HPE ALM Lab Management

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Lab Management Guide

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Contents

Chapter 1: Lab Management at a Glance

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

ALM 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 ALM 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.

Cloud Settings

Allow you to add cloud accounts and host templates used to provision cloud testing hosts in ALM.

Cloud Accounts	Add your external cloud accounts to ALM.
Host Templates	Create and modify the templates used to provision cloud hosts.

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 ALM 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" below.

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" below.
> - This task is performed in Site Administration. For details about logging in to and using Site Administration, refer to the *HPE 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 18.
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 of the tasks below are available only for projects with Performance Center licenses.

- "Prerequisites" on the next page
- "Perform initial Performance Center configuration" on the next page
- "Create Performance Center projects and define project settings" on the next page
- "Manage and maintain Lab Management lab resources" on the next page
- "View and manage performance test runs" on the next page
- "View Performance Center usage reports" on the next page
- "Upload application patches" on page 16
- "Manage Performance Center Servers" on page 16

- "Manage Performance Center and Performance Center host licenses" on the next page
- "Manage Diagnostic Servers and Mediators" on the next page
- "Maintain system health" on the next page
- "Change the Performance Center system user" on the next page
- "Update the Communication Security passphrase" on the next page
- "Update the secure host communication settings" on the next page
- "Configure general Performance Center settings" on page 17

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 the 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 *HPE 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 22.

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 Testing Hosts" on page 111.

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, see "How to Reserve Timeslots" on page 121.

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 170.

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 Generate Usage Reports" on page 179.

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 179.

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 257.

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 286.

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 226.

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 239.

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 217.

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 *HPE 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 *HPE 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 *HPE 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 *HPE ALM Performance Center Guide*.

Configure general Performance Center settings

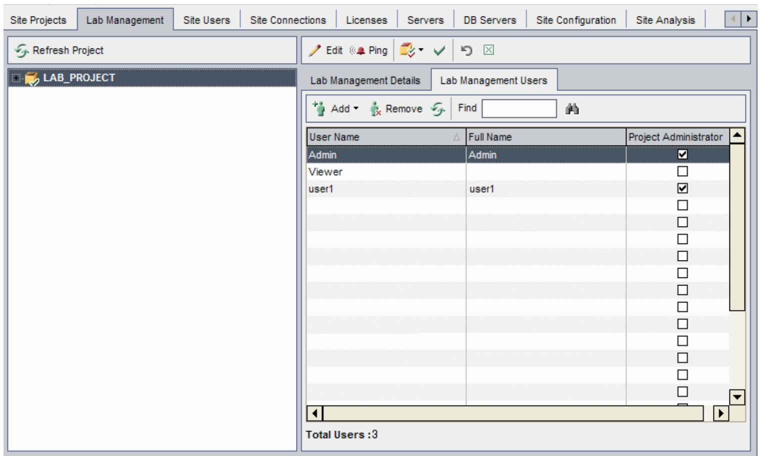
You manage general Performance Center settings in Lab Management. On the masthead, click and select **Performance Center General Settings**. For user interface details, see "General Settings Dialog Box" on page 19.

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 14
See also	"Introduction to Lab Management Administration" on page 14

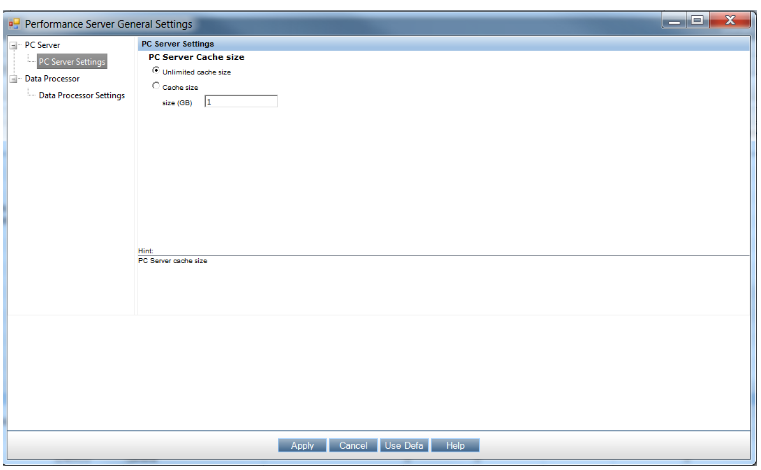
User interface elements are described below:

UI Elements	Description
	**Edit Connection String.** Edits the connection string for Lab Management. For details on editing the connection string, refer to the *HPE 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 *HPE 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.

UI Elements	Description
	**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 *HPE 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 *HPE 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 *HPE 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 click ⚙ and select **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 14
See also	"Introduction to Lab Management Administration" on page 14

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
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 14.
- **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:

- "Log in to Site Administration" below
- "Create a project domain - optional" below
- "Create project administrator users" below
- "Create a new project" below
- "Assign more project administrators to the project - optional" below
- "Define the project's settings" on the next page
- "Add and customize the project users " on the next page

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 HPE 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 the *HPE 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 *HPE 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 30.

   > **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, click and select **Lab Settings**.

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

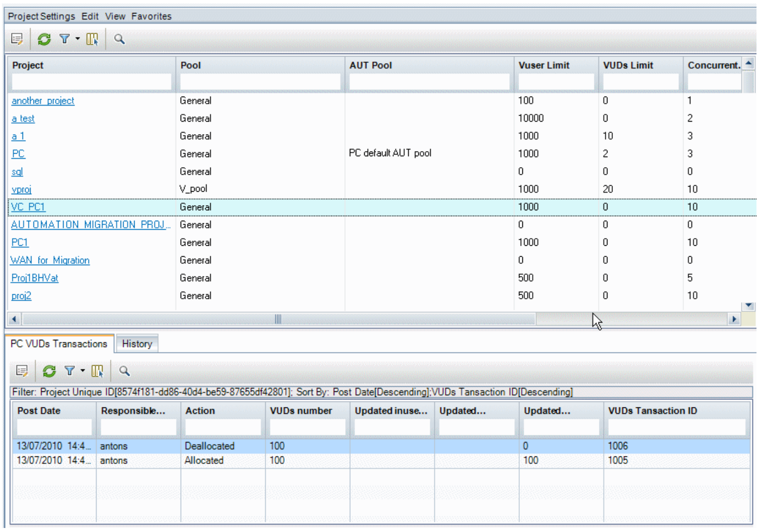
   This step is performed by the project administrator. For details, see the *HPE Application Lifecycle Management Administrator Guide*.

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 22
See also	"Project Settings Overview" on page 22

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 28. • **Project Settings module menus and buttons.** For command and button descriptions, see " Project Settings Module Menus and Buttons" on the next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HPE Application Lifecycle Management User Guide*.
<Project Settings grid>	Displays a list of the projects in ALM and their project settings.

UI Elements	Description
PC VUDs transactions tab	Displays the PC VUDs transactions in each projects. For details, see " Project Settings Details Dialog Box" on page 30.
History tab	Lists changes made to the currently selected project. For more details, see the *HPE Application Lifecycle Management User Guide*.

Project Settings Module Menus and Buttons

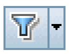
The Project Settings module enables you to view and manage project settings.

To access	• On the sidebar, under **Lab Settings**, select **Project Settings.** • **Project administrator**: In ALM, on the masthead, click and select **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 *HPE 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.

UI Elements (A - Z)	Where	Description
Find	View	Opens the Find dialog box, enabling you to search for project settings in the module. For details about search options, see the *HPE 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.
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 *HPE 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 *HPE 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 *HPE 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 *HPE Application Lifecycle Management User Guide*. For details about the project setting fields, see "Project Settings Module Fields" below.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*.

Project Settings Module Fields

This section describes the Project Settings module fields:

Field	Description
AUT Pool	The AUT host pool of the project.
Build Verification Suite Auto-Extend Duration	The number of minutes by which a build verification suite timeslot is automatically extended if the initial timeslot is not long enough. Requires that Automatically Extend Timeslot is enabled for the timeslot and requires that the appropriate testing resources are available to extend the timeslot.
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.

Field	Description
Functional Test Auto-Extend Duration	The number of minutes by which a functional test timeslot is automatically extended if the initial timeslot is not long enough. Requires that Automatically Extend Timeslot is enabled for the timeslot and requires that the appropriate testing resources are available to extend the timeslot.
Host Limit	The total number of hosts (Controller + load generators) reserved for a timeslot may not exceed this limit.
ID	The project's ID.
Maximum Times to Automatically Extend Timeslot	The maximum number of times that a timeslot can be automatically extended if the initial timeslot is not long enough for the BVS or functional test set to complete.
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, click and select **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 22
See also	"Project Settings Overview" on page 22

Common Elements

Common user interface elements are described below:

UI Elements	Description
	Save. Saves the details.
	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.
	Spelling Options. Enables you to configure how to check the spelling.

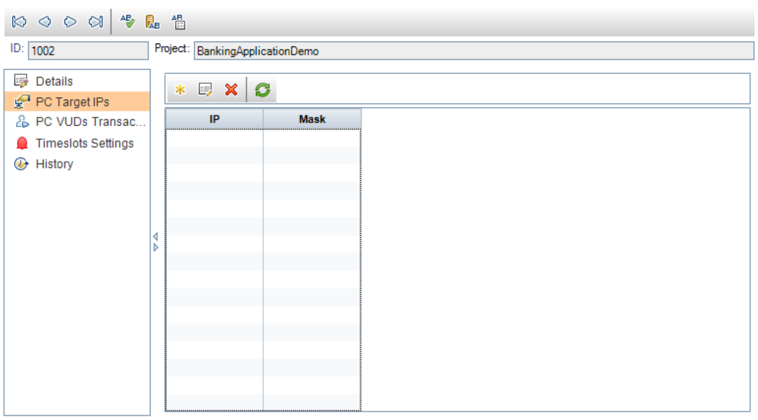
UI Elements	Description
	Field Search. Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Project	The name of the project.

Details Page

This page displays the general details about the selected project. For details, see "Project Settings Module Fields" on page 28.

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 22
See also	"Using Target IP Addresses" on page 22

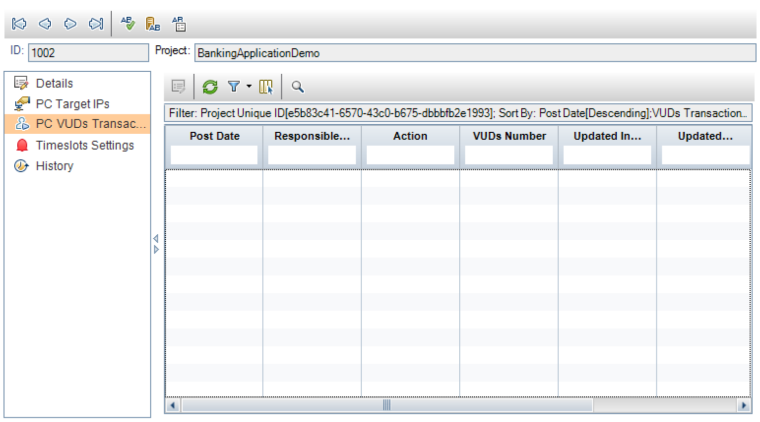
User interface elements are described below:

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.

UI Elements	Description
	**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.
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 the 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.

UI Elements (A - Z)	Description
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 in use VUDs	The current number of VUDs that are running as a result of the transaction.
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 Transaction ID	The action ID.

VUDs Actions

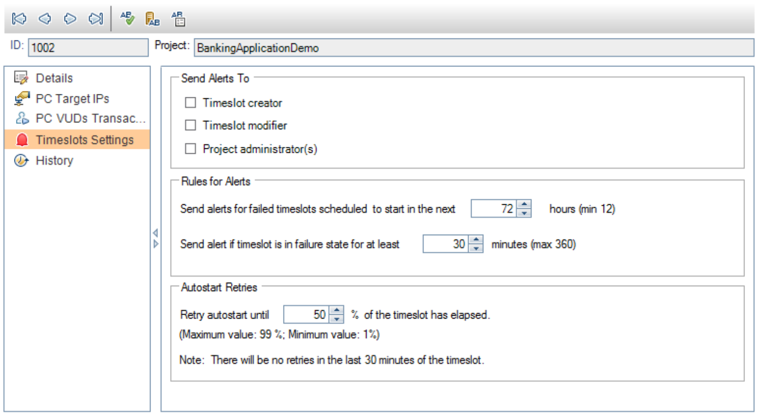
The following table lists the possible VUDs actions.

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.

UI Elements (A - Z)	Description
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.
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.
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)

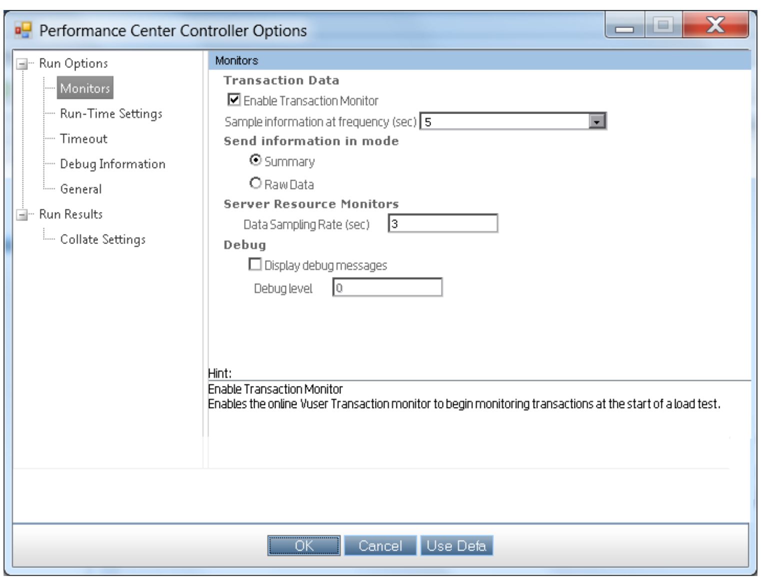
UI Elements	Description
Autostart Retries	If a performance test linked to a timeslot is scheduled to autostart but does not start running, the system continues to try to autostart the test until it starts running successfully. The **Autostart Retries** option enables you to specify when the system should **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 *HPE 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, click ⚙ and select **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 22
See also	"Project Settings Overview" on page 22

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. **Note:** • 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
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 *HPE 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.
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. It also enabled you to display advance warning in the Performance Test Designer Window.

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. **Note:** • Web Vusers require IP address allocation per process. • WinSock Vuser IP addresses can be allocated per thread or per process.
Advanced Warnings	Displays advanced warnings in the Messages pane of the Performance Test Designer window.

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

<table>
<tr><th>UI Elements (A - Z)</th><th>Description</th></tr>
<tr><td>Resource Recovery Task</td><td>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).</td></tr>
<tr><td>Result Cleaning Task</td><td>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.

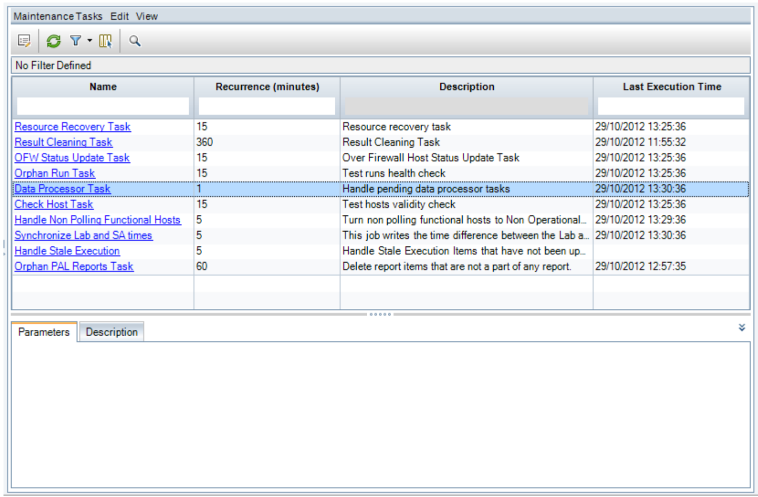
Default frequency: Every 6 hours</td></tr>
<tr><td>Synchronize Lab and SA times</td><td>Finds the time difference between Lab Management and Site Administrator and enters it into the parameter SA_LAB_TIME_DIFF_MILLIS in the DATACONST table.</td></tr>
</table>

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 45

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 the next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu, and sidebar, see the *HPE Application Lifecycle Management User Guide*.
<Maintenance tasks grid>	Displays a list of maintenance tasks. For details, see "Maintenance Tasks Overview" on page 45.
Parameters 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.
Description tab	Displays a description of the selected maintenance task.

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 45.
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 *HPE 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.

UI Elements (A - Z)	Where	Description
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 *HPE Application Lifecycle Management User Guide*.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*. For details about the System Health fields, see "Maintenance Task Fields" on page 47.
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 *HPE 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 *HPE 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 **Maintenance Task Details** .
See also	• "Maintenance Tasks Module Window" on page 47 • "Maintenance Task Fields" on page 47 • "Maintenance Tasks Overview" on page 45

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details tab	Lists the details of the currently selected maintenance task. For more information, see "Maintenance Task Fields" on page 47.
Description tab	Displays the description of the selected maintenance task.
Parameters tab	Displays parameters in a grid along with their values and descriptions. For more information, see "Maintenance Tasks Overview" on page 45.

Chapter 5: Cloud Settings

This chapter includes:

Cloud Hosts Overview

Testing your software application can be a very resource intensive process. Performance testing in particular can require an extensive lab environment, using multiple load generating hosts and a controller, and requiring collating capabilities for processing test results. There may be times where you need more hosts than are available in your testing lab, or you may have decided that you do not want to maintain your own lab environment at all. In either of these cases, you may have turned to a cloud provider such as Amazon EC2, Microsoft Azure, or HP Helion Public Cloud who can provide you with on-demand testing hosts to meet your testing needs. ALM integrates with your cloud accounts in order to help you get the most out of your cloud resources.

Note:

- HPE ALM supports provisioning of Performance Center load generators only.
- HPE ALM only integrates with HP Helion Public Cloud, Microsoft Azure, and Amazon EC2 cloud accounts.
- HPE ALM does not integrate with any other HP Helion cloud services (private, managed, and so on).
- Cloud-based load generators are best suited for testing externally available AUT.

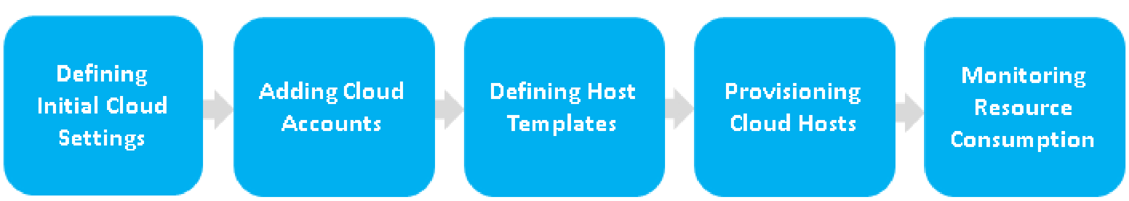
Benefits of Using Cloud Hosts

By using cloud hosts in ALM, you can:

- Provision testing hosts only when you need them.
- Manage cloud provisioning on a per-project basis, with each project having access only to the cloud resources it needs.
- Allow QA testers to provision pre-approved testing hosts without the need for direct access to your cloud accounts.
- Regulate cloud host usage by assigning credits to projects.
- View cloud host usage reports to manage cloud resource consumption.

Using Cloud Hosts in ALM

Using cloud hosts in ALM involves:



Phase	Description	For more information:
Defining Initial Cloud Settings	Set up an account with a cloud provider and obtain the cloud provider credentials. Afterwards, you set up communication from ALM to your cloud provider, and define network settings for communicating with your cloud-based load generators.	"Initial Cloud Settings Overview" on page 55
Adding Cloud Accounts	After establishing an account with a cloud provider, you must also establish a cloud account in ALM. When defining a cloud account in ALM, you enter your cloud provider credentials, associate projects to the account, and define the total number of cloud credits allowed for consumption by your provisioned hosts.	"Cloud Accounts Overview" on page 68
Defining Host Templates	Host templates are used for defining provisioning related details, such as instance types, regions, hardware specifications, and software images. You can use default host templates or create your own templates. ALM uses the details of the selected template to provision your host. **Note:** You cannot use default templates for Microsoft Azure accounts. you must create your own templates.	"Host Templates Overview" on page 82
Provisioning Cloud Hosts	Provisioning is the process of requesting the cloud provider to create a machine on the cloud. It uses the selected cloud account and host template to define the machine. You can choose the number of machines and their locations. You can also check credits balance for the selected account.	"Provisioning Hosts Overview" on page 94
Monitoring Resource Consumption	After provisioning your cloud hosts, you can analyze and monitor your cloud resource consumption by generating usage reports, and by sending alerts and notifications.	"Cloud Resources Monitoring Overview" on page 104

For details about how to set cloud hosts in ALM, see "How to Set Up Cloud Hosts" below.

How to Set Up Cloud Hosts

This task describes how to set up cloud hosts in ALM.

1. Perform initial steps for communicating with the cloud. For task details, see "How to Initially Set Up Communication with the Cloud" on page 60.
2. Add cloud accounts to ALM**.** For task details, see "How to Manage Cloud Accounts" on page 68.
3. Use default or create additional host templates. In Microsoft Azure, you must create host templates. For task details, see "How to Manage Host Templates" on page 83.

4. Provision cloud hosts. For task details, see "How to Provision and Terminate Cloud Hosts" on page 94.
5. Monitor cloud resources consumption by setting up cloud alerts and by generating usage reports. For task details, see "How to Configure Cloud Alerts" on page 104 and "How to Generate Usage Reports" on page 179.

Initial Cloud Settings

This section includes:

Initial Cloud Settings Overview

To initially set up communication with a cloud provider, you must establish an account with the cloud provider and obtain the cloud provider credentials. You must then set up communication from ALM to your cloud provider, and define network settings for communicating with your cloud-based load generators.

Creation of Cloud Provider Account

You must first create a cloud provider account for using the cloud provider services.You need to provide credentials for storing and accessing resources on the cloud, such as:

- HP Helion - Access Key, Secret Key, Project ID, and Project Name
- Amazon EC2 - Access Key, Secret Key, and Account Number
- Microsoft Azure - Subscription ID and Certificate File

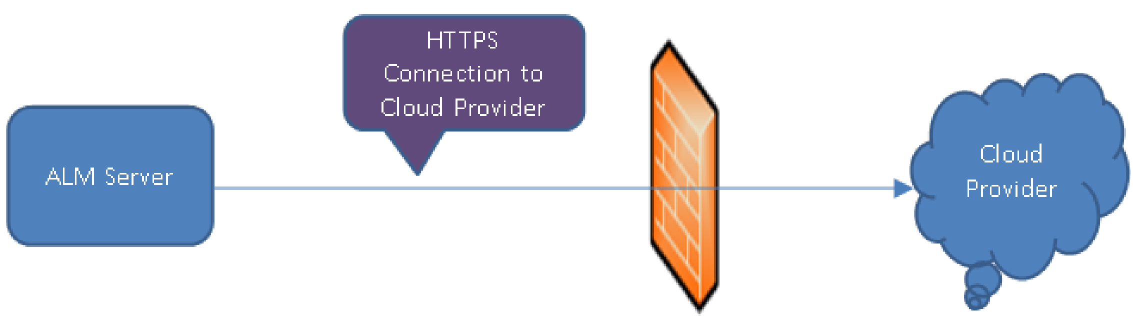
> **Note:** HP ALM only integrates with HP Helion, Microsoft Azure, and Amazon EC2 cloud accounts.

For more information about creating cloud provider accounts, see the documentation provided by your cloud provider.

Communication to Cloud Provider

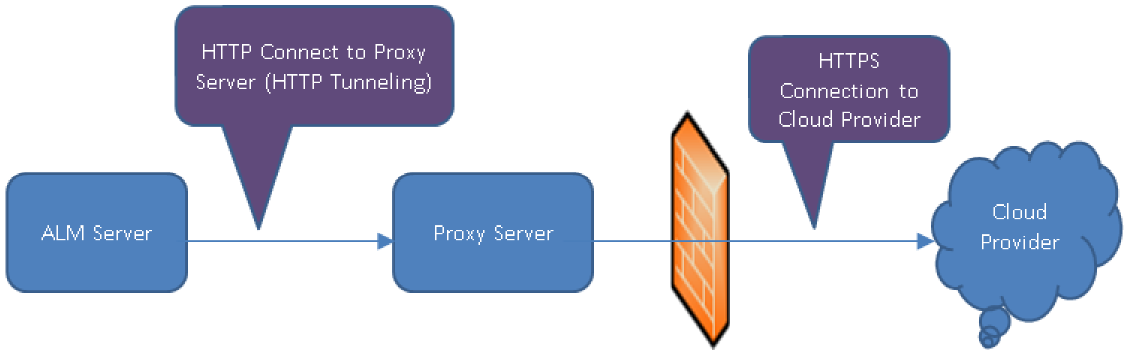
When communicating with your cloud provider, you can choose to communicate directly or via a proxy.

The following diagram illustrates direct communication to a cloud provider:



The communication is initiated from the ALM server over the organization's firewall to the cloud provider. The ports are opened for outgoing requests only.

The following diagram illustrates communication to a cloud provider through a proxy server:



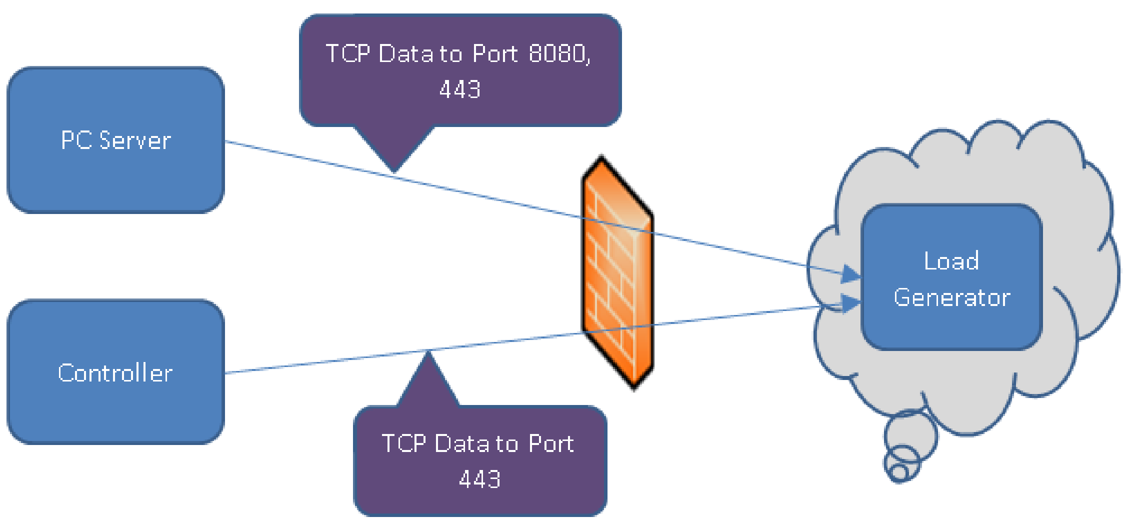
The communication is initiated from the ALM server to the defined proxy server using HTTP tunneling. The proxy server then runs over the organization's firewall and transfers outgoing requests to the cloud provider.

