HP Sprinter

Software Version: 11.00

User Guide

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➤ Additional Online Resources on page 11

HP Sprinter User Guide Overview

This user guide provides both basic and in-depth information of all the functionality available in HP Sprinter.

➤ To read a user story about working with Sprinter, see "Using Sprinter - A Story" on page 13.

➤ For an overview of Sprinter features see "Sprinter Overview" on page 34.

➤ For an overview of the documentation structure, see "How Do I Find the Information That I Need?" on page 10.

How Do I Find the Information That I Need?

Within this guide, each subject is organized into topics. A topic contains a distinct module of information for that subject.

This structure is designed to create easier access to specific information by dividing the documentation into the different types of information you may need at different times.

The topic types used in this guide are described in the following table. The topic types are differentiated visually using icons:

Topic Types

Topic Type	Description	Usage
Concepts	**General Concepts.** Background, descriptive, or conceptual information.	Learn general information about what a feature does. Learn why or when you may want to use the feature.
Tasks	**Instructional Tasks.** Step-by-step guidance to help you work with the application and accomplish your goals. Some task steps include examples, using sample data. Task steps can be with or without numbering: ➤ **Numbered steps.** Tasks that are performed by following each step in consecutive order. ➤ **Non-numbered steps.** A list of self-contained operations that you can perform in any order.	➤ Learn about the overall workflow of a task. ➤ Follow the steps listed in a numbered task to complete a task. ➤ Perform independent operations by completing steps in a non-numbered task.

Topic Type	Description	Usage
Reference	**General Reference**. Detailed lists and explanations of reference-oriented material.	Look up a specific piece of reference information relevant to a particular context.
	User Interface Reference. Specialized reference topics that describe a particular user interface in detail. Pressing F1 in the product area generally open the user interface topics.	Look up specific information about what to enter or how to use one or more specific user interface elements, such as a window, dialog box, or wizard.
Troubleshooting and Limitations	**Troubleshooting and Limitations**. Specialized reference topics that describe commonly encountered problems and their solutions, and list limitations of a feature or product area.	Increase your awareness of important issues before working with a feature, or if you encounter usability problems in the software.

Additional Online Resources

Troubleshooting & Knowledge Base accesses the Troubleshooting page on the HP Software Support Web site where you can search the Self-solve knowledge base. The URL for this Web site is http://h20230.www2.hp.com/troubleshooting.jsp.

HP Software Support accesses the HP Software Support Web site. This site enables you to browse the Self-solve knowledge base. You can also post to and search user discussion forums, submit support requests, download patches and updated documentation, and more. Choose **Help** > **HP Software Support**. The URL for this Web site is www.hp.com/go/hpsoftwaresupport.

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract.

To find more information about access levels, go to:

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Using Sprinter - A Story

This chapter provides a general overview of how to work with Sprinter, in a user-story form. The purpose of this story is to introduce you to Sprinter's features so that you can quickly get started using Sprinter. As you work with Sprinter you can then explore its features in depth as needed.

This story is intended to be read in full and does not require that you have the program open as you read. It is not a step-by-step guide to working with Sprinter, and does not provide full coverage of the features. Other chapters of this guide describe Sprinter features in depth and are designed to be read as needed, while you are working with the application.

This chapter includes:

➤ Using Sprinter for the First Time on page 14

➤ Mirroring Tests on page 28

Using Sprinter for the First Time

Today is the first day you are using Sprinter to test your application. You are testing a travel agency's Web application that allows users to find and book domestic and international flights.

You will be running an HP ALM test, but you know you can load your HP ALM tests in Sprinter, so you decide to run your test completely through Sprinter.

You sit down at your computer, double-click the **Sprinter** icon on your desktop, and Sprinter opens.

Open Your Test and Prepare it to Run
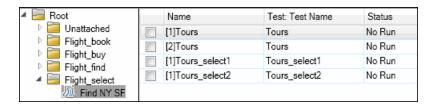
To start using Sprinter to run HP ALM tests, you need to connect Sprinter to HP ALM. You click the HP ALM Connection button in the main window to configure your connection.

You enter the necessary information. Since you always work on the same HP ALM server, you select the **Reconnect on startup** check box.

After Sprinter connects to HP ALM you click the **Open** button in the main window to open your HP ALM test. The information available to you is the same information that is available in the Test Lab module in HP ALM. You see the Test Sets tree and the information from the Execution tab. You select the tests you want to run and open them.

	Name	Test: Test Name	Status
	[1]Tours	Tours	No Run
	[2]Tours	Tours	No Run
	[1]Tours_select1	Tours_select1	No Run
	[1]Tours_select2	Tours_select2	No Run

Root
  ▷ Unattached
  ▷ Flight_book
  ▷ Flight_buy
  ▷ Flight_find
  ▲ Flight_select
      Find NY SF

The tests appear in the **Tests** list in the main window of Sprinter.

The **Tests** list displays tests that you can include in your next run. At this point you can add or remove tests in the **Tests** list or you could use the right-click options to change the order of the tests in your list or leave a test in the list but not include it in the next run.

For now you decide not to modify the list of tests and you check the **status bar** to confirm how many tests from the **Tests** list will be included in the next run.

At this point, you can review your test and run information. This information is displayed in the right pane of the main window when you select a test in the **Tests** list and select a node in the **Definitions** group.

You review the **General Settings** node which displays the same information that you would normally find in HP ALM, including: the name of the test, the name of the test set, the name of the configuration, the test owner, the test description, the name of the run, the name of the tester, the status of the run, the date, and time of the run start and stop, and any attachments.

You confirm the steps in your test by reviewing them in the **Steps** node of the **Definitions** group.

You review the parameters in your test in the **Parameters** node of the **Definitions** group. For most, you keep the default values, but for some, you modify the actual values to meet your current testing needs.

Decide if You Want to Run Your Test in Power Mode

When you work with **Power Mode**, you have access to Sprinter's advanced functionality. This includes **data injection** (automatically entering data into fields in your application), **macros** (recording and replaying a set of user actions), and working with **mirroring** (replicating user actions on multiple computers).

