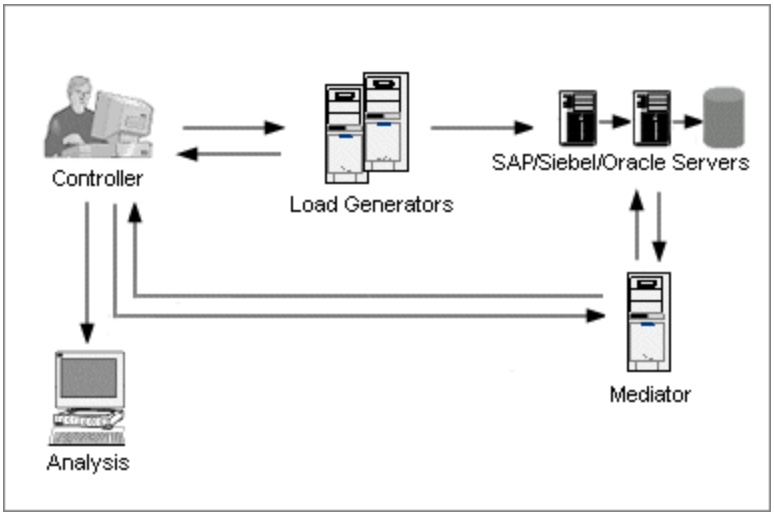
Understanding ERP/CRM Diagnostics

During a performance test, the ALM diagnostics modules trace, time, and troubleshoot individual transactions across the Web, application, and database servers. You can drill down from a slow end-user transaction all the way to the bottlenecked method or SQL statement. The ALM Performance Center diagnostics modules enable organizations to:

- Rapidly isolate application components that have a significant impact on end-user experience.
- Provide developers with precise data on how to make performance improvements.

ERP/CRM Diagnostics Modules Architecture

ERP/CRM Diagnostics architecture, as shown in the diagram below, is comprised of the following components:



- **Mediator.** The ERP/CRM Mediator ("Mediator") gathers and correlates offline transaction data from the Web, database, and application servers. For information on installing the Mediator, see the *HP ALM Performance Center Installation Guide*.
- **Controller.** Before test execution, the Controller transfers all server information to the Mediator and distributes the percentage of users that will participate in the monitoring. After test execution, the Controller collects the aggregated transaction data files from the Mediators and collates the results. Results are transferred to the Siebel diagnostics, SAP diagnostics, or Oracle DB results directory.

  If you do not want to collate the information right after the load test, you can perform collation at a later time.

  The files are then transferred to the results directory per diagnostics type as follows:

  - Siebel results are transferred to the **\sbl_bd** directory.
  - Oracle 11i results are transferred to the **\ora_bd** directory.

  - SAP results are transferred to the **\sap_bd** directory.

- **Load Generators.** When you execute a load test, the Controller distributes each Vuser to a load generator, and the load generator executes the Vuser script.
- **Analysis.** Displays detailed diagnostics graphs and reports. For more information about the diagnostics graphs, see the *HP LoadRunner Analysis User Guide*.

Connecting the Mediator to a Remote Server

When you set up the ERP/CRM Diagnostics modules, you define a server to monitor by entering the user name of the server where trace/log files are stored. This section explains how the Mediator connects to the server when it is a remote Windows or UNIX server.

- When monitoring a remote Windows server, the Mediator attempts to connect to the server using the configuration details which you enter in the <diagnostics type> Server Configuration Dialog Box during the diagnostics configuration process. This configuration should give administrator permissions to the remote machine.
- When monitoring a remote UNIX server, the Mediator supports the remote shell connection type. For more information on remote shell connections, see the section that describes verifying the UNIX load generator installation in the *HP Application Lifecycle Management Installation and Upgrade Guide*.

Siebel and Siebel DB Diagnostics Overview

Siebel Diagnostics are split into the following modules:

- **Siebel Diagnostics Module.** Enables you to break down Siebel transactions into layers, areas, sub-areas, servers, and scripts. You can also view the transaction chain of calls and call stack statistics to track the percentage of time spent on each part of the transaction. Siebel-Web Vusers support Siebel Diagnostics.
- **Siebel DB Diagnostics Module.** Helps you rapidly identify and resolve database performance problems. You can view the SQLs for each transaction, identify the problematic SQL queries of each script, and identify at which point problems occurred. Siebel-Web Vusers support Siebel DB Diagnostics.

Note: Siebel Diagnostics (Siebel Application Response Measurements) supports Siebel application servers versions 7.53 and 7.7.

For information on how to pre-configure the Siebel/Siebel DB Diagnostics modules, see "How to Pre-Configure Siebel/Siebel DB Diagnostics" on page 157.

Oracle 11i Diagnostics Overview

Oracle 11i Diagnostics helps pinpoint performance problems on Oracle NCA systems. The diagnostics information drills down from the transaction to the SQL statements, and to the SQL stages of each statement. Oracle NCA Vusers support Oracle 11i Diagnostics.

For information on how to pre-configure the Oracle 11i Diagnostics module, see "How to Pre-Configure Oracle 11i Diagnostics" on page 160.

SAP Diagnostics Overview

SAP Diagnostics enables you to pinpoint the root cause of a certain problem (for example, DBA,

Network, WAS, Application, OS/HW) quickly and easily, and engage with the relevant expert only, without having to present the problem to a whole team of people.

The following table outlines the supported versions and required Kernel patches for the SAP Application Server and the SAPGUI Client:

	Supported Version	Required Kernel Patch
SAP Application Server	4.6C; 4.6D	Kernel Patch 1984 (released on 11/01/05, SAP note 0451251)
	4.7 and higher	No patch required
SAPGUI Client	SAPGUI for Windows 6.20	Minimal patch level: 48
	SAPGUI for Windows 6.40	Minimal patch level: 2

For information on how to configure the SAP Diagnostics module, see "How to Pre-Configure SAP Diagnostics" on page 162.

Server-side Data Collection. SAP Diagnostics is based on SAP Distributed Statistical Records (DSR). For each dialog step performed on application server, a statistical record is generated, which includes information such as response time components, database statistics, RFC times, and so on. The Diagnostics Mediator is responsible for collecting diagnostics data from the server during a performance test.

Vuser Coloring. SAP Diagnostics allows replaying the SAPGUI protocol. You set the percentage of colored Vusers in the Configuration dialog (up to 100% allowed). Coloring of SAPGUI users creates no overhead on the Application server.

How to Add ERP/CRM Mediators

This task describes how to add diagnostics servers and mediators in order to work with J2EE/.NET and ERP/CRM diagnostics.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

1. ### Prerequisite

   Make sure that the mediator is installed in the same LAN as the monitored server. For information on installing the ERP/CRM Mediator, see the *HP ALM Performance Center Installation Guide.*

2. ### Add and configure the mediator

   a. On the Lab Management sidebar, under **Lab Settings**, select **Diagnostics**.

   b. Select the **ERP/CRM Diagnostics** tab.

   c. Click the **New Diagnostics Mediator** button  , and enter the required information. For user interface details, see "Diagnostics Module Fields" on page 167.

How to Add HP Diagnostics Servers

This task describes how to add an HP Diagnostics server to allow you to monitor and analyze J2EE/.NET environments.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

1. On the Lab Management sidebar, under Lab Settings, select **Diagnostics**.
2. Select the **J2EE/.NET Diagnostics** tab.
3. Click the **New Diagnostics Server** button, and enter the required information. For user interface details, see "Diagnostics Module Fields" on page 167.
4. Under **Lab Settings**, select **Project Settings**. Right-click the relevant project and select **Project Settings Details**. Add the relevant server information in the **Diagnostics Server** field.

Note: To ensure that diagnostics data is available online, make sure that the time on the diagnostics server is synchronized with its probes.

How to Pre-Configure Siebel/Siebel DB Diagnostics

This task describes the pre-configuration steps to be performed by the ALM administrator which allow the performance tester to enable and run Siebel diagnostics.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

This task includes the following steps:

1. ### Prerequisite

   Make sure that the ERP/CRM mediator is installed and configured. For more information, see "How to Add ERP/CRM Mediators" on previous page.

2. ### If connecting to a UNIX server with a remote shell (RSH/RCP)

connection

- Verify that the RSH and RCP daemons are running on the UNIX server.
- Verify that the UNIX user has permission to run remote shell commands. To check this, type the following at the DOS command prompt:

```
rsh <server machine name> -l <UNIX user login name> -n <command>
```

Example:

```
rsh my_unix -l my_name -n "cd ~;pwd"
```

Note: You can use only RSH commands that work from the DOS command prompt window.

- Verify that no output is generated after executing the RSH command.

Note: You should not generate output from the **.login**, **.profile**, and **.cshrc** files (for example, by **echo**, or in any other way, including commands that generate output indirectly, such as **biff**). Where an existing user generates output in the RSH step that cannot be deleted, you should create a new user that does not generate output, and who has permissions to run RSH and RCP commands on the server machine.

3. ## Configure the server machine to enable diagnostics

To configure Siebel application and Web servers for diagnostics data collection:

a. **Enable Siebel Diagnostics on all Siebel application and Web servers involved in the test.**

Set the environment variable on the Siebel server to:

```
SIEBEL_SarmEnabled=true
```

Then restart the server.

b. **Optimize the server performance settings.**

You change the maximum memory caching and file size using the following variables:

```
SIEBEL_SarmMaxMemory= <bytes>SIEBEL_SarmMaxFileSize = <bytes>
```

The **SIEBEL_SarmMaxMemory** value controls the size of the buffer that Siebel keeps in the memory before writing the information to the Siebel log files. You can improve server performance by increasing the parameter value. However, information from the end of the run will be missing from the Analysis graphs.

We recommend the following settings:

- **SIEBEL_SarmMaxMemory**

Value	Number of Vusers
5000	Less than 20 (low loads)
1000000	More than 100 (high loads)

- **SIEBEL_SarmMaxFileSize**

Value	Number of Vusers
5000000	Less than 20 (low loads)
25000000	More than 100 (high loads)

If more than one Siebel log file is generated on the server every 10 seconds, you should increase the **SIEBEL_SarmMaxFileSize**.

c. **Generate a list of Siebel Server IDs.**

On the Siebel server, open a command window and run the following command:

```
<Siebel bin directory>\srvrmgr /u <username> /p <password> /g
<gateway server> /e <entrpr server> /c "list servers show
SBLSRVR_NAME, SV_SRVRID"
```

where:

/u <username> is the server administrator username.

/p <password> is the server administrator password.

/g <gateway server> is the gateway server address.

/e <entrpr server> is the enterprise server name.

/c <command> is the execute a single command.

This command generates a list of all the Siebel application servers and their IDs. Keep a record of the server IDs, since this information is required in the Siebel Server Configuration dialog box.

4. Copy files from the Siebel Application Server to the Mediator

After configuring the application server, copy the files listed below from the Siebel Application server **\bin** directory to either the `<Mediator Root>\bin` directory, `<Windows>\System32` directory, or any other directory in `PATH` on the Mediator machine:

For Siebel 7.53, copy the following files:

▪ sarmanalyzer.exe ▪ sslcver.dll ▪ sslcsym.dll	▪ sslcshar.dll ▪ sslcosa.dll

For Siebel 7.7, copy the following files:

▪ sarmanalyzer.exe ▪ libarm.dll ▪ msvcp70.dll ▪ msvcr70.dll ▪ sslcacln.dll ▪ sslccore.dll ▪ sslcevt.dll ▪ sslcos.dll	▪ sslcosa.dll ▪ sslcosd.dll ▪ sslcrsa.dll ▪ sslcscr.dll ▪ sslcshar.dll ▪ sslcsrd.dll ▪ sslcsym.dll ▪ sslcver.dll

5. **Synchronize clocks**
   - **On Windows Siebel Servers:** Ensure that all the machines' clocks in the Siebel system are synchronized. This ensures that the correlation of SQLs to transactions is correct.

     Synchronize the Siebel Gateway and load generators' clocks by running the following command from the load generator:

     ```
     net time \ <Gateway name> /set /y
     ```

     Replace **<Gateway name>** with the name of the Siebel Gateway.
   - **On Unix Siebel Servers:** Ensure that all the machines' clocks in the Siebel system are synchronized. This ensures that the correlation of SQLs to transactions is correct.

     You can synchronize the clocks on a UNIX system in one of the following ways:
     - Use the **date** command on the UNIX Siebel Gateway server to change the time manually, so it will be synchronized with the Load Generator's clock.
     - Change the time on the load generator so that it will be synchronized with the UNIX Siebel Gateway server.
     - Configure the time difference in Analysis. For more information, see the chapter about Siebel DB Diagnostics Graphs in the *HP LoadRunner Analysis User Guide*.
6. **(Siebel DB) Enable logging on the Siebel Server**

   For task details, see "How to Enable and Disable Logging on the Siebel Server" on page 162.

How to Pre-Configure Oracle 11i Diagnostics

This task describes the pre-configuration steps to be performed by the ALM administrator which allow the performance tester to enable and run Oracle 11i diagnostics.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

This task includes the following steps:

- "Prerequisite" below
- "Consider this before connecting to a UNIX server with a remote shell (RSH/RCP) connection" below
- "Enable logging on the Oracle server" below
- "Set or disable the Oracle server diagnostics password - optional" below

1. ## Prerequisite

   Make sure that the ERP/CRM mediator is installed and configured. For more information, see "How to Add ERP/CRM Mediators" on page 156.

2. ## Consider this before connecting to a UNIX server with a remote shell (RSH/RCP) connection

   - Verify that the RSH and RCP daemons are running on the UNIX server.
   - Verify that the UNIX user has permission to run remote shell commands. To check this, type the following at the DOS command prompt:

     ```
     rsh <server machine name> -l <UNIX user login name> -n <command>
     ```

     Example:

     ```
     rsh my_unix -l my_name -n "cd ~;pwd"
     ```

     Note: You can only use RSH commands that work from the DOS command prompt window.

   - Verify that no output is generated after executing the RSH command.

     Note: You should not generate output from the **.login**, **.profile**, and **.cshrc** files (for example, by **echo**, or in any other way, including commands that generate output indirectly, such as **biff**). Where an existing user generates output in the RSH step that cannot be deleted, you should create a new user that does not generate output, and who has permissions to run RSH and RCP commands on the server machine.

3. ## Enable logging on the Oracle server

   For task details, see "How to Enable Logging on the Oracle Server" on page 163.