Communication to Cloud-based Load Generator

When communicating with your cloud-based hosts, you can choose to communicate directly or via a proxy.

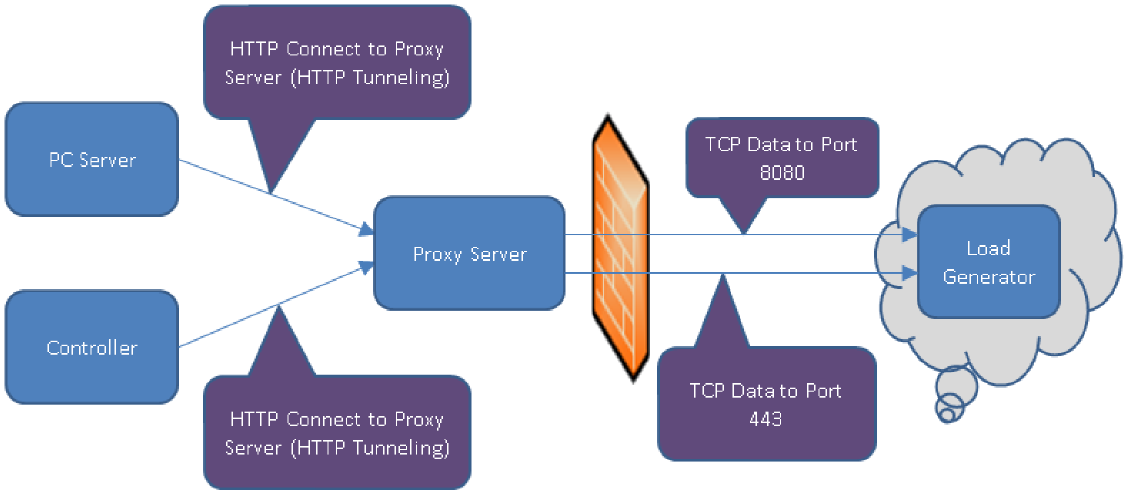
> **Note:**
>
> - When the communication is through a proxy, SSL (Secure Socket Layer) is required
> - HPE ALM supports provisioning of Performance Center load generators only.

The following diagram illustrates direct communication to a cloud-based load generator:



The communication is initiated from the Performance Center server and the Controller over a firewall to the cloud-based load generator. Data is transmitted through TCP (Transmission Control Protocol) using ports. The ports are opened for outgoing requests. The ports can be reconfigured.

The following diagram illustrates communication to a cloud-based load generator through a proxy server:



The communication is initiated from the Performance Center server and the Controller to the defined proxy server. An HTTP Tunnel is used as a means for communicating from the Performance Center server and the Controller to the proxy server. The proxy server then runs over the firewall and transfers the data to the cloud-based load generator, going through the TCP ports.

> **Note:** SSL is supported between the controller and the cloud-based load generator.

Configuration of Security Settings

Additional security features related to your cloud provider.

Feature	Description
Security Groups	While access to hosts on your local network is typically controlled by a firewall, access to your cloud hosts is controlled using security groups. A security group specifies which protocols are allowed and which ports are open for incoming and outgoing traffic to a cloud host. For incoming traffic, you can restrict access to one or more IP addresses. **Note:** You need to connect to your cloud hosts via Remote Desktop. Therefore, you configure your security group to allow incoming traffic over TCP port 3389 (RDP). However, you only allow access for your company's IP addresses to prevent unauthorized access from the outside. Security groups are configured on the website of your cloud provider, and must be created separately for each region. You can create as many security groups as you need, up to the limit imposed by your cloud provider. You select a security group at the time you provision cloud hosts, and that security group applies until the hosts are terminated. **Note:** Not applicable for Microsoft Azure cloud accounts.

<table>
<tr><th>Feature</th><th>Description</th></tr>
<tr><td>Key Pairs</td><td>
Key pairs are necessary if you intend to connect remotely to a cloud host created from a public image.
A key pair consists of a public key and a private key. The public key is saved to the cloud host and the private key is saved locally on your computer or network.
<blockquote>Caution: When creating a new key pair, you are prompted to save the private key. Make sure to save it in a secure location. Without the private key, you cannot log into your hosts!</blockquote>
The private key is used differently for Windows and Linux hosts:
Window hosts. When connecting remotely to a Windows host, you need the administrator password. The administrator password is generated on the website of your cloud provider by uploading the private key.
Linux hosts. The private key itself is used when connecting to a Linux host.
Key pairs are created on the website of your cloud provider, and must be created separately for each region. You can create as many key pairs as you need for your different testing teams, up to the limit imposed by your cloud provider. You select a key pair at the time you provision cloud hosts, and that key pair applies until the hosts are terminated.
<blockquote>Note: If you provision hosts from a custom image, the administrator password (Windows machines) or public key (Linux machines) is taken from the computer where the image was created. If you need the administrator password or private key, contact the person who manages your custom images.</blockquote>
<blockquote>Note: Not applicable for Microsoft Azure cloud accounts.</blockquote>
</td></tr>
</table>

<table>
<tr><th>Feature</th><th>Description</th></tr>
<tr><td>Elastic IP Addresses</td><td>This cloud provider feature enables you to define static IP addresses for your provisioned hosts. You can use elastic IP addresses for opening firewall settings to provision host machines without having the need to use different IP addresses each time. To do so, you can build and use a static pool of IP addresses for granting firewall access that are reserved only for your account. This pool of IP addresses remains associated with your cloud account until you choose to explicitly release it.

Note: HP Helion only supports elastic IP addresses. You cannot provision hosts using fixed IP addresses. For additional information, see the HP Helion Public Cloud Web site (http://www.hpcloud.com/).

Note: Not applicable for Microsoft Azure cloud accounts.</td></tr>
<tr><td>Certificate Files</td><td>Certificates are a key component of Windows Azure security.

There are two different kinds of certificates that play a role in securing your applications or services, service certificates and management certificates.

You must provide Windows Azure service certificates in the Personal Information Exchange (.pfx) format for use in ALM.

You must provide Windows Azure management certificates in X.509 (.cer) format and upload them to Azure.

Note: Only applicable for Microsoft Azure cloud accounts.</td></tr>
</table>

For more information on security groups, key pairs, elastic IP addresses, and certificate files, see the documentation provided by your cloud provider.

For task details on how to initially set up communication, see "How to Initially Set Up Communication with the Cloud" below.

How to Initially Set Up Communication with the Cloud

This task describes the initial steps required for setting up communication with the cloud.

For an overview, see "Initial Cloud Settings Overview" on page 55.

> **Note:** This task is part of a higher-level task. For details, see "How to Set Up Cloud Hosts" on page 53.

1. **Create an account with a cloud provider**
   a. Sign up and create an account for using cloud provider services .
   b. Obtain the following cloud credentials:
      i. HP Helion - Access Key, Secret Key, Project ID, and Project Name
      ii. Amazon EC2 - Access Key, Secret Key, and Account Number
      iii. Microsoft Azure - Subscription ID and Certificate File

   > **Note:** HP ALM only integrates with HP Helion, Microsoft Azure, and Amazon EC2 cloud accounts.

2. **Define cloud communication from the ALM server to your cloud provider**

   If your organization uses a proxy server for communicating with an outside network, define the proxy settings in the Cloud Network Settings dialog box. For task details, see "How to Set Up Cloud Network Settings" on the next page.

   > **Note:** When working with HP Helion, note that HP Helion Public Cloud Identity Service uses port 35357 which is required for authentication with HPCS. This port should be opened for outgoing requests only. Make sure your proxy can forward outgoing http requests to this port.

3. **Define communication for a cloud-based load generator**

   For task details, see "How to Set Up Cloud Network Settings" on the next page.

4. **Define security settings on the cloud provider side for HP Helion and Amazon EC2 cloud accounts**
   a. From your cloud provider console, create a security group. The ports defined for communicating with the cloud-based load generator must be opened. For more information on the security group rules, see the *HP ALM Lab Management Troubleshooting Guide*.

      For more information about security groups, see the documentation provided by your cloud provider.
   b. Create a key pair.
   c. If you plan on working with elastic IP addresses, allocate elastic IP addresses and make sure they are opened on your organization's firewall for outgoing communication.

5. **Define security settings on the cloud provider side for Microsoft Azure cloud accounts**
   a. You must increase your JDK’s strength to **Unlimited**. Download the appropriate version of the Java Cryptography Extension from java.sun.com. Replace the local_policy.jar, and US_export_policy.jar files in the JRE. The jar files are located by default in C:\Program Files\HP\ALM\java\jre\lib\security.

b. Create Windows Azure service certificates in Personal Information Exchange (.pfx) format for use in ALM.

c. Create Windows Azure management certificates in X.509 (.cer) format and upload them to Azure.

How to Set Up Cloud Network Settings

This section describes how to set cloud network settings for communicating from ALM to you cloud provider and for communicating with your cloud-based load generators.

For an overview, see "Initial Cloud Settings Overview" on page 55.

> **Note:** This task is part of a higher-level task. For details, see "How to Initially Set Up Communication with the Cloud" on page 60.

1. **Prerequisites for using SSL (Secure Socket Layer)**

   To enable SSL for your cloud-based load generator, you must create a Certification Authority (CA) and a Digital Certificate and store the files on ALM, the Performance Center server, and the Controller. For more details on creating the certificates, see "How to Create Digital Certificates" on the next page.

2. **Open the Cloud Network Settings dialog box**

   In Lab Management, on the masthead, click and select **Cloud Network Settings**. For user interface details, see "Cloud Network Settings Dialog Box" on page 66.

   > **Note:** The Cloud Network Settings option is not available if a Performance Center server has not been created. For more details on creating Performance Center servers, see "How to Manage Performance Center Servers" on page 286.

3. **Enable communication from ALM to your cloud provider**

   a. Under **Proxy Settings**, enter the **Proxy Server** URL (format: `http[s]://server[:8080]`).

   b. Enter the **User Name** and **Password** of a user with connection rights to the proxy server.

   > **Note:** When working with HP Helion, note that HP Helion Public Cloud Identity Service uses port 35357 which is required for authentication with HPCS. This port should be opened for outgoing requests only. Make sure your proxy can forward outgoing http requests to this port.

4. **To enable communication for a cloud-based load generator**

   a. Under **Performance Center Communication Settings**, define the communication mode. By default, **Use Proxy Server for Load Generator Communication** and **Use SSL for Load Generator Communication** are selected. Note that if the communication is through a proxy, SSL is required.

b. Enter the **Performance Center Agent Service Port** number. This port is used for running Vusers on the load generator. Make sure this port is opened for outgoing requests.

c. Enter the **Remote Management Agent Service Port** number. This port is used for Lab Management operations. Make sure this port is opened for outgoing requests.

How to Create Digital Certificates

This task describes how to create a Certification Authority and a Digital Certificate for working with SSL (Secure Socket Layer) to secure communication to your cloud-based load generators.

For an overview, see "Initial Cloud Settings Overview" on page 55.

> **Note:** This task is part of a higher-level task. For details, see "How to Set Up Cloud Network Settings" on the previous page.

1. **Create a Certification Authority (CA)**

> **Note:** This step describes how to create a CA using the **gen_ca_cert.exe** utility. If you are working on a Linux platform, use the **gen_ca_cert** utility instead.

To create the CA, perform the following steps:

a. Run the **gen_ca_cert** utility from the **<LoadRunner root folder>\bin** folder.

b. Run the **gen_ca_cert** command with at least one of the following options:

- -country_name
- -organization name
- -common_name

This process creates two files in the folder from which the utility was run: the CA Certificate (**cacert.cer**), and the CA Private Key (**capvk.cer**).

> **Note:** By default, the CA is valid for three years from when it is generated. To change the validation dates, use the **-nb_time** (beginning of validity) and/or **-na_time** (end of validity) options.

The following example creates two files: **ca_igloo_cert.cer** and **ca_igloo_pk.cer** in the current folder:

```
gen_ca_cert - country_name "North Pole" -organization_name "Igloo Makers" -
```

```
common_name "ICL" -CA_cert_file_name "ca_igloo_cert.cer" - CA_pk_file_name "ca_
igloo_pk.cer" -nb_time 10/10/2013 -na_time 11/11/2013
```

c. Install the CA using one of the following options:

   - **-install <name of certificate file>**. Replaces any previous CA list and creates a new one that includes this CA only.
   - **-install_add <name of certificate file>.** Adds the new CA to the existing CA list.

   > **Note:** The `-install` and `-install_add` options install the certificate file only. Keep the private key file in a safe place and use it only for issuing certificates.

2. **Create a Digital Certificate**

> **Note:** This step describes how to create a digital certificate using the **gen_cert.exe** utility. If you are working on a Linux platform, use the **gen_cert** utility instead.

To create a digital certificate, perform the following steps:

a. Run the **gen_cert** utility from the **<LoadRunner root folder>\bin** folder.

b. Run the **gen_cert** command with at least one of the following options:

   - **-country_name**
   - **-organization_name**
   - **-organization_unit_name**
   - **-eMail**
   - **-common_name**

   It is important to note the following:

   - The CA Certificate and the CA Private Key files are necessary for the creation of the certificate. By default, it is assumed that they are in the current folder, and are named **cacert.cer** and **capvk.cer** respectively. In any other case, use the **-CA_cert_file_name** and **-CA_pk_file_name** options to give the correct locations.
   - The certificate file is created in the folder from which the utility was run. By default, the file name is **cert.cer**.

3. **Copy the certificates to ALM, Performance Center, and the Controller**

a. **ALM:** Copy **cert.cer** and **cacert.cer** to `<ALM deployment directory>\repository\sa\DomsInfo\Certificates`.

b. **Performance Center server:** Copy **cert.cer** to `<Performance Center Server directory>\dat\cert`, and **cacert.cer** to `<Performance Center Server directory>\dat\cert\Verify`.

c. **Controller:** Copy **cert.cer** to `<Performance Center Host directory>\dat\cert`, and **cacert.cer** to `<Performance Center Host directory>\dat\cert\Verify`.

Initial Cloud Settings User Interface

This section includes:

Cloud Network Settings Dialog Box

This dialog box enables you to define settings for enabling communication with ALM and your cloud-based load generators in order to run performance tests.

To Access	**Lab Management** only: In Lab Management, on the masthead, click ⚙ and select **Cloud Network Settings**.
Relevant tasks	• "How to Initially Set Up Communication with the Cloud" on page 60 • "How to Set Up Cloud Network Settings" on page 62 • "How to Create Digital Certificates" on page 63 • "How to Set Up Cloud Hosts" on page 53
See also	• "Initial Cloud Settings Overview" on page 55 • "Cloud Accounts Overview" on page 68

Proxy Settings

User interface elements are described below:

UI Elements	Description
Proxy Server	The URL of your proxy server (format: `http[s]://server[:8080]`).
User Name	The user name of a user with connection rights to the proxy server (format: **Domain\username**).
Password	The password of the user with connection rights to the proxy server.

Performance Center Communication Settings

User interface elements are described below:

UI Elements	Description
User Proxy Server for Load Generator Communication	Enables you to communicate with your load generator using the proxy details defined in the Proxy Settings section above. **Note:** Enabling this option also enables the **Use SSL for Load Generator Communication** option.
Use SSL for Load Generator Communication	Enables you to communicate with your load generator using SSL. **Note:** • This is the default selection. • To use SSL, you must create digital certificates. The certificates must be stored on ALM, the Performance Center server, and the Controller. For more details on creating digital certificates, see "How to Create Digital Certificates" on page 63.
Performance Center Agent Service Port	The Performance Center Agent Service port number. This port is used for running Vusers on the load generator. **Note:** Port must be opened for outgoing requests. **Default value:** 54345
Remote Management Agent Service Port	The Remote Management Agent port number. This port is used for Lab Management operations. **Note:** Port must be opened for outgoing requests. **Default value:** 54245

Cloud Accounts

This section includes:

Cloud Accounts Overview

After establishing a cloud provider account, you must also establish a cloud account in ALM. When defining a cloud account in ALM, you enter your cloud provider credentials, associate projects to the account, and define the total number of cloud credits allowed for consumption by your provisioned hosts.

Cloud accounts can be added from Lab Management or from ALM projects. Accounts added from Lab Management are public and can be accessed by any project they are linked to. Accounts added from ALM projects are private and can be accessed only from the projects where they were created.

> **Note:** You must have an existing HP Helion, Microsoft Azure, or Amazon EC2 account in order to add an account in ALM.

Cloud Credits

When setting up cloud accounts in ALM, to ensure efficiency and reduce cost, you can regulate cloud provisioning usage by assigning virtual cloud credits to your projects. For each project, you can define the total number of cloud credits allowed for consumption by your provisioned hosts. Note that credits used and consumed are not representative of the actual cost to your cloud provider.

You can set up to receive email alerts notifying you when your credits drop below a defined amount. For more details, see "How to Configure Cloud Alerts" on page 104. You can also monitor your cloud credits consumption by generating usage reports, For more details, see "How to Generate Usage Reports" on page 179.

> **Note:**
>
> - After a host is provisioned, it consumes credits from the project that provisioned it.
> - Credits are consumed for each host on an hourly basis, and the number of credits consumed per hour is specified in the host template.
> - Hosts can only be provisioned if sufficient credits are available. When the total amount of credits drops to zero, you will not be able to provision new hosts. Already provisioned host will continue to consume credits.

For details on creating and managing cloud accounts in ALM, see "How to Manage Cloud Accounts" below.

How to Manage Cloud Accounts

This section describes how to manage your cloud accounts in ALM.

For an overview, see "Cloud Accounts Overview" above.

> **Note:** This task is part of a higher-level task. For details, see "How to Set Up Cloud Hosts" on page 53.

Adding a Cloud Account

This task describes how to add a cloud account to ALM and how to link projects to that account.

1. **Prerequisites**

   To add a cloud account to ALM, you must have an existing cloud account with a supported cloud provider.

   After you have your cloud account ready, you need to record the following information from your cloud provider's website:

   - Account Access Key (for HP Helion and Amazon EC2 accounts only)
   - Account Secret Key (for HP Helion and Amazon EC2 accounts only)
   - Project ID (for HP Helion accounts only)
   - Cloud Project Name (for HP Helion accounts only)
   - Account Number (for Amazon EC2 accounts only)
   - Subscription ID (for Microsoft Azure accounts only)
   - Certificate File (for Microsoft Azure accounts only)

2. **Add a cloud account to ALM**

   To add a cloud account to ALM:

   a. In ALM or Lab Management, go to **Cloud Settings > Cloud Accounts**.

   b. Click the **New Cloud Account** button . This opens the "New Cloud Account Dialog Box" on page 77.

   c. Enter your cloud account information. Click **OK** to add the cloud account to ALM.

   d. If the **Provider** is Microsoft Azure, the MS Azure API Access Certificate dialog box opens.

      i. Select the Microsoft Azure service certificate in the Personal Information Exchange (.pfx) format.

      ii. Enter the password for the service certificate.

      iii. Click **OK**.

   > **Note:** The account creation process may take several minutes to complete.

   > **Note:** Cloud accounts added from user projects are private and can be used only by the projects that created them. However, if a project shares a pool with other projects, the

> provisioned machines will be seen from all projects that are sharing the same pool.

You can now create templates and provision hosts from this cloud account.

3. **Link projects to your cloud account**

   Every project that needs to provision hosts from a cloud account created in Lab Management must be linked to that account.

   To link projects to a cloud account created in Lab Management:

   a. In Lab Management, go to **Cloud Settings > Cloud Accounts**.

   b. In the Accounts grid, select the cloud account you would like to link.

   c. In the **Linked Projects** tab, click **Assign Projects to Cloud Account**. This opens the "Assign Projects to Cloud Account Dialog Box" on page 79.

   d. Select projects from the grid and click **Assign**. This links the selected projects to the cloud account.

   All linked projects may now provision cloud hosts from the selected cloud account.

   > **Note:** Only accounts added in Lab Management can be linked to projects. An account added from a user projects is automatically linked to the project that added it, and it may not be linked to any other project.

4. **Define the total number of credits for your cloud account**

   When defining credits in Lab Management, you allocate credits for each project listed in your cloud account. In ALM, you define credits for a single project.

   - **Lab Management**: In the **Linked Projects** tab, under **Credit Balance**, define the number of credits for each project listed in the account.
   - **ALM**: Go to **Cloud Settings > Cloud Accounts**. In the Accounts grid, select the cloud account. In the **Credits** tab, define the number of credits for the account.

   > **Note:**
   >
   > - After a host is provisioned, it consumes credits from the project and the account that provisioned it.
   > - Credits are consumed for each host on an hourly basis, and the number of credits consumed per hour is specified in the host template.
   > - Hosts can only be provisioned if sufficient credits are available. When the total amount of credits drops to zero, you will not be able to provision new hosts. Already provisioned host will continue to consume credits.

- You can set up to receive email alerts notifying you when your credits drop below a defined amount. For more details, see "How to Configure Cloud Alerts" on page 104. You can also monitor your cloud credit consumption by generating usage reports, For more details, see "How to Generate Usage Reports" on page 179.

Modifying Cloud Account Details

To modify details for a cloud account:

1. Log into the project that created the cloud account.
2. In **Cloud Settings > Cloud Accounts**, select a cloud account in the grid and click the **Cloud Account Details** button. This opens the "Cloud Account Details Dialog Box" on page 78.
3. Make any necessary changes and click **OK**.

Deleting a Cloud Account

To delete a cloud account:

1. Terminate all cloud hosts provisioned from the cloud account you wish to delete. See "How to Provision and Terminate Cloud Hosts" on page 94 for more information.
2. Log into the project that created the cloud account you wish to delete.
3. In **Cloud Settings > Cloud Accounts**, select a cloud account in the grid and click the **Delete** button. The cloud account and all host templates using the cloud account are deleted.

Caution: When deleting a cloud account, all host templates using that cloud account are deleted as well.

Note: You cannot delete a cloud account if there are cloud hosts that are currently provisioned by that account.

Cloud Accounts User Interface

This section includes:

Cloud Accounts Module Window

The Cloud Accounts module allows you to add your external cloud accounts to ALM.

To Access	**Lab Management** and **ALM**: On the sidebar, under **Cloud Settings**, click **Cloud Accounts**.
Important information	**Lab Management**: Accounts created within user projects are read-only. To edit these accounts, access the owner project. **ALM**: Only accounts created within the current project are visible.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68, "Cloud Hosts Overview" on page 52

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

UI Elements	Description
<Cloud Accounts module common UI elements>	**Cloud Accounts module fields:** For field definitions, see "Cloud Accounts Module Fields" on page 75. **Cloud Accounts menus and buttons:** For command and button descriptions, see "Cloud Accounts Module Menus and Buttons" on the next page.
<Accounts grid>	Displays a list of cloud accounts you've added to ALM.
Description tab	Allows you to enter a description for the selected cloud account.
Linked Projects tab	Displays a list of projects linked to the selected cloud account and allows you to link or unlink additional projects. In order for a user project to provision hosts from a cloud account created in Lab Management, you must link the account to the project. In addition, this tab displays total credits available for the selected account.For more information, see "Cloud Account Linked Projects Page" on page 80. **Available from:** Lab Management
Credits	Displays total credits available for the selected account. **Available from:** ALM
Event Log	The Event Log displays the events that occur in a creating the cloud account, reporting the source and severity of each event. For more information, see "Event Log" on page 145.

UI Elements	Description
History tab	Lists changes made to the selected cloud account. For more details, see the *HPE Application Lifecycle Management User Guide*.

Cloud Accounts Module Menus and Buttons

This section describes the menus and buttons available in the Cloud Accounts module.

Important information	**Lab Management**: Accounts created within user projects are read-only. To edit these accounts, access the owner project. **ALM**: Only accounts created within the current project are visible.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68, "Cloud Hosts Overview" on page 52

User interface elements are described below:

UI Element (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 *HPE Application Lifecycle Management User Guide*.
Cloud Account Details	Cloud Accounts and <right-click menu>	Opens the Cloud Account Details dialog box so that you can view details of a cloud account. See "Cloud Account Details Dialog Box" on page 78 for more information.
Copy URL	Cloud Accounts and <right-click menu>	Copies a link to the selected cloud account. The cloud account itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking on the link opens ALM and takes you directly to the cloud account. If you are not already logged in, ALM first prompts for login details.
Delete	Edit and <right-click menu>	Deletes the selected cloud account. A cloud account can only be deleted if there are no cloud hosts that are currently provisioned from that account.

UI Element (A - Z)	Menu	Description
Export	Cloud Accounts and <right-click menu>	Opens the Export All Grid Data dialog box, enabling you to export the accounts 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 an account. For details about search options, see the *HPE Application Lifecycle Management User Guide*.
Go to Cloud Account	Cloud Accounts	Opens the Go To Cloud Account dialog box, enabling you to find a specific cloud account by its ID number.
Grid Filters	View and <right-click menu>	Displays the filter boxes for each column in the grid. For details about filtering options, see the *HPE 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 Cloud Account	Cloud Accounts	Opens the New Cloud Account dialog box so that you can add a new cloud account. See "New Cloud Account Dialog Box" on page 77 for more information.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HPE Application Lifecycle Management User Guide*.
Private	Favorites	Lists favorite views that are accessible only to the user who created them.
Public	Favorites	Lists favorite views that are accessible to all users.

UI Element (A - Z)	Menu	Description
Refresh All	View	Refreshes the view to display the most up-to-date information.
Replace	Edit and <right-click menu>	Opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.
Set Filter/Sort	View	Enables you to set filter and sort options for the Cloud Accounts grid. Includes the following options: • **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort cloud accounts. • **Clear Filter/Sort.** Clears any filters or sorting that you have applied. For more details, see the *HPE 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 multiple cloud accounts in the grid. For more details, see the *HPE Application Lifecycle Management User Guide*.

Cloud Accounts Module Fields

This section describes cloud account fields. In Lab Management, all fields in private accounts are read-only.

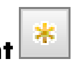
Field (A - Z)	Description
Access Key	Allows ALM to connect to your cloud account. Given to you by your cloud account provider. **Note:** Not applicable for Microsoft Azure cloud accounts.