When you are in Power Mode, Sprinter also captures each action you perform on your application and stores the list of these **user actions** (the actions you perform in your application) in the form of descriptive sentences. For example:

> "Enter "My User" in the "userName" edit field."
> "Enter the encrypted password in the "password" edit field."
> "Click the "Sign-In" image."
> "Select the "New York" item from the "fromPort" combo box."
> "Select the "February" item from the "fromMonth" combo box."
> "Select the "Paris" item from the "toPort" combo box."
> "Select the "March" item from the "toMonth" combo box."
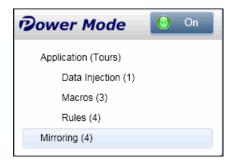
You can view these user actions in your run results or in the Storyboard viewer at the end of your run, which displays each action you performed in your test. You can also include a list of the relevant user actions in any defect you submit, to let Sprinter automatically insert a defect scenario for you.

If you run your test with Power Mode and do not configure data injection or macros, Sprinter will still learn all your user actions, which you can include in defects and view in the Storyboard in the test results.

Once you configure Power Mode to test an application, Sprinter remembers your settings every time you test that application.

You decide that the data injection and macro capabilities will be really helpful during your run. You have several forms that need to be filled out just to get to the main screen you need to test, and it will be very nice to have Sprinter fill them in for you. You can also use macros to quickly run through some of the initial screens in your application for you and get to the area that requires rigorous testing.

You turn Power Mode by clicking the Power Mode button in the **Power Mode** group under the **Tests** list.

To use Power Mode, you need to define the **application** for your test. This is the application that you will be testing. By defining an application for your test, Sprinter is able to learn the objects and screens in your application in order to work with the Power Mode features described above.

When you define an application for your test, Sprinter associates all your Power Mode configurations with that application. That means that whenever you run a test in Power Mode and select an application for your test, all the data injection data sets, macros, and rules that are associated with that application are automatically available for your test.

You select the **Application** node in the Power Mode group to display the Application pane and define the application for your test.

The travel agency application you will be testing is currently running on your computer, so you click **Quick Add**, select you application from the list and Sprinter automatically defines the application for you.

Using Data Injection

During the test you are going to run, you will need to enter data into a few forms in your application. To make the data entry process faster and less error-prone, you configure **data injection** so it can automatically fill the forms in your application with the data from your spreadsheet.

To use data injection, you need to create one or more files (data sets) that contain the data you want to use in your application. The column headings in the data set must match the field names of the fields in your application where you want the data injected. For example, to create a column for a field labeled First name in your application, the column header should be First name.

The data set can be stored in the form of an **.xsl**, **.xslx**, or **.csv** (Comma Separated Values) file. You then associate this file with your application in the **Data Injection** pane of the Power Mode group.

Now that you've associated this data set with this application, the data set will be automatically available for any test that is configured to use this application.

Using Macros

During the testing process, you may have parts of your test that require performing a series of actions that you want Sprinter to perform for you. There may also be parts of your test that involve performing the same set of actions in multiple areas of your application. **Macros** perform a series of actions and run them as a single command, which can save testing time and reduce errors.

To create a new macro for your current application, you record the macro while you are performing your test. It will then be available for your current test and for any test that is configured to use this application.

You can view and manage the list of available macros for your application in the Macros pane of the Power Mode group.

Decide if You Want to Work with Mirroring

A common need in manual testing is running the same test scenario on different configurations. You may want to test your application on different operating systems, or in the case of a Web application, with different browsers.

When you work with **mirroring**, every user action you perform in your application on your **primary machine** is replicated on the defined **secondary machines**.
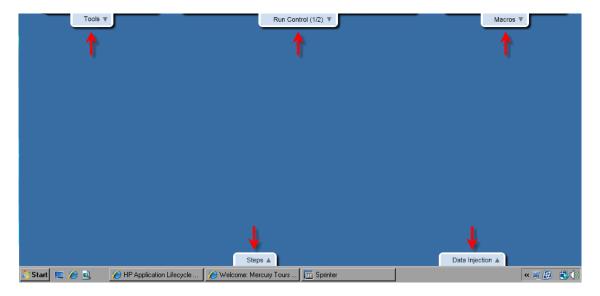
To read more about configuring a test to run with mirroring, see "Mirroring Tests" on page 28.

Begin Your Run
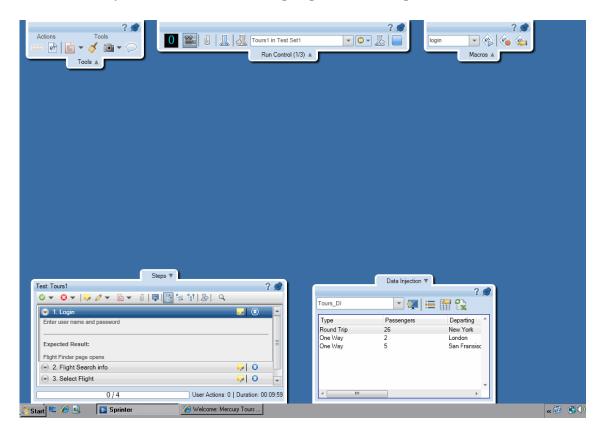
You click the **Run** button in the **Run Setup** area, your run begins and the Sprinter main Window is hidden.

You immediately notice that Sprinter is taking up very little screen space. You see that you access Sprinter's functionality during your run through **sidebars** that are positioned around the perimeter of your display. In the closed position, the sidebars are hidden and only their tabs are visible.
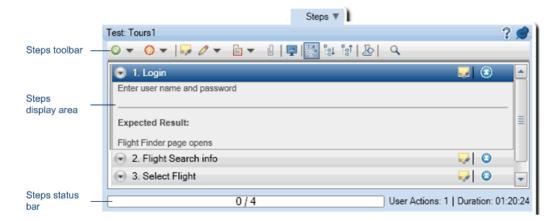
You can open one, several, or all of the sidebars at once by clicking their tabs. Sidebars automatically open and close as you click on or off them, and you can lock them in the open position and reposition them, as needed.

This design provides you with the maximum use of your display to view your application and run your test, and enables you to expose specific Sprinter functionality as needed.

Since you used the **Quick Add** feature to define the application for your test, Sprinter starts your application automatically at the beginning of the run for you.

You click on the **Steps** tab, so that you can view the test steps in the **Steps** sidebar.

Steps toolbar ———

Steps display area ———

Steps status bar ———

You skim the steps in your test and view their description, expected result, and any attachments.