4. ## Set or disable the Oracle server diagnostics password - optional

   To help ALM deal with the Oracle server diagnostics password, you can either set the password in the Vuser script, or you can disable the password request on the server itself. For task details, see "How to Set and Disable the Oracle Server Diagnostics Password" on page 164.

How to Pre-Configure SAP Diagnostics

This task describes the pre-configuration steps to be performed by the ALM administrator that allows the performance tester to enable and run SAP diagnostics.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

Install the ERP/CRM Mediator

Make sure that the ERP/CRM mediator is installed and configured. For more information, see "How to Add ERP/CRM Mediators" on page 156.

Note: When using SAP Diagnostics, ensure that a SAPGUI client is installed on the same machine as the ERP/CRM Mediator.

How to Enable and Disable Logging on the Siebel Server

This task describes how to enable and disable logging on the Siebel server.

Note:

- This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.
- Enabling logging on the Siebel server can negatively impact server performance. We recommend that you disable logging and restore the default logging settings at the conclusion of the performance test.

To enable logging on the Siebel server

Perform the following steps:

1. Open a command window and run the following command:
   `<Siebel bin directory>\srvrmgr /g <gateway server> /s <Siebel server> /e <enterprise server name> /u <username> /p <password>`

   where:

   /u <username> is the server administrator username.

   /p <password> is the server administrator password.

   /g <gateway server> is the gateway server address.

   /e <entrpr server> is the enterprise server name.

   /s <siebel server > is the siebel server (the default server).

2. Enter the following commands:

```
change evtloglvl ObjMgrsqllog=4 for comp <component name>

evtloglvl EventContext=3 for comp <component name>

evtloglvl ObjMgrSessionInfo =3 for comp <component name>
```

Example:

For the Call Center component, enter **sccobjmgr_enu** as the component name, as follows:

```
change evtloglvl ObjMgrsqllog=4 for comp sccobjmgr_enu
```

To disable logging on the Siebel server

Perform the following steps:

1. Open a command window and run the following command:

   <Siebel bin directory>\srvrmgr /g <gateway server> /s <Siebel server> /e <enterprise server name> /u <username> /p <password>

   where:

   /u <username> is the server administrator username.

   /p <password> is the server administrator password.

   /g <gateway server> is the gateway server address.

   /e <entrpr server> is the enterprise server name.

   /s <siebel server> is the siebel server name (the default server).

2. Enter the following commands:

   ```
   change evtloglvl ObjMgrsqllog=0 for comp <component name>

   change evtloglvl EventContext=0 for comp <component name>

   change evtloglvl ObjMgrSessionInfo =0 for comp <component name>
   ```

How to Enable Logging on the Oracle Server

This task describes how to enable logging on the Oracle server.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

This task includes the following steps:

- "Verify that the trace diagnostics are enabled" on next page
- "Set the trace file size to unlimited" on next page

1. **Verify that the trace diagnostics are enabled**

   Perform the following steps:

   a. Log on to the Oracle application server with administrator privileges, and select the desired module in the Oracle application. The Responsibilities dialog box opens.

   b. Select **System Administrator** and click **OK**.

   c. In the **Functions** tab, select **Profile > System** and click **Open**. The System Profile Values dialog box opens.

   d. In the **Display** section, select **Site** and **Profiles with No Values**, enter `%Diagnostics%` in the **Profiles** field, and then click **Find**.

   e. If any diagnostics profiles are disabled (denoted by a "Yes" in the **Site** column), change the setting to "No".

   f. Save your settings.

2. **Set the trace file size to unlimited**

   For Oracle 9i:

   On the Oracle server, run the following command in the SQL editor:

   ```
   Alter system set max_dump_file_size=UNLIMITED scope=both;
   ```

   For Oracle 8i:

   a. On the Oracle server, run the following command in the SQL editor:

   ```
   Alter system set max_dump_file_size=2048000;
   ```

   b. Edit the **init*.ora** file on **$ORACLE_HOME\admin\<sid>\pfile\init<sid>.ora**. Find the line of the parameter, change its value, and then save the file.

   > **Note:** Verify that you have enough disk space on the database server since these trace files can be very large.

How to Set and Disable the Oracle Server Diagnostics Password

To help ALM deal with the Oracle server diagnostics password, you can either set the password in the Vuser script, or you can disable the password request on the server itself.

> **Note:** This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

- "Set the diagnostics password in the Vuser script" below
- "Disable the diagnostics password request on the Oracle server" on next page

Set the diagnostics password in the Vuser script

In VuGen, add the **nca_set_diagnostics_password(<password>)** function to your script and

select a password.

> **Note:** The **nca_set_diagnostics_password** function must come after the **nca_connect_server** function.

Disable the diagnostics password request on the Oracle server

Perform the following steps:

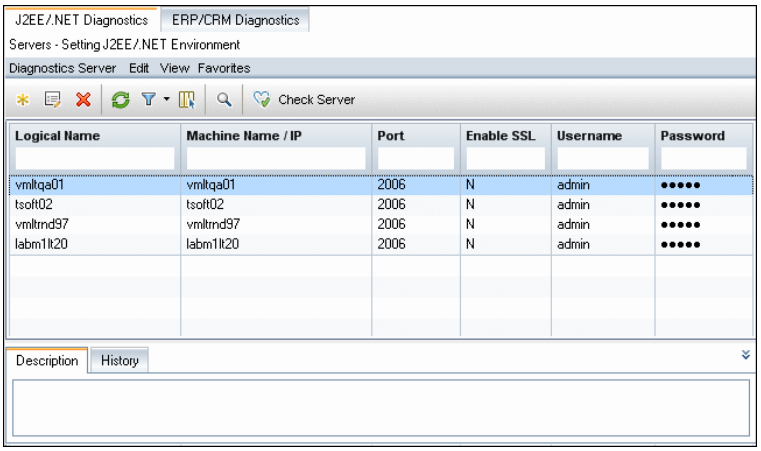
1. Log on to the Oracle server with administrator privileges, and select the desired module in the Oracle application. The Responsibilities dialog box opens.
2. Select **System Administrator** and click **OK**.
3. In the **Functions** tab, select **Profile > System** and click **Open**. The System Profile Values dialog box opens.
4. In the **Display** section, select **User**, and enter the required user name. In the **Profile** field, enter `%Utilities:Diagnostics%` and click **Find**. The Utilities:Diagnostics profile values are displayed.
5. In the **User** column of the Utilities:Diagnostics profile, set the value to **Yes**.
6. Save your settings.

Diagnostics User Interface

This section includes:

Diagnostics Module Window

The Diagnostics Module Window enables you to add and manage ERP/CRM mediators and J2EE/.NET servers.



To access	On the Lab Management sidebar, under **Performance Center**, select **Diagnostics**.
Relevant tasks	• "How to Add ERP/CRM Mediators" on page 156 • "How to Add HP Diagnostics Servers" on page 157

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<ALM common areas>	For details on the ALM common areas, see the *HP Application Lifecycle Management User Guide*.
<Diagnostics module fields>	For details on the fields that are available in the Diagnostics module, see "Diagnostics Module Fields" on next page.
<Diagnostics module menus and buttons>	For details on the icons that are available in the Diagnostics module, see "Diagnostics Module Menus and Buttons" on page 168.
ERP/CRM Diagnostics tab	Enables you to add and manage ERP/CRM Diagnostics mediators.
J2EE/.NET Diagnostics tab	Enables you to add and manage J2EE/.NET Diagnostics servers.
History tab	Displays a history of the changes made to the selected server/mediator, including the date and time of the change and the name of the user who made the change. For details, see the *HP Application Lifecycle Management User Guide*.

Diagnostics Module Fields

This section describes the Diagnostics module fields.

Field	Description
Description	A description of the mediator/server.
Enable SSL	Select **Enable** if ALM is communicating with Diagnostics through SSL.
Logical Name	The logical name given to the mediator/server.
Machine Name / IP	The name or IP address of the mediator/server.
Over Firewall	Denotes if monitoring over a firewall is enabled or not. Select **Y** for enabled and **N** for not enabled. **Note:** Available for ERP/CRM diagnostice only.
Password	Enter the password you use to log on to HP Diagnostics. **Default:** Admin **Note:** Available for J2EE/.NET diagnostics only.
Port	Enter the port number used by the diagnostics server. **Default:** 2006 **Note:** Available for J2EE/.NET diagnostics only.
Type	The ERP/CRM mediator type. **Note:** Available for ERP/CRM diagnostics only.
Username	Enter the user name with which you log on to HP Diagnostics. **Note:** The user name that you specify should have **view**, **change**, and **execute** privileges. For more information about user privileges, see the *HP Diagnostics Installation and Configuration Guide*.

Diagnostics Module Menus and Buttons

This section describes the menus and buttons in the Diagnostics module.

UI Elements (A - Z)	Menu	Description
	Edit and <right-click menu>	Deletes the selected server/mediator from the grid.
Check Server/Mediator 	Diagnostics Server/Mediator and <right-click menu>	Click to check if the server/mediator is up and running.
Copy URL 	Diagnostics Server/Mediator	Copies a selected server/mediator and pastes its URL as a link. The server/mediator itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the server/mediator. If you are not already logged in, ALM first prompts for login details.
Diagnostics Server/Mediator Details 	Diagnostics Server/Mediator and <right-click menu>	Click to view server/mediator details.
Export	Diagnostics Server/Mediator and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the servers/mediators in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **All.** Exports all servers/mediators in the grid. • **Selected.** Exports selected servers/mediators in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for field details in the module. For details, see the *HP Application Lifecycle Management User Guide*.
Go to Diagnostics Server/Mediator 	Diagnostics Server/Mediator	Opens a dialog box which prompts you for the server/mediator ID. Click **OK** to open the server/mediator details window.
Grid Filters	View and <right-click menu>	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Menu	Description
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
New Diagnostics Server/Mediator 	Diagnostics Server/Mediator	Click to add a new ERP/CRM mediator or J2EE/.NET server. For information on the relevant fields, see "Diagnostics Module Fields" on page 167.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the Diagnostics fields, see "Diagnostics Module Fields" on page 167.
Set Filter/Sort 	View	Enables you to filter and sort the resources in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

Chapter 11: Patch Management

This chapter includes:

Patches Overview

The Patches module enables you to upload a Performance Center patch to Lab Management and to then install the patch on the appropriate host or server.

How to Upload Patches to ALM

This task describes how to upload patches to ALM.

Note: This task is part of a higher-level task. For details, see "How to Work with Lab Management Administration" on page 22.

To upload a patch:

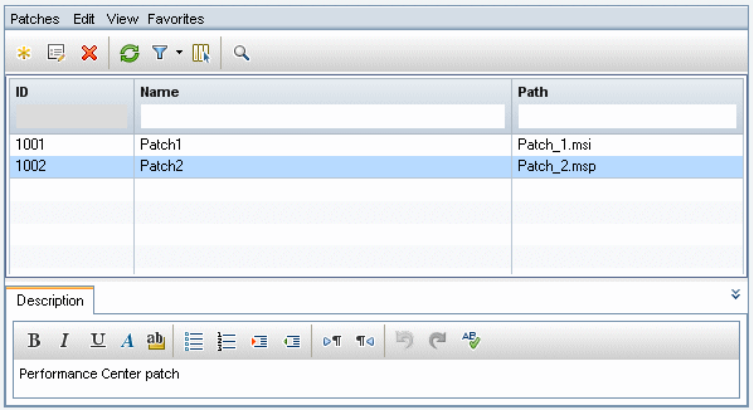
1. On the Lab Management sidebar, under **Performance Center**, select **Patches**.
2. Click the **New Patch** button  . The Select Patch dialog box opens, enabling you to select a patch (.msp/.msi) to upload.
3. Click **Open**. The New Patch dialog box opens.
4. Enter the details for the new patch and click **OK**. The patch is added to the system and appears in the Patches grid.

Patch Management User Interface

This section includes:

Patches Module Window

This module enables you to view and upload patches.



To access	On the Lab Management sidebar, under **Performance Center**, select **Patches**.
Relevant tasks	"How to Upload Patches to ALM" on previous page
See also	• "How to Manage Lab Resources" on page 59 • "How to Manage Performance Center Servers" on page 203

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Description
<Information panel>	Located in the lower area of the module. Displays a description about the patch selected in the grid.
<Patches grid>	Displays a list of the patches that have been uploaded to ALM Performance Center.
<Patches module common UI elements>	• **Patches module fields.** For field definitions, see "Patches Module Fields" on next page. • **Patches module menus and buttons.** For command and button descriptions, see "Patches Module Menus and Buttons" on next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HP Application Lifecycle Management User Guide*.

Patches Module Fields

This section describes the Patches module fields:

Field	Description
Description	Displays a description of the selected patch.
ID	The patch ID.
Name	The patch name.
Path	The patch path.

Patches Module Menus and Buttons

This section describes the menus and buttons available in the Patches module.

To access	On the Lab Management sidebar, under **Performance Center**, select **Patches**.

User interface elements are described below:

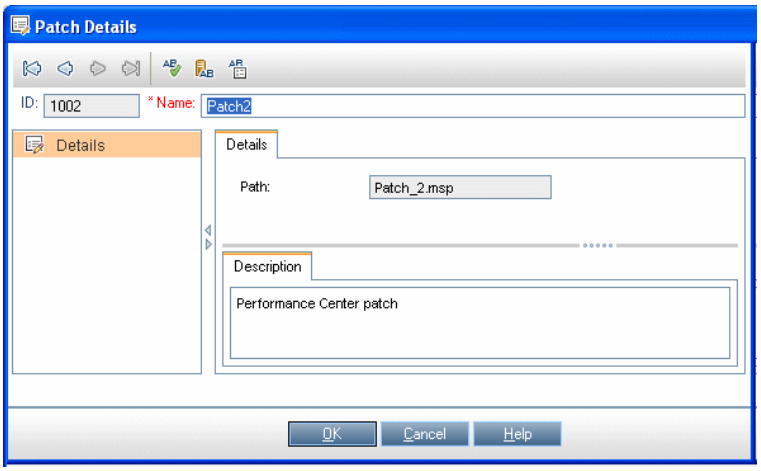
UI Elements (A - Z)	Where	Description
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
Copy URL 	Patches and <right-click menu>	Copies a selected patch and pastes its URL as a link. The patch itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the patch file or folder. If you are not already logged in, ALM first prompts for login details.
Export	Patches and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the patches in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **All.** Exports all project settings in the grid. • **Selected.** Exports selected project settings in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for patches in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Go to Patch 	Patches	Opens the Go To Patch dialog box, enabling you to find a specific patch by its ID number. You can only go to patches that are in the current filter.
Grid Filters	View and <right-click menu>	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
New Patch 	Patches	Opens the Select Patch dialog box, which enables you to select a patch to upload.
Organize Favorites	Favorites	Opens the Organize Favorites dialog box, enabling you to organize the list of favorite views by changing properties or deleting views. For details, see the *HP Application Lifecycle Management User Guide*.
Patch Details 	Patches and <right-click menu>	Opens the Patch Details dialog box, enabling you to view and edit details of the selected patch.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the Project Details grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the patches fields, see "Patches Module Fields" on page 173.
Set Filter/Sort 	View	Enables you to filter and sort the patches in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

Patch Details Dialog Box

This dialog box enables you to view details of a patch in Lab Management.