Field (A - Z)	Description
Account ID	The ID of the account. Generated automatically by ALM at the time the account is added.
Account Number	The Amazon EC2 account number. This number is used to access custom images from the cloud account. **Note:** Adding an incorrect account number will result in the inability to access custom images related to this account. **Available for:** Amazon EC2 accounts only.
Active Hosts	The number of currently provisioned hosts from this account. Hosts can be viewed in Lab Management from **Lab Resources > Hosts** and in ALM from **Lab Resources > Testing Hosts**.
Cloud Project ID	The HP Helion project ID number. This number is used to access custom images from the cloud account. **Note:** Adding an incorrect ID number will result in the inability to access custom images related to this account. **Available for:** HP Helion accounts only.
Created By	The user who created the account.
Cloud Project Name	The HP Helion project name. **Available for:** HP Helion accounts only.
Created in Project	The project the cloud account was created in.
Description	A description of the cloud account.
Name	The name you choose for the cloud account.
Provider	The cloud provider for a specific account. **Note:** HPE ALM only integrates with HP Helion, Microsoft Azure, and Amazon EC2 cloud accounts.

Field (A - Z)	Description
Secret Key	Serves as the password for the **access key** used to connect to your cloud account. Given to you by your cloud provider. **Note:** Not applicable for Microsoft Azure cloud accounts.
Subscription ID	The subscription ID for the Microsoft Azure cloud account. **Available for:** Microsoft Azure accounts only.

New Cloud Account Dialog Box

This dialog box allows you to add new cloud accounts to ALM.

To Access	**Lab Management** and **ALM**: 1. On the sidebar, under **Cloud Settings**, click **Cloud Accounts**. 2. Click the **New Cloud Account**  button or choose **New Cloud Account** from the Cloud Accounts menu.
Important information	• You must have an existing HP Helion, Microsoft Azure, or Amazon EC2 account to add an account in ALM. • The field Cloud Project ID is displayed only if Provider is set to HP Helion. • Cloud account added from Lab Management are public accounts and can be used by any project. Cloud accounts added in user projects are private and can be used only in the project they are added from.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68

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

UI Element	Description
	**Reset All Fields.** Erases all data entered into fields 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.

UI Element	Description
	Spelling Options. Enables you to configure how to check the spelling.
	Field Search. Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Name	The name you choose for the cloud account.
Details	Required fields are displayed in red. For more information about the available cloud account fields, see "Cloud Accounts Module Fields" on page 75.
Description	Allows you to enter a description of the cloud account.

Cloud Account Details Dialog Box

This dialog box displays details about the selected cloud account.

To Access	**Lab Management** and **ALM**: 1. On the sidebar, under **Cloud Settings**, click **Cloud Accounts**. 2. Right-click on a cloud account in the grid and select **Cloud Account Details**.
Important information	• This dialog box is available both in Lab Management and in ALM. • **Lab Management**: Cloud accounts added in user projects are read-only. • **ALM**: Accounts created in Lab Management are read-only. • The field **Tenant ID** appears only if the account provider is HP Helion.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68

User interface elements are described below:

UI Elements	Description
	Save. Saves the details.
	First/Previous/Next/Last Entity. Enables you to browse through the list of cloud accounts.

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Account ID	The ID of the account. Generated automatically by ALM at the time the account is added.
Name	The name you chose for the cloud account.
Details	Lists the details of the currently selected cloud account. For more information about the available cloud account fields, see "Cloud Accounts Module Fields" on page 75.
Credit	Define total credits for the selected account. **Available from:** ALM
Linked Projects	Allows you to link user projects to the account. In order for a cloud account created in Lab Management to be accessible from a user project, you must link the account to the project. For more information, see "Cloud Account Linked Projects Page" on the next page. **Available from:** Lab Management
Event Log	The Event Log displays the events that occur in a creating the cloud account, reporting the source and severity of each event. For more information, see "Event Log" on page 145.
History	Lists changes made to the currently selected cloud account. For more details, see the *HPE Application Lifecycle Management User Guide*.

Assign Projects to Cloud Account Dialog Box

This dialog box allows you to link projects to a cloud account.

To Access	**Lab Management only:** • From the Cloud Accounts module: On the Lab Management sidebar, under Cloud Settings, select **Cloud Accounts**. In the information panel, select **Linked Projects** and click the **Assign Projects to Cloud Account** button. • From the Cloud Account Details dialog box: On the Lab Management sidebar, under Cloud Settings, select Cloud Accounts. Right-click a cloud account and select **Cloud Account Details**. In the Cloud Account Details dialog box, select **Linked Projects** and click the **Assign Projects to Cloud Account** button.
Important information	The Assign Projects to Cloud Account dialog box only appears in Lab Management.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68

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.
Assign	Assign the selected project to the cloud account.
<Projects grid>	Lists the projects that can be assigned to the cloud account.
Selected	Displays the projects to be assigned to the cloud account.

Cloud Account Linked Projects Page

The Linked Projects page allows you to link a cloud account to one or more projects. Once an account is linked to a project, the account can be used to provision hosts from within the project. In addition, this page displays total credits available for the selected account.

To Access	**Lab Management** only: • From the Cloud Accounts module: On the Lab Management sidebar, under Cloud Settings, select **Cloud Accounts**. In the information panel, select **Linked Projects**. • From the Cloud Account Details dialog box: On the Lab Management sidebar, under Cloud Settings, select **Cloud Accounts**. Right-click a cloud account and select **Cloud Account Details**. In the Cloud Account Details dialog box, select **Linked Projects**.

Important information	To provision hosts from a Lab Management cloud account when you are within a user project, you must link the cloud account to the project from this page. The Cloud Account Linked Projects page only appears in Lab Management.
Relevant tasks	"How to Manage Cloud Accounts" on page 68
See also	"Cloud Accounts Overview" on page 68

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

UI Elements	Description
	**Assign Projects to Cloud Account.** Opens the Assign Projects to Cloud Account dialog box, enabling you to select projects that can provision from this cloud account. For details, see "Assign Projects to Cloud Account Dialog Box" on page 79.
	**Unassign Project From Cloud Account.** Prevents the selected projects from provisioning from this cloud account.
	**Go to Project.** Displays the selected project in the Project Settings module.
	**Refresh All.** Refreshes the grid so it displays the most up-to-date information.
Project	Displays projects linked to the cloud account.
Credit Balance	Displays the remaining credit balance.

Host Templates

This section includes:

Host Templates Overview

A host template defines technical details related to the host that is going to be provisioned using that template. The following details are specified in a host template:

- The cloud account that is used to provision the host.
- The cost per hour. It indicates the number of credits the host consumes per hour.

> **Note:** Credits used and consumed are not representative of the actual cost to your cloud provider.

- The host type and purpose.

> **Note:** HPE ALM supports only performance testing load generators.

- The cloud location where hosts are provisioned.
- The hardware specs of the host (Instance Type).
- The software image used for the host (Machine Image).

> **Note:** HP provides a number of predefined images for you to use when creating host templates. It is recommended that you use the predefined images. Instance types and machine images are managed on the website of your cloud provider, and are accessed automatically when creating host templates. For Microsoft Azure cloud accounts, you cannot use predefined images. You must create you own images.

All cloud hosts are provisioned from host templates. When you provision a host, ALM copies the details of the template into the provisioned host.

By default, ALM creates host templates for each HP Helion and Amazon EC2 cloud account. The templates use the predefined HP images and the recommended hardware settings (defined by instance type) for the load generator machine. You can use the default host templates or create your own host templates. For Microsoft Azure cloud accounts, you must create you own host templates. When using the template hosts, the administrator can control and manage which machine's specifications are allowed and recommended for use.

Host templates can be managed from Lab Management or from ALM projects. Host templates added from Lab Management are public and can be used by any project that is linked to the template's cloud account. Host templates added from user projects are private and can be used only by the projects that created them.

For instructions for creating a host template, see "How to Manage Host Templates" on the next page.

How to Manage Host Templates

This section describes how to create and manage host templates in ALM.

For an overview, see "Host Templates Overview" on the previous page.

> **Note:** This task is part of a higher-level task. For details, see "How to Set Up Cloud Hosts" on page 53.

Creating a Host Template

This task describes how to create a host template in ALM.

1. **Considerations when creating host templates**

   When creating host templates, make sure to:

   - Create a template for each host configuration that your testers will need. Testers can only provision cloud hosts from existing templates.
   - Clearly describe the type of host that is provisioned by each template so that testers can provision exactly the hosts they need.
   - Ensure that the number of credits consumed by a host accurately reflects the cost of provisioning that host.

2. **Prerequisites**

   To add a host template to ALM, you must have added at least one cloud account. See "How to Manage Cloud Accounts" on page 68 for more information.

   When creating host templates, you need to supply the following:

   - **Location.** Specifies the cloud region from which the template provisions hosts. The instance types and machine images available for the template depend upon the chosen location.
   - **Instance Type.** Specifies the hardware configuration of hosts created from the template. Instance types are provided by your cloud provider. Familiarize yourself with each of the instance types available from your cloud provider before you start creating host templates.
   - **Machine Image.** Specifies the software image to use for hosts created from the template. Machine images are managed on the website of your cloud provider. Make sure to upload all required images to your cloud provider before you start creating host templates. HP also provides a set of predefined images for you to use. Microsoft Azure cloud accounts cannot use predefined images.

3. **Create a host template**

   To create a host template:

   a. Log into the project that created the cloud account for which you are creating host templates.

   b. Go to **Cloud Settings > Host Templates**.

c. Click the **New Host Template** button . This opens the New Host Template Dialog Box. For more information, see "New Host Template Dialog Box" on page 91.

d. Enter the details of the new host template and click **OK**. The host template is created. For information about what to enter in each field, see "Host Templates Module Fields" on page 89.

Your new host template can now be used to provision cloud hosts.

> **Note:**
>
> - Host templates added from user projects are private and can be used only by the projects that created them. Host templates added from Lab Management are public and can be used by any project that is linked to the template's cloud account.
> - When creating a host template, you can only select cloud accounts that were added in the same project.

Creating Images for Microsoft Azure Cloud Accounts

To create images for Microsoft Azure cloud accounts:

1. Create a new instance from the cloud console, using a Windows Server 2008 R2 Enterprise SP1 x64 Image. For details, see http://azure.microsoft.com/en-us/documentation/articles/virtual-machines-create-custom/.
2. Connect to the instance that you just created. For details, see http://azure.microsoft.com/en-us/documentation/articles/virtual-machines-log-on-windows-server/.
3. Install a standalone Load Generator in Performance Center.
4. Turn off firewalls using the following command:

   ```
   netsh advfirewall set allprofiles state off
   ```

5. Register the LGCloudAgent service using the following command:

   ```
   sc create LGCloudAgent binPath= "c:\Program Files (x86)\HP\Load
   Generator\bin\LGCloudAgent.exe" start= auto
   ```

6. Disable autostart for the LoadRunnerAgent service:
   - `sc config LoadRunnerAgent start= demand`
   - `sc config remotemanagementagent start= demand`
7. Run the System Preparation Tool using the Generalize and Shutdown options, as described in http://azure.microsoft.com/en-us/documentation/articles/virtual-machines-capture-image-windows-server/. Wait until the instance stops.
   - `cd %windir%\system32\sysprep`
   - `sysprep (generalize, shutdown)`
8. Create an image from the instance. Value the following fields:

a. **$new_image_name:** The image name.
b. **$new_image_label:** The image label.
c. **$service_name:** The name of the service of the instance provisioned in Step 1.
d. $**deployment_name:** The deployment name.
e. **$role_name:** The name of the virtual machine.

Modifying Host Template Details

To modify details for a host template:

1. Log into the project that created the host template.
2. In **Cloud Settings > Host Template**, select a host template in the grid and click the **Host Template Details** button. This opens the "Host Template Details Dialog Box" on page 92.
3. Make any necessary changes and click **OK**.

Deleting a Host Template

To delete a host template:

1. Log into the project that created the host template you wish to delete.
2. In **Cloud Settings > Host Templates**, select a host template in the grid and click the **Delete** button. The host template is deleted.

> **Note:** Deleting a host template does not terminate cloud hosts provisioned from that template. See "How to Provision and Terminate Cloud Hosts" on page 94 for more information about terminating cloud hosts.

Host Templates User Interface

This section includes:

Host Templates Module Window

The Host Templates module allows you to create host templates for use in provisioning cloud hosts.

To Access	**Lab Management** and **ALM**: On the sidebar, under Cloud Settings, click **Host Templates**.
Important information	**Lab Management**: Host templates created within user projects are read-only. To edit these accounts, access the owner project. **ALM**: Only host templates created within the current project are visible.
Relevant tasks	"How to Manage Host Templates" on page 83
See also	"Host Templates Overview" on page 82, "Cloud Hosts Overview" on page 52

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

UI Elements	Description
<Host Templates module common UI elements>	**Host Templates module fields:** For field definitions, see "Host Templates Module Fields" on page 89. **Host Templates menus and buttons:** For command and button descriptions, see "Host Templates Module Menus and Buttons" below.
<Templates grid>	Displays a list of host templates you've added to ALM.
Description tab	Allows you to enter a description for the selected host template.
History tab	Lists changes made to the selected host template. For more details, see the *HPE Application Lifecycle Management User Guide*.

Host Templates Module Menus and Buttons

This section describes the menus and buttons available in the Host Templates module.

Important information	**Lab Management**: Host templates created within user projects are read-only. To edit these accounts, access the owner project. **ALM**: Only host templates created within the current project are visible.
Relevant tasks	"How to Manage Host Templates" on page 83
See also	"Host Templates Overview" on page 82, "Cloud Hosts Overview" on page 52

User interface elements are described below:

UI Element (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 *HPE Application Lifecycle Management User Guide*.
Host Template Details	Host Templates and <right-click menu>	Opens the Host Template Details dialog box so that you can view details of a host template. See "Host Template Details Dialog Box" on page 92 for more information.
Copy URL	Host Templates and <right-click menu>	Copies a link to the selected host template. The host template itself is not copied. Instead, you can paste the address into another location, such as an email or a document. Clicking on the link opens ALM and takes you directly to the host template. If you are not already logged in, ALM first prompts for login details.
Delete	Edit and <right-click menu>	Deletes the selected host template. **Note:** Deleting a host template does not terminate cloud hosts provisioned from that template.
Export	Host Templates and <right-click menu>	Opens the Export All Grid Data dialog box, enabling you to export the templates 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 template. For details about search options, see the *HPE Application Lifecycle Management User Guide*.
Go to Host Template	Host Templates	Opens the Go To Host Template dialog box, enabling you to find a specific host template by its ID number.

UI Element (A - Z)	Menu	Description
Grid Filters	View and <right-click menu>	Displays the filter boxes for each column in the grid. For details about filtering options, see the *HPE 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 Host Template 	Host Templates	Opens the New Host Template dialog box so that you can add a new host template. See "New Host Template Dialog Box" on page 91 for more information.
Organize Favorites 	Favorites	Organizes your favorite views. For details, see the *HPE Application Lifecycle Management User Guide*.
Private	Favorites	Lists favorite views that are accessible only to the user who created them.
Public	Favorites	Lists favorite views that are accessible to all users.
Refresh All 	View	Refreshes the view to display the most up-to-date information.
Replace	Edit and <right-click menu>	Opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.

UI Element (A - Z)	Menu	Description
Set Filter/Sort 	View	Enables you to set filter and sort options for the Host Templates grid. Includes the following options: • **Set Filter/Sort.** Opens the Filter dialog box, enabling you to filter and sort host templates. • **Clear Filter/Sort.** Clears any filters or sorting that you have applied. For more details, see the *HPE 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 multiple host templates in the grid. For more details, see the *HPE Application Lifecycle Management User Guide*.

Host Templates Module Fields

This section describes host template fields. Host template fields can only be edited in the project from which the template was created.

Field (A - Z)	Description
Cloud Account	The cloud account for which the template provisions a host.
Description	A description of the host template. **Tip:** Clearly describe the type of host that is provisioned by each template so that testers can choose the appropriate templates when provisioning hosts.
Host Attributes	Allows you to specify the system attributes of the host. **Example:** Host memory: High; Host strength: Medium; Installed components: Citrix Client. **Tip:** You can customize the host attributes in Lab Management. For details, refer to the *HPE Application Lifecycle Management Administrator Guide*.
Host Credit	Number of credits per hour consumed by each host provisioned from this template.

<table>
<tr><th>Field (A - Z)</th><th>Description</th></tr>
<tr><td>Host Installation</td><td>The installation type of the host.
The following types are available:
Unix Load Generator. Indicates that this Unix host is used as a Load Generator for performance tests.
Windows Standalone LG. Indicates that this Windows host is used as a standalone Load Generator for performance tests.
Note:
Make sure you select the correct installation type for the image. Incorrect settings will cause the performance tests to run incorrectly.
Unified Functional Testing and Windows Host options appear in the Host Installation list but are not available for selection</td></tr>
<tr><td>Host Purpose</td><td>The testing tools available on the host. For example: Controller, Load generator, Data processor, QuickTest Professional, Sprinter, and so on.
Note: HPE ALM supports only Load Generator.</td></tr>
<tr><td>Instance Type</td><td>The hardware specs of cloud hosts provisioned from the template. Instance types can be viewed on the website of your cloud provider, and are accessed automatically when creating host templates.</td></tr>
<tr><td>Location</td><td>In HP Helion, the availability zone where the hosts are provisioned. In Amazon EC2 and Microsoft Azure, the region where the hosts are provisioned.</td></tr>
<tr><td>Machine Image</td><td>The software image used for cloud hosts provisioned from the template. Machine images are managed on the website of your cloud provider, and are accessed automatically when creating host templates.
Note: If the Machine Image value cannot be displayed, verify that you used the correct cloud account number.</td></tr>
<tr><td>Template ID</td><td>The ID of the host template. Generated automatically by ALM at the time the template is created.</td></tr>
<tr><td>Template Name</td><td>The name you give to the template.</td></tr>
</table>

New Host Template Dialog Box

This dialog box allows you to add new host templates to ALM.

To Access	**Lab Management** and **ALM**: 1. On the sidebar, under Cloud Settings, click **Host Templates**. 2. Click the **New Host Template**  button or choose **New Host Template** from the Host Templates menu.
Important information	You must have an existing HP Helion, Microsoft Azure, or Amazon EC2 account to add a host template in ALM.
Relevant tasks	"How to Manage Host Templates" on page 83
See also	"Host Templates Overview" on page 82

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

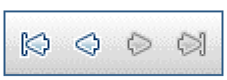
UI Element	Description
	**Reset All Fields.** Erases all data entered into fields in the dialog box.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Name	The name you choose for the host template. Choose a name that clearly describe the type of host that is provisioned by the template so that testers can provision exactly the hosts they need
Details	Required fields are displayed in red. For more information about the available host template fields, see "Host Templates Module Fields" on page 89.
Description	Allows you to enter a description of the host template.

Host Template Details Dialog Box

This dialog box displays details about the selected host template.

To Access	**Lab Management** and **ALM**: 1. On the sidebar, under Cloud Settings, click **Host Templates**. 2. Right-click on a host template in the grid and select **Host Template Details**.
Important information	• This dialog box is available both in Lab Management and in ALM. • Host template fields can only be edited in the project from which the template was created.
Relevant tasks	"How to Manage Host Templates" on page 83
See also	"Host Templates Overview" on page 82

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**First/Previous/Next/Last Entity.** Enables you to browse through the list of host templates.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Template ID	The ID of the host template. Generated automatically by ALM at the time the host template is added.
Template Name	The name you chose for the host template.

UI Elements	Description
Details	Lists the details of the currently selected host template. For more information about the available host template fields, see "Host Templates Module Fields" on page 89.
Description	Allows you to enter a description of the host template.
History	Lists changes made to the currently selected host template. For more details, see the *HPE Application Lifecycle Management User Guide*.

Provisioning Hosts

This section includes:

Provisioning Hosts Overview

As with all testing hosts, cloud hosts must be added to your lab resources before you can use them for running tests. The process of adding cloud hosts is called provisioning. When you provision a host, you are reserving a machine on the cloud with a specific configuration. The configuration includes the hardware details of the machine and the software image applied to the machine. In ALM, all hosts are provisioned from templates. For more information about host templates, see "Host Templates Overview" on page 82.

For instructions on how to provision hosts, see "How to Provision and Terminate Cloud Hosts" below.

> **Note:**
>
> - Hosts can be provisioned in Lab Management from **Lab Resources > Hosts**. Hosts can be provisioned in user projects from **Lab Resources > Testing Hosts**.
> - After a host is provisioned, it consumes credits from the project that provisioned it. Credits are consumed for each host on an hourly basis, and the number of credits consumed per hour is specified in the host template. You must have at least one credit to provision your requested hosts.

How to Provision and Terminate Cloud Hosts

This section describes how to provision and terminate cloud hosts from ALM.

For an overview, see "Provisioning Hosts Overview" above.

> **Note:** This task is part of a higher-level task. For details, see "How to Set Up Cloud Hosts" on page 53.

Provisioning Cloud Hosts

This task describes how to provision cloud hosts in ALM.

1. **Prerequisites**

   To provision hosts from ALM:

   - You must have at least one cloud account and at least one host template linked to your project. See "How to Manage Cloud Accounts" on page 68 and "How to Manage Host Templates" on page 83 for more information.
   - Your project must have enough cloud credits available to provision your desired hosts. See "How to Manage Cloud Accounts" on page 68 for more information. If you do not have permission to add credits to a project, contact your lab administrator.

   When provisioning hosts, you need to supply the following:

- **Security Group.** Specifies the incoming and outgoing network traffic allowed to your cloud hosts. For example, if you need to connect to your cloud hosts via Remote Desktop, your security group must allow incoming traffic over TCP port 3389 (RDP). Security groups are configured on the website of your cloud provider and are selected in ALM during provisioning. For more information about security groups, see "Initial Cloud Settings Overview" on page 55.
- **Key Pair.** Allows you to connect remotely to your cloud hosts. For Windows hosts, the key pair is used to generate the main administrator password. For Linux hosts, the key pair is used to log in to the machine. Key pairs are created on the website of your cloud provider and are selected in ALM during provisioning. For more information about key pairs, see "Initial Cloud Settings Overview" on page 55.

> **Note:** Not applicable for Microsoft Azure cloud accounts.

> **Note:** Security groups and key pairs are created separately for each cloud location. Make sure that you have configured the necessary security groups and key pairs for the locations you will provision from.

> **Note:** HP Helion only supports elastic IP addresses. You cannot provision hosts using fixed IP addresses. For additional information, see the HP Helion Public Cloud Web site (http://www.hpcloud.com/).

2. **Considerations when provisioning hosts**

   When provisioning hosts, keep in mind:

   - The location where you provision hosts can impact the effectiveness of your testing. Make sure to select a cloud location that matches your testing needs.
   - Host templates are created separately for each location, so a template that exists in one location may not exist in a different location. Make sure that you know which locations contain the templates you need or that you add your desired templates to the locations you intend to provision from.
   - If you need to connect remotely to the provisioned hosts, make sure to select a key pair for which you have the private key and to select a security group that allows remote connections.

     > **Note:** Not applicable for Microsoft Azure cloud accounts.

   - Hosts are provisioned in batches. All hosts provisioned in a single batch use the same account, location, and template, and have identical configurations. To provision different types of hosts, you must create different batches. A single provision request can include multiple batches of hosts.

3. **Provision cloud hosts**

To provision cloud hosts:

a. In Lab Management, go to **Lab Resources > Hosts**. In ALM, go to **Lab Resources > Testing Hosts**.

b. Click the **Provision...** button . This opens the Provision Hosts Dialog Box. For more information, see "Provision Cloud Hosts Dialog Box" on the next page.

c. Enter the details for each batch of hosts to be provisioned and click **Add Batch**.

> **Note:** You must have at least one credit to provision your requested hosts.

d. After adding all necessary batches, click **Provision**. The hosts are queued for provisioning and the Cloud Provisioning Report opens.

4. **Post provisioning**

   The Host Provisioning Report shows you provisioning progress, and automatically refreshes to show updates. If there are any errors during provisioning, you will see them here. For more information, see "Host Provisioning Report" on page 101.

   Once your cloud hosts are provisioned, you can begin to use them for running tests.

   > **Note:** There may be a delay of a few minutes between the time that a cloud host's status changes to Operational and the time that the host is ready for use.

   After provisioning is complete, the hosts begin to consume credits from your project.

Terminating Cloud Hosts

To terminate a cloud host:

1. In Lab Management, go to **Lab Resources > Hosts**. In ALM, go to **Lab Resources > Testing Hosts**.
2. Select a cloud host in the grid and click the **Delete** button . The cloud host is queued for termination.

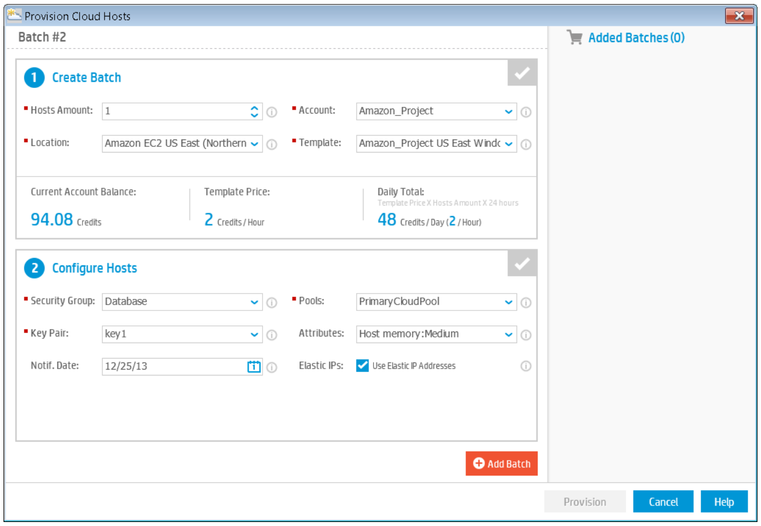
It may take a few moments to terminate the host. After the host is terminated, it is removed from the Hosts grid.

Provisioning Hosts User Interface

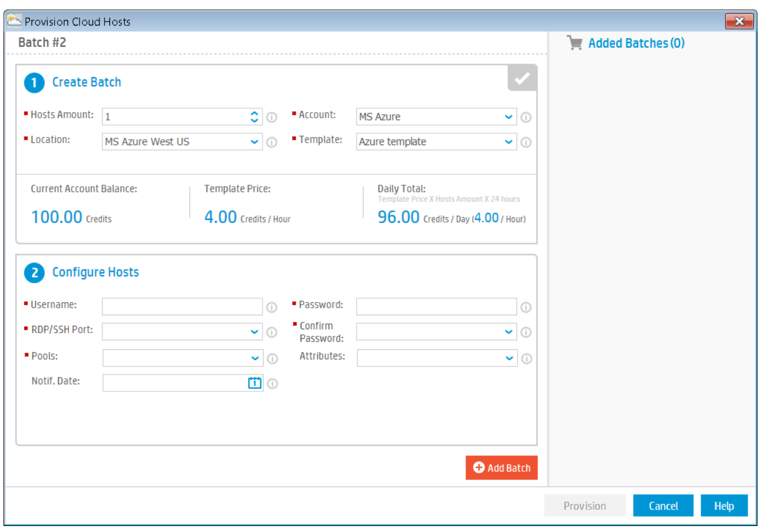
This section includes:

Provision Cloud Hosts Dialog Box

The Provision Cloud Hosts dialog box enables you to provision hosts. You can choose how many hosts to provision and where the hosts are provisioned, and you can select all necessary host configurations.