Since you already skimmed through all the steps in your test, you decide to switch to **Subtitles** mode by clicking the Subtitles button in the **Steps** sidebar. Subtitles mode displays the description of each step as a subtitle on your screen instead of the sidebar, and enables you to mark the step's status and add attachments to steps. You can set the transparency level of the subtitles and modify their location on the screen. This provides even more screen real estate, enabling you to view even more of your application.

As you perform the steps in your test, you mark each step's status.

Submit a Defect

You continue performing the steps in your test, and for one of your steps, the actual result is not what is described in the **Expected Result**. You click the **Actual Result** button for the step, and in the **Actual Result** dialog box you enter text to describe what actually happened in your application.

Then, from the toolbar in the **Steps** sidebar, you click the **Smart Defect** button.

Since this defect is something the developers have had a hard time reproducing in the past, you include the list of user actions in the defect description as a reproduce scenario and attach a movie of your run to the defect.

You continue with your run and discover another defect, although this defect is much more basic. Since you don't want to disrupt the flow of your run by submitting a defect and filling in the required fields in HP ALM, you decide to create a **Defect Reminder**.

A **Defect Reminder** enables you to summarize the defect in your application. The reminder is included with the test results and can be viewed at the end of your test. You can then submit the defect later from the test **Results**. The same information you have available during the test is also available to you from the results. So you can include annotated screen captures, movies, and step or action information in the defect at that time.

Annotations

In one of your steps you detect another defect in your application. You know that Sprinter lets you capture images and attach them to a step, a run, the actual result, or a defect, but it will be easier for the person who reviews the results if you highlight the problem in the image. So you decide to use the **Annotation Workspace** to annotate the screen capture. You click the **Save Annotation as Actual Result** button in the **Actual Result** dialog box. The **Annotation Workspace** opens and you use the **Annotation Tools** to mark up your screen capture.

You use the preset shapes to add an **arrow** and **circle** the extra object and you add some **text** to explain the problem. When you close the Annotation Workspace, the annotated screen capture is attached to the Actual Results of your step.

In addition to saving the screen capture with the actual results, you could add it to a defect and use the email option to send it to a coworker who recently mentioned noticing a similar problem.

Use Macros

You continue performing the steps in your test, and you get to the area in your application where you have a series of actions that you want Sprinter to perform for you. You click the **Macros** tab to open the **Macros** sidebar.
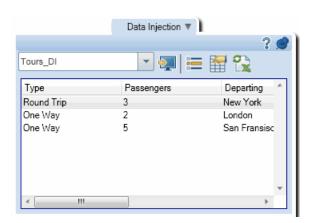
You click the record button and begin performing the actions that you want in your macro. When you are finished with the series of actions, you click the **Stop Recording** button and save the macro.

The macro will be available for this run and for any future test that is configured to use your current application.

Use Data Injection

You continue performing the steps in your test, and you get to the area in your application where you need to search for a flight. You click the **Data Injection** tab to open the **Data Injection** sidebar.
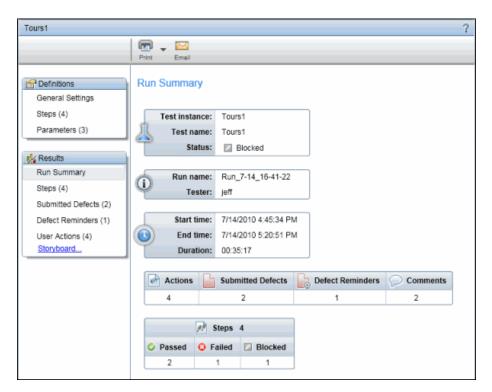
In the **Data Injection** sidebar, you select which data set you want to use in your application. You then select the row of information for the search you want to perform and inject the data into your application. Then you watch as Sprinter sends the data from that row to the relevant locations in the form.

View Your Run Results
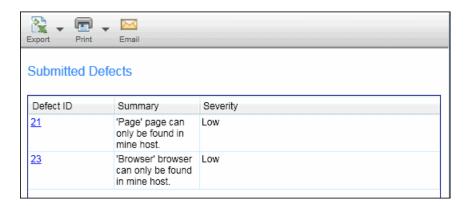
You click the **Stop** button in the **Run Control** sidebar to end the run. The sidebars close and the **Run Summary** pane opens in the main window. The summary includes: test and run information, the number of actions you performed (Power Mode tests only), the number of defects you submitted, the number of defect reminders you created, the number of comments you added (Power Mode tests only), and the statuses of the steps you performed.

Each of the **nodes** in the **Results** group can be selected to display more details in the right pane.

You select the **Submitted Defects** node to view a list of the defects you submitted during your test.

You can click the **Defect ID** number to open the HP ALM Defect Details dialog box for that defect.

You then select the **Defect Reminders** node to view a list of the defect reminders you created during your test.
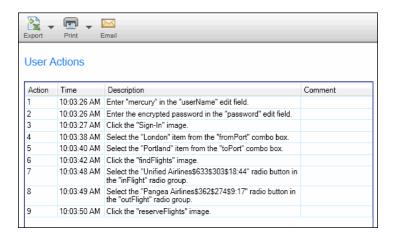
You select a reminder and click **Submit Defect**, to submit the defect to HP ALM. All the information for the defect is still available in the run results. You can include an annotated screen capture, a movie, the step information or user action information with your defect.
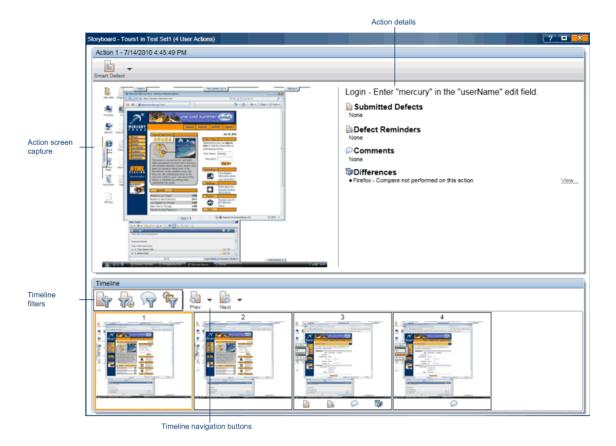
Since you decided to run your test in Power Mode, you also view the user actions and storyboard results.