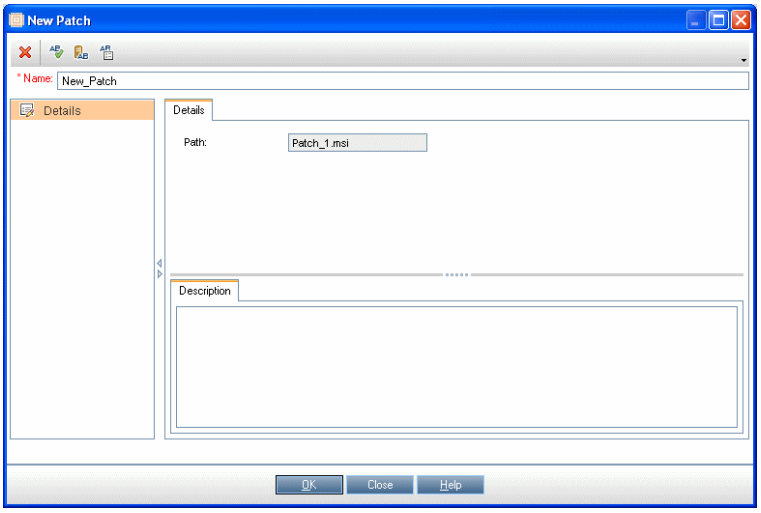
To access	On the Lab Management sidebar, under **Performance Center**, select **Patches**.
Relevant tasks	"How to Upload Patches to ALM" on page 171
See also	• "How to Manage Lab Resources" on page 59 • "How to Manage Performance Center Servers" on page 203

User interface elements are described below:

UI Elements (A - Z)	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of projects.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Details	For field definitions, see "Patches Module Fields" on page 173.

New Patch Dialog Box

This dialog box enables you to add new Performance Center patches.



To access	1. On the Lab Management sidebar, under **Performance Center**, select **Patches**. 2. Click the **New Patch** button  . The Select Patch dialog box opens. 3. Navigate to the location of the patch, and click **Open**.
Relevant tasks	"How to Upload Patches to ALM" on page 171

User interface elements are described below:

UI Elements (A - Z)	Description
	**Clear All Fields.** Clears all data in the dialog box.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Details	Lists Patches fields. Required fields are displayed in red. For details on the available fields, see "Patches Module Fields" on page 173. **Tip:** Clicking in the **Description** field on this page displays a toolbar for formatting and spell checking the text.
Name	Type a name for the new patch. **Syntax exceptions:** A server name cannot include the following characters: **\ / : " ? < > | * % '**

Chapter 12: AUT Host Management

This chapter includes:

AUT Resources Overview

Application Under Test (AUT) components, such as Web/application servers or database servers, are hosted on machines known as AUT hosts. The AUT hosts are grouped together into **AUT Pools**.

The AUT hosts are a core element of the Topology and SiteScope integration features.

How to Import AUT Host Data from Excel

This task describes how to import a list of AUT hosts from an Excel file (.xls or .csv) into ALM.

This task includes the following steps:

- "Prerequisites" below
- "Import the AUT hosts (only for Performance Center users)" on page 182
- "Results" on page 182

1. **Prerequisites**

   The Excel file must be set up so that the columns can be recognized and mapped by the Import feature.

   - The first row of the Excel file must contain the field names, or corresponding logical names, that appear in the table below. (Logical names are not case sensitive.)

     Some fields are mandatory, others are required or optional.

     - **Mandatory** indicates a field that **must** appear in the Excel file. If you omit this field, the import fails. If you omit a value in one of the rows of this field's column, the import of that specific row fails.
     - **Required** indicates a field that **should** appear in the Excel file. If you omit this field, the code adds the field with the default value for all rows. If you include the field, but omit a value in one of the rows of this column, the code adds the default value for that row.
     - **Optional** indicates a field does not have to appear in the Excel file. Omitting this field has no effect on the import procedure.
   - Fields representing virtual, reference, and invalid fields are ignored.
   - Empty columns are allowed.

Set up the columns and values in the file as follows:

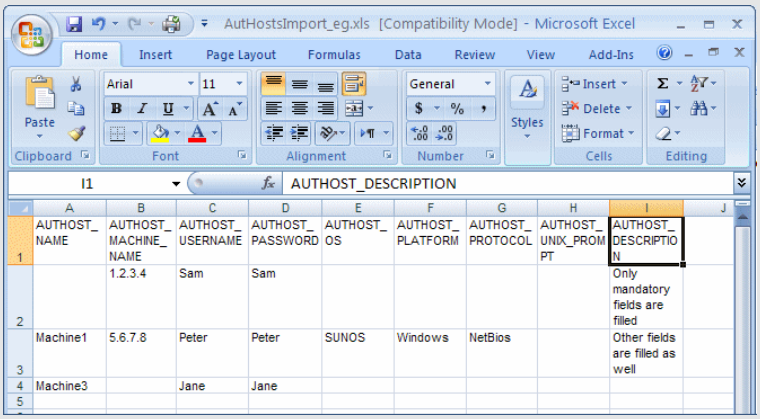
Field name	Logical name	Value	Field for
AUTHOST_NAME Required	Logical Name	Any string	AUT host logical name **Note:** If this value is empty, this will be given the same value as AUTHOST_MACHINE_NAME
AUTHOST_MACHINE_NAME Mandatory	Machine Name / IP	The machine name/IP	AUT host physical machine name
AUTHOST_USERNAME Mandatory	Username	The user name of the machine	User name for logging on to the AUT host machine
AUTHOST_PASSWORD Mandatory	Password	The password of the user name	Password for logging on to the AUT host machine

Field name	Logical name	Value	Field for
AUTHOST_OS Required for UNIX platforms only	OS Type	▪ SUNOS (default) ▪ Sun Solaris ▪ MacOSX ▪ Linux ▪ Red Hat Enterprise Linux ▪ AIX ▪ FreeBSD ▪ HP-UX ▪ HP/UX ▪ HP/UX 64-bit ▪ NonStopOS ▪ OPENSERVER ▪ SCO ▪ SGI Irix ▪ Tru64 5.x ▪ Tru64 pre 4.x (Digital)	AUT host machine operating system (For UNIX platform only)
AUTHOST_ PLATFORM Required	Platform	▪ Windows (default) ▪ UNIX	AUT host platform
AUTHOST_ PROTOCOL Required	Protocol	Windows: ▪ NetBIOS (default) ▪ SSH ▪ WMI UNIX: ▪ rlogin ▪ Telnet (default) ▪ SSH	AUT host protocol

Field name	Logical name	Value	Field for
AUTHOST_ UNIX_ PROMPT Required for UNIX platforms only	UNIX Prompt	# (default)	UNIX prompt on the AUT host machine
AUTHOST_ DESCRIPTION Optional	Description	Any string	AUT host description

Example:

The following image illustrates an Excel file set up with the following AUT hosts: **1.2.3.4**, **5.6.7.8**, and a third machine whose name was not provided.



2. ## Import the AUT hosts (only for Performance Center users)

   a. Open the AUT Hosts module:

   - **In ALM:** On the ALM sidebar, under **Performance Center AUT**, select **AUT Hosts**.
   - **In Lab Management:** On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**.

   b. Select **AUT Hosts** > **Import**.

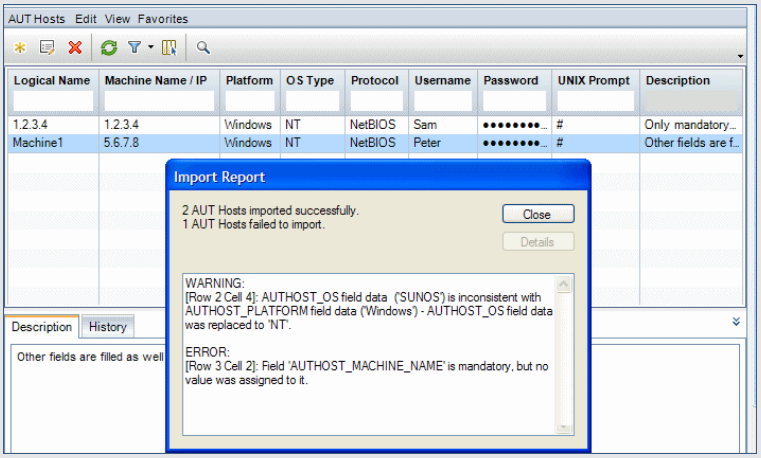
   c. Browse to the Excel file containing the AUT hosts, and click **Open**.

3. ## Results

   The progress of the import process is displayed. At the end of the process, a report displays the import results. The imported AUT hosts are listed in the AUT Hosts module. AUT hosts that are not imported successfully, must be added manually.

Example:

The results from importing the Excel file in step **1** above are illustrated in the following image:



Note:

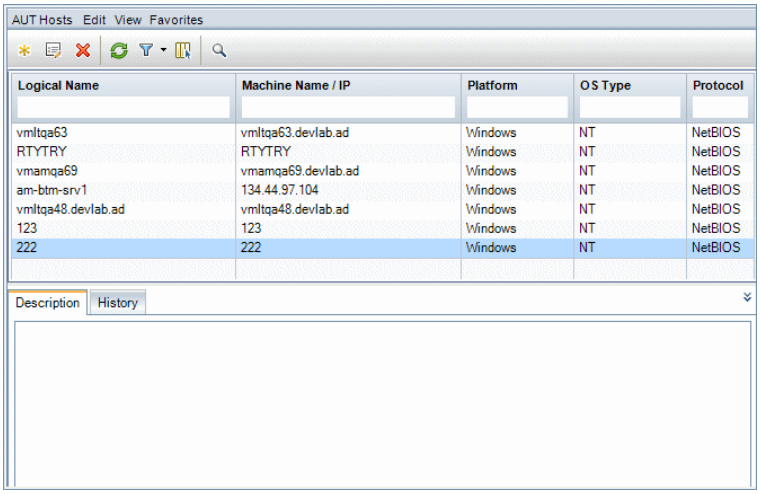
- No logical name was provided in the Excel file for machine 1.2.3.4. Therefore, the logical name given is equivalent to the machine name/IP.
- Machine 1's operating system was specified as SUNOS, whereas the platform was specified as Windows. These values are inconsistent as SUNOS is relevant only for a UNIX platform. The value SUNOS was replaced with NT.
- No machine name was specified for the third machine listed in the Excel file. This machine was not imported. It should be added manually.
- Required but non-mandatory values were automatically provided by the system during the import process.
- Columns representing virtual, reference, non-valid fields were ignored.

AUT Resource Modules User Interface

This section includes:

AUT Hosts Module

This module enables you to view and manage AUT hosts.



To access	Use one of the following: • On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**. • On the ALM sidebar, under **Performance Center AUT**, select **AUT Hosts**.
Important information	The AUT Host module is available both in Lab Management and in ALM.
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Common Menus and Toolbars>	For details on AUT Resource modules menus and toolbars, see "AUT Resource Module Menus and Buttons" on page 194.
<AUT Hosts grid>	Displays a list of AUT hosts defined in ALM.
Description tab	Displays the main details and a description about the AUT host. **Tip:** Right-click the **Description** area for edit and format options.

UI Elements	Description
History tab	Lists changes made to the selected AUT host. For more details, see the *HP Application Lifecycle Management User Guide*.

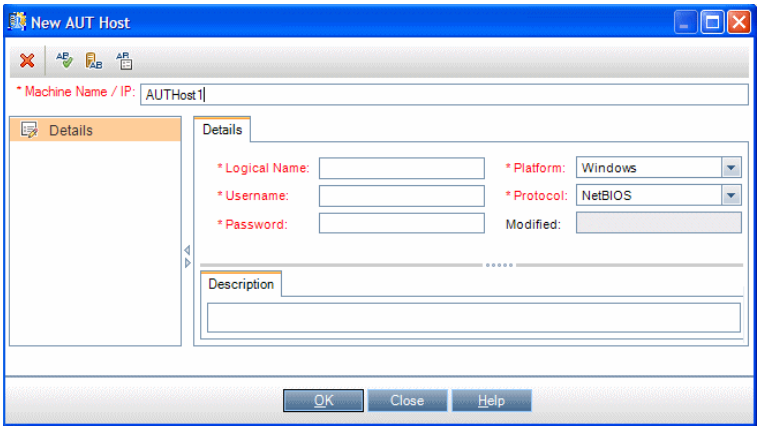
AUT Host Fields

The following table describes the AUT host fields:

Field (A - Z)	Description
Belongs to Pools	The host pools to which the AUT host belongs. **Available from:** Lab Management only
Description	A description of the AUT host.
Logical Name	The logical name given to the AUT host.
Machine Name/IP	The name or IP address of the AUT host machine.
Modified	The date on which the AUT host details were last modified.
OS Type	The operating system of the AUT host machine.
Password	The password for logging in to the AUT host machine.
Platform	The base operating system of the AUT host machine: Window or UNIX.
Protocol	The network protocol used for communication with the AUT host (for monitoring purposes). **Default value:** Windows: NetBIOS; UNIX: SSH
UNIX Prompt	The prompt used by the operating system. Also used for communication with the AUT host (for monitoring purposes). **Available for:** UNIX AUT hosts only.
Username	The user name for logging in to the AUT host machine.

New AUT Host Dialog Box

This dialog box enables you to create a new AUT host.