Here is the Provision Cloud Hosts dialog box for Microsoft Azure:



To Access	**Lab Management**: 1. On the sidebar, under Lab Resources, click **Hosts**. 2. Click the **Provision** button or select **Testing Hosts > Provision**. **ALM**: 1. On the sidebar, under Lab Resources, click **Testing Hosts**. 2. Click the **Provision** button or select **Testing Hosts > Provision**. My **Performance Center**: 1. On the My Performance Center navigation bar, select **Resources > Testing Hosts**. 2. Click the **Provision Hosts** button.
Important information	You must have at least one cloud account and at least one host template linked to your project in order to provision hosts.
Relevant tasks	"How to Provision and Terminate Cloud Hosts" on page 94
See also	"Provisioning Hosts Overview" on page 94

User interface elements are described below:

UI Element	Description
Batch #	Shows the number of the batch for which you are entering details.
Hosts Amount	Enter the number of hosts to provision in the batch. Remember that all hosts in the batch use the same account, location, and template, and have identical configurations.
Account	Select the cloud account to provision from.
Location	Select a suitable geographic location in which to provision the hosts. Make sure to select a location for which you have configured an appropriate host template.
Template	Host template specifies the hosts' purpose, hardware, machine image, and credits consumed per hour. Select a host template that will match your testing needs. The list of available templates is based on your selected location.
Current Account Balance	Shows the number of credits available in your account. **Available from:** ALM and Performance Center

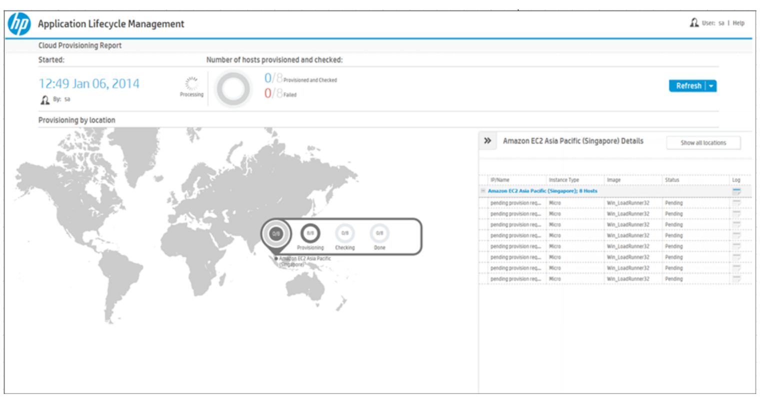
UI Element	Description
Template Price	Shows the cost in credits per hour of the selected template. **Available from:** ALM and Performance Center
Daily Total	Shows the total number of credits per day the batch will consume. **Available from:** ALM and Performance Center
Security Group	Select a security group that allows the necessary access to your testing hosts. Security group specifies which inbound and outbound connections are permitted from the hosts, such as port 80 (HTTP) or port 3389 (RDP). Security groups are configured on your cloud provider's website, and must be created separately for each location. Only security groups configured for your selected location are displayed. For more details, see "Initial Cloud Settings Overview" on page 55. **Note:** Not applicable for Microsoft Azure cloud accounts.
Pools	Select the appropriate host pools to which the newly provisioned hosts will be added.
Key Pair	Select a key pair for which you have the private key. Key pair is used to generate the administrator password for Windows machines and to log in to Linux machines. Key pair is only relevant if you plan to remotely connect to your cloud hosts. Key pairs are managed on your cloud provider's website, and must be created separately for each location. Only key pairs configured for your selected location are displayed. **Note:** You must have at least one keypair in order to provision a host. For more details on key pairs, see "Initial Cloud Settings Overview" on page 55. **Note:** Not applicable for Microsoft Azure cloud accounts.
Attributes	Select host attributes that match the capabilities of the hosts. Host attributes are used to identify suitable hosts when running tests. **Note:** The attribute list can be modified from ALM Project Customization. For details, see the *HP Application Lifecycle Management Administrator Guide*.

UI Element	Description
Notification Date	Enter the date to be notified if the hosts are still provisioned in the cloud provider. Hosts provisioned past this date will be listed in the cloud hosts daily digest report. **Note:** This is an optional field, however, it is recommend that you enter a value for better tracking of hosts that are past there due date. This value can modified from the the Host module.
Elastic IPs	If you defined a pool of predefined IP addresses with your cloud provider, select this option to use those predefined static IP addresses to provisioninig your host. For more details on elastic IP addresses, see "Initial Cloud Settings Overview" on page 55. **Note:** HP Helion only supports elastic IP addresses. You cannot provision hosts using fixed IP addresses. For additional information, see the HP Helion Public Cloud Web site (http://www.hpcloud.com/). **Note:** Not applicable for Microsoft Azure cloud accounts.
Username	The user name of the user who connects the RDP/SSH port to the provisioned machine. The user name must meet the user name complexity requirements of the operating system that you are using for this virtual machine. **Note:** Only applicable for Microsoft Azure cloud accounts.
Password	The password of the user who connects the RDP/SSH port to the provisioned machine. The password must meet the password complexity requirements of the operating system that you are using for this virtual machine. **Note:** Only applicable for Microsoft Azure cloud accounts.
Confirm Password	Re-enter the password of the user who connects the RDP/SSH port to the provisioned machine. **Note:** Only applicable for Microsoft Azure cloud accounts.

UI Element	Description
RDP/SSH Port	The port of the secure connection remote desktop. **Note:** Only applicable for Microsoft Azure cloud accounts.
Add Batch	Adds the selected batch to the cart. When you click **Provision**, all hosts in the cart are queued for provisioning.
Added Batches	Shows all batches that are to be provisioned . You can click the **Delete Batch** button to remove a batch from the cart.
Delete Batch	Deletes the selected batch and removes it from the cart.
Provision	Queues all batches in the cart for provisioning and opens the Host Provisioning report. For more details on this report, see "Host Provisioning Report" below.

Host Provisioning Report

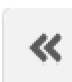
The Host Provisioning report enables you to view provisioning progress of your hosts by location. The report guides you through the provisioning steps. Details of this process are displayed in a log file. Once your cloud hosts are provisioned, you can begin to use them for running tests.



To Access	**Lab Management**: 1. On the sidebar, under Lab Resources, click **Hosts**. 2. Click the **Host Operations** drop-down arrow and select **Host Provision Report**. Alternatively, click the **Provision** button. In the Provision Cloud Hosts dialog box, click the **Provision** button. **ALM**: 1. On the sidebar, under Lab Resources, click **Testing Hosts**. 2. Click the **Host Operations** drop-down arrow and select **Host Provision Report**. Alternatively, click the **Provision** button. In the Provision Cloud Hosts dialog box, click the **Provision** button. My **Performance Center**: 1. On the My Performance Center navigation bar, select **Resources > Testing Hosts**. 2. Click the **Provision Report** button. Alternatively, click the **Provision Hosts** button. In the Provision Cloud Hosts dialog box, click the **Provision** button.
Important information	• You must have at least one cloud account and at least one host template linked to your project in order to provision hosts. • There may be a delay of a few minutes between the time that a cloud host's status changes to Operational and the time that the host is ready for use. • After provisioning is complete, the hosts begin to consume credits from your project.
Relevant tasks	"How to Provision and Terminate Cloud Hosts" on page 94
See also	"Provisioning Hosts Overview" on page 94

User interface elements are described below:

UI Elements	Description
Started	This section contains the following details: • The date and time that the provisioning starts. • The name of the user running the report. • The processing status of the report.

UI Elements	Description
Number of hosts provisioned and checked:	Indicates the number of hosts queued for provisioning and their status.
Refresh	The report automatically refreshes to show updates. Click the arrow to change the automatic refresh rate in seconds. Possible values: **1**, **10**, or **30**.
	Indicates the number of hosts queued for provisioning and their status in the specified location.Click the indicator to open the report details pane. The possible states are: **Provisioning.** The host is in the process of being provisioned. **Checking.** The host is in the process of being verified. **Done.** The host was provisioned and verified. **Done - Failed.** The host failed to reach a provisioned state.
	Opens the report details. The report displays the following elements: • **Show All Locations.** If you have more than one location running at the same time, you can view details for all locations. • **IP/Name.** The name or IP address of the host. • **Instance Type.** The hardware specs of the host. • **Image**.The software image used for the host. • **Status.** Indicates the provisioning status of the host. • **Log** **.** Displays a log of events related to the host.

Cloud Resources Monitoring

This section includes:

Cloud Resources Monitoring Overview

You can analyze and monitor your cloud resource consumption of your provisioned hosts by generating usage reports, and by sending alerts and notifications.

Cloud Usage Reports

The following cloud usage reports are available:

Report	Description
Cloud High Level	Shows a summary of credits consumed and hosts provisioned for each project.
Cloud Credits by Type	Shows cloud credits consumed per location, per template, per instance, and per image.
Cloud Utilization	Shows a per-project summary of total cloud host uptime or running time vs. idle time, as well as the credit value of total idle time.
Cloud Operations and Host	Shows individual provisioning and terminating operations as well as detailed provisioning data for each host.

For more information, see "Usage Reports Overview" on page 178.

Cloud Alerts and Notifications

The following alerts and notifications are available for provisioned hosts:

- Idle hosts (inactivity time)
- Account usage (credit balance)
- Host status details (operational, non-operational, unavailable hosts)

For more details on configuring alerts, see "How to Configure Cloud Alerts" below.

How to Configure Cloud Alerts

This section describes how to configure cloud alerts and notifications. To learn more about cloud alerts, see "Provisioning Hosts Overview" on page 94.

1. Prerequisites
   - To enable you to sent alerts and notifications to users, make sure to set the ALM Mail Protocol. For more details, see the *HPE Application Lifecycle Management Administrator Guide*.
   - You must have the appropriate user permissions to set cloud alerts and notifications. For more details on permissions, see the *HPE Application Lifecycle Management Administrator Guide*.

- To receive emails, an administrator must configure the mail to be used for sending emails.The administrator must belong to a TDAdmin group and have a valid email address.

2. In ALM or Lab Management, on the masthead, click and select **Cloud Alerts and Notifications**. For more information, see "Cloud Alerts and Notifications Dialog Box" on the next page.
3. Define alerts and rules for notifying users.

Cloud Resources Monitoring User Interface

This section includes:

Cloud Alerts and Notifications Dialog Box

This dialog box enables you to set alerts and notifications to routinely inform users about important cloud activities.

To Access	In ALM or Lab Management, on the masthead, click and select **Cloud Alerts and Notifications**.
Important information	• To enable you to sent alerts and notifications to users, make sure to set the ALM Mail Protocol. For more details, see the *HPE Application Lifecycle Management Administrator Guide*. • You must have the appropriate user permissions to set cloud alerts and notifications. For more details on permissions, see the *HPE Application Lifecycle Management Administrator Guide*.
Relevant tasks	"How to Configure Cloud Alerts" on page 104
See also	"Provisioning Hosts Overview" on page 94

Send Alerts To

This pane enables you to set the users who should receive the alerts and notifications.

User interface elements are described below:

UI Elements	Description
The user who provisioned the hosts (if applicable)	Notifies the user who provisioned the cloud hosts.
Project administrator	Notifies the project administrator user.
The following users:	Notifies the specified users.

Rules for Alerts and Notifications

This pane enables you to set rules for notifying users.

User interface elements are described below:

UI Elements	Description
Send alerts for hosts that have been idle for the last X hours	Sends alerts for cloud hosts that have been in idle state for the last X hours. **ALM only:** The alerts will be sent to hosts provisioned from the currently logged in project. **Lab Management only:** The alerts will be sent to hosts provisioned from Lab Management.
Include hosts provisioned from public accounts in other projects	**Lab Management only:** Includes provisioned hosts for cloud accounts added from Lab Management.
Send daily digest of cloud hosts at	Sends a cloud host summary at the specified time. The report includes information on today's operations, account usage, and host details.
Send alerts when the project has less than X credits remaining in the specific cloud account	Notified when the project has less than the specified number of credits in the cloud account.

Chapter 6: Lab Resources

This chapter includes:

Lab Resources Overview

The Lab Resources modules enable you to define, manage, and maintain the testing resources used for ALM server-side testing.

When using ALM without Lab Management, users must control tests from their local computer. This method of testing is called client-side execution. Lab Management enables users to run tests using server-side execution. Once testing hosts are set up, users can use ALM to schedule and execute tests on remote hosts without requiring user intervention. The Lab Management features enable you to set up and maintain the hosts and host pools used for test execution.

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 or Performance hosts.

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 ALM to make it available for functional testing. See "Using HP ALM Lab Service" on page 316. • You can block functional testing hosts from being selected automatically. • You can reserve hosts for a specific user, so that other users cannot select the reserved hosts.

<table>
<tr>
<td>Performance hosts</td>
<td>

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 many 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.

</td>
</tr>
</table>

The Testing Hosts/Hosts module is available in both the Lab Management and ALM projects.

For task details about managing testing hosts, see "How to Manage Testing Hosts" on the next page.

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.

If you are using the pool for a project which involves performance testing, 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.

For task details about managing host pools, see "How to Manage Host Pools" on page 118.

Cloud Accounts

A cloud account is a Lab Management version of an actual account with a cloud provider.

For more information, see "Cloud Accounts Overview" on page 68.

Cloud Templates

A cloud template is a set of details which represents a certain type of cloud host.

For more information, see "Host Templates Overview" on page 82.

Timeslots

When running tests, or performing maintenance on host machines, the resources needed for these tasks must be available, and must fall within the project and license limits. The Timeslots module enables you to reserve resources in advance to ensure that the required resources are available when you are ready to perform these tasks.

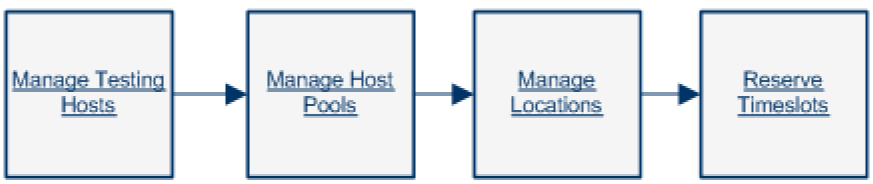
There are two kinds of timeslots: testing timeslots and maintenance timeslots.

- Reserving a testing timeslot ensures that the resources required for a functional or performance test are available when you need to run the test. You reserve testing timeslots only in your ALM project.
- Reserving a maintenance timeslot ensures that the resources required for a maintenance task are available when the maintenance task is performed. You reserve maintenance timeslots in the Lab Management project.

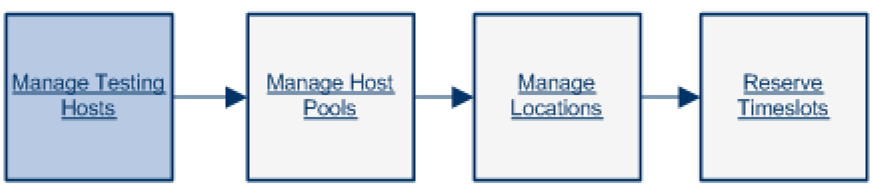
For more information about reserving timeslots, see "How to Reserve Timeslots" on page 121.

Managing Lab Resources

The workflow for managing Lab Resources is represented below.



How to Manage Testing Hosts



This section describes how to create, modify, and monitor testing hosts needed for running server-side functional and performance tests in ALM.

> **Note:**
>
> - The **Hosts** module appears in Lab Management and in ALM, except that in ALM it is labeled as **Testing Hosts**. The below instructions refer to Lab Management's **Hosts** module but most functionality applies to ALM's **Testing Hosts** module as well.

- If you are using the Testing Hosts module in ALM, only testing hosts attached to the host pool of the project are visible.
- **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. For more information about ALM editions and their functionality, see the *HPE Application Lifecycle Management User Guide*. To find out what edition of ALM you are using, ask your ALM site administrator.

This task describes how to:

- "Add a testing host" below
- "Import testing host data from Excel " on the next page
- "Modify/View lab resource details" on page 116
- "Check host connections to testing hosts" on page 116
- "Reboot hosts" on page 117
- "Install patches on hosts" on page 117
- "Reconfigure hosts" on page 118
- "End processes on a Performance host" on page 118
- "Link testing hosts to host pools" on page 118

Add a testing host

To run server-side functional and performance tests, you must add testing hosts to ALM. For an overview of testing hosts, see "Lab Resources Overview" on page 109.

To add a host from your test lab to ALM:

1. **Prerequisites.**

   Ensure the following:

   - The required testing tools are installed on your testing hosts. Refer to the documentation for your specific testing tools for installation instructions.
   - If a performance testing host you are adding is in a remote location, the location must be added in the **Lab Resources > Locations** module. For task details, see "How to Manage Host Locations" on page 119.

- 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. For task details, see "How to Manage MI Listeners" on page 231.
- For hosts with functional testing purposes, HP ALM Lab Service must be installed on testing hosts you are adding. To download and install HP ALM Lab Service on your testing host, select **Help > ALM Tools** to open the Tools add-in page. Click the **HP ALM Lab Service** link, and download the appropriate package for your operating system. For details about installing HP Lab Service, see "Installing HP ALM Lab Service" on page 309.

2. **Create a new testing host.**

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

In **Lab Resources > Hosts**, click the **New Testing Host** button. For user interface details, see "New Testing Host Dialog Box" on page 141.

> **Note:** Hosts created from within an ALM project are private hosts and can only exist in one host pool at a time.

3. **Register the testing host.**

For security reasons, a functional 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.

If you set the testing host Registration Auto Approve field to **Y** then it will be automatically approved when you register it. If you set Registration Auto Approve to **N**, then you complete the registration by changing the Status field to Registered.

For more details about registering a testing host using Lab Service, see "Using HP ALM Lab Service" on page 316.

> **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, the Hosts/Testing Host grid displays your testing host as **Unavailable**.

To provision hosts from the cloud for use in performance testing, see "How to Provision and Terminate Cloud Hosts" on page 94.

Import testing host data from Excel

You can import a list of testing hosts from an Excel file (.xls or .csv) using ALM or Lab Management.

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 testing 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
HOST_STATE Required	**Status**	◦ Operational ◦ Non-Operational ◦ Unavailable **Default:** Operational	The testing host state.

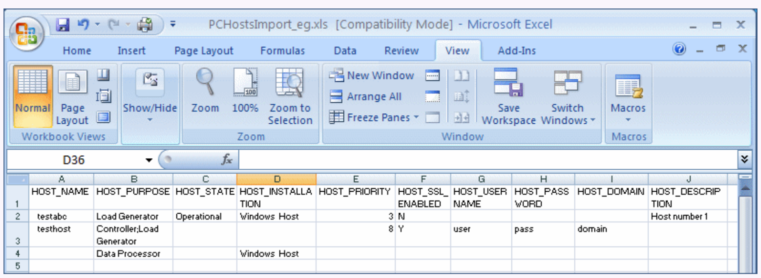
Field name	Logical Name	Value	Field for
HOST_ INSTALLATION Required	**Installation**	◦ Unified Functional Testing ◦ Unix Load Generator ◦ Windows Host ◦ Windows Standalone LG **Default:** Windows Host	The type of testing host installation. **Note:** There is a double space in: ◦ "Windows*<space><space>*Host" ◦ "Unix*<space><space>*Load Generator"
HOST_ PRIORITY Required	**Priority**	◦ 1-Lowest Priority ◦ 2, 3 ... 8 ◦ 9-Highest Priority **Default:** 5	The priority of the testing 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 testing host.
HOST_ PASSWORD Optional	**Password**	Any string	The user password for logging in to the testing host.
HOST_ DOMAIN Optional	**Domain**	Any string	The testing host domain.
HOST_ DESCRIPTION Optional	**Description**	Any string	The testing 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 (If adding from within an ALM project, the default is the project's pool.)
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: **testabc**, **testhost**, and a third host whose name was not provided.



2. **Import the testing hosts.**
   a. In **Lab Resources > Hosts**, select **Testing Hosts** > **Import**.
   b. 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

In **Lab Resources > Hosts**, select a testing host in the grid and click the **Testing Host Details** button 
.

For user interface details, see "Testing Host Details Dialog Box" on page 142.

Check host connections to testing hosts

In **Lab Resources > Hosts**, right-click a testing 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 testing host, the following checks are performed:

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.

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

Reboot hosts

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

Install patches on hosts

> **Note:**
> - 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 257.
> - Patches can be installed on a host only when the host state is **idle**.
> - You can only install patches on Performance hosts.

In **Lab Resources > 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 153.

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, go to **Lab Resources > 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, go to **Lab Resources > Hosts**. Select a host, and in the **Processes** tab, select the process and click .

Link testing hosts to host pools

> **Note:** Host pool management is only available in Lab Management.

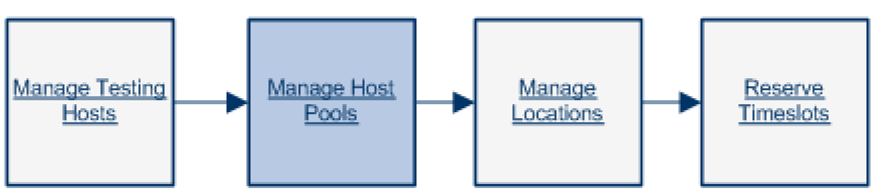
You can populate host pools in Lab Management in one of the following ways:

- **From the Hosts module.** You can link a testing host to one or more host pools.
- **From the Pools module.** You can link one or more testing hosts to a particular host pool. For details, see "How to Manage Host Pools" below.

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

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

How to Manage Host Pools



This section describes how to manage pools of testing hosts used for running server-side functional and performance tests in ALM.

> **Note: 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.

This task describes how to:

- "Add a host pool" below
- "Modify/View host pool details" below
- "Link hosts to host pools" below

Add a host pool

Before you design and run server-side tests in ALM, you must add your testing hosts to a host pool and assign the host pool to your project. For an overview of host pools, see "Lab Resources Overview" on page 109. For more information about creating testing hosts, see "How to Manage Testing Hosts" on page 111.

To add a host pool:

1. Go to **Lab Resources > Pools**.
2. Click the **New Host Pool** button. For user interface information, see " New Host Pool Dialog Box" on page 156.

Modify/View host pool details

In **Lab Resources > Pools**, select a host pool in the grid and click the **Host Pool details** button.

For user interface details, see "Host Pool Details Dialog Box" on page 157.

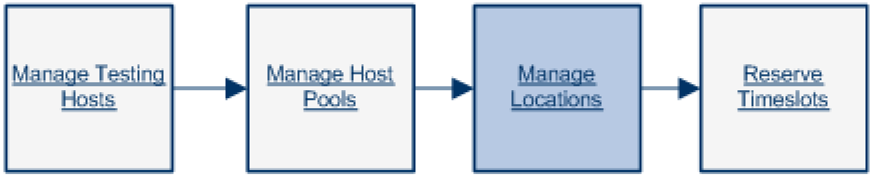
Link hosts to host pools

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

1. Go to **Lab Resources > 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**.

   For user interface information, see "Linked Hosts Page" on page 159.

How to Manage Host Locations



This section describes how to manage the locations of testing hosts used for running server-side functional and performance tests in ALM.

> **Note:**
>
> - Cloud locations are created automatically when a new cloud account is added to ALM. Cloud locations are read-only.
> - **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.

This task describes how to:

- "Add a host location" below
- "Modify/View host location details" below
- "Assign a host location to a host" below

Add a host location

You can organize your testing hosts according to location by creating a host location entity in the Locations module. For an overview of host locations, see "Lab Resources Overview" on page 109. For more information about creating testing hosts, see "How to Manage Testing Hosts" on page 111.

To add a host location:

1. Go to **Lab Resources > Locations**.
2. Click the **New Host Location** button . For user interface information, see "New Host Location Dialog Box" on page 162.

Modify/View host location details

In **Lab Resources > Locations**, select a host location in the grid and click the **Host Pool details** button .

For user interface details, see "Host Location Details Dialog Box" on page 163.

Assign a host location to a host

To assign a location to a host:

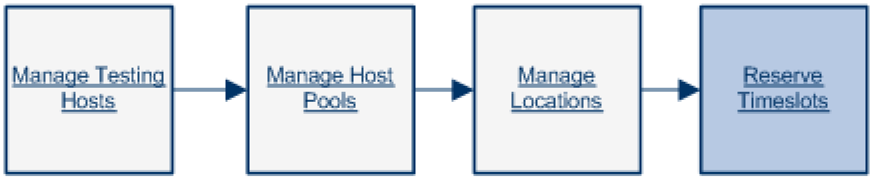
1. Go to **Lab Resources > Hosts**.
2. Select a testing host in the grid, and click the **Testing Host Details** button

.

3. In the **Testing Host Dialog Box**, select your location in the **Location** field.

   For user interface information, see "Testing Host Details Dialog Box" on page 142.

How to Reserve Timeslots



This task describes how to reserve hosts for performing maintenance tasks.

> **Note:**
>
> - This task is part of a higher-level task. For more details, see the "How to Work with Lab Management Administration" on page 14.
> - For details about reserving testing timeslots, see the *HPE Application Lifecycle Management User Guide*.

1. **Create a maintenance timeslot**

   a. On the Lab Management sidebar, under **Hosts**, select **Timeslots**.

   b. In the Timeslots toolbar, click the **New Maintenance Timeslot**  button.

   c. Enter the details of the timeslot and select hosts. For user interface details, see "Timeslot Reservation: Maintenance Dialog Box" on page 164.

2. **Verify the availability of the requested hosts**

   Do one of the following:

   - (Recommended) Click **Calculate Availability**. The system checks the availability of the requested hosts for the selected timeslot. The results of this calculation are displayed in the **Timeslot Status** tab and graphically on the resource availability timeline. The availability timeline displays all timeslots when the requested hosts can be reserved. Even if the requested hosts cannot be reserved for the selected timeslot, they may be available at other times.

     If the timeslot cannot be reserved, consider the reasons displayed in the Timeslot Status tab when reselecting your hosts. If the timeslot can be reserved, you can click **Submit** to save the timeslot.