You select the **User Actions** node and view a list of the user actions you performed during your run.

This list of user actions can be exported to an Excel spreadsheet. If you had run an informal test without predefined steps, you could modify them for use as steps, and then import them to a test in HP ALM. This would enable you to take an informal test and use it as a script for a formal test.

You then select the **Storyboard** node and the Storyboard opens. The top of the Storyboard displays a screen capture of your application as it appeared after the selected user action in the **Timeline** was performed, and an Action Summary pane. The bottom of the Storyboard displays a **Timeline** of your run.

In the **Action Details** pane you view a description of each action and any defects that were submitted, defect reminders or comments that were added, and if you ran your test with mirroring, any differences that were found between the primary and secondary machines.

You can click the links in the Action Summary pane to open the HP ALM Defect Details dialog box, create a defect from your defect reminder, or open the Differences Viewer. You can also submit a new defect from the Storyboard.

The bottom of the Storyboard displays the **Timeline** of your test. The Timeline contains a thumbnail screen capture of each user action in your test. You can filter the thumbnails that are displayed in the Timeline to show only those actions where you submitted a defect, only those actions where you created a Defect Reminder, only those actions where you added a comment, or only those actions where differences were found.

Now that you've walked through the basic processes of configuring, running, and viewing the results of this imaginary test, you are ready to get started using Sprinter. Continue reading to learn how to take advantage of the mirroring options.

Mirroring Tests

You decided that you want to run your test with mirroring, because you need to make sure that your online travel agency application will work on all of the popular browsers and the most common operating systems.

Normally the QA team selects a few combinations of browsers and operating systems due to limitations of time and resources. Now with mirroring, you can test many of the combinations at once.

You have arranged for a computer lab to be set up with the combinations of the supported browsers and operating systems and you have access to the machines for a few hours, which is plenty of time since you can test all the combinations simultaneously.

To work with mirroring, you select the Mirroring node in the Power Mode group and configure the secondary machines for your test. You then click the **Add** button to add a new machine for your application.

You provide a machine name or IP address for the secondary machine, and since you are testing a Web application, you define which browser you want to use to run the application on this machine. You decide to also provide the remote desktop connection information, in case you want to open a connection during your test (you can provide that information during the run as well). You repeat this for each machine in the testing matrix.

You need to also set up your secondary machine with the specific configuration and settings you want to test.

Run a Test with Mirroring

When you start your test with mirroring, the **Health Console** displays the status of each machine in your run. When all the machines are ready, the run begins. You click the **Machines** tab to open the **Machines** sidebar and view the status of your machines.

You perform the user actions in your test and you monitor the **Machines** sidebar to check that all your secondary machines replicated your actions successfully.

After one action, the **Machines** sidebar indicates a replication failure on a secondary machine.

In this case, any subsequent user actions you perform are not replicated on the secondary machine where the failure occurred, until you address the replication problem between the machines.

You want to get a sense of what the problem is, so you right-click the secondary machine display and select **Show Screen** from the drop-down list to view a current screen capture of the secondary machine. You notice that on your secondary machine an ActiveX warning appeared in the browser window. Since this is not a defect in your application, you right-click the secondary machine display and open a **remote desktop connection** with your secondary machine and clear the warning. You close the remote desktop connection and from the right-click list you select **Skip**. This tells Sprinter to ignore the replication problem, unlock the secondary machine, and attempt to replicate any pending user actions (actions that were performed on the primary machine while the secondary machine still had differences).

As you continue your run, you come to a screen that has known compatibility problems between browsers. To check that the application is displaying properly, you click the **Compare All** button in the **Machines** sidebar. This compares the current display of the primary machine with the current displays of all the secondary machines and looks for differences between them.

As a result of the **Compare All** operation, one of the secondary machines indicates a comparison problem. You right-click the secondary machine display for that machine and select **Differences Viewer** from the drop-down list.

In the **Differences Viewer** the difference between the machines is highlighted. You see that the difference is in the location of a user interface element between browsers, so you submit a defect for this difference. Now that you have submitted a defect, you don't want Sprinter to detect this type of difference in the future. So you create a **rule** in the Differences Viewer, instructing Sprinter to ignore differences of this type.

You close the Differences Viewer and return to your run. Once you resolve the difference, the secondary machine is unlocked and any pending user actions are replicated.

Now that you've walked through the basic process running a test with Mirroring, you are ready to get started using Mirroring in your Sprinter tests.

2

Getting Started with Sprinter

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode ![icon] icon.

This chapter includes:

Concepts

Tasks

Reference

Concepts

🔷 Sprinter Overview

Welcome to HP Sprinter, HP's solution for manual testing. Sprinter provides advanced functionality and tools to make manual testing more efficient and effective.

Manual testing often requires that you leave your testing application to accomplish tasks related to your test. For example, you may need to use graphic software to take a screen capture of your application, you may want to record a movie of the application during the test, and you need to switch to your defect tracking software to report defects.

Sprinter enables you to accomplish these tasks without disrupting your test flow. With Sprinter, you can also perform many of the repetitive and tedious tasks of manual testing automatically. Sprinter includes many tools to help you detect and submit defects. These features ensure that you can perform all the tasks necessary for your manual test with minimum interruptions to your testing work.

Sprinter is fully integrated with HP ALM, enabling you to get the maximum benefit from both solutions.

With Sprinter you can:

➤ **Run HP ALM manual tests and Business Process tests with a new step display:**

   ➤ **User-friendly display.** Steps are presented in a clear, organized, and user-friendly design, making it easier to view step information, navigate steps, and modify step information. For details, see "Steps Sidebar" on page 94.

   ➤ **Move easily between tests in your run.** You can move between the tests in your run without interrupting your test flow. Sprinter updates all your displayed step and run information to match your current test.

   ➤ **Edit actual values of parameters during your test run.** You can easily edit the actual values of parameters in your test, during your test run.

➤ **Multiple views.** Change the way you view your steps depending on your testing needs. View in normal mode when more details are needed, or view in Subtitles mode if you need to see more of your application. For details, see "Steps Sidebar" on page 94.

➤ **Actual value including screen captures.** Attach a plain or annotated screen capture of your application to the step's actual value. For details, see "Steps Sidebar" on page 94.

➤ **Run exploratory tests with no predefined steps.** If you run a test without predefined steps, Sprinter can keep a record of all the user actions you took during your test.