To access	Use one of the following: • On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**. Click **New AUT Host**  . • On the ALM sidebar, under **Performance Center AUT**, select **AUT Hosts**. Click **New AUT Host**  .
Important information	When creating an AUT host in ALM, the AUT host is automatically added to the project's AUT Pool. **Tip:** You can import a list of AUT hosts from an Excel file. For details, see "How to Import AUT Host Data from Excel" on page 179.
See also	"AUT Resources Overview" on page 179

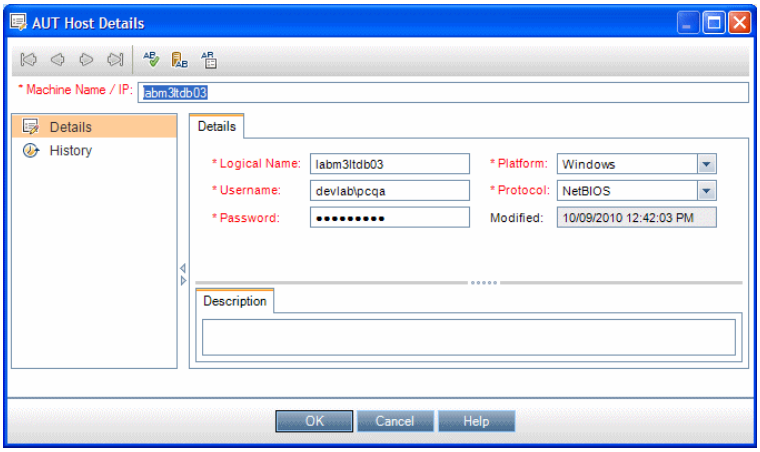
User interface elements are described below:

UI Elements	Description
	**Clear All Fields.** Clears the data.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Machine Name/IP	The name or IP of the AUT host machine.

UI Elements	Description
Details	Enables you to enter the details of the new AUT host. For more details, see "AUT Host Fields" on page 185.

AUT Host Details Dialog Box

This dialog box enables you to view and modify AUT host details.



To access	Use one of the following: • On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**. Right-click an AUT host in the grid and select **AUT Host Details**. • On the ALM sidebar, under **Performance Center AUT**, select **AUT Hosts**. Right-click an AUT host in the grid and select **AUT Host Details**.
See also	"AUT Resources Overview" on page 179

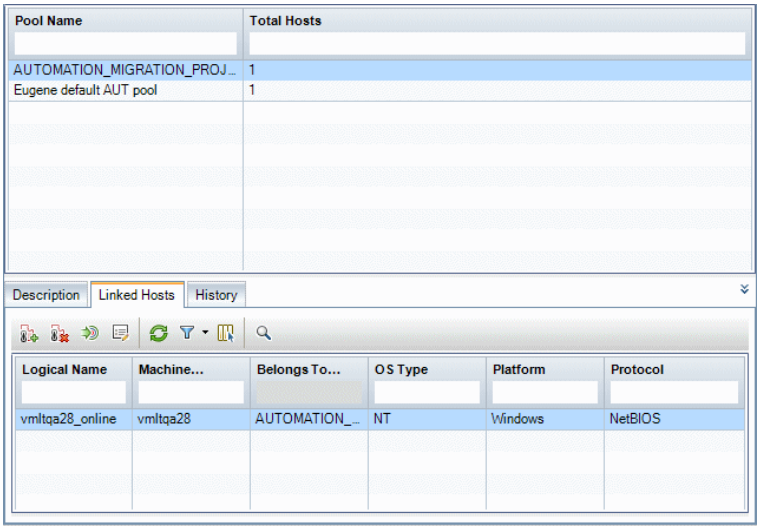
User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of AUT hosts.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Machine Name/IP	The name or IP of the AUT host machine.

UI Elements	Description
Details	Displays the details of the selected AUT host. For more details, see "AUT Host Fields" on page 185.
History	Lists changes made to the selected AUT host. For more details, see the *HP Application Lifecycle Management User Guide*.

AUT Pools Module

This module enables you to view and manage AUT Pools.



To access	On the Lab Management sidebar, under **Performance Center**, select **AUT Pools**.
Relevant tasks	The AUT Pools module is available only in Lab Management.
See also	"AUT Resources Overview" on page 179

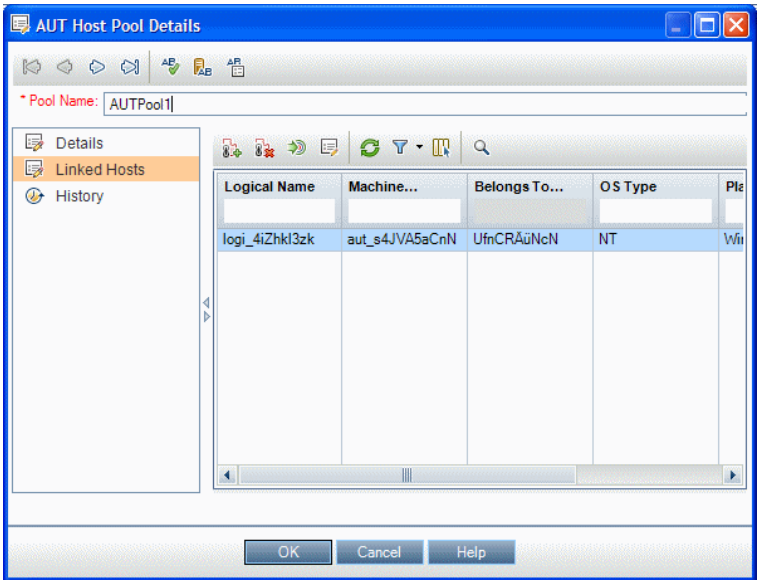
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<Common Menus and Toolbars>	For details on AUT Pools module menus and toolbars, see "AUT Resource Module Menus and Buttons" on page 194.
<AUT Pools grid>	Displays the AUT Pools defined in the system.
Description tab	Displays the main details and a description about the AUT Pool. **Tip:** Right-click the **Description** area for edit and format options.

UI Elements	Description
Linked Hosts tab	Enables you to add AUT hosts to the selected pool and remove hosts from the pool. For details, see "Linked Hosts Page" below.
History tab	Lists changes made to the selected AUT Pool. For more details, see the *HP Application Lifecycle Management User Guide*.

Linked Hosts Page

This page enables you to add AUT hosts to an AUT Pool, and remove AUT hosts from an AUT Pool.



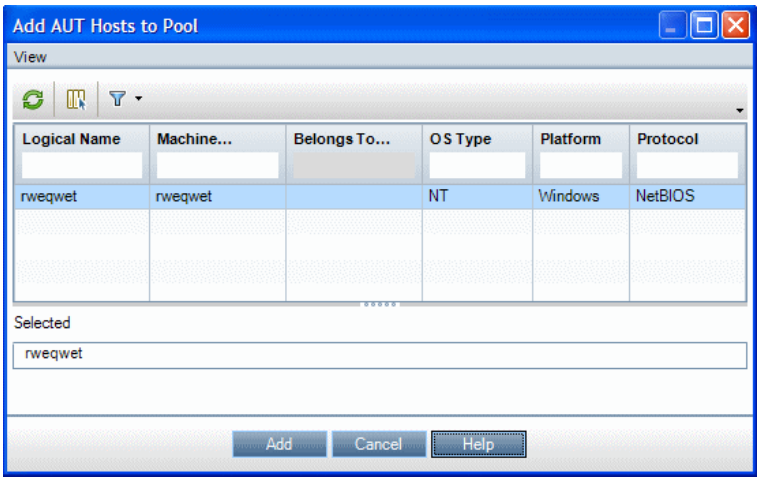
To access	• **From the AUT Pools module:** On the Lab Management sidebar, under **Performance Center**, select **AUT Pools**. In the information panel, select **Linked Hosts**. • **From the AUT Pool Details dialog box:** On the Lab Management sidebar, under **Performance Center**, select **AUT Pools**. Right-click an AUT Pool and select **AUT Pool Details**. In the AUT Pool Details dialog box, select **Linked Hosts**. **Note:** Available in Lab Management only.
Important information	The Linked Hosts page enables you to link multiple AUT hosts to an AUT Pool. Alternatively, you can link a single AUT host to multiple AUT Pools from the **Belongs To Pools** field in the AUT host's details. For details, see "AUT Host Fields" on page 185.
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Add Hosts to Pool.** Opens the Add AUT Hosts to Pool dialog box, enabling you to select AUT hosts to add to the AUT Pool.
	**Remove Host.** Removes the selected AUT hosts from the AUT Pool.
	**Go to Host.** Displays the selected linked AUT host in the AUT Hosts module.
	**AUT Host Details.** Opens the AUT Host Details dialog box, enabling you to view details about the selected linked AUT host. For details, see "AUT Host Fields" on page 185.
	**Refresh All.** Refreshes the grid so it displays the most up-to-date information.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for an AUT host. For details, see the *HP Application Lifecycle Management User Guide*.
<Linked Hosts grid>	Lists the AUT hosts that belong to the AUT Pool. For details about the host fields, see "AUT Host Fields" on page 185.

Add AUT Hosts to Pool Dialog Box

This page enables you to select AUT hosts to add to an AUT Pool.



To access	• **From the AUT Pools module:** On the Lab Management sidebar, under **Performance Center** select **AUT Pools**. In the information panel, select **Linked Hosts** and click the **Add Hosts to Pool**  button. • **From the AUT Pool Details dialog box:** On the Lab Management sidebar, under **Performance Center**, select **AUT Pools**. Right-click an AUT Pool and select **AUT Pool Details.** In the AUT Pool Details dialog box, select **Linked Hosts** and click the **Add Hosts to Pool**  button. **Note:** Available in Lab Management only.
Important information	Alternatively, you can link a single AUT host to multiple AUT Pools from the **Belongs To Pools** field in the AUT host's details. For details, see "AUT Host Fields" on page 185.
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Refresh All.** Refreshes the grid so it displays the most up-to-date information.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	Adds the selected AUT hosts to the AUT Pool.
<AUT Hosts grid>	Lists the AUT hosts available to add to the AUT Pool.
Selected	Displays the AUT hosts selected to add to the pool.

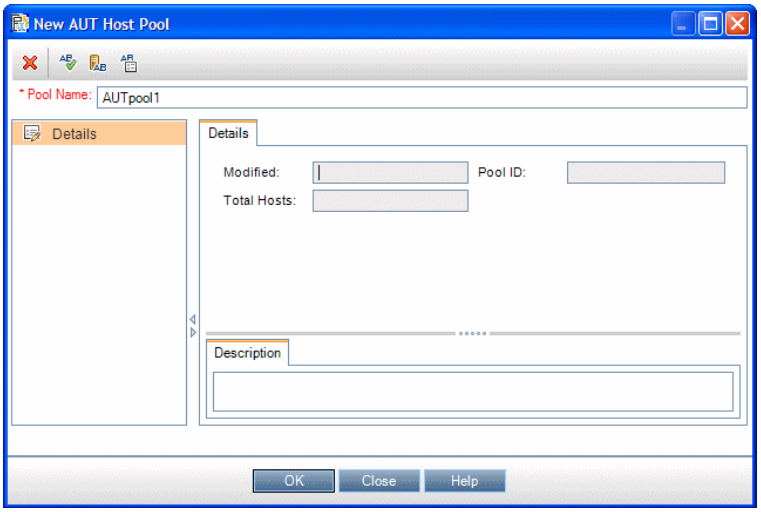
AUT Pools Fields

The following fields are available for AUT Pools:

Field	Description
Description	A description of the AUT Pool.
Modified	The date on which the AUT Pool details were last modified.
Pool ID	The ID of the AUT Pool.
Pool Name	The name of the AUT Pool. **Note:** The name may contain up to 128 characters, excluding spaces, periods, and any of the following characters: **: ; * \ / " ~ & ? { } $ % | < > + = ^ [ ] ( )**
Total Hosts	The total number of AUT hosts in the host pool.

New AUT Host Pool Dialog Box

This dialog box enables you to create a new AUT Pool.



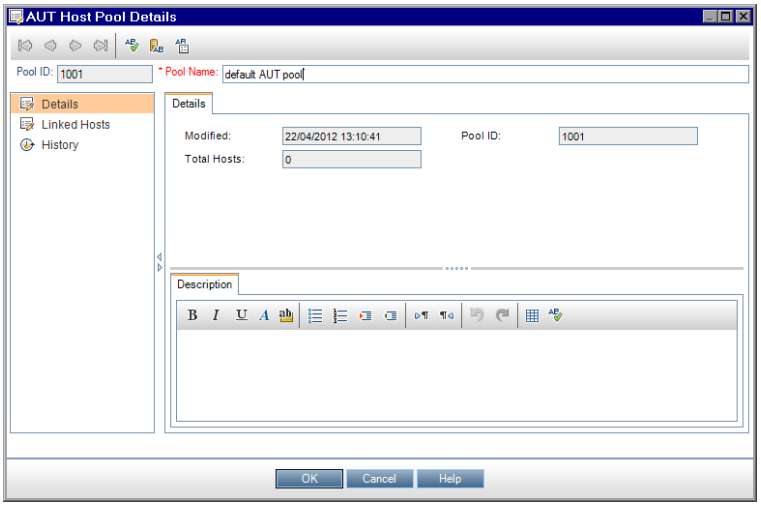
To access	On the Lab Management sidebar, under **Performance Center**, select **AUT Pools**. Click **New AUT Pool** .
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Clear All Fields.** Clears the data.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Pool Name	The name of the AUT Pool.
Details	Enables you to enter the details of the new AUT Pool. For more details, see "AUT Pools Fields" on previous page.

AUT Host Pool Details Dialog Box

This dialog box enables you to view and modify AUT Pool details.



To access	On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**. Right-click an AUT host in the grid and select **AUT Host Details**.
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of AUT Pools.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Pool Name	The name of the AUT Pool.
Details	Displays the details of the selected AUT Pool. For more details, see "AUT Pools Fields" on page 192.
Linked Hosts	Enables you to add AUT hosts to the selected pool and remove hosts from the pool. For details, see "Linked Hosts Page" on page 189.
History	Lists changes made to the selected AUT Pool. For more details, see the *HP Application Lifecycle Management User Guide*.

AUT Resource Module Menus and Buttons

These modules enable you to manage the AUT resources which host applications under test.