     For example, you request a specific host for one hour beginning at 15:00 and click **Calculate Availability**. The availability timeline indicates that this host is already reserved from 17:00 to

21:00. Therefore, you can select any timeslot between 15:00 and 16:00, or any time after 21:00, to reserve the host. The **Timeslot Status** tab indicates that the timeslot can be reserved.

- Click **Submit**. The system calculates the availability of the requested hosts during the selected timeslot. If all of the hosts are available, the Timeslot Reservation dialog box closes and the timeslot is reserved and displayed in the Timeslots module. If the timeslot cannot be reserved, the reasons are displayed in the Timeslot Status tab.

> **Note:** If a host that you are trying to reserve for maintenance is reserved for another timeslot that has not yet started, and you cannot delay the maintenance task, first consult with the user who reserved the other timeslot. If he/she agrees, move the start time of the other timeslot, or delete it accordingly.

Schedule a Maintenance Timeslot - Administrator Use Case

Paul is the system administrator at the datacenter of Mercury Tours. He has been working there for three years, and one of his tasks is to administer the server lab. Mercury Tours uses ALM to manage their projects and decided last year to start using Lab Management to manage the testing hosts in their server lab.

Paul has been given the task of making sure that the testing hosts remain healthy. He uses Lab Management to maintain his servers. One of his typical tasks is to schedule a maintenance timeslot for one of the testing hosts so he can work on them. Paul uses the following checklist to arrange for the timeslot.

- Prerequisites for scheduling a maintenance timeslot
- Create my new maintenance timeslot
- Do my maintenance work during the timeslot

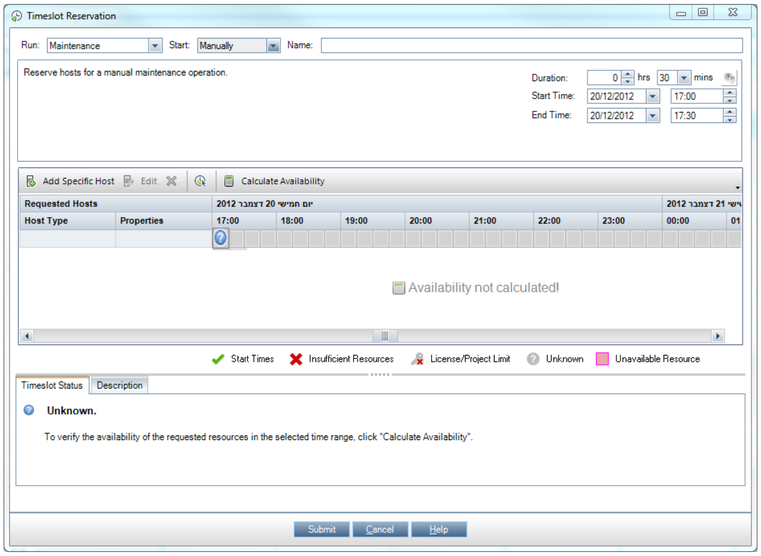
Paul decides to schedule a maintenance timeslot for today so he can safely shut down and install new hardware on some of his hosts. He consults his checklist and gets to work:

Prerequisites for scheduling a maintenance timeslot

Paul makes sure that Lab Management is up and running properly and that his testing hosts are all registered and available.

Create my new maintenance timeslot

Paul navigates to **Testing > Timeslots** in Lab Management. The Timeslot Reservation dialog box opens.



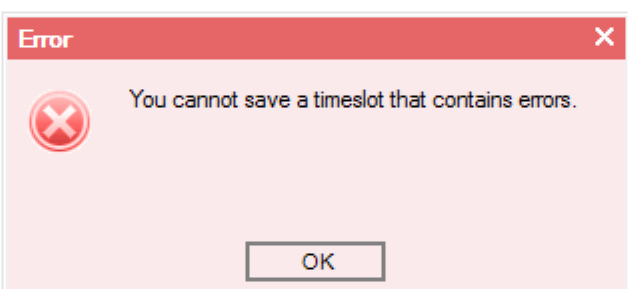
> **Reference:** "Timeslot Reservation: Maintenance Dialog Box" on page 164

Paul enters the following details into the Timeslot Reservation fields:

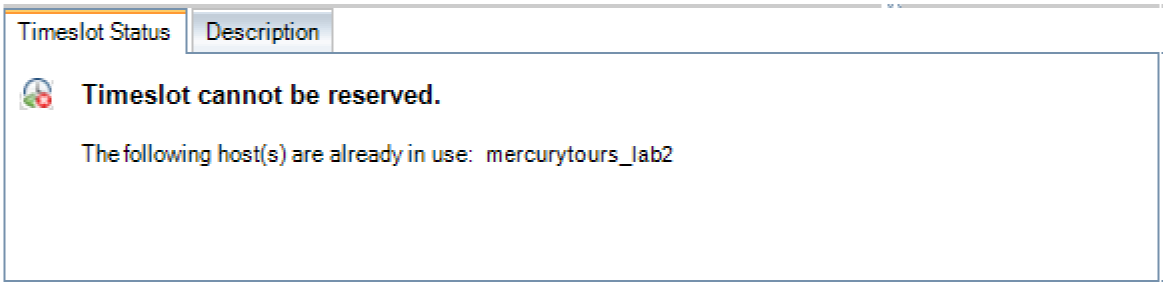
- **Name**: Mercury Tours host reboot
- **Duration**: 1 hour, 30 minutes
- **Start time**: 10/12/2012, 14:00
- **End time**: 10/12/2012, 15:30

Paul then clicks the **Add Specific Host(s)** button and selects the hosts he wants to reboot.

Paul checks his timeslot details once more and then clicks **Submit**. Suddenly, an error pops up!



Confused, Paul checks the **Timeslot Status** tab on the bottom of the Timeslot Reservation dialog box:

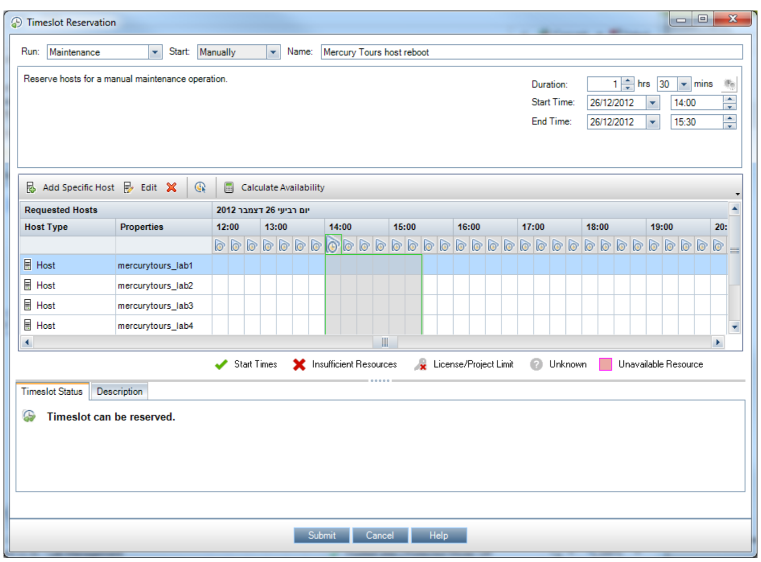


The message indicates that the host **mercurytours_lab2**, one of the testing hosts he was reserving for reboot, was already reserved during the scheduled timeslot. He cannot reserve the host for maintenance until he resolves this conflict.

Paul now has to decide what to do. He can either do his maintenance work at a different time, or he can contact the owner of the testing timeslot and find out if it's okay to move the testing timeslot.

Paul looks up the name of the tester and finds that the reserved testing timeslot belongs to John, a close friend of his. He calls John on the phone and asks if the testing timeslot can be postponed to 16:00. John is happy to accommodate Paul, and agrees.

Paul selects and opens the testing timeslot and changes the Start time of the testing timeslot. He then is able to successfully reserve his maintenance timeslot for 14:00.



Do my maintenance work during the timeslot

At 14:00, Paul shuts down the testing hosts in his server lab and installs the new hardware. Once done, he restarts the servers and tests them. It takes him only 1 hour to finish, so he is well within the limits of his timeslot.

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	"Managing Lab Resources" on page 111

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 *HPE 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. • This button is enabled only in Lab Management, regardless of which project added the host.

UI Elements (A - Z)	Where	Description
Auto Refresh	Hosts/Testing Hosts module	Refreshes the grid automatically every 30 seconds.
Check Connectivity to URL	Hosts/Testing Hosts module	Performs the same checks as the **Check Host** button, as well as connectivity to any given URL.
Check Host	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.
Data Processor Queue	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.

UI Elements (A - Z)	Where	Description
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 *HPE 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.
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 *HPE Application Lifecycle Management User Guide*.
Host Provisioning Report	Hosts/Testing Hosts module	Opens the provisioning report for the selected cloud host. For more information, see "Host Provisioning Report" on page 101. This option is disabled if more than one host is selected or if the selected host is not a cloud host.
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.

UI Elements (A - Z)	Where	Description
	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 153. **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.
Last Provision Report	Hosts/Testing Hosts module	Opens the provisioning report for the most recently provisioned cloud hosts. For more information, see "Host Provisioning Report" on page 101.
New <Resource> 	Toolbar	Enables you to add a resource.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HPE Application Lifecycle Management User Guide*.
Private	Favorites	Lists the favorite views that are accessible only to the user who created them.
Provision 	Hosts/Testing Hosts module	Allows you to provision cloud hosts. For more information, see "How to Provision and Terminate Cloud Hosts" on page 94.
Public	Favorites	Lists the favorite views that are accessible to all users.

UI Elements (A - Z)	Where	Description
Quick Views:	Hosts/Testing Hosts module	Quick views are predefined filters for the Hosts grid. The following quick views are available: • **All Hosts.** Shows all hosts. Includes cloud, local, performance, and functional hosts. • **Functional Testing Hosts.** Shows all hosts with UFT, Service Test Professional, Business Process Testing, System Test, or VAPI-XP purposes. • **All Performance Testing Hosts.** Shows all hosts with Controller, Data Processor, or Load Generator purposes. Includes both cloud and local hosts. • **Local Performance Testing Hosts.** Shows all local performance testing hosts. • **Cloud Load Generators.** Shows all cloud load generators.
Reboot Host	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.

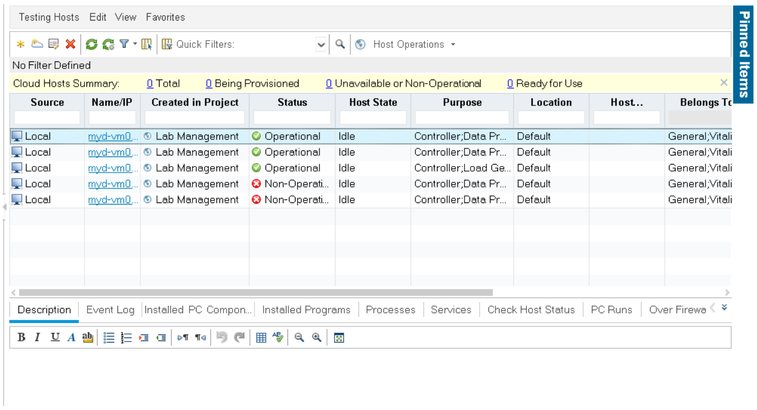
UI Elements (A - Z)	Where	Description
Reconfigure Host	Hosts/Testing Hosts module	Resets the following on the selected host machine: • Host license • System user (IUSR_METRO) • Communication Security passphrase **Note:** • You can reconfigure only one host at a time. • Available only for hosts with Performance 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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
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 *HPE Application Lifecycle Management User Guide*.
Show Cloud Summary Panel	Hosts/Testing Hosts module	Displays the Cloud Summary Panel, located above the Hosts grid.
Unregister	Hosts/Testing Hosts module	Enables you to unregister a testing host, making it unavailable for test execution.

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 *HPE 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 host pool of the project. **ALM Editions:** Some functionality related to Functional testing host management is available only for ALM Edition. For more information about ALM editions and their functionality, see the *HPE Application Lifecycle Management User Guide*. To find out what edition of ALM you are using, ask your ALM site administrator.
Relevant tasks	"How to Manage Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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 135. • **Host module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 126.

UI Elements	Description
<Cloud Summary Panel>	Displays a summary of cloud hosts by status/host state. Click on the number next to a status/host state to filter the Hosts grid by that status/host state. **To display the Cloud Summary Panel:** From the Cloud menu, select **Show Cloud Summary Panel**. **To close the Cloud Summary Panel:** Click the X button at the right end of the panel.
<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 145.
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 147.

UI Elements	Description
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 148.
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 150.
PC Runs tab	Displays detailed information about test runs performed on the selected host. For details, see "PC Test Runs Module Window" on page 170.
Over Firewall tab	For hosts over a firewall, enables you to configure advanced over-firewall settings. For details, see " Over Firewall Page" on page 151. **Note:** Available only for hosts with Performance purposes.
History tab	Lists changes made to the currently selected host. For more details, see the *HPE 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 host pool of the project. Hosts must be assigned to at least one pool. **Note:** Private hosts can be assigned to only one pool. **Available from:** Lab Management only.
Cloud Account	The name of the cloud account from which the host was provisioned.

Field (A - Z)	Description
Cloud Host Identifier	A unique ID for the host assigned by the cloud provider.
Cloud Image	The machine image applied to the cloud host.
Cloud Instance Type	The instance type of the cloud host.
Cloud Request ID	The cloud provider's ID for a single provision request. A provision request includes all requested batches of hosts. Each batch has its own Cloud Request Item ID. **Tip:** You can filter by Cloud Request ID to see all hosts that were provisioned in a single provision request.
Cloud Request Item ID	The cloud provider's ID for a batch of hosts within a provision request. All hosts in a batch have identical specs and configurations. **Tip:** You can filter by Cloud Request Item ID to see all hosts that were provisioned in a single host batch.
Cloud Template	The host template used to provision the host. Changing a host template does not affect existing hosts that were provisioned from the template.
Created in Project	The project the host was created in. 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.
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
Exclude from Automatch	If this field is valued with 'Y', the host cannot be selected via automatch. The host can only be selected by name. This is only applicable for functional hosts.
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 *HPE 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. • **<Provisioning states>.** Indicates the provisioning status of a cloud host. Host State changes to idle once the host is provisioned.
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.
	HPE Unified Functional Testing (UFT) comprises the product formerly known as HPE QuickTest Professional and the product known as HPE 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 Recover Time	The last time the host was restored to Operational status. If a host becomes non-operational, ALM changes the host status to Non-Operational. If the host later becomes operational again, ALM changes the status back to Operational and adds a timestamp to the Last Recover Time field.
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.
Logical Name	The hostname or IP address of the host.
Name/IP	The name or IP address 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.
PC MI Listener	The IP address or name of the MI Listener that enables data collection. Relevant only for hosts located over a firewall.
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.
Provider Location ID	The region from which a cloud host was provisioned.

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 316.
Registration Request Date	The time and date that ALM received a host registration request from a newly added testing host.
Registration Request Details	Details about the host that submitted a registration request.
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 316. **Note:** You cannot change the **Status** of the host to "Operational" if the **Registration Status** is "Not registered".
Reserved for User	The user who is allowed to access this host. This is only applicable for functional hosts.
Source	The testing host's source: **Local.** The host exists in your testing lab. **Cloud.** The host was provisioned from a cloud provider.

Field (A - Z)	Description
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 host pool of the project. 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 Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 135.

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 Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Host ID	The ID of the host.
Name	The name of the host.
Details	Lists the details of the currently selected host. For more information about the available host fields, see "Hosts Fields" on page 135.
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.

UI Elements	Description
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 the next page.
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.
Processes	Displays detailed information about the processes and resource usage of the selected host. For details, see "Processes Page" on page 147. **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 148. **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 150.

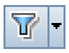
UI Elements	Description
PC Runs	Displays detailed information about test runs performed on the selected host. For details, see "PC Test Runs Module Window" on page 170. **Note:** Use the navigation bar at the bottom of the page to view all the entries.
Over Firewall	For hosts over a firewall, enables you configure advanced over-firewall settings. For details, see " Over Firewall Page" on page 151. **Note:** Available only for hosts with Performance purposes.
History	Lists changes made to the currently selected host. For more details, see the *HPE 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: • Click and select **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** site parameter. For details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.
	**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 *HPE Application Lifecycle Management User Guide*.
	**Refresh.** Refreshes the event log so it displays the most up-to-date information.
	**Export All.** 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.

UI Elements (A - Z)	Description
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 Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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.

UI Elements	Description
Auto Refresh	Refreshes the grid automatically after the selected time interval has passed.
<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 Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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
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 Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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" on the next page.
	**Refresh.** Refreshes the grid so it displays the most up-to-date information.

UI Elements	Description
	**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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for a check. For details, see the *HPE 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**.
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.

Field (A - Z)	Description
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 Testing Hosts" on page 111 • "How to Manage MI Listeners" on page 231
See also	• "Lab Resources Overview" on page 109 • "MI Listeners Overview" on page 231

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.

UI Elements (A - Z)	Description
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.
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.

UI Elements (A - Z)	Description
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. Click the **Host Operations** drop-down arrow 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 257.
Relevant tasks	"How to Manage Testing Hosts" on page 111
See also	"Lab Resources Overview" on page 109

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 Testing Hosts" on page 111.
Relevant tasks	"How to Manage Host Pools" on page 118
See also	"Lab Resources Overview" on page 109

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" on the next page. • **Pools module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 126.
<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 159.
History tab	Lists changes made to the currently selected host pool. For more details, see the *HPE 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 Host Pools" on page 118
See also	"Lab Resources Overview" on page 109

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 the 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 Host Pools" on page 118
See also	"Lab Resources Overview" on page 109

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 156.
Linked Hosts	Enables you to add hosts to the selected pool and remove hosts from the pool. For details, see "Linked Hosts Page" on the next page.
History	Lists changes made to the currently selected host pool. For more details, see the *HPE Application Lifecycle Management User Guide*.

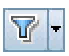
Add Hosts to Pool Dialog Box

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 135.
Relevant tasks	"How to Manage Host Pools" on page 118
See also	"Lab Resources Overview" on page 109

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 *HPE 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 *HPE 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.

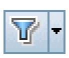
Linked Hosts Page

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 135.

Relevant tasks	"How to Manage Host Pools" on page 118
See also	"Lab Resources Overview" on page 109

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

UI Elements	Description
	**Testing 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 142.
	**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 158.
	**Remove Host.** Removes the selected hosts from the host pool.
	**Go to Host.** Displays the selected linked host in the Hosts module.
	**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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for a host. For details, see the *HPE 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 Host Locations" on page 119
See also	"Lab Resources Overview" on page 109

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" below. • **Locations module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 126.
<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 *HPE Application Lifecycle Management User Guide*.

Locations Fields

This section describes the host location fields:

Field (A - Z)	Description
Cloud Provider	Displays the cloud provider from which the location was created. **For cloud locations only.**

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.
Provider Location ID	Displays the Location ID used by the cloud provider to identify the location. **For cloud locations only.**

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 Host Locations" on page 119
See also	"Lab Resources Overview" on page 109

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.
	Field Search. Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`

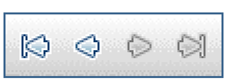
UI Elements	Description
Location Name	The name for the new host location.
Details	Required fields are marked with an asterisk (*) and are displayed in red. For details on the available host location fields, see "Locations Fields" on page 161.

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 Host Locations" on page 119
See also	"Lab Resources Overview" on page 109

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`

UI Elements	Description
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 161.
History	Lists changes made to the currently selected host location. For more details, see the *HPE Application Lifecycle Management User Guide*.

Timeslots Module

> **Note:** This section contains user interface information for Timeslot module screens which are exclusive to the Lab Management project. For detailed user interface information about the Timeslots module, refer to the *HPE Application Lifecycle Management User Guide*.

Timeslot Reservation: Maintenance Dialog Box

This dialog box enables you to reserve a maintenance timeslot and view details of a reserved maintenance timeslot.

To access	• **New maintenance timeslot reservation (Lab Management only):** On the Lab Management sidebar, under **Lab Resources**, select **Timeslots**. Then use one of the following: ◦ On the Timeslots toolbar, click the **New Timeslot** button**.** ◦ Calendar view only: Double-click anywhere on the calendar, or right-click the target time and select **New Timeslot.** • **Existing maintenance timeslot reservation:** **From Lab Management:** On the sidebar, under **Lab Resources**, select **Timeslots**. **From ALM:** On the sidebar, under **Testing**, select **Timeslots**. Then use one of the following: ◦ Grid View: Right-click a timeslot of type **Maintenance** and select **Timeslot Details**. ◦ Calendar view only: Right-click a maintenance (yellow) timeslot and select **Timeslot Details**.
Important information	• Use this dialog box to reserve or view a **maintenance** timeslot. • For testing timeslots and data processing timeslots, see the *HPE Application Lifecycle Management User Guide*.

Relevant tasks	"How to Reserve Timeslots" on page 121
See also	*HPE Application Lifecycle Management User Guide*

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

UI Elements	Description
Run	Indicates that the timeslot is a maintenance type.
Start	Indicates that the maintenance task is performed manually. **Note:** This field is disabled and the selection cannot be changed.
Name	A descriptive name for the timeslot.
Duration	The duration of the maintenance timeslot, in hours and minutes. **Note:** A maintenance timeslot can be reserved for a minimum of between 15 minutes and maximum of 480 hours (20 days).
Start Time	The date and time (in hours and minutes) that the timeslot starts. **Note:** If you need to reserve a host for a maintenance task, and the host is already reserved for running a test in the same timeslot, then you can modify the start of the testing timeslot, or delete the testing timeslot. Consult with the user who reserved the testing timeslot before making any changes.
End Time	The date and time (in hours and minutes) that the timeslot ends.
Add Specific Host	Opens the Add Specific Host dialog box, enabling you to select hosts for the maintenance timeslot. For more details, see *HPE Application Lifecycle Management User Guide*. **Note:** You must select at least one host for the timeslot. **Available:** For new, open, or future maintenance timeslots.
	**Remove.** Removes the selected host from the lists of requested hosts.

UI Elements	Description
	**Set Start Time as Now.** Selects the current time in the resource availability chart. **Note:** A timeslot whose start time is set to the current time opens the immediately upon submitting the reservation.
	Calculates the availability of the requested resources for the selected timeslot. The results are displayed graphically on the resource availability timeline, and a message is displayed in the **Timeslot Status** tab. The availability timeline displays all timeslots when the requested hosts can be reserved. Even if the requested hosts cannot be reserved for the selected timeslot, they may be available at other times.
<Message bar>	Located at the top of the dialog box. Displays messages and warnings about the timeslot. **Available for:** Existing timeslots only.
<Resource availability timeline>	Displays the availability of requested resources on a timeline: • **Availability not calculated.** Displayed on the timeline before you calculate the availability of the requested resources for a new timeslot, or when modifying a timeslot. • **Start Times.** Indicates suggested start times for the timeslots, when the requested resources are available. • **Insufficient Resources.** Indicates that not all the requested resources are available at the start times indicated on the timeline. • **License/Project Limit.** Indicates license or project limit issues at the start times indicated on the timeline. For example, more hosts requested than available in the license limit. • **Unknown.** Displayed before calculating the availability of the requested resources for the timeslot. • **Unavailable Resource.** Indicates that a requested resource is not available at the start times indicated on the timeline.
Requested Hosts grid	Displays the hosts requested for the timeslot. **Note:** You must select at least one host for the timeslot.

UI Elements	Description
Timeslot Status tab	Displays the status of the timeslot reservation. For details about timeslot failure, see *HPE Application Lifecycle Management User Guide*.
Description tab	Describes the currently selected timeslot. **Tip:** Right-clicking in this area displays a toolbar for formatting and spell checking the text.
Additional Details tab	Displays additional details related to the timeslot. **Available for:** Existing timeslots only.
Event Log tab	Displays a log of events related to the timeslot. For details, refer to the "Event Log" on page 145. **Available:** Existing timeslot details.

Chapter 7: 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.

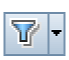
To access	On the Lab Management sidebar, under **Performance Center**, select **PC Test Runs.**

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" on the next page. • **PC Test Runs module menus and buttons.** For command and button descriptions, see "PC Test Runs Module Menus and Buttons" on page 173. • ALM **main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HPE 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.

Event Log Tab

User interface elements are described below:

UI Elements	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 *HPE Application Lifecycle Management User Guide*.
	**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 *HPE Application Lifecycle Management User Guide*.
	**Refresh.** Refreshes the event log so it displays the most up-to-date information.
	**Export All.** 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.
	**Event Details.** Opens the Event Details dialog box, enabling you to view details of the selected event log.

UI Elements	Description
Action	The category of action where the event occurred. **Example**. Create Server
Creation Date	The date and time the event was logged.
Context	The specific entity where the event occurred. **Example**. PC Server: VM05
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.
Sub Module	The ALM sub module where the event occurred. **Example**. Test Lab

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.
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 *HPE 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.
Data Processor Queue	<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 *HPE 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 *HPE 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 *HPE 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.

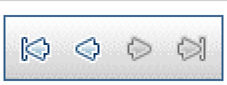
UI Elements	Where	Description
Run Screen	<right-click menu>	Opens the Performance Test Run screen, enabling you to view and manage the test run. For more information, refer to the *HPE ALM Performance Center Guide*. **Note:** Only enabled when test run is in the **Running** state.
Select Columns	View	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 *HPE Application Lifecycle Management User Guide*. For details about the test run fields, see "PC Test Runs Module Fields" on page 171.
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 *HPE 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
	**Save.** Saves the details.
	**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.

UI Elements (A - Z)	Description
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details	Displays the details of the selected test run. For more details, see "PC Test Runs Module Fields" on page 171.
Event Log	Lists the events that occurred during the selected test run. For more details, see "Event Log" on page 145.
History	Lists changes made to the selected test run. For more details, see the *HPE Application Lifecycle Management User Guide*.

Chapter 8: 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. When working with cloud - based hosts, you can also analyze and monitor cloud resource consumption.

The following table provides a description of each report:

Report	**Description**
Resource Summary	Shows aggregate data regarding the way projects used the various resources of the system.
Concurrency vs. License	Shows details of concurrent resource usage per project, as well as information regarding how system resources were used within license limitations.
Timeslot Usage	Shows information about the reservation and usage of resources associated with timeslots.
Resource by Duration	Shows 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	Shows 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	Shows information about VUD usage per day for each selected project.
Daily VUDs License Usage	Shows information about VUD usage per day, aggregated across all projects.
Protocol Granularity	Shows information about usage of protocols associated with Vuser scripts.
Cloud High Level Report	Shows a breakdown of credits consumed and hosts provisioned per project.
Cloud Credits by Type	Shows consumed credits per location, per template, per instance, and per image.
Cloud Utilization	Shows a per-project summary of total cloud host uptime or running time vs. idle time, as well as the credit value of total idle time.
Cloud Operations	Shows individual provisioning and terminating operations as well as detailed provisioning data for each host.