Sprinter also enables you to export the list of user actions performed during informal testing sessions to an Excel spreadsheet. You can then modify the text as needed and import the spreadsheet to a test in HP ALM, thereby converting an exploratory test to a formal test, with predefined steps. For details, see "User Actions Pane/User Actions Summary Dialog Box" on page 141.

➤ **Submit defects to HP ALM.** Submit an HP ALM defect directly from within Sprinter. For details, see "Tools Sidebar" on page 117.

➤ **Open a Smart Defect.** Smart Defects create a defect scenario by automatically generating a text description of all the user actions or steps in your test. You can also attach a screen capture or a movie of your application to the defect. For details, see "Smart Defect Settings Dialog Box" on page 120.

➤ Create a **Defect Reminder** to submit a defect at the end of your run, enabling you to keep testing without interrupting the flow of your test run.

➤ **Create and annotate screen captures of your application.** Sprinter provides tools that enable you to take and annotate a screen capture of your application at any point in the testing process. Tools are included for measuring and comparing user interface elements. You can report defects in the display by attaching the annotated screen capture to a HP ALM defect, saving it as a file, or attaching it to an email. You can also include annotated screen captures in the Actual Result of a step. For details, see "Annotation Tools Sidebar" on page 126.

➤ **Record and run macros on your test application.** Create and run macros to allow Sprinter to perform a set of actions in your application for you. For details, see "Macros Sidebar" on page 202.

➤ **Inject data.** Sprinter can automatically enter data into fields in your application for you. The data is automatically matched to your application's fields. For details, see "Data Injection Sidebar" on page 195.

➤ **Replicate your actions on another computer.** Mirroring enables you to replicate your user actions on multiple computers with different configurations (operating system, browser). Sprinter detects differences in the displays of these computers and enables you to report defects on these differences. For details, see "Testing on Multiple Machines" on page 210.

➤ **View test results.** Sprinter includes a Storyboard that displays each action you performed in your test. For each action, you can see a screen capture of the action, any defects that you reported, and defect reminders and comments you added to your run. If you ran the test with multiple configurations you can view the differences between the displays of different computers.

All this functionality is available from within Sprinter, and can be used without interrupting the flow of your manual test.

🔵 Power Mode Overview

When you run a Sprinter test in Power Mode, Sprinter is able learn your application's display and identify its objects. This ability gives you access to Sprinter's advanced functionality including, data injection, recording and replaying macros, and working with mirroring (replicating user actions on multiple computers).

When you are in Power Mode, Sprinter keeps a record of all your user actions, which you can view as a list or in the Storyboard at the end of your run. You can also include the list of your steps or user actions in any defect you submit to let Sprinter automatically create a defect scenario for you.

You can export the list of user actions at the end of your run to an Excel spreadsheet, modify them for use as steps, and then import them to a test in HP ALM. This enables you to take an exploratory run and use it as a script for a formal test.

You use Power Mode when you want to take advantage of these advanced testing features. To use Power Mode, click the Power Mode button in the Main Window and configure each node in the Power Mode Group.

For more details, see "Power Mode" on page 147 and "Running Tests in Power Mode" on page 81.

Tasks

🔧 How to Run a Manual Test in Sprinter

The following steps describe how to run a manual test in Sprinter.

🅟 Some steps are relevant only for test run in Power Mode.

➤ "Prerequisites" on page 38

➤ "Connect to HP ALM" on page 39

➤ "Open a test" on page 40

➤ "Configure your test definitions" on page 41

➤ "Configure Power Mode" on page 41

➤ "Start your run and perform the user actions or steps in your test" on page 41

➤ "Detect, submit, and track defects" on page 42

➤ "Use data injection and macros in your test" on page 42

➤ "Use mirroring with your test" on page 42

➤ "Stop your run and view and analyze the run results" on page 43

Prerequisites

Sprinter functionality is available with:

➤ **HP Application Lifecycle Management 11.00**

➤ **HP ALM Quality Center 11.00 Enterprise Edition**

It is not available with:

➤ **HP ALM Quality Center 11.00 Starter Edition**

➤ **HP ALM Performance Center 11.00 Edition**.

You must have the following permissions in HP ALM to run a test in Sprinter:

Permission	Permission Level
Test Lab > **Results**	Create, update, and delete
Test Lab > **Run**	Create and update

To save your user information to HP ALM you need the following additional permissions:

Permission	Permission Level
Resources > **Resource**	Create, update, and delete
Resources > **Resource folder**	Create and update

To edit test steps, you need the following additional permissions:

Permission	Permission Level
Test Plan > **Design Step**	Create, update, and delete

Connect to HP ALM

You must be connected to HP ALM to run a test in Sprinter.

For details, see "HP ALM Connection Dialog Box" on page 46.

Open a test

You can open a test in one of the following ways:

➤ **Open an HP ALM test from within Sprinter**.

Select **Tests** > **Open HP ALM Tests** from the **Run Setup** area. For details, see "Run Setup Area" on page 52.

➤ **Open an HP ALM test from within HP ALM.**

  ➤ In HP ALM, select the **Test Lab** module, and make sure that the Test Sets tab is selected.

  ➤ Select the **Execution Grid** tab.

  ➤ Select the test, tests, or test set you want to run.

   ➤ For a test set, click **Run Test Set,** and select **Sprinter** from the dialog box that is displayed.

   ➤ For an individual or multiple tests, click the down-arrow next to the **Run** button and select **Run... (Sprinter)**. If you are continuing a previous run, click **Continue Manual Run**. If you used Sprinter in the previous run, it will run with Sprinter when you continue.

➤ Once you open a test you can immediately skip to the following steps. All other steps are optional based on your testing needs:

➤ "Start your run and perform the user actions or steps in your test" on page 41

➤ "Stop your run and view and analyze the run results" on page 43

Configure your test definitions

When you configure your test definitions, you can view and edit your test details, run details, parameters , and steps.

For details, see "Definitions Group" on page 69.

🅿 Configure Power Mode

➤ Decide if you need use data injection, macros, and other advanced features provided by Power Mode.

For an overview of Power Mode features, see "Running Tests in Power Mode" on page 81.

➤ To run a test with Power Mode, you need to configure Power Mode for the application you are testing.