To access	Use one of the following: • **In Lab Management:** On the Lab Management sidebar, under **Performance Center**, select **<AUT Resource>**. • **In ALM:** on the ALM sidebar, under **Performance Center AUT**, select **AUT Hosts**. **Note:** In Lab Management, you can define both AUT hosts and AUT pools. In ALM, you can define only AUT hosts.
Important Information	• AUT hosts can be managed both in Lab Management and in ALM. • Only a user with administrator privileges can manage AUT Pools (in Lab Management).
See also	"AUT Resources Overview" on page 179

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements (A - Z)	Where	Description
<AUT resource> Details 	<AUT resource> and right-click menu	Opens the <AUT resource> Details dialog box, enabling you to view details of the selected AUT resource.
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
Copy URL 	<AUT resource> and <right-click menu>	Copies a selected AUT resource URL and pastes it as a link. You can paste the URL into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the resource file or folder. If you are not already logged in, ALM first prompts for login details.
Delete 	Edit and <right-click menu>	Deletes the AUT resource selected in the grid.
Export	<AUT Resource> and <right-click menu>	Opens the Export All Grid Data dialog box, enabling you to export the AUT resources in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **All.** Exports all resources in the grid. • **Selected.** Exports selected resources in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for a resource in the module. For details about search options, see the *HP Application Lifecycle Management User Guide*.
Go to <AUT Resource> 	<AUT Resource>	Opens the Go To <AUT Resource> dialog box, enabling you to find a specific resource by its ID number. You can only go to resources that are in the current filter.
Grid Filters	View and <right-click menu>	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Import	AUT Hosts	Enables you to import a list of AUT hosts from an Excel file (.xls or .csv) into ALM. For details, see "How to Import AUT Host Data from Excel" on page 179.
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.
New <AUT Resource> 	<AUT Resource>	Enables you to add an AUT resource. **Note:** For AUT Pools, this is available in Lab Management only.
Organize Favorites	Favorites	Opens the Organize Favorites dialog box, enabling you to organize the list of favorite views by changing properties or deleting views. For details, see the *HP Application Lifecycle Management User Guide*.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	Opens the Replace dialog box in the <AUT Resource> grid, enabling you to replace a resource field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*. For details about the resource fields, see: • "AUT Host Fields" on page 185 • "AUT Pools Fields" on page 192
Set Filter/Sort 	View	Enables you to filter and sort the resources in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.

UI Elements (A - Z)	Where	Description
Update Selected	Edit and <right-click menu>	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the <AUT resource> grid. For more details, see the *HP Application Lifecycle Management User Guide*.

Chapter 13: Project Management

This chapter includes:

Working With Lab Management Enabled Projects Overview

After you create a Lab Management enabled project, you manage the project in Site Administration. For information about managing projects in ALM, see the *HP Application Lifecycle Management Administrator Guide*.

In addition to the management tasks in Site Administration, however, there are specific use cases where you must be aware of additional procedures. These use cases are:

Migrating a project from a staging to a production environment

For more information, see "How to Migrate a Lab Management System from a Staging to a Production Environment " on next page.

Creating a copy of a project

For information about how to create a copy of a project, see the *HP Application Lifecycle Management Administrator Guide*.

When creating a copy of a Lab Management enabled project, you must be aware of the following:

- The new project must also have the Lab Management extension enabled.
- Details about test runs are not included in the **Usage Reports**.
- Timeslot and project settings are not copied.
- Result files associated with the original project are not copied.

Archiving a Lab Management project

Archiving a Lab Management enabled project means exporting or removing the project from the server on which it is located, and in the future, importing the project back onto that same server.

For information about exporting, importing, and restoring access to projects, see the *HP Application Lifecycle Management Administrator Guide*.

When archiving a Lab Management enabled project, you must be aware of the following:

- You cannot import a project onto the original server, if a project with the same PUID exists on that server.
- When restoring access to the project:
  - Details about test runs are not included in the **Usage Reports**.
  - Timeslot and project settings information is lost.

How to Migrate a Lab Management System from a Staging to a Production Environment

The following task describes how to successfully move an Lab Management system from a staging to a production environment.

Note: As a result of migrating the system, all information contained in Lab Management originally created in the production environment is lost.

The task includes the following steps:

1. **Open Site Administration**

   For details, see the *HP Application Lifecycle Management Administrator Guide*.

2. **Move Lab Management from the staging to the production environment**

   a. In the staging environment, in Site Administration, select the **Lab Management** tab.

   b. Remove the Lab Management project from the staging and restore it in the production environment. For details about removing and restoring Lab Management, see "Lab Management Tab" on page 24.

3. **Activate Lab Management in the production environment**

   For details about activating Lab Management, see "Lab Management Tab" on page 24.

4. **Update the ALM license**

   In the production environment, in Lab Management, update the ALM license. For details, refer to the *HP Application Lifecycle Management Administrator Guide*.

5. **Update Servers and Hosts**

   Note: Perform this step if the servers and hosts in the production environment are different than those in the staging environment.

   In Lab Management, remove the existing servers and hosts and replace them with new servers and hosts.

- For details about how to add Performance Center Server, see "How to Manage Performance Center Servers" on page 203.
- For details about how to add hosts, see "How to Manage Lab Resources" on page 59.

6. **Move projects from the staging environment to the production environment**

   Remove each project from the staging environment and restore them in the production environment. For details about removing and restoring projects, see *HP Application Lifecycle Management Administrator Guide*.

7. **Activate the projects in the production environment**

   For details about activating projects, see *HP Application Lifecycle Management Administrator Guide*.

8. **In the production environment, configure the project settings in Lab Management**

   Perform this step for each project you moved to the production environment. For details about configuring project settings, see "Project Settings" on page 29.

Chapter 14: PC Servers

This chapter includes:

PC Servers Overview

The PC Servers module enables you to manage the information and resources needed for Performance Center functionality. You can create new PC servers, monitor Performance Center server status, edit server information, and check server performance.

For details on managing Performance Center servers, see "How to Manage Performance Center Servers" below.

How to Manage Performance Center Servers

This task describes the various options for managing the Performance Center Servers.

Note: This task is part of the following higher-level task: "How to Work with Lab Management Administration" on page 22.

To learn more about Performance Center Servers, see "PC Servers Overview" above.

This task includes the following steps:

- "Add a server" below
- "Check server connections to Performance Center servers" below
- "Reboot a server" on next page
- "Install a patch on a server" on next page

Add a server

1. In Lab Management, select **Servers > PC Servers**.
2. Click the **New PC Server** button  .
3. In the New PC Server dialog box, enter the required information. For user interface details, see "New PC Server Dialog Box" on page 212.

Check server connections to Performance Center servers

On the Lab Management sidebar, under **Servers**, select **PC Servers**. Right-click a server in the grid, and select **Check Server > Check Server**.

The Task Manager opens, and the overall result of each check performed on the server, **Passed** or **Failed**, is displayed.

You can view the progress of the server check in the PC Servers module's **Check Server Status** tab.

The following checks are performed:

- **Ping to Server.** The Performance Center server pings the selected machines.
- **Ping URL.** The selected server pings the listed URL.

Alternatively, you can perform the above checks, together with an additional connectivity check from the server to a particular URL. Right-click a server in the grid, select **Check Server > Check Connectivity to URL**, and enter the URL.

Examples:

- Regular URL: `http://www.website.com`
- Machine name: `machine22` or `http://machine22`

Reboot a server

On the Lab Management sidebar, under **Servers** select **PC Servers**. Right-click the server in the grid that you want to reboot, and select **Reboot Server**.

Install a patch on a server

Note: To install patches on a server, patches first need to have been uploaded to the ALM. For details, see "How to Upload Patches to ALM" on page 171.

On the Lab Management sidebar, under **Servers**, select **PC Servers**. Right-click the server in the grid on which to install the patch and select **Install Patch**.

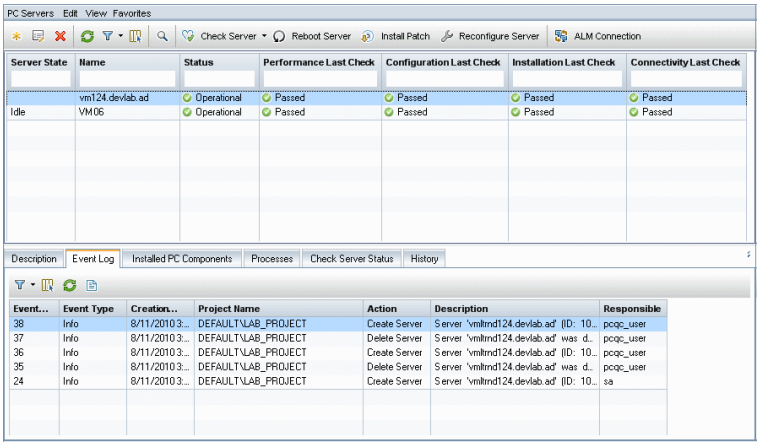
Tip: You can install a patch on multiple servers simultaneously. To select multiple servers, hold down the CTRL key on your keyboard while selecting the servers.

Performance Center Servers Module User Interface

This section includes:

PC Servers Module Window

The PC Servers Module window enables you to manage Performance Center servers.



To access	On the Lab Management sidebar, under **Servers**, select **PC Servers**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<PC Servers Module common UI elements>	• **PC Servers Fields.** For field definitions, see "PC Servers Module Fields" on page 209. • **PC Servers Menus and Buttons.** For command and button descriptions, see "PC Servers Module Menus and Buttons" on next page. • **ALM main menu and sidebar.** For details on the Tools menu, Help menu and sidebar, see the *HP Application Lifecycle Management User Guide*.
<grid filters>	Located under each column name. Displays the filter that is currently applied to a column. If the filter box is empty, no filter is currently applied to the column. Type directly into the box, or click the box to display the Browse button, which opens the Select Filter Condition dialog box. For more details, see the *HP Application Lifecycle Management User Guide*.
<servers grid>	Displays a list of the Performance Center servers.
<Information panel>	Located in the lower area of the module. Displays information about the server selected in the grid.

UI Elements	Description
Description tab	Describes the currently selected server. Click in the text box to display a toolbar for formatting and spell checking the text.
Event Log tab	Displays detailed information about the tasks performed on the selected server, the action status, and a description of any errors. For details, refer to the *HP ALM Performance Center Guide*.
Installed PC Components tab	Displays a list of the Performance Center components installed on the server machine, including version and patches. To refresh the grid, click  .
Processes tab	Displays detailed information about the processes and resource usage of the selected server. For details, see "Processes Page" on page 213.
Check Server Status tab	Displays the status of each step of the server checks. To see check server status details, right click a line in the tab, and select **Check Server Status Details**. For details, see "Check Server Status Page" on page 214.
History tab	Lists changes made to the currently selected host. For more details, see the *HP Application Lifecycle Management User Guide*.

PC Servers Module Menus and Buttons

This section describes the menus and buttons available in the PC Servers module.

To access	On the Lab Management sidebar, under **Servers**, select **PC Servers**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203

User interface elements are described below:

UI Elements	Menu	Description
	PC Servers and <right-click menu>	Enables you to define the internal and external ALM URL. The internal URL is used by all Performance Center components to connect to ALM. The URL must be in the following format: `http://<alm>:<port>` **Example:** http://myalm:8080 For SSL connectivity the ALM internal URL must begin with https, for example: https://myalm:443.

UI Elements	Menu	Description
	PC Servers and <right-click menu>	Resets the system information on the selected server. For example, internal/external URLs, user identity, and so on.
	PC Servers and <right-click menu>	Opens the Install Patch dialog box, enabling you to select patches to install on the selected server.
	PC Servers	Checks connectivity between the selected server and other machines in the system.
	PC Servers and <right-click menu>	Enables you to remotely reboot the selected server.
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
Copy URL 	PC Servers	Copies the selected server and pastes its URL as a link. The server itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking the link opens up ALM and takes you to the resource file or folder. If you are not already logged in, ALM first prompts for login details.
Delete 	Edit and <right-click menu>	Deletes the selected server in the grid.
Export	PC Servers and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the servers in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **Export All.** Exports all servers in the grid. • **Export Selected.** Exports selected servers in the grid.

UI Elements	Menu	Description
Find 	View	Opens the Find dialog box, enabling you to search for a server in the module. For details, see the *HP Application Lifecycle Management User Guide*.
Go to PC Server 	PC Servers	Opens the Go To PC Servers dialog box, enabling you to find a specific server by its ID number. You can only go to servers that are in the current filter.
Grid Filters	View	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Information Panel	View	Shows/Hides the Information Panel in the lower area of the module.
New PC Server 	PC Servers	Enables you to add a PC Server.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HP Application Lifecycle Management User Guide*
PC Server Details 	PC Servers and <right-click menu>	Opens the PC Servers Details dialog box, displaying details of the selected server. For more information, see "PC Server Details Dialog Box" on page 210.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the PC Servers grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the PC Servers fields, see "PC Servers Module Fields" on next page.

UI Elements	Menu	Description
Set Filter/Sort 	View	Enables you to filter and sort the servers in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
Update Selected	Edit	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

PC Servers Module Fields

This section describes the PC Servers module fields.

To access	On the Lab Management sidebar, under **Servers**, select **PC Servers**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203

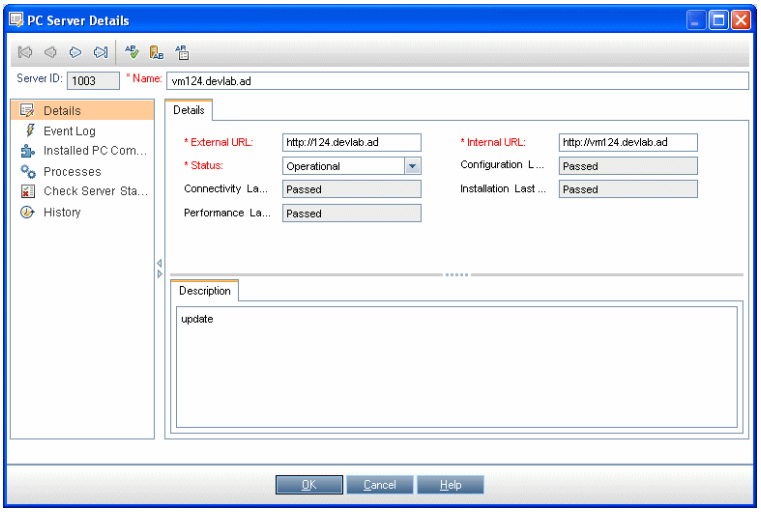
User interface elements are described below:

UI Elements (A - Z)	Description
Configuration Last Check	Displays whether the last configuration check passed or failed.
Connectivity Last Check	Displays whether the last connectivity check passed or failed.
Description	A description of the Performance Center Server.
External URL	The URL used to connect to the Performance Center Server from an external source. **Note:** For SSL connectivity add a Performance Center server using the following format for the external URL: https://<pc_server> **Example:** https://mypcs:443
Installation Last Check	Displays whether the last installation check passed or failed.
Internal URL	The URL used for all internal communication between the Performance Center Server and ALM, as well as for load balancing.
Name	The server name that you assign when you configure a new server.