For information about how to view the reports, see "How to Generate Usage Reports" on the next page.

How to Generate Usage Reports

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 14.

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

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

   From Lab Management: 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.

   From My Performance Center: On the My Performance Center navigation bar, click **Report**.

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

2. **Select the desired projects to include in the report**

   Select the desired projects from the **Projects** drop-down 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 the next page.

4. **Select the desired cloud accounts for the report**

   Select the desired cloud accounts for the report from the **Accounts** drop-down list.

   > **Note: Available in:** Cloud usage reports

5. **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 14.

Export a report to PDF

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

> **Note: Not Available in:** Cloud usage reports

Export a report to an editable Excel file

To export a report to an editable Excel file, click **Export to Excel** 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

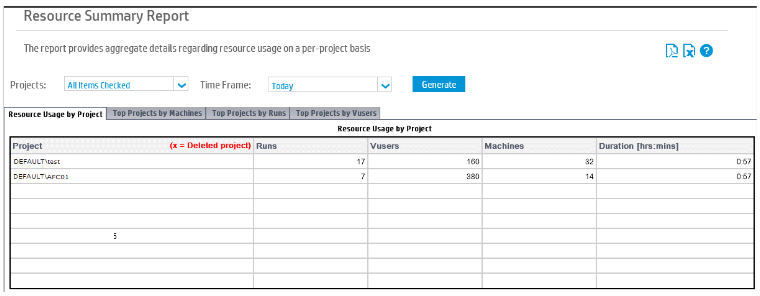
Usage Reports User Interface

> **Caution:** 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:

Resource Summary Report

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



To access	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Resource Summary**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Resource Summary**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.

UI Elements (A - Z)	Description
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

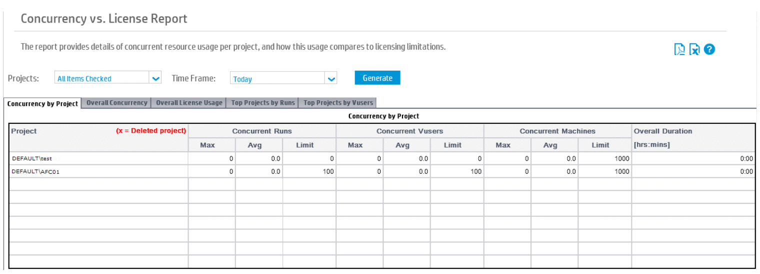
Important information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

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.
Vusers	The total number of Vusers in the project, aggregated over all the runs.

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	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Concurrency vs. License**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Concurrency vs. License**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.
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 the next page.
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 187.
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 188.
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 188.
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 189.

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.
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.

UI Elements (A - Z)	Description
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:

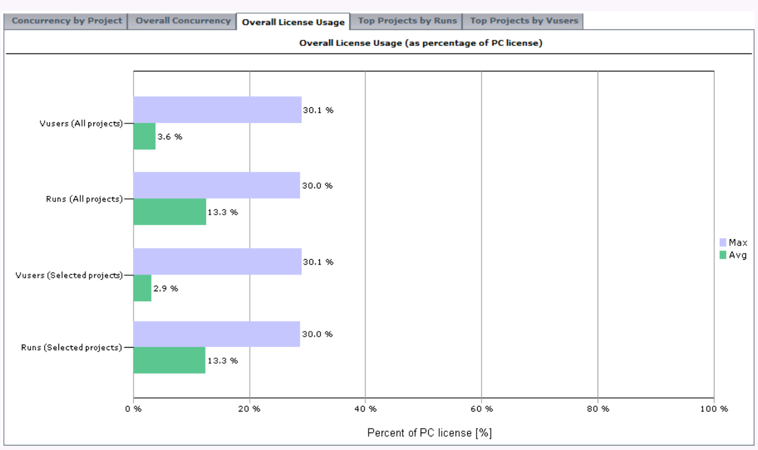
UI Elements (A - Z)	Description
Concurrent Machines Avg	The average number of concurrent running machines.
Concurrent Machines Max	The maximum number of concurrent running machines.
Concurrent Runs Avg (License %)	The average number of concurrent runs. The value in brackets is the average number of concurrent 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.

UI Elements (A - Z)	Description
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.

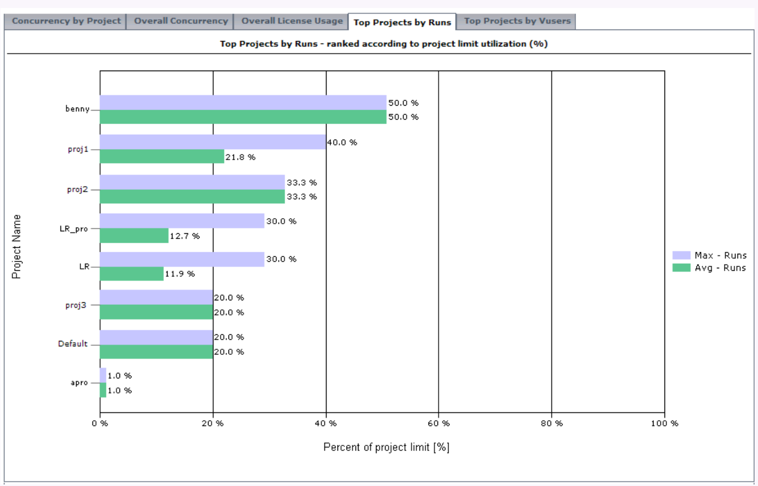


Top Projects by Runs Graph

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.

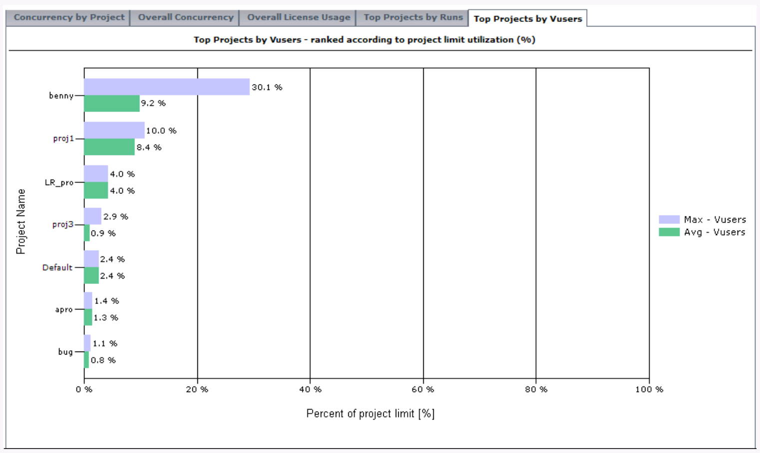
> **Example:** In the following example the Max - Runs value for the project **LR_pro** is 30%. This means that the maximum number of concurrent runs for this project reached 30% of its limit. The Avg - Runs value for this project shows that the average number of concurrent runs reached 12.7% of its 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

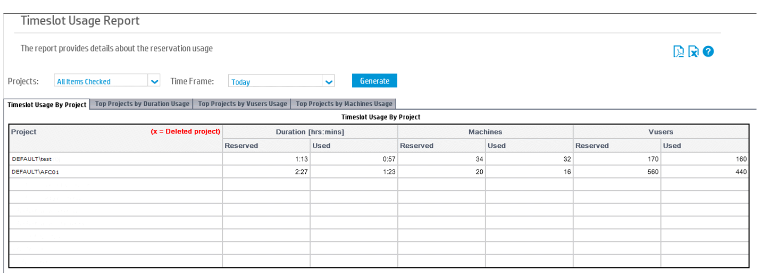
Important Information	In most circumstances, the graph displays information for up to ten selected projects. If there is more than one selected project with the same number of maximum concurrent runs, all these projects are displayed. In that case, more than ten projects might be displayed.
X-axis	Maximum 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.



Timeslot Usage Report

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


Timeslot Usage Report

The report provides details about the reservation usage

Projects: All Items Checked Time Frame: Today Generate

Timeslot Usage By Project | Top Projects by Duration Usage | Top Projects by Vusers Usage | Top Projects by Machines Usage

Timeslot Usage By Project

Project (x = Deleted project)	Duration [hrs:mins]		Machines		Vusers	
	Reserved	Used	Reserved	Used	Reserved	Used
DEFAULT\test	1:13	0:57	34	32	170	160
DEFAULT\AFC01	2:27	1:23	20	16	560	440

To access	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Timeslot Usage**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Timeslot Usage**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.
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 page 193.

UI Elements (A - Z)	Description
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.
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

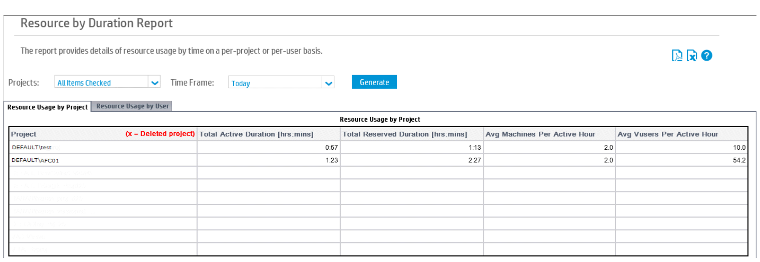
Important information	You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the column heading to reverse the order.

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	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Resource Usage by Duration**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Resource Usage by Duration**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.
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" below.
Resource Usage by User tab	Contains a table that displays resource usage per user. For more information, see "Resource Usage by User Table" on the next page.

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.

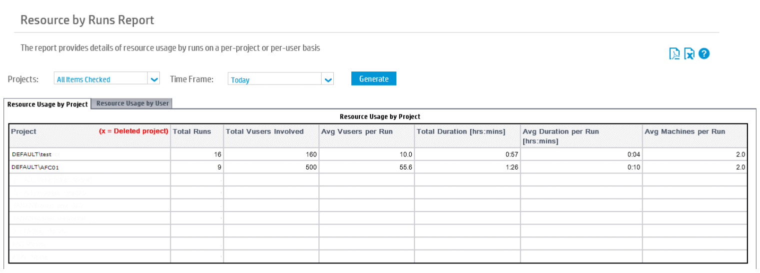
User interface elements are described below (unlabeled elements are shown in angle brackets):

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.

UI Elements (A - Z)	Description
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	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Resource Usage by Runs**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Resource Usage by Runs**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.
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 the 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.

UI Elements (A - Z)	Description
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.
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	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **VUDs License Project Usage**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **VUDs License Project Usage**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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	Select which project to include in the report. **Available from:** Lab Management only
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 180.
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" on the next page.
VUDs Transactions tab	Contains a table that provides information about VUDs per transactions. For more information, see "VUDs Transactions Table" on the 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.

UI Elements (A - Z)	Description
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	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Daily VUDs License Site Usage**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Daily VUDs License Site Usage**.
Relevant tasks	"How to Generate Usage Reports" on page 179

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" on the next page.

UI Elements (A - Z)	Description
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 180.

Daily VUDs Usage Table

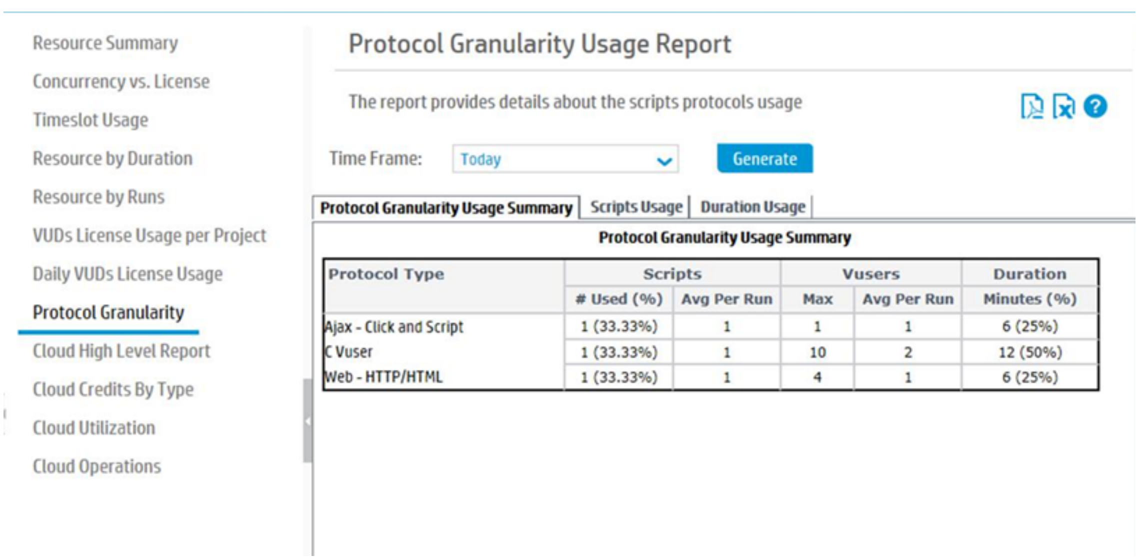
Important information	• Details of all runs with any amount of duration, even retries of a single run, are included in the table. • You can sort the table according to the values of any column. The arrow in the heading displays whether the column is sorted in ascending or descending order. Click the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

Protocol Granularity Usage Report

The Protocol Granularity Usage report shows the Vuser script's protocol usage.



To access	**ALM / Lab Management:** 1. Select **Performance Center**> **Usage Reports**. 2. In the list of Usage Reports, select **Protocol Granularity**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Protocol Granularity**.
Important Information	The report refers only to Vusers that have reached the run stage.
Relevant tasks	"How to Generate Usage Reports" on page 179

User interface elements are described below:

UI Elements	Description
	**Export to PDF/Excel.** Click to export the report to PDF or Excel format.
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 180.
Generate	Generates the report.
Protocol Granularity Usage Summary tab	Displays information about the script usage, Vuser usage, and duration.
Scripts Usage tab	Contains a graph that displays the scripts usage by protocol.
Duration Usage tab	Contains a graph that displays the duration usage by protocol.

Protocol Granularity Usage Summary

User interface elements are described below:

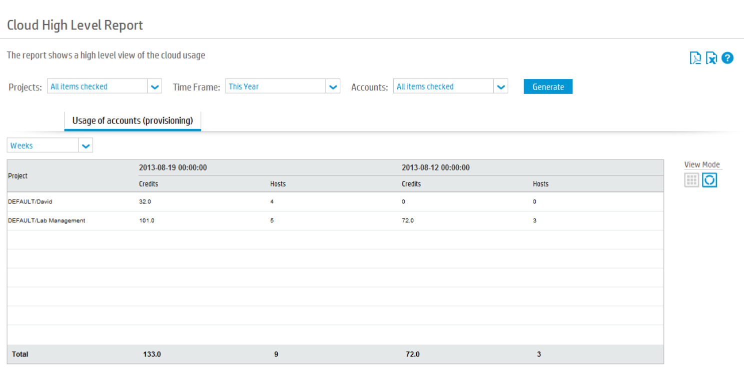
UI Elements	Description
Protocol Type	The Vuser script's protocol.

UI Elements	Description
Scripts	• **# Used (%).** The total number of times the tests used scripts with a certain protocol type. If the same script is used several times by a test, it will be aggregated. The % indicates the relative percentage of how many times a protocol is used compared to the total number of scripts used. Calculated by using the formula: $\frac{(\#\ Used) \times 100}{Sum\ of\ \#\ Used}$ • **Avg Per Run.** Indicates the relative part of a protocol out of all the runs. Calculated by using the formula: $\frac{\#\ \ Used}{Total\ number\ of\ runs}$
Vusers	• **Max.** The maximum number of Vusers sampled during a single run. Note that when test scripts are running at the same time and using the same protocol, for example, the first test script is running 10 Vusers and the other script is running 100 Vusers, the report will display the maximum value as 100. The report does not aggregate all the Vusers that are running from different test scripts at the same time. • **Avg Per Run.** The average number of Vusers used per run. Calculated by using the formula: $\frac{Sum\ \ of\ \ the\ \ average\ \ number\ \ of\ \ Vusers}{Total\ \ number\ \ of\ runs}$
Duration	**Minutes (%).** The total number of minutes the protocol was in use. Calculated by using the formula: $Sum\,of\,the\,Avg\,Vusers\ \ Per\ \ Run\ \times\ Duration$ The % indicates the duration percentage of a protocol that was used out of the total duration. Calculated by using the formula: $\frac{Total\ duration\ \times 100}{Total\ \text{duration of all runs}}$

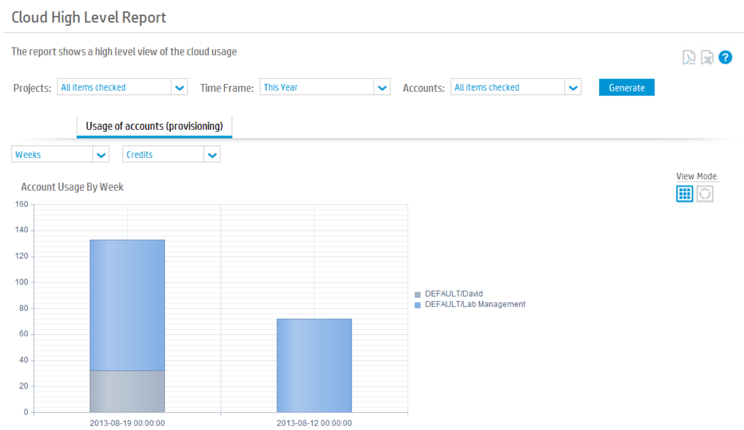
Cloud High Level Report

The Cloud High Level Report shows provisioned hosts and consumed credits per project over time.

Grid view:



Graph view:



To access	**ALM / Lab Management:** 1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Cloud High Level Report**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Cloud High Level Report**.
Important Information	• This report can be viewed as a grid or as a graph. • Export options are available only when viewing the report as a grid.
Relevant tasks	"How to Generate Usage Reports" on page 179
See Also	• "Cloud Accounts Overview" on page 68 • "Cloud Resources Monitoring Overview" on page 104

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

UI Elements	Description
	**Available when viewing report output as a graph.** Export to PDF/Excel. Click to export the report to PDF or Excel format.
Generate	Generates the report. Make sure to generate the report after updating the report filters.
Filter by: Accounts	Allows you to choose which cloud accounts are included in the report output. Hosts are shown in the report output only if they were provisioned from one of the selected cloud accounts.

UI Elements	Description
Filter by: Projects	Allows you to choose which projects are included in the report output. Hosts are shown in the report output only if they were provisioned from one of the selected projects. **Available from:** Lab Management only.
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 180.
<Group by Months/Weeks>	Determines how the report results are grouped. • If Months is selected, each column in the report output shows one month's data, and there is a column for each month. • If Weeks is selected, each column in the report output shows one week's data, and there is a column for each week. **Note:** Select Months and each column of the report shows a summation of all consumed credits and provisioned hosts for an entire month. There is one column for each month in the selected time frame.
<Report output>	Displays the report output. Report output can be displayed as a grid or a graph, depending upon the selected **View Mode**.
<Show usage by>	**Available when viewing report output as a graph.** • **Credits.** Choose to display account usage by credits consumed. • **Hosts.** Choose to display account usage by hosts provisioned.
View Mode	Choose how to display the report output: • **Grid View** . Display the report output in a grid. • **Graph View** . Display the report output in a graph.

The following columns appear in the report output when displayed in a grid (unlabeled elements are shown in angle brackets):

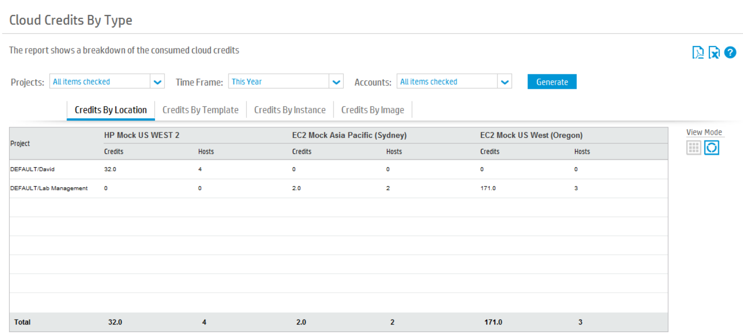
Field	Description
Credits	Displays the number of credits consumed by the project during the specified time frame.
<Date>	Displays the start time of the time frame shown in the column.
Hosts	Displays the number of hosts provisioned by the project during the specified time frame.

Field	Description
Project	Displays the project, including domain, which provisioned the hosts and consumed the credits.

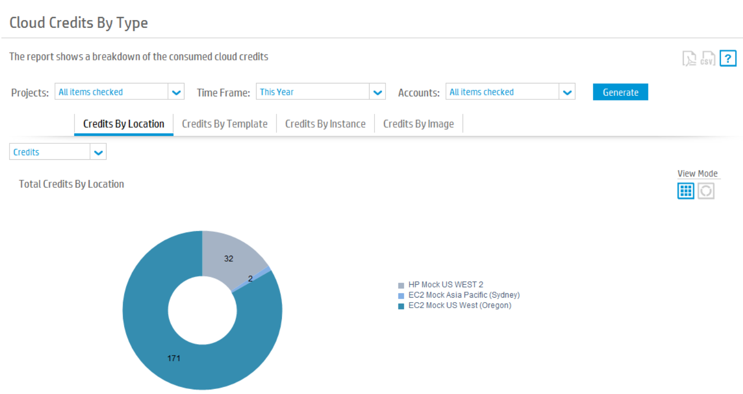
Cloud Credits by Type Report

The Cloud Credits by Type Report shows the number of consumed cloud credits by location, template, instance, or machine image.

Grid view:



Graph view:

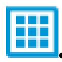


To access	**ALM / Lab Management:** 1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Cloud Credits By Type**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Cloud Credits By Type**.

Important Information	• This report can be viewed as a grid or as a graph. • Export options are available only when viewing the report as a grid.
Relevant tasks	"How to Generate Usage Reports" on page 179
See Also	• "Cloud Accounts Overview" on page 68 • "Cloud Resources Monitoring Overview" on page 104

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

UI Elements	Description
	Export to PDF/Excel. Click to export the report to PDF or Excel format. **Available from:** Graph view only.
Generate	Generates the report. Make sure to generate the report after updating the report filters.
Credits By Image tab	Report output shows credit usage per machine image.
Credits By Instance tab	Report output shows credit usage per instance type.
Credits By Location tab	Report output shows credit usage per location.
Credits By Template tab	Report output shows credit usage per host template.
Filter by: Accounts	Allows you to choose which cloud accounts are included in the report output. Hosts are shown in the report output only if they were provisioned from one of the selected cloud accounts.
Filter by: Projects	Allows you to choose which projects are included in the report output. Hosts are shown in the report output only if they were provisioned from one of the selected projects. **Available from:** Lab Management only.
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 180.

UI Elements	Description
<Report output>	Displays the report output. Report output can be displayed as a grid or a graph, depending upon the selected **View Mode**.
<Show usage by>	• **Credits.** Choose to display account usage by credits consumed. • **Hosts.** Choose to display account usage by hosts provisioned. **Available from:** Graph view only.
View Mode	Choose how to display the report output: • **Grid View** **.** Display the report output in a grid. • **Graph View** **.** Display the report output in a graph.

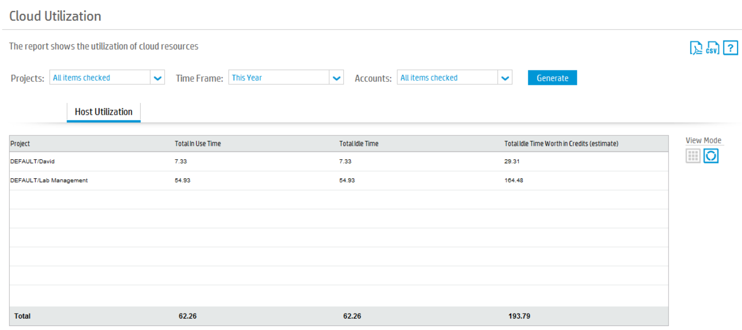
The following columns appear in the report output when displayed in a grid (unlabeled elements are shown in angle brackets):

Field	Description
Credits	Displays the number of credits consumed by a project using the specified location, template, instance, or image.
<Image>	Displays the number of hosts provisioned using a machine image and the number of credits consumed by hosts with that machine image. **Available from:** Credits By Image tab only.
<Instance>	Displays the number of hosts provisioned using an instance type and the number of credits consumed by hosts with that instance type. **Available from:** Credits By Instance tab only.
Hosts	Displays the number of hosts provisioned by a project using the specified location, template, instance, or image.
<Location>	Displays the number of hosts provisioned from a location and the number of credits consumed by that location. **Available from:** Credits By Location tab only.
Project	Displays the project, including domain, which provisioned the hosts and consumed the credits.
<Template>	Displays the number of hosts provisioned from a template and how many credits were consumed by hosts provisioned from that template. **Available from:** Credits By Template tab only.

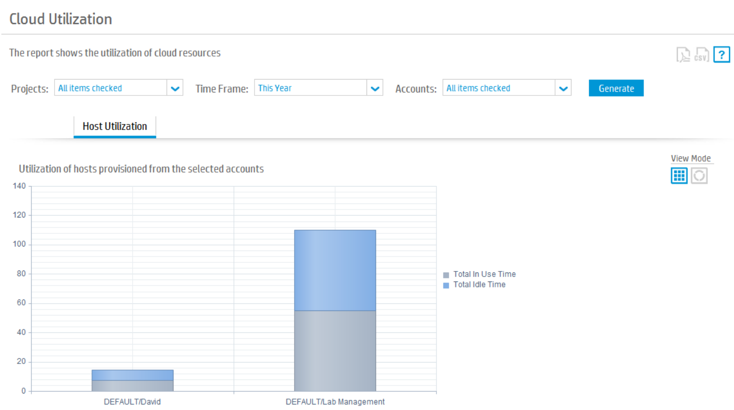
Cloud Utilization Report

The Cloud Utilization Report shows in-use time versus idle time for cloud hosts. This allows you to see if you are effectively using your cloud resources.

Grid view:



Graph view:



To access	**ALM / Lab Management:** 1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Cloud Utilization**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Cloud Utilization**.
Important Information	• This report can be viewed as a grid or as a graph. • Export options are available only when viewing the report as a grid.
Relevant tasks	"How to Generate Usage Reports" on page 179

See Also	• "Cloud Hosts Overview" on page 52 • "Cloud Resources Monitoring Overview" on page 104

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

UI Elements	Description
	Available when viewing report output as a graph. Export to PDF/Excel. Click to export the report to PDF or Excel format.
Generate	Generates the report. Make sure to generate the report after updating the report filters.
Filter by: Accounts	Allows you to choose which cloud accounts are included in the report output. Hosts are included only if they were provisioned from one of the selected cloud accounts.
Filter by: Projects	Allows you to choose which projects are included in the report output. Hosts are included only if they were provisioned from one of the selected projects. **Available from:** Lab Management only.
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 180.
<Report output>	Displays the report output. Report output can be displayed as a grid or a graph, depending upon the selected **View Mode**.
View Mode	Choose how to display the report output: • **Grid View** . Display the report output in a grid. • **Graph View** . Display the report output in a graph.