For details, see How to Prepare a Test to Run in Power Mode on page 152.

➤ When you run a test in Power Mode, you can use Sprinter's mirroring feature to replicate your user actions on multiple computers with different configurations (operating system, browser).

If you want to run a test with mirroring, you need to configure all the computers you want to use in your test.

For details, see "How to Prepare a Test for Mirroring" on page 220.

Start your run and perform the user actions or steps in your test

Click the **Run** button in the Main Window (described on page 50).

➤ Start your application.

🅿 If you are running your test in Power Mode and did not configure Sprinter to start your application when the run begins, you need to manually start your application.

To enable Power Mode to work with your application, you must start your test application after you begin your run.

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➤ If you are running a test with steps you can perform the steps.

➤ If your test does not have steps, you can perform exploratory user actions and begin your test run.

For details, see:

➤ "How to Navigate Steps" on page 89

➤ "How to Mark Steps" on page 90

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

Detect, submit, and track defects

Sprinter enables you to submit defects to HP ALM. You can also keep a record of a defect, create a reminder to submit your defect later, or include a screen capture of a defect in an email.

For task details, see "How to Submit a Defect" on page 114.

Use data injection and macros in your test

If you are running your test with Power Mode, you can automatically enter data into forms in your application using data injection and you can automate user actions with macros.

For details, see:

➤ "How to Inject Data into your Application" on page 193

➤ "How to Record and Run Macros" on page 201

Use mirroring with your test

When you run a test with mirroring, you can view the status of all the machines in your test, compare their displays, and detect and resolve differences in their displays.

For details, see "How to Run a Test with Mirroring" on page 223.

For details on the mirroring feature, see "Testing on Multiple Machines" on page 210.

Stop your run and view and analyze the run results

Click the **End Run** button in the Run Control Sidebar (described on page 75).

You can now view the results of your run in the main window. For details, see "How to Review Run Results" on page 133.

Reference
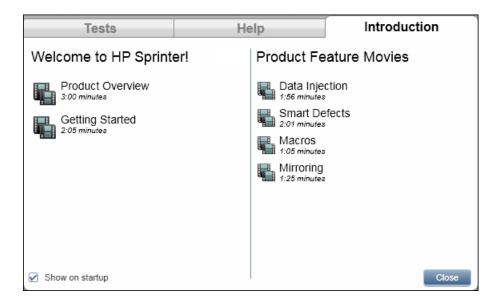
🔖 Welcome Dialog Box

This dialog box enables you to add a test to the **Tests** list in the main window, view the Help for Sprinter, and view feature movies.

Tasks you can accomplish with the Welcome dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following shows an image of the Welcome dialog box.

To access	Do one of the following:
	➤ Start the Sprinter program.
	➤ In the main window select **Welcome Screen** from the drop-down arrow next to the **Help** button .

Introduction Tab

The **Introduction** tab provides links to introductory and feature movies for Sprinter.

Help Tab

The **Help** tab provides links to this User Guide, customer support, and the About screen.

Tests Tab

User interface elements for the **Tests** tab are described below:

UI Elements	Description
Open HP ALM Test	Opens the "Open Dialog Box" on page 48 (described on page 48).
	If you are not connected to HP ALM, the HP ALM Connection Dialog Box opens to enable you to connect to HP ALM first.
Favorites	The list of your favorites that contain HP ALM tests.
Show on startup	Displays the Welcome dialog box each time Sprinter is opened.
	You can also configure the Welcome dialog box to display on startup in the General Settings Pane (Settings Dialog Box) (described on page 62).

🔍 HP ALM Connection Dialog Box

This pane enables you to connect to HP ALM.

Tasks you can accomplish with the HP ALM Connection dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the HP ALM Connection dialog box.

To access	Do one of the following:
	➤ Click the **HP ALM** button in the **main** window.
	➤ Double-click the HP ALM icon in the status bar.
Important information	➤ The server **Address** must be entered in the format: http://<HP ALM server name>[<:port number>]/qcbin.
	➤ Your HP ALM connection status is displayed in the status bar. When you are connected to HP ALM, the HP ALM icon is active and when you are disconnected it is deactivated.
	➤ The **Domain** and **Project** fields are not case-sensitive.
	➤ If your connection to HP ALM is lost and there are tests in the Tests list, you must reconnect to the same project to run or save the tests.

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.
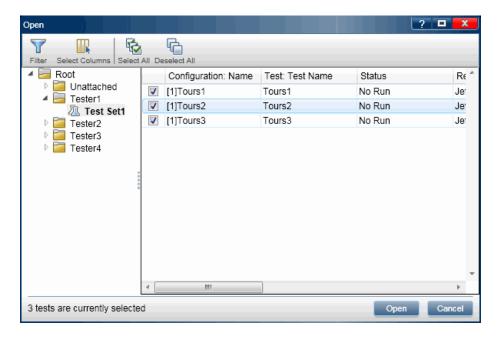
🔍 Open Dialog Box

This dialog box enables you to open a test from HP ALM (from the HP ALM Test Lab module). You can filter the tests that are displayed to make selecting tests easier.

Tasks you can accomplish with the Open dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Open dialog box.

To access	Select **Tests** > **Open HP ALM Test** or **Append HP ALM Test**.

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

UI Elements	Description
Filter	Opens the HP ALM Test Instances Filter dialog box enabling you to filter the test instances displayed in the Open from HP ALM dialog box, based on specific criteria. For details on filtering test instances, click **Help** in the Test Instances Filter dialog box.
Select Columns	Opens the HP ALM Select Columns dialog box, enabling you to select which columns to view in the Open Quality Center dialog box. For details on selecting columns, click **Help** in the Select Columns dialog box.
Select All	Selects all the currently displayed tests in the list.
Deselect All	Deselects all the currently displayed tests in the list.
<Test set tree>	Located on the left side of the dialog box. Displays your test set's hierarchically. A test set contains a subset of the tests in your project. **Note:** You cannot move items within a folder.
<Test list>	Located on the right side of the dialog box. The list of tests in the selected test set in the test set tree. Select the check boxes next to the tests you want to open in Sprinter.
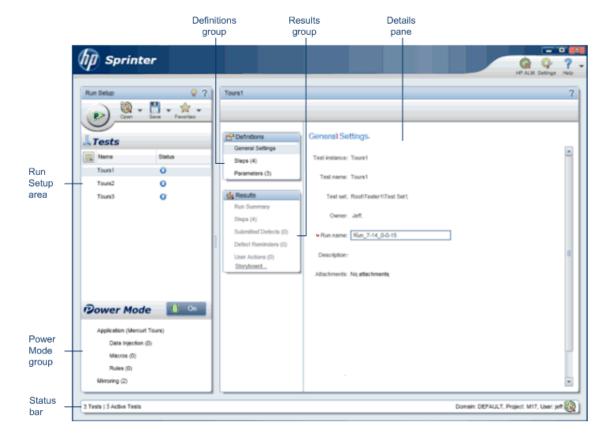
🔍 **Main Window**

This window enables you to manage your tests, define test definitions, view test results, and configure Sprinter settings. You can also access the Settings dialog box and HP ALM Connection dialog box.