UI Elements (A - Z)	Description
Performance Last Check	Displays whether the last performance check passed or failed.
Server ID	The server ID.
Server State	The current state of the server. The possible states are: • **Idle.** The server is idle. • **Installing patch.** The installation patch is being installed on the server, and the server is temporarily unavailable. • **Rebooting.** The server is rebooting and is temporarily unavailable. **Default:** Idle
Status	The current server status. The possible statuses are: • **Operational**.The server is working. • **Non-operational**. The server is not working. • **Unavailable**.The server is not available.

PC Server Details Dialog Box

The PC Servers Details dialog box enables you to view and update a single server.



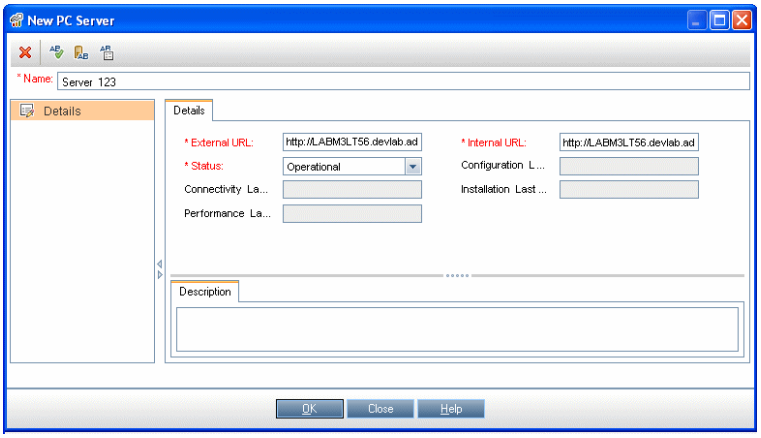
To access	1. On the Lab Management sidebar, under **Servers**, select **PC Servers**. 2. Right-click a server and select **PC Server Details**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203

User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of servers.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Server ID	The ID of the server.
Name	The name of the server.
Details	Details the currently selected server. For details on the available fields, see "PC Servers Module Fields" on page 209.
Event Log	Displays detailed information about the tasks performed on the selected server, the action status, and a description of any errors. For details, see "Event Log" on page 83.
History	Lists changes made to the currently selected server. For more details, see the *HP Application Lifecycle Management User Guide*.
Installed PC Components	Displays a list of the Performance Center components installed on the server machine, including version and patches. To refresh the grid, click  .
Processes	Displays detailed information about the processes and resource usage of the selected server. For details, see "Processes Page" on page 213.
Server Check Status	Displays the status of each step of the server checks. To see server check status details, right click a line in the tab, and select **Server Check Status Details**. For details, see "Check Server Status Page" on page 214.

New PC Server Dialog Box

This dialog box enables you to add new Performance Center servers.



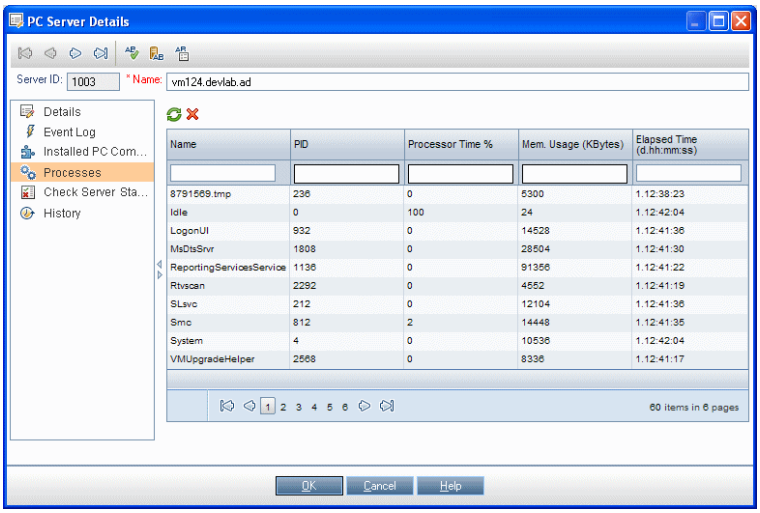
To access	1. On the Lab Management sidebar, under **Servers** , select **PC Servers**. 2. Click the **New PC Server** button .
Relevant tasks	"How to Manage Performance Center Servers" on page 203

User interface elements are described below:

UI Elements	Description
	Clear All Fields. Clears all data in the dialog box.
	Spell Check. Checks the spelling for the selected word or text box.
	Thesaurus. Displays a synonym, antonym, or related word for the selected word.
	Spelling Options. Enables you to configure how to check the spelling.
Details	Lists PC Server fields. Required fields are displayed in red. For details on the available fields, see "PC Servers Module Fields" on page 209. **Tip:** Clicking in the **Description** field on this page displays a toolbar for formatting and spell checking the text.
Name	Type a name for the new server. **Syntax exceptions:** A server name cannot include the following characters: **\ / : " ? < > | * % '**

Processes Page

This page displays detailed information about the processes and resource usage of the selected server.



To access	• **From the PC Servers module:** On the Lab Management sidebar, under **Servers**, select **PC Servers**. In the information panel, select **Processes**. • **From the PC Servers Details dialog box:** On the Lab Management sidebar, under **Servers**, select **PC Servers**. Right-click a server and select **Server Details.** In the PC Server Details dialog box, select **Processes**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203
See also	"PC Servers Overview" on page 203

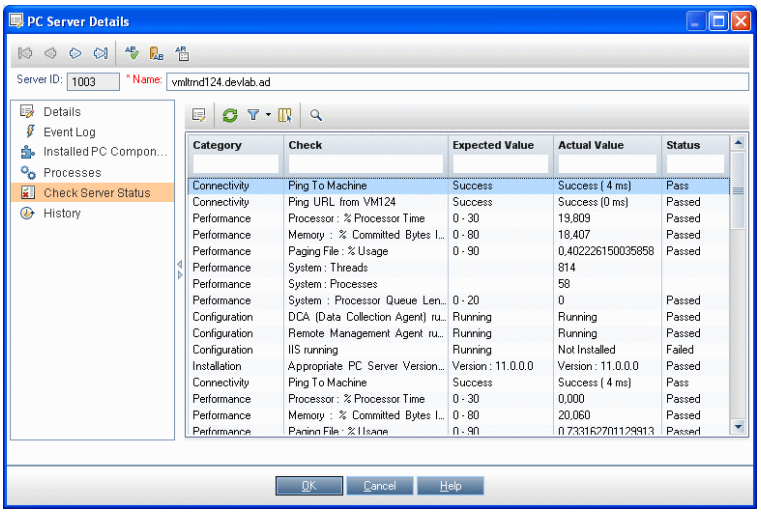
User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Refresh.** Refreshes the grid so it displays the most up-to-date information.

UI Elements	Description
	**Kill Process.** Ends the process selected in the grid. **Note:** • **Hosts module.** Kill Process permissions are required to end the selected process. • **Performance Center Servers module.** A user with Viewer permissions has the ability to end the selected process.
<Processes grid>	Displays the following details about the processes: • **Name.** The name of the process. • **PID.** The process ID. • **Processor Time (%).** The percentage of processor time used by the process. • **Memory Usage (KBytes).** The amount of memory (in kilobytes) used by the process. • **Elapsed Time (d.hh:mm:ss).** The amount of elapsed time since the start of the process, where **d** is the number of days and **hh:mm:ss** is the number of hours, minutes, and seconds that have elapsed.
<Navigation area>	Located at the bottom of the page, enables you to navigate through the pages of entries in the grid. The total number of entries is displayed on the right of the navigation area.

Check Server Status Page

This page displays the status of each step of the server checks.



To access	• **From the PC Servers module:** On the Lab Management sidebar, under **Servers** , select **PC Servers**. In the information panel, select **Check Server Status**. • **From the PC Servers Details dialog box:** On the Lab Management sidebar, under **Servers**, select **PC Servers**. Right-click a server and select **PC Server Details.** In the PC Server Details dialog box, select **Check Server Status**.
Relevant tasks	"How to Manage Performance Center Servers" on page 203
See also	"PC Servers Overview" on page 203

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
	**Check Server Status Details.** The following fields are displayed: • **Actual Value.** Actual value resulting from the server connectivity check. • **Check.** The sub-areas in which the Check Server feature checks the servers. • **Check Result ID.** The ID of each step of the server check. • **Expected Value.** Value expected to result from the server check. • **Category.** The areas in which the Check Server feature checks the server: Configuration, Connectivity, Installation, and Performance. • **Check Date.** The date the server was checked. • **Error.** If an error occurred during the check, displays the error. • **Status.** Indicates whether the server check passed or failed.
	**Refresh.** Refreshes the page.
	**Set Filter/Sort.** Enables you to filter and sort the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For details, see the *HP Application Lifecycle Management User Guide*.
	**Select Columns.** Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For details, see the *HP Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search in the grid. For details, see the *HP Application Lifecycle Management User Guide*.
<Check Server Status grid>	Displays the status of the server checks. Click  to select columns to display in the grid.

UI Elements	Description
Actual Value	Actual value resulting from the server connectivity check.
Category	The areas in which the Check Server feature checks the server: • Configuration • Connectivity • Installation • Performance
Check	The sub-areas the Check Server feature checks. For example, sub-areas in the Performance check are Processor, Memory, and System.
Check Date	The date the server was checked.
Check Result ID	The ID of each step of the server check.
Error	If an error occurred during the check, displays the error.
Expected Value	Value expected to result from the server check.
Status	Indicates whether the server check passed or failed.

Chapter 15: CDA Servers

This chapter includes:

CDA Servers Overview

The CDA Servers module is used to create and configure HP Continuous Delivery Automation (CDA) servers within Lab Management. CDA provides a data model that represents the artifacts and relationships required to define how composite applications are delivered to a dynamic set of target environments.

CDA integrates with ALM to provide dynamic provisioning and deployment of resources. When you link an AUT environment configuration to CDA, ALM can then run the linked tests without requiring the user to provide specific values for the environment parameters. Once CDA servers are defined in Lab Management, they can be used in ALM to link AUT environment parameters to CDA parameters. For more information about CDA and AUT Parameters, see the *HP Application Lifecycle Management User Guide*.

How to Manage CDA Servers

This task describes how to create CDA servers in Lab Management. You manage CDA servers in Lab Management and implement CDA linkages in ALM.

This task includes the following steps:

- "Update the Communication Security Passphrase" below
- "Create the CDA Server in Lab Management" below
- "Update Project Settings" on next page

1. **Update the Communication Security Passphrase**
   a. In Site Administration, update the **COMMUNICATION_SECURITY_PASSPHRASE** default parameter. For details, see *HP Application Lifecycle Management Administrator Guide*.
   b. Restart the HP Application Lifecycle Management service on the ALM server.
2. **Create the CDA Server in Lab Management**
   a. In Lab Management, select **Servers > CDA Servers**.
   b. Click the **New CDA Server** button  .

> **Note:** You can only have one CDA server per site.

c. In the New CDA Server dialog box, enter your server information. For details about the CDA fields, see "CDA Servers Module Fields" on page 221. For user interface details, see "New CDA Server Dialog Box" on page 222.

d. After you submit, the CDA server data undergoes a compatibility check. The internal URL is used to check connectivity. If there are no problems with connectivity, your CDA server appears in the grid.

3. **Update Project Settings**

a. In Lab Management, select **Lab Settings > Project Settings**.

b. Select the relevant project from the grid and click the **Project Settings Details**  button.

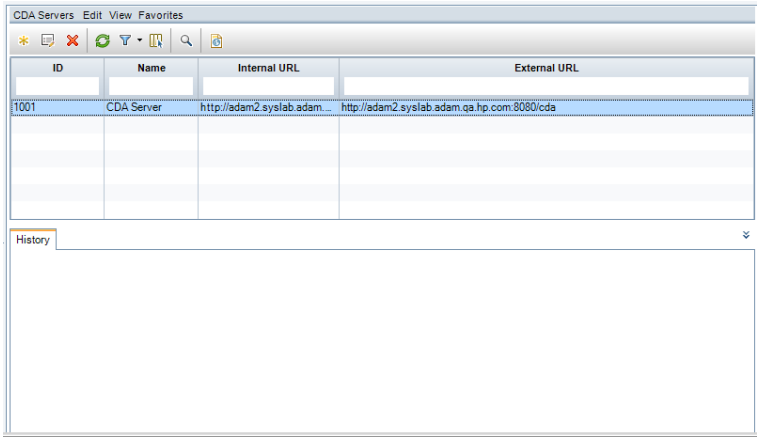
c. In the Project Settings Details dialog box, update the **CDA Server** and **CDA Domain** fields. Click OK.

Your CDA server is now ready to be linked with ALM.

CDA Servers User Interface

This section includes:

CDA Servers Module Window



To access	On the Lab Management sidebar, under **Servers**, select **CDA Servers**.
Relevant tasks	"How to Manage CDA Servers" on page 217

User interface elements are described below (unlabeled elements are shown in angle brackets):

UI Elements	Description
<CDA Servers Module common UI elements>	• **CDA Servers Fields.** For field definitions, see "CDA Servers Module Fields" on page 221. • **CDA Servers Menus and Buttons.** For command and button descriptions, see "CDA Servers Module Menus and Buttons" on next page. • **ALM main menu and sidebar.** For details on the Tools menu, Help menu and sidebar, see the *HP Application Lifecycle Management User Guide*.
<grid filters>	Located under each column name. Displays the filter that is currently applied to a column. If the filter box is empty, no filter is currently applied to the column. Type directly into the box, or click the box to display the Browse button, which opens the Select Filter Condition dialog box. For more details, see the *HP Application Lifecycle Management User Guide*.
<servers grid>	Displays a list of the CDA servers.
History tab	Lists changes made to the currently selected CDA server. For more details, see the *HP Application Lifecycle Management User Guide*.

CDA Servers Module Menus and Buttons

This section describes the menus and buttons available in the CDA Servers module.