The following columns appear in the report output when displayed in a grid:

Field	Description
Total In Use Time	Total time in hours that hosts provisioned by a project were running tests.
Total Idle Time	Total time in hours that hosts provisioned by a project were available for running tests but were not in use.
Total Idle Time Worth in Credits (estimate)	Total number of credits consumed by hosts that were available for running tests but were not in use.
Project	Displays the project, including domain, for which the utilization summary is given.

Cloud Operations Report

The Cloud Operations Report shows individual provision and terminate operations for your cloud hosts. You can also see test usage for each host.

To access	**ALM / Lab Management:** 1. Select **Performance Center > Usage Reports**. 2. In the list of Usage Reports, select **Cloud Operations**. **My Performance Center:** 1. On the My Performance Center navigation bar, click **Reports**. 2. In the list of Usage Reports, select **Cloud Operations**.
Important Information	• This report contains three elements: Operations, Hosts, and Usage. • Data for this report can only be exported to Excel.
Relevant tasks	"How to Generate Usage Reports" on page 179
See Also	• "Cloud Hosts Overview" on page 52 • "Cloud Resources Monitoring Overview" on page 104
See Also	• "Cloud Hosts Overview" on page 52 • "Cloud Resources Monitoring Overview" on page 104

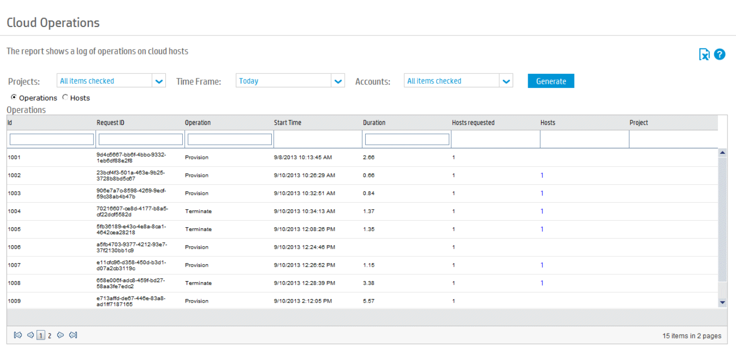
User interface elements

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

UI Elements	Description
	Export to Excel. Click to export the report to Excel format. The Excel export contains additional columns in the report output.
Generate	Generates the report. Make sure to generate the report after updating the report filters.
Back to Hosts	Available when viewing an individual cloud operation or a host's usage. Returns to the list of cloud hosts.
Back to Operations	Available when viewing an individual cloud host. Returns to the list of cloud operations.

UI Elements	Description
<Column search>	Allows you to search the selected column. Numerical fields search for an **exact match** of the entered number. Text fields search for any records that **contain** the entered text.
Filter by: Accounts	Allows you to choose which cloud accounts are included in the report output. Hosts and operations are included only if they were provisioned from one of the selected cloud accounts.
Filter by: Projects	Allows you to choose which projects are included in the report output. Hosts and operations are included only if they were provisioned from one of the selected projects. **Available from:**Lab Management only.
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 180.
Operations/Hosts selector	Available when viewing all cloud hosts or all cloud operations. Changes the report output to display either cloud operations or cloud hosts.
<Report output>	Displays the report output. Report output can be displayed as a grid or a graph, depending upon the selected **View Mode**.
Show all Hosts	Available when viewing an individual cloud host. Returns to the list of all cloud hosts.
Show all Operations	Available when viewing an individual cloud operation. Returns to the list of all cloud operations.

Operations view



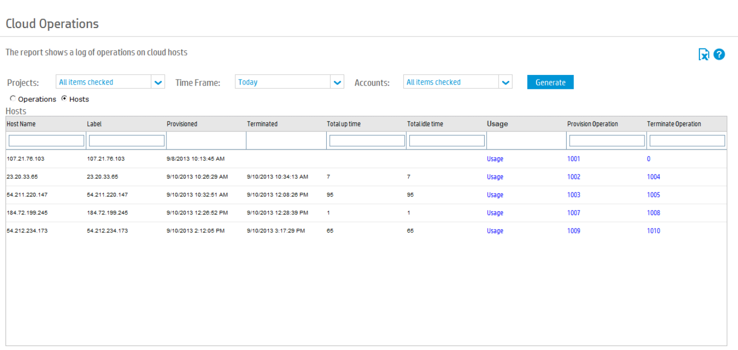
The operations view shows you a list of each individual provision and terminate operation. You can see which hosts are included in an operation by clicking on the number in the **Hosts** column.

To access: Click the Operations radio button.

The following columns appear in the report output in the operations view:

Field	Description
ID	The ID of the cloud operation.
Request ID	The cloud provider's ID for the cloud operation .
Operation	The type of cloud operation: Provision or Terminate.
Start Time	The date and time the cloud operation was initiated.
Duration	The time in minutes that it took to provision or terminate the hosts.
Hosts Requested	**For provision operations:** The number of hosts requested from the cloud provider. **For terminate operations:** The number of hosts terminated.
Hosts	**For provision operations:** The number of hosts actually provisioned. Blank if no hosts were successfully provisioned. **For terminate operations:** The number of hosts terminated. Click on the number of hosts to view a list of all hosts included in an operation.
Project	The project that initiated the cloud operation.

Hosts view



The hosts view shows you the provision and terminate operations associated with each individual host. You can see full details of a provision operation by clicking on the ID in the **Provision Operation** column. You can see full details of a terminate operation by clicking on the ID in the **Terminate Operation** column.

To access: Click the Hosts radio button.

The following columns appear in the report output in the hosts view:

Field	Description
Host Name	The IP address of the cloud host.
Label	The logical name of the cloud host as specified during provisioning.
Provisioned	The date and time that the host was provisioned.
Terminated	The date and time that the host was terminated. Blank for hosts that have not yet been terminated.
Total Up Time	The amount of time that the host was provisioned. Blank for hosts that have not yet been terminated.
Total Idle Time	The amount of time that the host was provisioned but was not being used for testing. Blank for hosts that have not yet been terminated.
Usage	Click to open the usage view for the selected host.
Provision Operation	Shows the ID of the operation in which the host was provisioned.
Terminate Operation	Shows the ID of the operation in which the host was terminated. Displays "0" for hosts that have not yet been terminated.

Usage view

The usage view shows you all tests run using the selected host.

To access: From the hosts view, in the Usage column, click the **Usage** button for the desired host.

The following columns appear in the report output in the usage view:

Field	Description
Timeslot ID	ID of the timeslot in which the test was run.
Run ID	ID of the test run.
Start	The date and time that the test run began.
End	The date and time that the test run ended.
Duration	Duration of the test run in minutes.
Project	The project that initiated the test run.
User	The user who initiated the test run.

Chapter 9: 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 the previous page

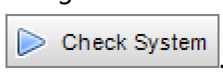
User interface elements are described below (unlabeled elements are shown in angle brackets):

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 the 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.
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.

UI Elements	Description
<Results grid>	Displays the progress and results of the system check. Includes the following fields: • **Status.** The status of the system check. • **Component.** The server or host name. • **Description.** The description of the task. • **Result.** The task results. • **Start Time.** The time that the task check started. • **End Time.** The time that the task check ended. • **Passed.** Indicates whether the task check passed or failed.
Task Result	Displays the task status and the results of the system check.
Task Log	Displays detailed information about the tasks performed on the operational server or host, the action status, and a description of any errors.

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  .
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 217

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.

UI Elements	Description
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. For more details, see "PC Servers Module Fields" on page 292.
<Performance Center host grid>	Lists the Performance Center hosts that you selected to include in the system check, and displays their details. For more details, see "Hosts Fields" on page 135.

Chapter 10: PC Licenses

This chapter includes:

HP ALM Performance Center Licenses Overview

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

License	Description
ALM	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 *HPE Application Lifecycle Management Administrator Guide*.

License	Description
Performance Center	There are two types of Performance Center licenses: • **PC.** The PC license is limited by the total number of concurrent runs or Vusers, and may have an expiration date. **Note:** This license is also available as a free permanent community license bundle. This bundle includes 1 Controller allowing 1 concurrent run, and 50 PC Vusers. • **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 226. • 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

License	Description
	not relevant.
Host	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.
Community License Bundle	Performance Center is delivered with a free perpetual community license bundle. The bundle includes: 1 Controller allowing 1 concurrent run, 1 PC Lifecycle user, and 50 permanent Vusers. These Vusers are valid for all protocols except for GUI (UFT), COM/DCOM, and template protocols. The community license bundle does not include support. **Note:** The bundle is located under **CommunityLicense** in the root directory of the Performance Center installation DVD.

> **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 "How to Set Performance Center License Keys".

How to Set Performance Center License Keys

This section describes how to set Performance Center license keys.

1. **Prerequisites**

   Make sure the ALM license is set in the ALM Site Administration. For more information about the ALM license, see the *HPE Application Lifecycle Management Administrator Guide*.

2. **Activate your license keys**

   To activate your licenses, visit the HP Software Licensing Portal (http://www.hp.com/software/licensing) and enter your Entitlement Order Number.

   If you do not have a license, visit the HP Software Licensing Portal (http://www.hp.com/software/licensing) and click the **Contact Licensing Support** link.

3. **Set your license keys**

   a. In Lab Management, under **Performance Center** select **PC Licenses**. The PC Licenses Module

Window opens. For user interface details, see "PC Licenses Module Window" on the next page.

b. Select one of the following options:

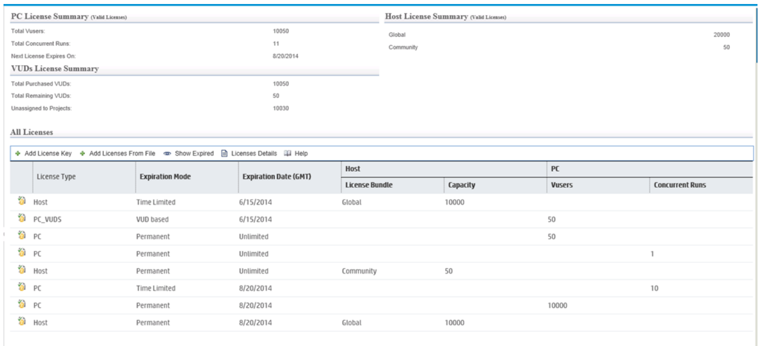
- **Add License Key.** Adds a single license key.
- **Add License from File.** Adds multiple license keys simultaneously. For user interface details, see "Add Licenses from File Dialog Box" on page 228.

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 Set Performance Center License Keys" on page 224
See also	" HP ALM Performance Center Licenses Overview" on page 222

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.
Total Remaining VUDs	Total number of remaining VUDs.

UI Elements	Description
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
Add License Key	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.
Add Licenses From File	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 the next page.
Show Expired Hide Expired	Click to display all licenses or to hide expired licenses.
Licenses Details	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 Licenses Overview" on page 222.

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 Set Performance Center License Keys" on page 224
See also	" HP ALM Performance Center Licenses Overview" on page 222

User interface elements are described below:

UI Elements	Description
License File	Click **Select** and then select the license file.
Show/Hide Expired or Installed Licenses	Click to display all licenses, or to hide expired licenses and installed licenses.

UI Elements	Description
#	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 Licenses Overview" on page 222.
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 11: MI Listeners

This chapter includes:

MI Listeners Overview

MI Listeners serve as routers between the Controller and a Performance Agent. They enable you to run Vusers over a firewall and to 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 *HPE Performance Center Installation Guide*.

For task information about managing MI Listeners, see "How to Manage MI Listeners" below.

How to Manage MI Listeners

This section describes how to manage the MI Listeners which enable you to run performance tests on hosts over a firewall.

> **Note: 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.

This task describes how to:

- "Add an MI Listener" below
- "Modify/View host location details" below
- "Assign an MI Listener to a host" below

Add an MI Listener

To add an MI Listener:

1. Go to **Performance Center > MI Listeners**.
2. Click the **New MI Listener** button. For user interface information, see " New MI Listener Dialog Box" on page 237.

Modify/View host location details

In **Performance Center > MI Listeners**, select an MI Listener in the grid and click the **MI Listener details** button.

For user interface details, see "MI Listener Details Dialog Box" on page 238.

Assign an MI Listener to a host

To assign an MI Listener to a host:

1. Go to **Lab Resources > Hosts**.
2. Select a host in the grid which is located over a firewall, and click the **Testing Host Details** button .
3. In the **Testing Host Dialog Box**, select your MI Listener in the **PC MI Listener** field.

   For user interface information, see "Testing Host Details Dialog Box" on page 142.

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**.
Important information	• For detailed information about configuring ALM to work with firewalls, see the section about working with firewalls in the *HPE Performance Center Installation Guide*. • If an MI Listener is being used by a host, it cannot be deleted.
Relevant tasks	"How to Manage MI Listeners" on page 231
See also	• "MI Listeners Overview" on page 231 • "Lab Resources Overview" on page 109

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 the next page. • **MI Listeners module menus and buttons.** For command and button descriptions, see "Lab Resources Module Menus and Buttons" on page 126.
<MI Listeners grid>	Displays a list of the MI Listeners in ALM.
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 *HPE Application Lifecycle Management User Guide*.

MI Listener Fields

This section describes the MI Listener fields:

Field	Description
Description	A description of the MI Listener.
MI Listener ID	The ID of the MI Listener.
Public IP	The public 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 **public IP address** here. Enter the internal 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 **internal IP address** here. Enter the public IP address in the **Public 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

MI Listeners Module Menus and Buttons

The MI Listeners module enables you to manage your MI Listeners.

Relevant tasks	"How to Manage MI Listeners" on page 231

Common menus and toolbars of the MI Listeners 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 *HPE Application Lifecycle Management User Guide*.
Delete 	Edit and <right-click menu>	Deletes the MI Listener selected in the grid. **Note:** You cannot delete an MI Listener that is being used by a host.
MI Listener Details 	Toolbar and right-click menu	Opens the **MI Listener 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** or **Export Selected Grid Data** dialog boxes, enabling you to export the MI Listeners 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 *HPE Application Lifecycle Management User Guide*.
Go to <Resource> 	Toolbar	Opens the **Go To MI Listener** dialog box, enabling you to find a specific MI Listener by its ID number. You can only go to MI Listeners that are in the current filter.
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 *HPE Application Lifecycle Management User Guide*.
Information Panel	View and <right-click menu>	Shows/Hides the Information Panel in the lower area of the module.

UI Elements (A - Z)	Where	Description
New MI Listener	Toolbar	Enables you to add an MI Listener .
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HPE 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 grid, opens the Replace dialog box, enabling you to replace a field value in the grid. For more details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.
Set Filter/Sort	View	Enables you to filter and sort the MI Listeners in the grid. Any currently applied filters or sorting orders are displayed below the toolbar. For more details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.

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 MI Listeners" on page 231
See also	• "MI Listeners Overview" on page 231 • "Lab Resources Overview" on page 109

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.
	Field Search. Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 234.

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 Testing Hosts" on page 111
See also	• "MI Listeners Overview" on page 231 • "Lab Resources Overview" on page 109

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 234.
History	Lists changes made to the currently selected MI Listener. For more details, see the *HPE Application Lifecycle Management User Guide*.

Chapter 12: Diagnostics Management

This chapter includes:

J2EE/.NET Diagnostics Overview

The HPE Diagnostics integration with HPE 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 HPE Diagnostics data for the whole test or for a particular transaction. After the test, you can use HPE 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 *HPE Diagnostics User Guide*.

ERP/CRM Diagnostics Overview

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

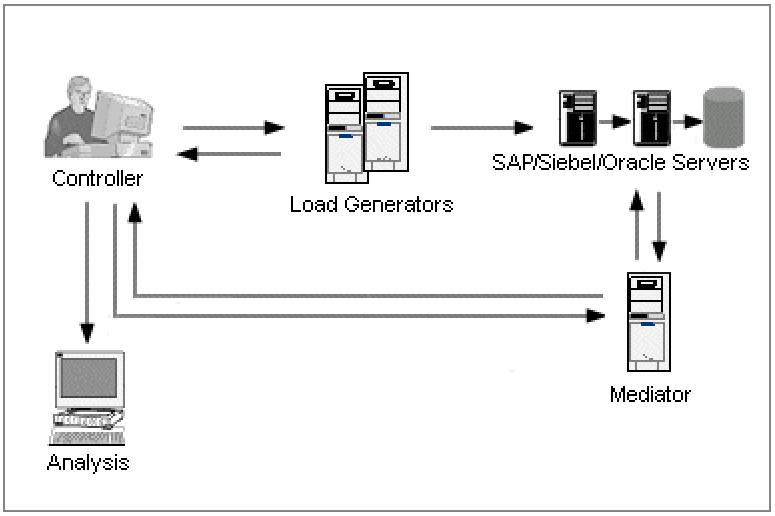
Understanding ERP/CRM Diagnostics

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 LoadRunner 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.
- **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 *HPE 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 Linux, the Mediator supports the remote shell connection type. For more information on remote shell connections, see the section that describes verifying the Linux load generator installation in the *HP LoadRunner Installation 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.

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

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 247.

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.

For information on how to configure the SAP Diagnostics module, see "How to Pre-Configure SAP Diagnostics" on page 248.

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 14.

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 LoadRunner Installation Guide*.

2. **Add and configure the mediator**

   a. On the Lab Management sidebar, under **Performance Center**, 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 252.

How to Add HPE Diagnostics Servers

This task describes how to add an HPE 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 14.

1. On the Lab Management sidebar, under **Performance Center**, 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 252.
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 14.

This task includes the following steps:

- "Prerequisite" on the next page
- "If connecting to a UNIX server with a remote shell (RSH/RCP) connection" on the next page
- "Configure the server machine to enable diagnostics" on the next page

- "Copy files from the Siebel Application Server to the Mediator" on the next page
- "Synchronize clocks" on page 246
- "(Siebel DB) Enable logging on the Siebel Server" on page 246

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 242.

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 *HPE 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 248.

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 14.

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" on the next page

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 242.

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 the next page.

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 251.

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 14.

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 242.

> **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 14.
> - 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 14.

This task includes the following steps:

- "Verify that the trace diagnostics are enabled" below
- "Set the trace file size to unlimited" below

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 14.

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

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 242 • "How to Add HPE Diagnostics Servers" on page 243

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 *HPE Application Lifecycle Management User Guide*.
<Diagnostics module fields>	For details on the fields that are available in the Diagnostics module, see "Diagnostics Module Fields" below.
<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 254.
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 *HPE 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.

Field	Description
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 *HPE 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 *HPE 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.

UI Elements (A - Z)	Menu	Description
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 *HPE 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 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 252.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*. For details about the Diagnostics fields, see "Diagnostics Module Fields" on page 252.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*.

Chapter 13: 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 14.

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 the previous page
See also	• "How to Manage Testing Hosts" on page 111 • "How to Manage Performance Center Servers" on page 286

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" below. • **Patches module menus and buttons.** For command and button descriptions, see "Patches Module Menus and Buttons" on the next page. • **ALM main menu and sidebar.** For details on the **Tools** menu, **Help** menu and sidebar, see the *HPE 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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
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 *HPE 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.
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 *HPE 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 *HPE 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 *HPE Application Lifecycle Management User Guide*. For details about the patches fields, see "Patches Module Fields" on page 258.
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 *HPE 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 *HPE 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 257
See also	• "How to Manage Testing Hosts" on page 111 • "How to Manage Performance Center Servers" on page 286

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details	For field definitions, see "Patches Module Fields" on page 258.

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 257

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details	Lists Patches fields. Required fields are displayed in red. For details on the available fields, see "Patches Module Fields" on page 258. **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 14: 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 267
- "Results" on page 267

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.

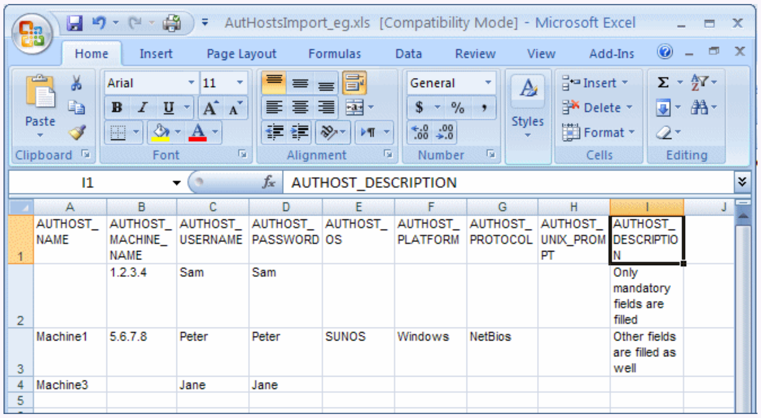
   Set up the columns and values in the file as follows:

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

Field name	Logical name	Value	Field for
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
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)

Field name	Logical name	Value	Field for
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
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

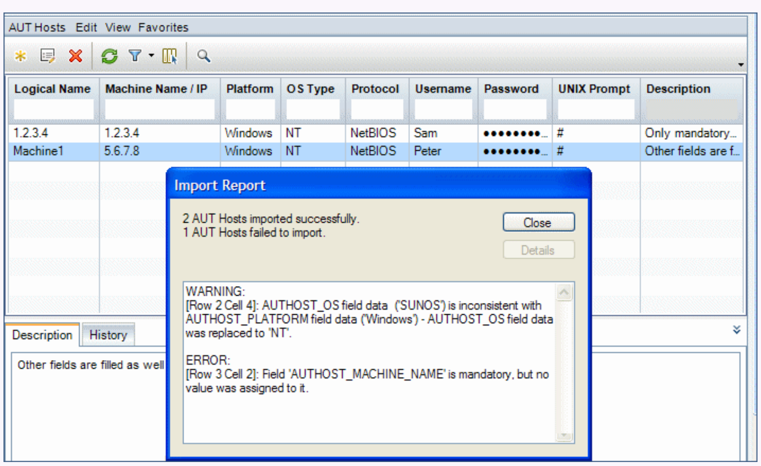
> **Example:** The following image illustrates an Excel file set up with the following AUT hosts: **1.2.3.4**, **5.6.7.8**, and a third machine whose name was not provided.



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 264

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 278.
<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.
History tab	Lists changes made to the selected AUT host. For more details, see the *HPE 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.

Field (A - Z)	Description
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:** NetBIOS, WMI,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: **From Lab Management:** 1. On the Lab Management sidebar, under **Performance Center**, select **AUT Hosts**. 2. Click **New AUT Host** . **From ALM:** 1. On the ALM sidebar, under **Performance Center**, select **AUT Hosts**. 2. Click **New AUT Host** .

Important information	When creating an AUT host in ALM, the AUT host is automatically added to the AUT Pool of the project. **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 264.
See also	• "AUT Resources Overview" on page 264 • *HPE ALM Performance Center Guide*

User interface elements are described below:

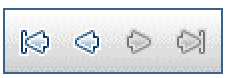
UI Elements	Description
	**Clear All Fields.** Clears the data.
	**Spell Check.** Checks the spelling for the selected word or text box.
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Machine Name/IP	The name or IP of the AUT host machine.
Details	Enables you to enter the details of the new AUT host. For more details, see "AUT Host Fields" on page 269.

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 264

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Machine Name/IP	The name or IP of the AUT host machine.
Details	Displays the details of the selected AUT host. For more details, see "AUT Host Fields" on page 269.
History	Lists changes made to the selected AUT host. For more details, see the *HPE 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 264

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 278.
<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.
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 *HPE Application Lifecycle Management User Guide*.

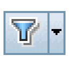
Linked Hosts Page

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 269.
See also	"AUT Resources Overview" on page 264

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

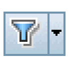
UI Elements	Description
	**AUT Host Details.** Opens the AUT Host Details dialog box, enabling you to view details about the selected linked AUT host. For details, see "AUT Host Fields" on page 269.
	**Add Hosts to Pool.** Opens the Add AUT Hosts to Pool dialog box, enabling you to select AUT hosts to 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.
	**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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search for an AUT host. For details, see the *HPE 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 269.

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 269.
See also	"AUT Resources Overview" on page 264

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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
Add	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:

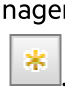
<table>
<tr><th>Field</th><th>Description</th></tr>
<tr><td>Description</td><td>A description of the AUT Pool.</td></tr>
<tr><td>Modified</td><td>The date on which the AUT Pool details were last modified.</td></tr>
<tr><td>Pool ID</td><td>The ID of the AUT Pool.</td></tr>
<tr><td>Pool Name</td><td>The name of the AUT Pool.

Note: The name may contain up to 128 characters, excluding spaces, periods, and any of the following characters:

: ; * \ / " ~ & ? { } $ % | < > + = ^ [ ] ( )</td></tr>
<tr><td>Total Hosts</td><td>The total number of AUT hosts in the host pool.</td></tr>
</table>

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 Host Pool** .
See also	"AUT Resources Overview" on page 264

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.

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.
	Field Search. Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 the 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 264

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

UI Elements	Description
	Save. Saves the details.
	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.

UI Elements	Description
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 276.
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 273.
History	Lists changes made to the selected AUT Pool. For more details, see the *HPE Application Lifecycle Management User Guide*.

AUT Resource Module Menus and Buttons

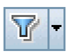
These modules enable you to manage the AUT resources which host applications under test.

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 264

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 *HPE 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 *HPE 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.

UI Elements (A - Z)	Where	Description
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 *HPE Application Lifecycle Management User Guide*.
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 264.
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 *HPE 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 *HPE 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 details, see the *HPE Application Lifecycle Management User Guide*. For details about the resource fields, see: • "AUT Host Fields" on page 269 • "AUT Pools Fields" on page 276
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 *HPE 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 <AUT resource> grid. For more details, see the *HPE Application Lifecycle Management User Guide*.

Chapter 15: Project Management

After you create a Lab Management enabled project, you manage the project in Site Administration. For information about managing projects in ALM, see the *HPE 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 " below.

Creating a copy of a project

For information about how to create a copy of a project, see the *HPE 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 *HPE 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:

- "Open Site Administration" below
- "Move Lab Management from the staging to the production environment" below
- "Activate Lab Management in the production environment"
- "Update the ALM license" below
- "Update Servers and Hosts" below
- "Move projects from the staging environment to the production environment" on the next page
- "Activate the projects in the production environment" on the next page
- "In the production environment, configure the project settings in Lab Management " on the next page

1. **Open Site Administration**

   For details, see the *HPE 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 18.

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

   For details about activating Lab Management, see "Lab Management Tab" on page 18.