Tasks you can accomplish with the main window:

➤ "How to Run a Manual Test in Sprinter" on page 38

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

➤ "How to Review Run Results" on page 133

The following image shows the main window.

To access	Start Sprinter and close the **Welcome** window, if open.
Important information	➤ The information available in the **Details** pane depends on the selected test in the Run Setup Area, as well as the selected node in the Definitions Group, the Power Mode Group, or the Results Group. ➤ To exit Sprinter, close the main window.
See also	➤ "Sprinter Overview" on page 34 ➤ "Power Mode Overview" on page 37

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

UI Elements	Description
HP ALM	Opens the HP ALM Connection Dialog Box (described on page 46), enabling you to configure your HP ALM connection and connect to a HP ALM project.
Settings	Opens the Settings Dialog Box (described on page 62).
help	Opens the Help for the main window. Drop-down options: ➤ **Help** ➤ **HP Software Support.** Connects you to the HP Software Support Online Web site. ➤ **Check for Updates.** The first time you select **Check for Updates**, you are directed to download and install the HP Update application (unless you have other HP applications that use **Check for Updates** installed on your computer). The next time you select **Check for Updates**, the application will run automatically. ➤ **Welcome Screen** ➤ **About**

UI Elements	Description
\<Status bar\>	The status bar displays the following information: ➤ **Tests** list **status** `4 Tests	3 Tests Activated` . The number of tests in the **Tests** list, followed by the number of tests within the list that will be included in the next run. ➤ ⊙ **HP ALM connection status**. The state of Sprinter's connection to HP ALM. The icon is deactivated when you are disconnected from HP ALM. You can double-click this icon to open the HP ALM Connection Dialog Box (described on page 46).

The main window also contains the following areas:

➤ "Run Setup Area" on page 52

➤ "Power Mode Group" on page 154

➤ "Definitions Group" on page 69

➤ "Results Group" on page 136

🔖 Run Setup Area
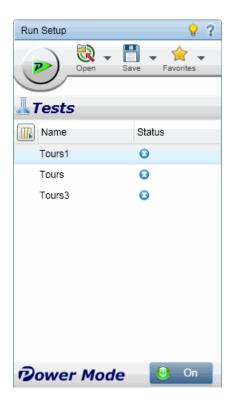
This area enables you to open tests and select which tests to include in your run. You can define test details and view previous results for test. You can also configure Power Mode for your run.

Tasks you can accomplish with the **Run Setup** area:

➤ "How to Run a Manual Test in Sprinter" on page 38

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

➤ "How to Review Run Results" on page 133

The following image shows the Run Setup area with Power Mode enabled.

To access	Start the Sprinter program and close the Welcome window, if open.
Important information	➤ The **Tests** list contains the list of all the tests you can include in your next run. Any changes you make to the **Tests** list do not affect HP ALM or the HP ALM Test Lab module. ➤ Tests in the **Tests** list correspond to **instances** of a **configuration** in HP ALM. These instances are referred to as **tests** throughout the product and this guide.
See also	"Things to Remember When You Work with the Tests List" on page 58

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

UI Elements	Description
/	**Run** / **Run in Power Mode**. ➤ Runs all the **activated** tests in the **Tests** list. ➤ For details on activating and deactivating tests, see the description of the **context menu (right-click) options** for the **Tests** list, below.
	Adds a test to the **Tests** list. Drop-down options: ➤ **Open HP ALM Test.** (Default) Opens the Open Dialog Box. The tests you select are added to the **Tests** list. If you are not connected to HP ALM, the HP ALM Connection Dialog Box opens, enabling you to connect to HP ALM first. If you have tests in the **Tests** list, the **Open** option removes the current tests in the list and replaces them with your selection. If your tests are not saved, you are prompted to save them. ➤ **Append HP ALM Test.** Opens the Open Dialog Box. The tests you select are appended to the **Tests** list. If you are not connected to HP ALM, the HP ALM Connection Dialog Box opens, enabling you to connect to HP ALM first. The **Append** option adds your selection to the end of the **Tests** list.
	Saves the selected tests in the **Tests** list. Drop-down options: ➤ **Save.** Saves the run definitions for the selected tests. ➤ **Save All.** Saves the run definitions for all the tests in the **Tests** list. **Note:** HP ALM tests are automatically saved to HP ALM throughout the test run. If you lose your connection to HP ALM during a run, your test will display an asterisk next to its name indicating that the test has changes that have not been saved. You must first reconnect to HP ALM in the HP ALM Connection Dialog Box and then click the **Save** button to manually save the run results to HP ALM.

UI Elements	Description
⭐ Favorites	Enables you to save the current list of tests as a favorite and load a saved list of tests into the **Tests** list. For details on how Sprinter maintains the list of favorites, see "How User Information is Maintained" on page 82. Drop-down options: ➤ **Add to Favorites.** Saves the current **Tests** list as a favorite in the **Favorites** list. ➤ **Manage Favorites.** Opens the Manage Favorites Dialog Box (described on page 61), enabling you to change the order of your Favorites list and remove favorites from the list. ➤ **<HP ALM favorites>.** The list of your favorites that contain HP ALM tests.
🔲	**Select Columns.** Select which columns are displayed in the **Tests** list and add columns to the display. For example, you can right-click and select Run Name to add the Run Name column to the display. You can also select columns by right-clicking on the column headers.