To access	On the Lab Management sidebar, under **Servers**, select **CDA Servers**.
Relevant tasks	"How to Manage CDA Servers" on page 217

User interface elements are described below:

UI Elements (A - Z)	Menu	Description
Add to Favorites	Favorites	Opens the Add Favorite dialog box, enabling you to add a favorite view to your private or the public folder. For details, see the *HP Application Lifecycle Management User Guide*.
CDA Server Details 	CDA Servers and <right-click menu>	Opens the CDA Servers Details dialog box, displaying details of the selected server. For more information, see "CDA Server Details Dialog Box" on page 223.
Delete 	Edit and <right-click menu>	Deletes the selected server in the grid.
Export	CDA Servers and <right-click menu>	Opens the Export Grid Data dialog box, enabling you to export the servers in the grid as a text file, Microsoft Excel worksheet, Microsoft Word document, or HTML document. Choose one of the following options: • **Export All.** Exports all servers in the grid. • **Export Selected.** Exports selected servers in the grid.
Find 	View	Opens the Find dialog box, enabling you to search for a server in the module. For details, see the *HP Application Lifecycle Management User Guide*.
Go to CDA Server 	CDA Servers	Opens the Go To CDA Servers dialog box, enabling you to find a specific server by its ID number. You can only go to servers that are in the current filter.
Grid Filters	View	Enables you filter the data according to an entry in the filter box. For details about filtering options, see the *HP Application Lifecycle Management User Guide*.
Information Panel	View	Shows/hides the Information Panel in the lower area of the module.

UI Elements (A - Z)	Menu	Description
New CDA Server 	CDA Servers	Enables you to add a CDA Server.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HP Application Lifecycle Management User Guide*.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Public	Favorites	Lists the favorite views that are accessible to all users.
Refresh All 	View	Refreshes the grid so that it displays the most up-to-date information.
Replace	Edit and <right-click menu>	In the CDA Servers grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.
Select Columns 	View	Opens the Select Columns dialog box, enabling you to determine which fields to display in the grid and their order. For more details, see the *HP Application Lifecycle Management User Guide*. For details about the PC Servers fields, see "CDA Servers Module Fields" below.
Set Filter/Sort 	View	Enables you to filter and sort the servers in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HP Application Lifecycle Management User Guide*.
Update Selected	Edit	Opens the Update Selected dialog box, enabling you to update a field value for a multiple selection in the grid. For more details, see the *HP Application Lifecycle Management User Guide*.

CDA Servers Module Fields

This section describes the CDA Servers module fields.

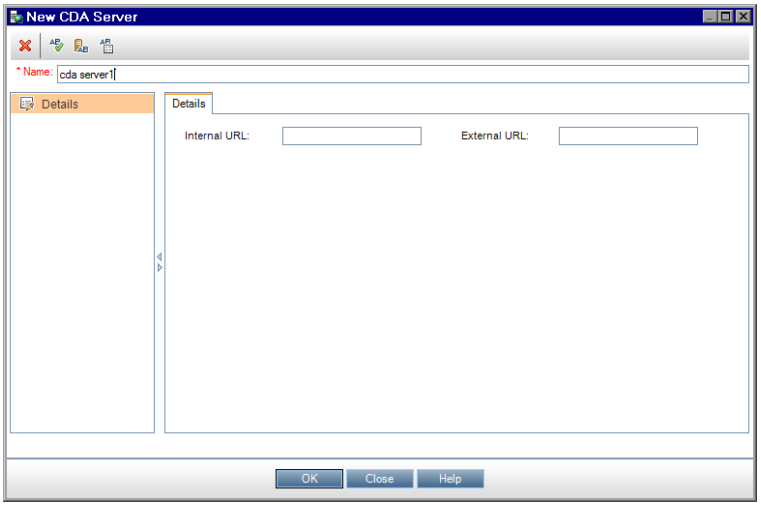
To access	On the Lab Management sidebar, under **Servers**, select **CDA Servers**.
Relevant tasks	"How to Manage CDA Servers" on page 217

User interface elements are described below:

UI Elements (A - Z)	Description
External URL	The URL used to connect to the CDA Server from an external source. This field is required. Use the following format for the URL: http://[ServerName]:[Port]/cda **Note:** For SSL connectivity add a CDA server using the following format for the external URL: https://<cda_server>
ID	The server ID.
Internal URL	The URL used for all internal communication between the Performance Center Server and ALM, as well as for load balancing.
Name	The server name that you assign when you configure a new server. Use the following format for the URL: http://[ServerName]:[Port]

New CDA Server Dialog Box

This dialog box enables you to create a new CDA server.



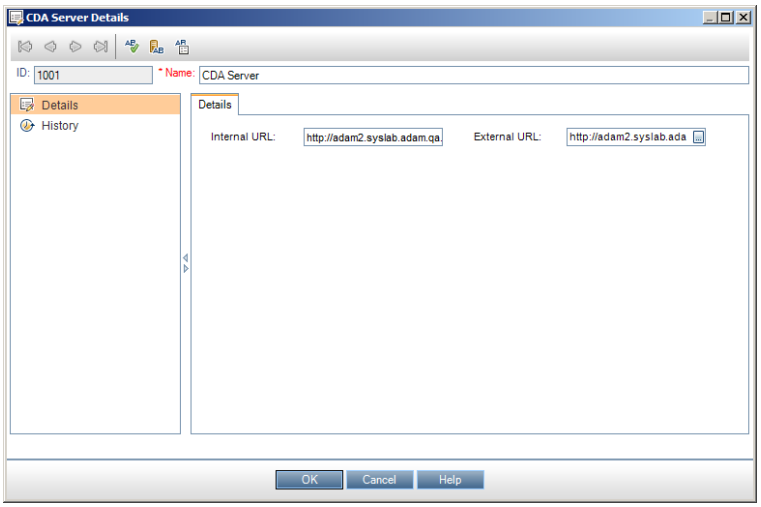
To access	1. On the Lab Management sidebar, under **Servers** , select **CDA Servers**. 2. Click the **New CDA Server** button .
Relevant tasks	"How to Manage CDA Servers" on page 217

User interface elements are described below:

UI Elements	Description
	**Clear All Fields.** Clears all data in the dialog box.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
Name	Enter a name for the new server. **Syntax exceptions:** A server name cannot include the following characters: **\ / : " ? < > | * % '**

CDA Server Details Dialog Box

The CDA Servers Details dialog box enables you to view and update a single server.



To access	1. On the Lab Management sidebar, under **Servers**, select **CDA Servers**. 2. Right-click a server and select **CDA Server Details**.
Relevant tasks	"How to Manage CDA Servers" on page 217

User interface elements are described below:

UI Elements	Description
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of servers.

UI Elements	Description
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
ID	The ID of the server.
Name	The name of the server.
Details	Lists the details the currently selected server. For details on the available fields, see "CDA Servers Module Fields" on page 221.
History	Lists changes made to the currently selected server. For more details, see the *HP Application Lifecycle Management User Guide*.

Chapter 16: Lab Service

This chapter includes:

HP ALM Lab Service Overview

HP ALM Lab Service acts as an agent on the testing host, enabling ALM to remotely trigger tests and maintenance tasks on the host.

Lab Service runs in the background on the testing host. In order to integrate your testing host with ALM Lab Management capabilities, you define the host in the Hosts/Testing Hosts module in Lab Management or ALM and then point ALM Lab Service to the ALM server using the Lab Service Settings page. For user interface details, see "HP ALM Lab Service Settings Page" on page 233.

A one-time registration process validates the identity of the agent and establishes a secure communication channel between ALM and the host. After registration, use ALM to run functional tests and perform maintenance tasks on the remote host.

Lab Service acts as a secure interface between ALM and your testing host. Communications with ALM, such as test requests, test results, and maintenance tasks pass through Lab Service. The Lab service communicates with ALM over the standard HTTP protocol and can traverse firewalls. Stopping the ALM Lab service prevents ALM Lab Management from using the host for running tests.

For task information, see "Using HP ALM Lab Service" on page 230.

For user interface details, see "HP ALM Lab Service Settings Page" on page 233.

Installing HP ALM Lab Service

This task describes how to install HP ALM Lab Service.

To modify or repair your HP ALM Lab Service installation, see "Modify or Uninstall HP ALM Lab Service" on page 229.

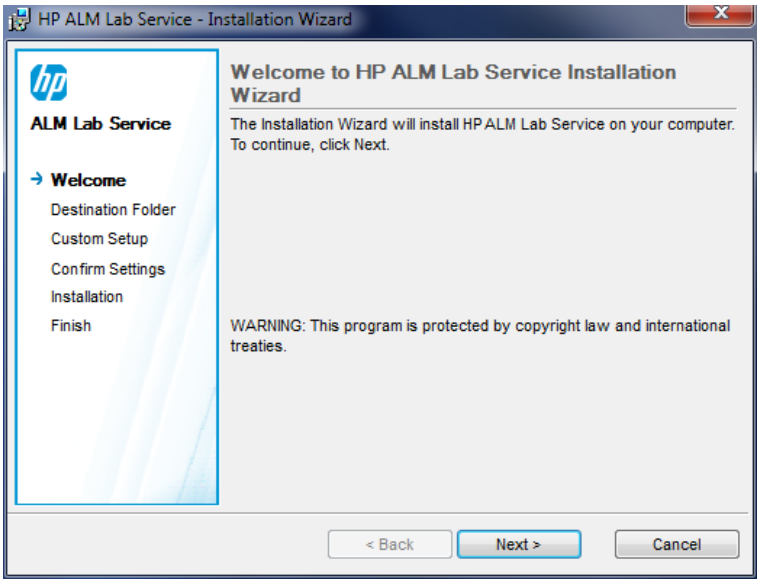
Install Lab Service using the HP ALM Lab Service - Installation Wizard

1. Download the HP ALM Lab Service MSI installation file from the HP ALM Add-ins page. Select the installation path that matches your operating system.

   Note: Lab Service and the ALM server to which you are connecting must be of the same

version in order to be compatible. If your version of Lab Service is not the same as the ALM server to which you are connecting, ALM and Lab Management display your testing tool as **Unavailable** in the Hosts/Testing Hosts grid.

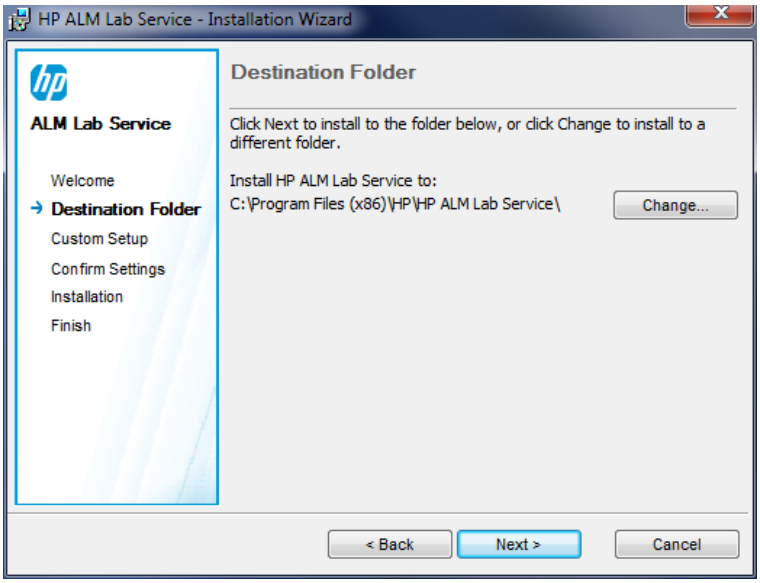
2. Run the MSI installation file. The **HP ALM Lab Service - Installation Wizard** launches on the **Welcome** screen.



Click **Next**.

3. The **Destination Folder** screen opens.

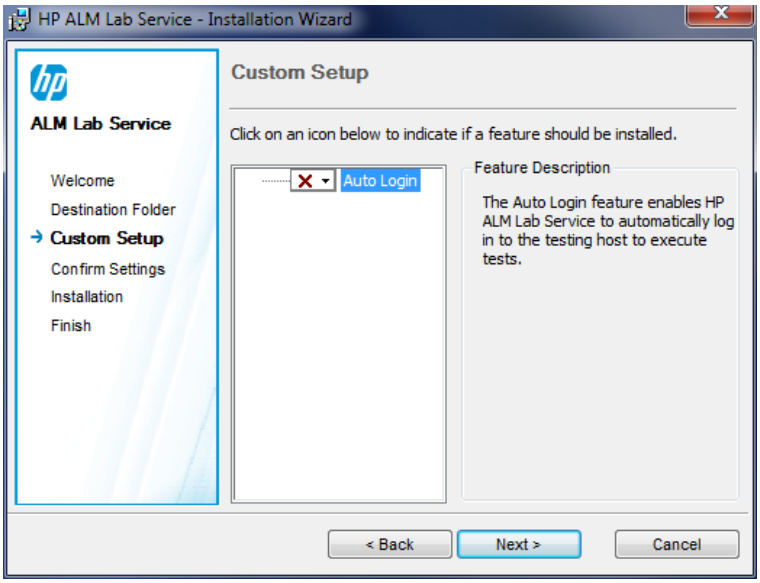
Specify in which folder you want to install Lab Service. To change the destination folder, click **Change**.



To install to the folder displayed, click **Next**.

4. The **Custom Setup** screen opens.

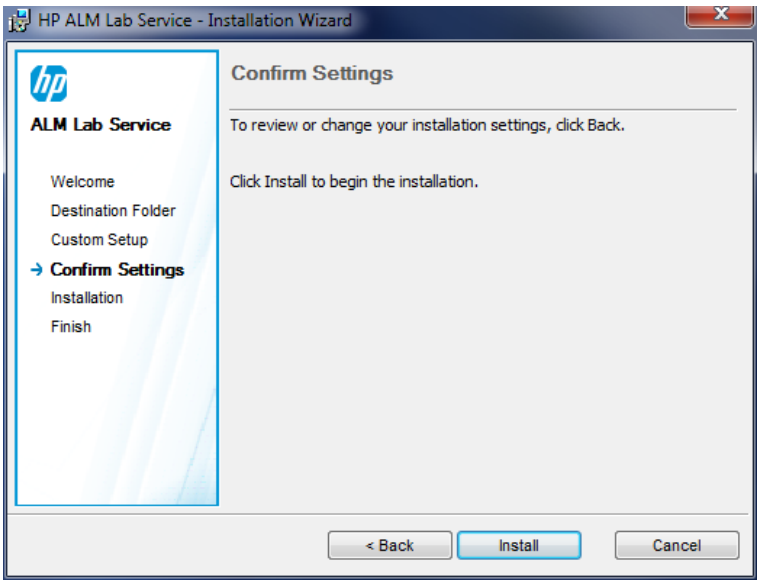
   You can enable Lab Service's Auto Login feature at this stage in the installation. Click the Auto Login checkbox icon and select **Enable this feature**. For more information about Auto Login, see "Auto Login" on page 232.