4. **Update the ALM license**

   In the production environment, in Lab Management, update the ALM license. For details, refer to the *HPE 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 286.
   - For details about how to add hosts, see "How to Manage Testing Hosts" on page 111.

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 the *HPE Application Lifecycle Management Administrator Guide*.

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

   For details about activating projects, see the *HPE 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 21.

Chapter 16: 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 14.

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 the next page
- "Install a patch on a server" on the 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 294.

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.

> **Example:**
> - 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 257.

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 286

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 292. • **PC Servers Menus and Buttons.** For command and button descriptions, see "PC Servers Module Menus and Buttons" on the next page. • **ALM masthead, menus, and sidebar.** For details, see the *HPE 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 *HPE 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.
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 "PC Test Runs Module Window" on page 170.
Processes tab	Displays detailed information about the processes and resource usage of the selected server. For details, see "Processes Page" on page 295.
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 296.
History tab	Lists changes made to the currently selected host. For more details, see the *HPE 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 286

User interface elements are described below:

UI Elements	Menu	Description
ALM Connection	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` **Note:** For SSL connectivity the ALM internal URL must begin with https, for example: https://myalm:443.
Reconfigure Server	PC Servers and <right-click menu>	Resets the system information on the selected server. For example, internal/external URLs, user identity, and so on.
Install Patch	PC Servers and <right-click menu>	Opens the Install Patch dialog box, enabling you to select patches to install on the selected server.
Check Server	PC Servers	Checks connectivity between the selected server and other machines in the system.

UI Elements	Menu	Description
Reboot Server	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 *HPE 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.
Find	View	Opens the Find dialog box, enabling you to search for a server in the module. For details, see the *HPE 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 *HPE Application Lifecycle Management User Guide*.
Information Panel	View	Shows/Hides the Information Panel in the lower area of the module.

UI Elements	Menu	Description
New PC Server	PC Servers	Enables you to add a PC Server.
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HPE 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 293.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*. For details about the PC Servers fields, see "PC Servers Module Fields" on the next page.
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 *HPE 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 *HPE 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 286

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.
Performance Last Check	Displays whether the last performance check passed or failed.
Server ID	The server ID.

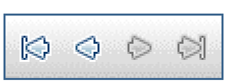
UI Elements (A - Z)	Description
Server State	The current state of the server. The possible states are: • **Idle.** The server is idle. • **Installing patch.** The installation patch is being installed on the server, and the server is temporarily unavailable. • **Rebooting.** The server is rebooting and 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 286

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.

UI Elements	Description
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 292.
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 145.
History	Lists changes made to the currently selected server. For more details, see the *HPE Application Lifecycle Management User Guide*.
Processes	Displays detailed information about the processes and resource usage of the selected server. For details, see "Processes Page" on the next page.
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 296.

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 286

User interface elements are described below:

UI Elements	Description
	**Clear All Fields.** Clears all data in the dialog box.

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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details	Lists PC Server fields. Required fields are displayed in red. For details on the available fields, see "PC Servers Module Fields" on page 292. **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 286
See also	"PC Servers Overview" on page 286

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. **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.

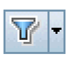
Check Server Status Page

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 286
See also	"PC Servers Overview" on page 286

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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
	**Find.** Opens the Find dialog box, enabling you to search in the grid. For details, see the *HPE 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.
Actual Value	Actual value resulting from the server connectivity check.

UI Elements	Description
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 17: CDA Servers

This chapter includes:

CDA Servers Overview

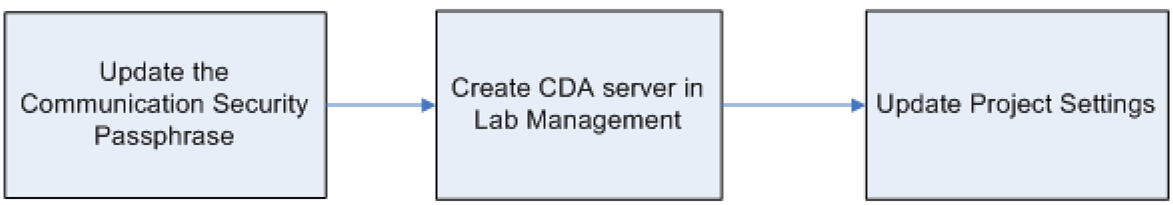
The CDA Servers module is used to create and configure HP Continuous Delivery Automation (CDA) servers within Lab Management. CDA provides a data model that represents the artifacts and relationships required to define how composite applications are delivered to a dynamic set of target environments.

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.

Use the following workflow to configure CDA in ALM:



1. **Update the Communication Security Passphrase**
   a. In Site Administration, update the **COMMUNICATION_SECURITY_PASSPHRASE** site parameter. For details, see the *HPE Application Lifecycle Management Administrator Guide*.
   b. Restart the HPE 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 304. For user interface details, see "New CDA Server Dialog Box" on page 305.
   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 300

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 304. • **CDA Servers Menus and Buttons.** For command and button descriptions, see "CDA Servers Module Menus and Buttons" below. • **ALM masthead, menus, and sidebar.** For details, see the *HPE 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 *HPE 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 *HPE Application Lifecycle Management User Guide*.

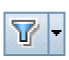
CDA Servers Module Menus and Buttons

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 300

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 *HPE 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 306.
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 *HPE 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 *HPE Application Lifecycle Management User Guide*.
Information Panel	View	Shows/hides the Information Panel in the lower area of the module.
New CDA Server	CDA Servers	Enables you to add a CDA Server.

UI Elements (A - Z)	Menu	Description
Organize Favorites	Favorites	Organizes your favorite views. For details, see the *HPE 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 *HPE 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 *HPE 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 *HPE 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 *HPE 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 300

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 300

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.

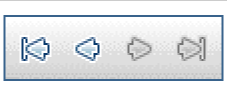
UI Elements	Description
	**Thesaurus.** Displays a synonym, antonym, or related word for the selected word.
	**Spelling Options.** Enables you to configure how to check the spelling.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
Details	Lists CDA server fields. Required fields are displayed in red. For details on the available fields, see "CDA Servers Module Fields" on page 304. **Tip:** Clicking in the **Description** field on this page displays a toolbar for formatting and spell checking the text.
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 300

User interface elements are described below:

UI Elements	Description
	**Save.** Saves the details.
	**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.
	**Field Search.** Enables you to search for a specified field name. Supports wildcard search with asterisk "*" and question mark "?". For example: `a*b` returns `acb` and `adefb`; `a?b` returns `acb`
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 304.
History	Lists changes made to the currently selected server. For more details, see the *HPE Application Lifecycle Management User Guide*.

Chapter 18: 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 " HPE ALM Lab Service Agent" on page 318.

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 316.

Installing HP ALM Lab Service

This task describes how to install HP ALM Lab Service.

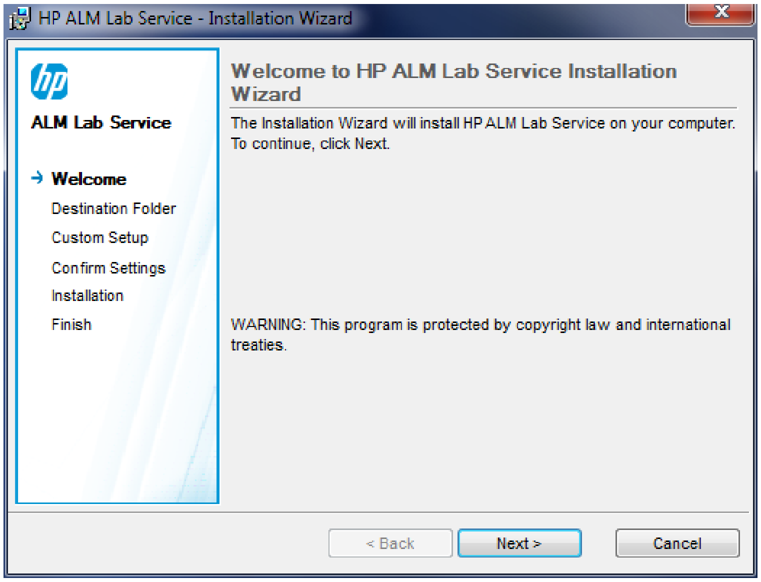
> **Note:** To modify or repair your HP ALM Lab Service installation, see "Modify or Uninstall HP ALM Lab Service" on page 315.

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, the Hosts/Testing Host grid displays your testing host as **Unavailable**.

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

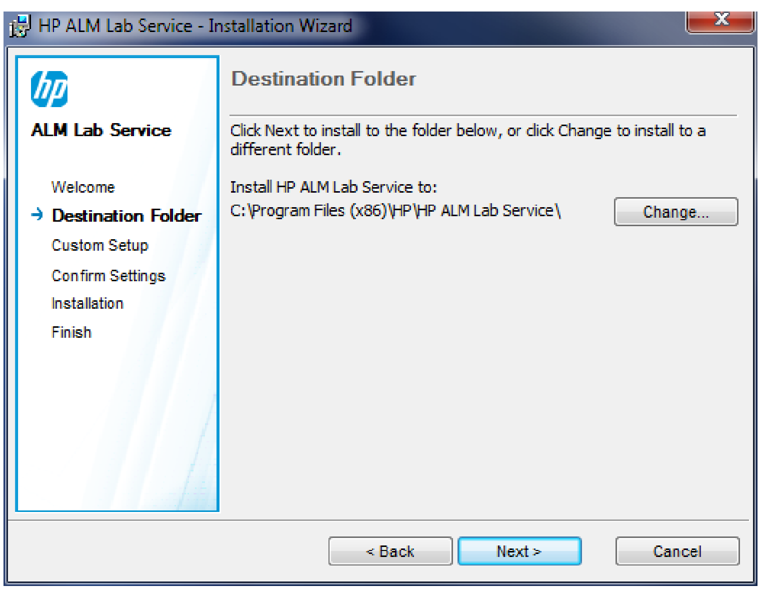


> **Note:**
>
> - Administrator permissions are required on the machine.
> - User Access Control (UAC) must be disabled.

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**.

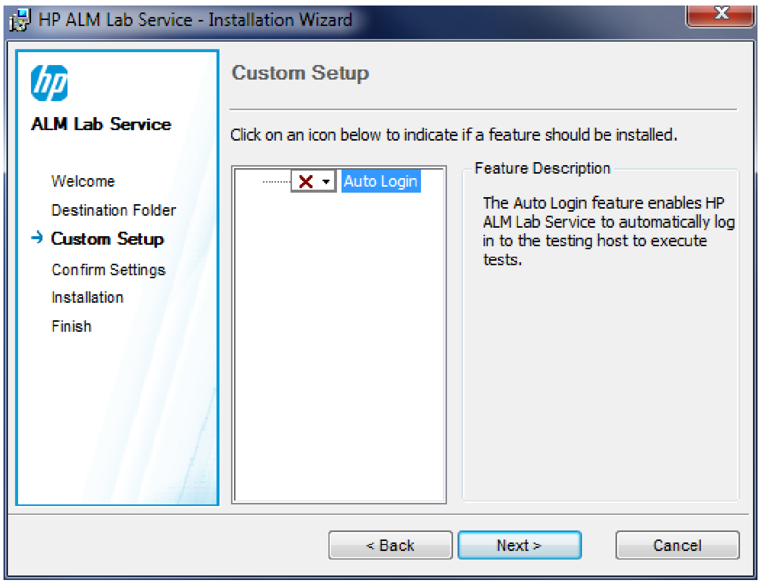


> **Note:** You must have read/write permissions to the destination folder.

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

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

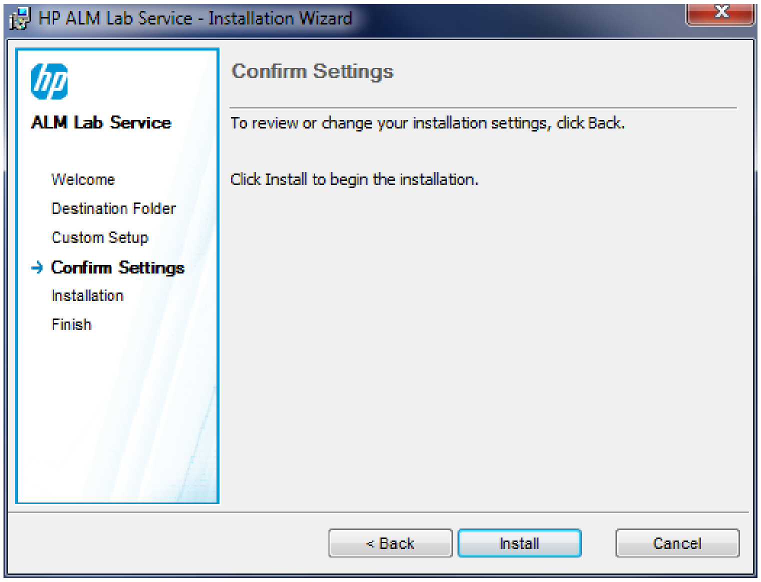
   You can enable Lab Service's Auto Login feature at this stage in the installation. Click the Auto Login checkbox icon and select **Enable this feature**. For more information about Auto Login, see "Auto Login" on page 318.



> **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**.

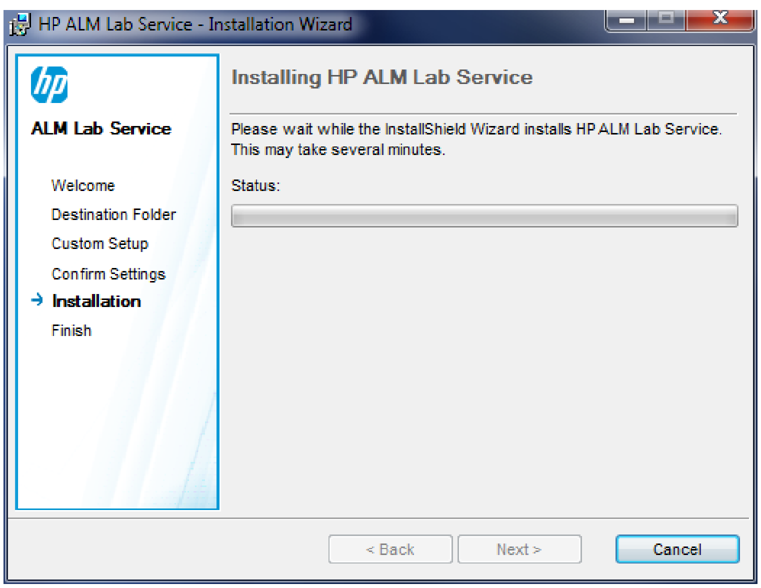
5. The **Confirm Settings** screen opens.



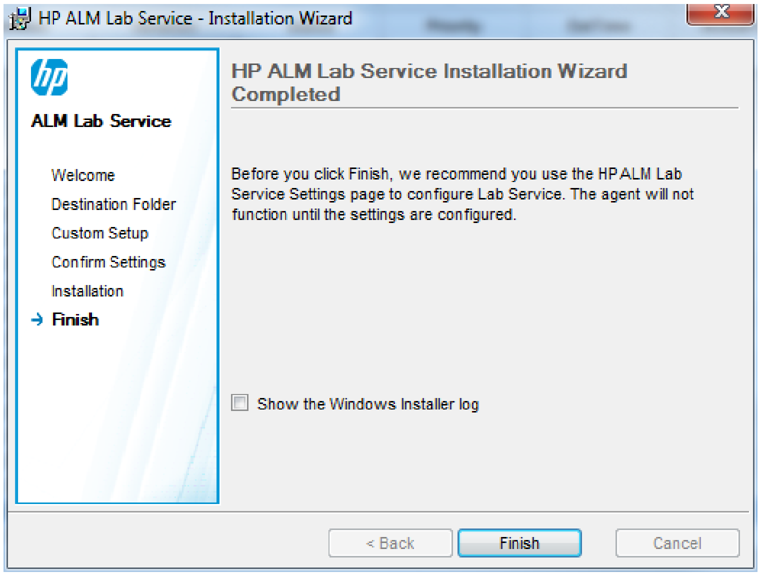
To review or change any settings, click **Back**.

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 " HPE ALM Lab Service Agent" on page 318.

> **Note:**
>
> - 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" /quiet SERVERNAME=http://<server_name>:<port>/qcbin HOSTUSERNAME=<user_name>
```

> **Note:**
>
> - Administrator permissions are required on the machine.
> - User Access Control (UAC) must be disabled.

The following ALM-specific parameters are available:

Parameter (A - Z)	Description
HOSTUSERDOMAIN=<domain>	Required when Auto Login is enabled. Specifies the login user's domain.
HOSTUSERNAME=<user_name>	**Required parameter.** Specifies the user that must be logged in when running tests on the testing host. **Note:** The user you select must have the following permissions: • Create global objects. • All COM permissions. • Read/write permissions to the destination folder. • All permissions needed to run tests of the desired type. For example, if you intend to run UFT tests from ALM, the selected user must have all permissions needed to run UFT tests. For more information about the permissions required per testing tool, see the user guide for the appropriate testing tool.
HOSTUSERPASSWORD=<password>	Required when Auto Login is enabled. Specifies the login user's password.
ISAUTOLOGIN=1	Enables the Auto Login feature. If Auto Login is enabled, you must use the HOSTUSERDOMAIN and HOSTUSERPASSWORD parameters. For more information about Auto Login, see "Auto Login" on page 318.
LOGLEVEL=<log-level>	Configures the level (**<log-level>**) at which Lab Service will write logs. Supports the following log levels: Error, Off, Warning, Info, Verbose. For more information about log levels, see " HPE ALM Lab Service Agent" on page 318.
LOGLOCATION="<log-directory>"	Configures the location (**<log-directory>**) in which the Lab Service logs will be written.
REGISTER=1	Automatically sends a registration request to the ALM server after the installation completes.

Parameter (A - Z)	Description
SERVERNAME=http://<server_name>:<port>/qcbin	**Required parameter.** The URL of the ALM server. **Example:** `SERVERNAME=http://almserver1:8080/qcbin`

Additional standard MSI parameters are available. Type `msiexec /?` from the command line for more information.

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:

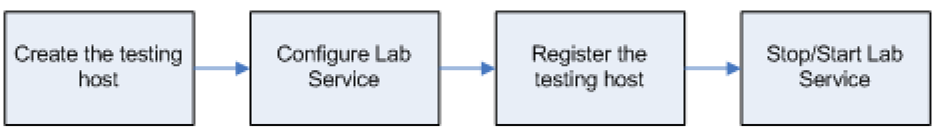
- msiexec /x "<**msi-location**>\HpAlmLabService_x64.msi"
- msiexec /x {8A0D781B-7976-419F-91D9-15F3121FCFA5}

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 309.

> **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, the Hosts/Testing Host grid displays your testing host as **Unavailable**.



This task includes the following steps:

- "Create the Testing Host" below
- "Configure HP ALM Lab Service " on the next page
- "Approve the Host Registration in Lab Management" on the next page
- "Stop/Start Lab Service " on the next page

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 Testing Hosts" on page 111.

   For user interface details, see "New Testing Host Dialog Box" on page 141.

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.

     > **Note:** The user you select must have the following permissions:
     >
     > - Create global objects.
     > - All COM permissions.
     > - All permissions needed to run tests of the desired type. For example, if you intend to run UFT tests from ALM, the selected user must have all permissions needed to run UFT tests. For more information about the permissions required per testing tool, see the user guide for the appropriate testing tool.

   - The password and domain of the Windows user name. These are available only if you enabled Auto Login during installation.
   - (Optional) The URL and credentials of the proxy server used for communication between the testing host and ALM.

   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. Provide proxy server information if necessary. For user interface details about the Settings page, see " HPE ALM Lab Service Agent" on the next page. 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, click the **Host Operations** drop-down arrow and select **Approve Registration**. 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 cannot 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 ALM 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 " HPE ALM Lab Service Agent" below.

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, ALM is not able to run a test which requires the session user interface (such as UFT GUI Testing).

> **Note:**
>
> - To enable Auto Login, administrator permissions are required on the machine.
> - To enable Auto Login, User Access Control (UAC) must be disabled.
> - 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 315.

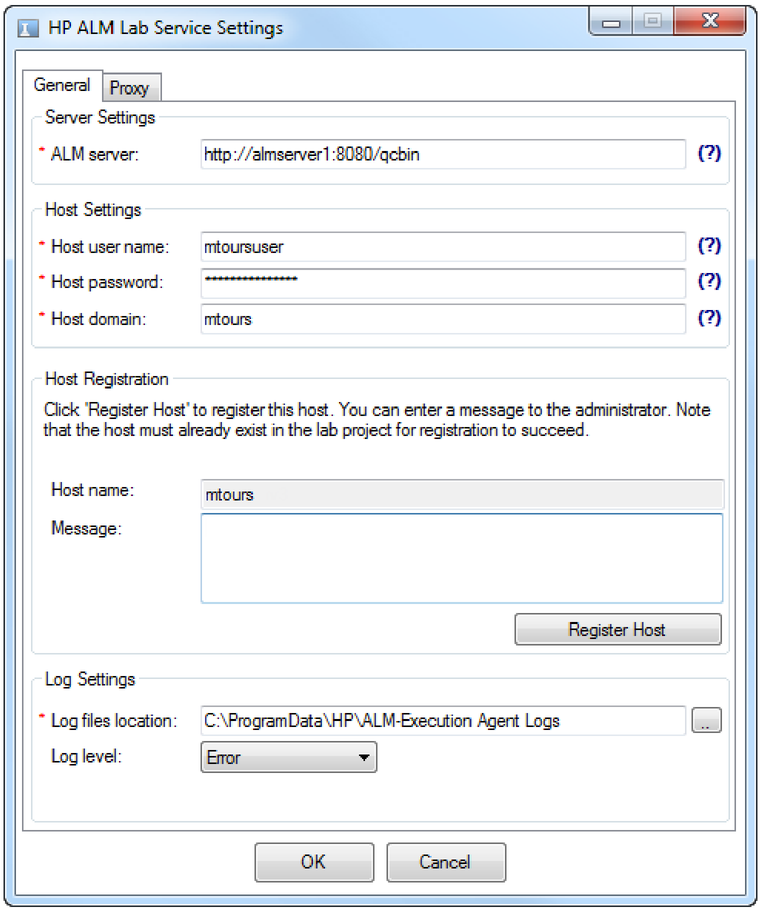
HPE ALM Lab Service Agent

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 316
See also	"HP ALM Lab Service Overview" on page 309

User interface elements are described below:

General tab



This tab contains general settings for the lab service.

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

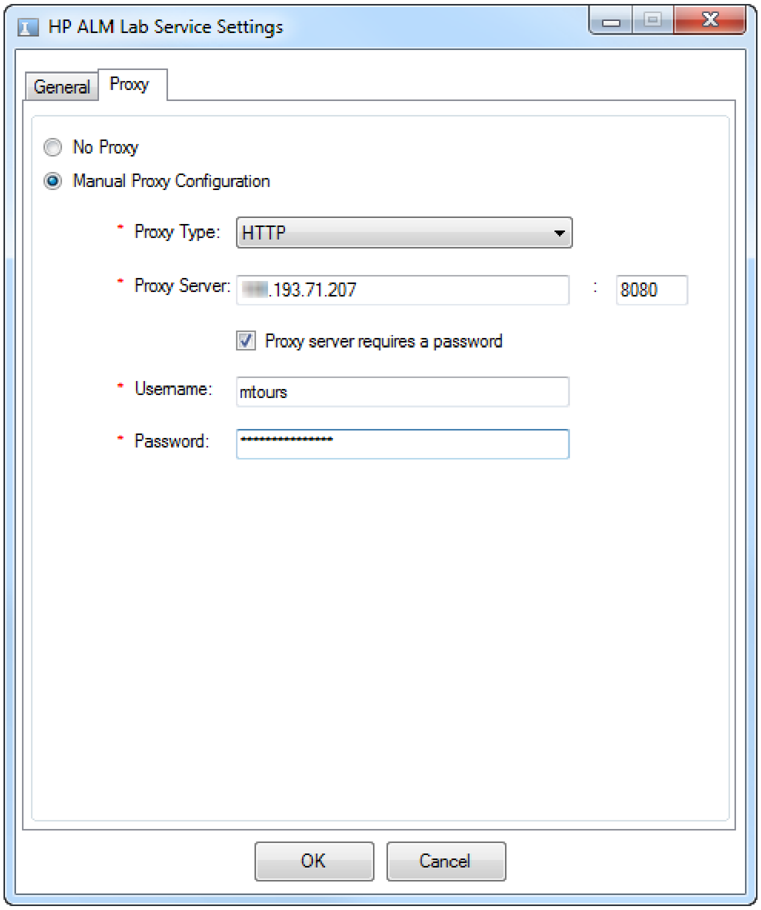
UI Elements	Description
Host Settings section	• **Host user name.** The name of the Windows user to be used to run ALM tests on this host. This name cannot include the **** backslash character. **Note:** The user you select must have the following permissions: • Create global objects. • All COM permissions. • Read/write permissions to the destination folder. • All permissions needed to run tests of the desired type. For example, if you intend to run UFT tests from ALM, the selected user must have all permissions needed to run UFT tests. For more information about the permissions required per testing tool, see the user guide for the appropriate testing tool. • **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 ALM 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 316.

<table>
<tr><th>UI Elements</th><th>Description</th></tr>
<tr><td>Log Settings section</td><td>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.
Caution: Raising the Log Level may affect performance. We recommend leaving it at Error level unless you need to produce debugging information.</td></tr>
</table>

Proxy tab



This tab allows you to enter proxy server information if your testing host should communicate with ALM via a proxy server.

UI Elements (in order of appearance)	Description
No Proxy	Select this option if the testing host communicates directly with the ALM server.
Manual Proxy Configuration	Select this option if the testing host communicates with the ALM server via a proxy server. If you select this option, you must enter a proxy type and proxy server, and optionally a username and password.
Proxy Type	The protocol used for communication between the testing host and the proxy server.

UI Elements (in order of appearance)	Description
Proxy Server : <port number>	The hostname or IP address of the proxy server. Make sure to enter a port number in the field on the right.
Proxy server requires a password	Select this option if communication with the proxy server requires authentication. If you select this option, you must enter a username and password for the proxy server.
Username	Username used to authenticate against the proxy server.
Password	Password for the supplied username.

> **Note:** Some proxy settings are unavailable from the UI. You can configure advanced proxy settings by modifying the configuration file **HP.ALM.Lab.Agent.RemoteService.exe.config** which resides in the HP ALM Lab Service installation directory. The default installation directory is **C:\Program Files\HP\HP ALM Lab Service**. To edit the configuration file, follow the MSDN intructions that are available in this link.

Send Us Feedback

Let us know how we can improve your experience with the Lab Management Guide.

Send your email to: docteam@hpe.com