   Caution: For **Windows XP**, HP ALM Lab Service setup installs a file (GINA DLL) which is necessary for Auto Login. If another application has already customized login to your host, a different version may already be installed, and replacing this file could cause errors. If you would like to enable the Auto Login feature, uninstall the other application and restart the Lab Service installation.

   Click **Next**.

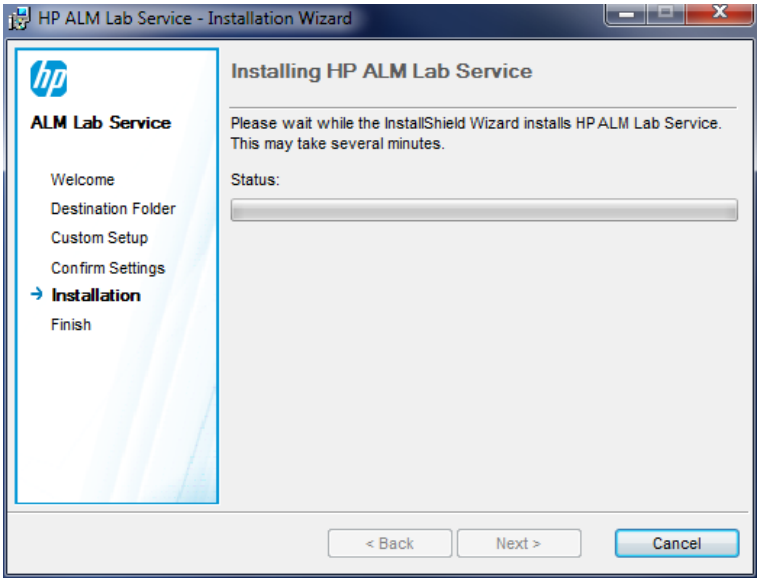
5. The **Confirm Settings** screen opens.



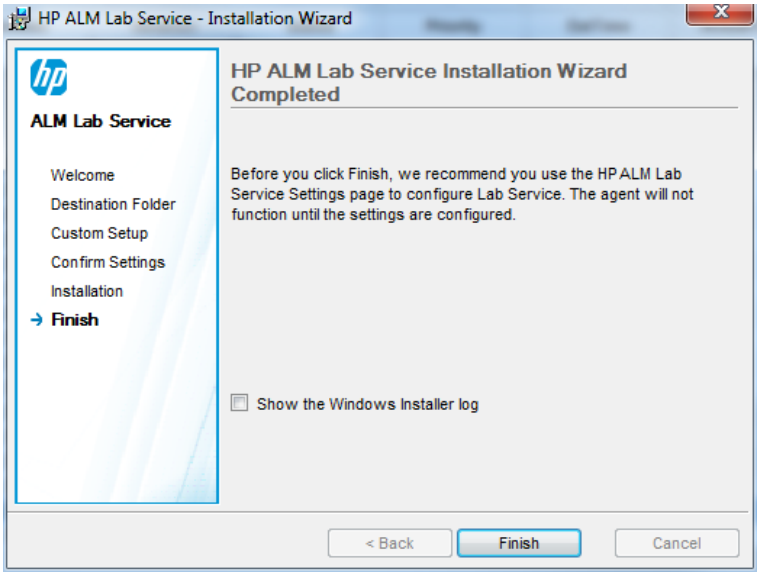
To review or change any settings, click **Back**.

To accept the settings and start the installation process, click **Next**.

The **Installation** page opens and the HP ALM Lab Service files are installed on your machine.



6. After the installation completes, the **HP ALM Lab Service Settings** dialog box opens along with the **Finish** screen.



You can enter your host settings into the Lab Service Settings dialog box and click **OK**. For user interface details about the Lab Service Settings Page, see "HP ALM Lab Service Settings Page" on page 233.

- We recommend you configure the Lab Service settings at this stage, but you can configure it later as well. The agent will not function until the settings are configured.

- If you enabled Auto Login during the installation, you will be prompted to restart your computer. Make sure to enter your details into the Lab Service Settings page before restarting.

The Lab Service installation is complete. Click **Finish** on the Finish screen. The Lab Service tray icon appears on the Windows taskbar.

Install Lab Service using silent installation

From the command line, enter the Microsoft MSI silent installation command:

```
msiexec /i "<msi-location>/HpAlmLabService_x64.msi" /qb
SERVERNAME=http://<server_name>:<port>/qcbin HOSTUSERNAME=<user_name>
HOSTUSERDOMAIN=<domain> HOSTUSERPASSWORD=<password>
```

You can also provide optional parameters:

Parameter	Description
REGISTER=1	Automatically sends a registration request to the ALM server after the installation completes.
ISAUTOLOGIN=1	Enables the Auto Login feature. For more information about Auto Login, see "Auto Login" on page 232.
LOGLOCATION="<log-directory>"	Configures the location (**<log-directory>**) in which the Lab Service logs will be written.
LOGLEVEL="<log-level>"	Configures the level (**<log-level>**) at which Lab Service will write logs. For more information about log levels, see "HP ALM Lab Service Settings Page" on page 233

Modify or Uninstall HP ALM Lab Service

Modify HP ALM Lab Service Installation

1. Run the MSI installation file. The **HP ALM Lab Service - Installation Wizard** launches on the **Welcome** screen. Click **Next**.
2. The **Program Maintenance** screen opens.

   Select the **Modify** radio button. Click **Next**.
3. The **Custom Setup** screen opens.

   Use the feature icons to enable or disable HP ALM Lab Service features.

   Click **Next**.
4. The Confirm Settings screen opens.

   Click **Next**.
5. The **Finish** screen opens. Click **Finish**.

Remove HP ALM Lab Service

Caution: After removing Lab Service, you must restart the host before reinstalling a different version. If you try to reinstall a new version without restarting, the installation fails.

To remove Lab Service using the MSI file:

1. Run the MSI installation file. The **HP ALM Lab Service - Installation Wizard** launches on the **Welcome** screen. Click **Next**.
2. The **Program Maintenance** screen opens.

   Select the **Remove** radio button. Click **Next**.
3. The **Remove the Program** screen opens. Click **Remove**.

   If Lab Service was running when you ran the MSI installation file, the **Files in Use** screen may open. Click **OK** to complete the removal.
4. The **Finish** screen opens. Click **Finish**.

To remove Lab Service using **Windows Programs and Features**:

1. Open the Programs and Features screen in Windows by going to **Control Panel\All Control Panel Items\Programs and Features**.
2. Right click on **HP ALM Lab Service**, and select **Uninstall**.

To remove Lab Service using the silent uninstallation, run one of the following commands:

- `msiexec /x "<msi-location>\HpAlmLabService_x64.msi"`
- `msiexec /x {8A0D781B-7976-419F-91D9-15F3121FCFA5}`

Using HP ALM Lab Service

This task describes how to use HP ALM Lab Service. To run tests from Functional test sets on your testing hosts using ALM, you must register your host with ALM using Lab Service.

To learn more about HP ALM Lab Service, see "HP ALM Lab Service Overview" on page 225.

Note: Lab Service and the ALM server to which you are connecting must be of the same version in order to be compatible. If your version of Lab Service is not the same as the ALM server to which you are connecting, ALM and Lab Management display your testing tool as **Unavailable** in the Hosts/Testing Hosts grid.

This task includes the following steps:

- "Create the Testing Host" on next page
- "Configure HP ALM Lab Service " on next page

- " Approve the Host Registration in Lab Management" below
- "Stop/Start Lab Service " below

1. ## Create the Testing Host

   In ALM or Lab Management, under Lab Resources, select the Hosts/Testing Hosts module. Click the **New Testing Host** button and input your testing host information. The **Registration Status** for the new testing host is set to **Not Registered**.

   > **Note:** You can arrange for ALM to automatically approve a testing host registration by setting **Registration Auto Approve** to **Y**.

   For task details, see "How to Manage Lab Resources" on page 59.

   For user interface details, see "New Testing Host Dialog Box" on page 79.

2. ## Configure HP ALM Lab Service

   To configure Lab Service, you need:

   - The ALM server URL.
   - The dedicated Windows user name to be used exclusively for running the test on your testing host.
   - The password and domain of the Windows user name. These are available only if you enabled Auto Login during installation.

   You can configure Lab Service to communicate with ALM by using the Settings page.

   To register Lab Service using the Settings page:

   a. Right-click the Lab Service icon  in your system tray. Open the Settings page.

   b. Provide the ALM server URL and your host user information. For user interface details about the Settings page, see "HP ALM Lab Service Settings Page" on page 233. Click **Register Host**.

   c. Refresh the host grid in Lab Management. The **Registration Status** for the new host is set to **Pending**.

3. ## Approve the Host Registration in Lab Management

   If you set **Registration Auto Approval** to **Y** when you created the host, then the registration will be automatically approved.

   If the host is not set to be automatically approved, you must approve it manually. The host registration request can be approved from within Lab Management by a Lab Administrator. If the host was created as a private host from within an ALM project, registration can be approved from within that project.

   Select your host from the grid in the Hosts module, and click the **Approve Registration** button. The **Registration Status** changes from **Pending** to **Registered**.

   Your new testing host is registered. You can now schedule and run Functional tests on this host using ALM.

4. ## Stop/Start Lab Service

You can start and stop Lab Service using the icon in the taskbar. Right click on the icon and do one of the following:

- To stop, click **Stop ALM Lab Service**.
- To start, click **Start ALM Lab Service**.

Caution:

- Stopping Lab Service makes the testing host appear as **Non-Operational** in Lab Management. You are not able to run tests using server-side execution on your testing host until you start it again.
- If you wait too long after stopping Lab Service, ALM stops polling to see if Lab Service was restarted. You must manually set the testing host's **Status** to **Operational** in the Hosts/Testing Hosts grid.

Auto Login

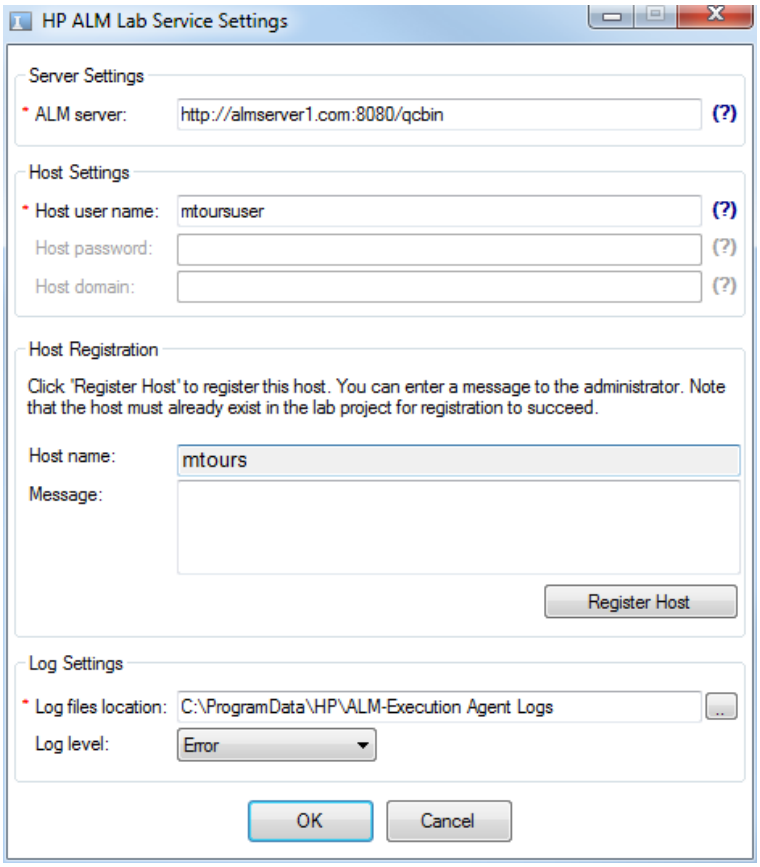
For LM to run tests on your registered testing host, Lab Service must have a user logged in to the testing host, and the user must have permission to run the test. To avoid a situation in which the user is not logged in, you can configure Lab Service to automatically log in to the testing host using the user whenever you request a test execution.

If you enable Auto Login, you must fill out the username and password values in the Settings page. For more information, see "HP ALM Lab Service Settings Page" on next page.

If you have Auto Login enabled and you disconnect from the session (for instance, if you close the session window), Lab Service will automatically log the user back in and finish the test. However, if you lock the screen, LM is not able to run a test which requires the session user interface (such as QTP).

Note: To disable or enable Auto Login on an already existing Lab Service installation, run the MSI file and click **Modify**. For more details, see "Modify or Uninstall HP ALM Lab Service" on page 229.

HP ALM Lab Service Settings Page



To access	Right click the Lab Service icon on the Windows taskbar and select **Settings**.
Important information	You can use the Settings page to manage communication between Lab Service and the ALM server.
Relevant tasks	"Using HP ALM Lab Service" on page 230
See also	"HP ALM Lab Service Overview" on page 225

User interface elements are described below:

UI Elements	Description
Server Settings section	**ALM Server.** The URL of the ALM server for communicating with Lab Service. The URL should be in the following format: `http(s)://<ServerName>:<Port>/qcbin`

UI Elements	Description
Host Settings section	• **Host user name.** The name of the Windows user to be used to run ALM tests on this host. This name cannot include the \ backslash character. • **Host password.** The password of the Windows user. This field is available only if Auto Login is enabled. • **Host domain.** The domain of the Windows user. This field is available only if Auto Login is enabled.
Host Registration section	• **Host name.** The name used by LM to identify your testing host. • **Message.** The message sent to the Lab Management administrator. • **Register Host.** This button registers the testing host with the ALM server. For more information, see "Using HP ALM Lab Service" on page 230.
Log Settings section	**Log files location.** The directory to which the logs are written. The log records the progress of test runs and maintenance tasks. If the location does not exist, it is created. This field cannot be empty. **Note:** If the write permissions for the log location path do not include the user name defined in the Host Settings section, the execution runs but no logs are generated. **Log Level.** Select a log level from the drop down menu: • **Off.** No logs are generated. • **Error.** Only errors are written to the log. • **Warning.** Errors and warnings are written to the log. • **Info.** Errors, warnings, and general information is written to the log. • **Verbose.** All actions done by the Lab Service agent are written to the log. Raising the Log Level may affect performance. We recommend leaving it at **Error** level unless you need to produce debugging information.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