UI Elements	Description
Name	The list of tests available to be included in the next run.
	Tests in the **Tests** list correspond to **instances** of a **configuration** in HP ALM. These instances are referred to as **tests** throughout the product and this guide.
	➤ When you click the **Run** button, only active tests in the **Tests** list are run. For details on how to **activate** and **deactivate** tests, see the description of the **context menu (right-click) options** described below. Deactivated tests appear disabled (gray) in the **Tests** list.
	➤ Right-click a test in the **Tests** list to view the context menu (right-click) options described below.
	➤ For each test in the list you can set the status of the test by clicking in the **Status** column and selecting a value from the drop-down list.
	➤ When you select a test in the **Tests** list, the details pane displays the Definitions Group and Results Group groups for that test. For details, see "Definitions Group" on page 69 and "Results Group" on page 136.
	➤ An asterisk next to a test name indicates the test has changes that have not been saved.
	➤ A warning symbol ⚠ next to a test indicates a problem with the definitions for that test. When you select the test, the warning symbol is also displayed next to the node in the Definitions Group (described on page 69), that is causing the warning. Select the node and review the displayed definitions for any warning messages.
	➤ A lock symbol 🔒 next to a test indicates that the test is currently locked. This occurs when you load a previous run of a test, and that run is also currently being edited in HP ALM.
	➤ The **Name** and **Status** columns are displayed by default. You can right-click on the column headers of the **Tests** list to add and select the displayed columns, and drag column dividers to adjust column width. You can also drag columns to change the order in which they are displayed.

UI Elements	Description
<Context menu (right-click) options for Tests>	➤ **Up.** Moves the selected test up the **Tests** list. ➤ **Down.** Moves the selected test down the **Tests** list. ➤ **Remove.** Removes the selected tests from the **Tests** list. ➤ **Activate/Deactivate Test.** Includes or removes the selected tests from the next run session. Deactivated tests appear disabled (gray) in the **Tests** list. ➤ **Run This Test Only.** Starts a run with the selected test only. ➤ **Replace with New Run.** Removes the selected test from the **Tests** list, replaces it with a new copy and saves any run results. (This can be useful if a test in the **Tests** list failed and you want to re-run the test.) ➤ **Add New Run.** Adds a new run of the selected tests to the **Tests** list. ➤ **Show All Runs.** Opens the Test <'Test Name'>: All Runs Dialog Box (described on page 59).
Status	The status values include the following default system values as well as any user-defined status values: ➤ ✅ **Passed.** The test passed. ➤ ❌ **Failed.** The test failed. ➤ ▨ **Blocked.** The test is blocked. ➤ ⏸ **Not Completed.** The test was paused in the middle of the run. ➤ 🔵 **No Run.** (Default selection) The test has not yet been run. ➤ **N** **N/A.** Current status is not applicable. The **Name** and **Status** columns are displayed by default. You can right-click on the column headers of the **Tests** list to add and select the displayed columns, and drag column dividers to adjust column width. You can also drag columns to change the order in which they are displayed.
Test Name	(Not displayed by default) The name of the test as it appears in the **Test Plan** in HP ALM. Right-click on the column headers of the **Tests** list to select which columns to display.
Test Set Name	(Not displayed by default) The name of the test set that contains the test, as it appears in the **Test Lab** in HP ALM. Right-click on the column headers of the **Tests** list to select which columns to display.

UI Elements	Description
Run	(Not displayed by default) The name of the run.
	Right-click on the column headers of the **Tests** list to select which columns to display.
Power Mode	Enables you to configure and activate Power Mode for your tests. For details, see "Power Mode Group" on page 154.

Things to Remember When You Work with the Tests List

➤ The **Tests** list contains the list of all the tests you can include in your next run. Any changes you make to the **Tests** list do not affect the **Test Lab** module in HP ALM.

➤ When you click the **Run** button, only **active** tests in the **Tests** list are run. For details on how to **activate** and **deactivate** tests, see the description of the **context menu (right-click) options** in the Run Setup Area (described on page 52). Deactivated tests appear disabled (gray) in the **Tests** list.

➤ After you run a test, the test becomes **deactivated** in the **Tests** list. To run the test again, you can use the **context menu (right-click) options** to:

➤ Activate the test. In your next test run, the current run will continue.

➤ Add a new run for the test.

➤ Replace the current run with a new run.

➤ You can select which columns are displayed in the **Tests** list and add columns to the display, by clicking the Select columns button or right-clicking on the column headers. For example, you can right-click and select **Run Name** to add the **Run Name** column to the display. You can also resize columns and drag columns to change the order in which they are displayed.

➤ A warning symbol ⚠ next to a test indicates a problem with the definitions for that test. When you select the test, the warning sign is also displayed next to the node in the Definitions Group (described on page 69), that is causing the warning. Select the node and review the displayed definitions for any warning messages.

➤ A lock symbol 🔒 next to a test indicates that the test is currently locked. This occurs when the test or run is locked in HP ALM.

➤ For a full description of all the features in the **Tests** list , see "Run Setup Area" on page 52.
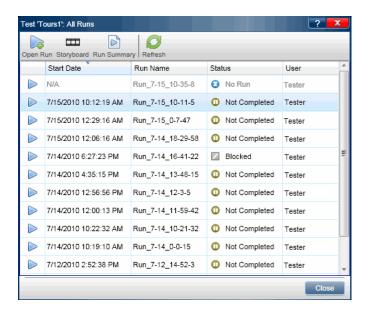
🔍 Test <'Test Name'>: All Runs Dialog Box

This dialog box enables you to view previous run results. You can load a previous run in the **Tests** list, view run results in the Storyboard, and view a run results summary.

Tasks you can accomplish with the Test <'Test name'>: All Runs dialog box:

➤ "How to Review Run Results" on page 133

The following image shows the Test <'Test name'>: All Runs dialog box.

To access	In the **Tests** list, **Right-click** a test and select **Show All Runs**.
Important information	The current run in the **Tests** list is always displayed at the top of the list of All Runs, but it is disabled.

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

UI Elements	Description
 Open Run	Adds the selected run to the **Tests** list.
 Storyboard	Opens the Storyboard Window for the selected run.
 Run Summary	Displays the Run Summary for the selected run.
 Refresh	Refreshes the list of runs from HP ALM.
<Run list>	The list of runs for the test. The run list displays the following columns: ➤ **Run Icon.** This icon is blue for runs that were performed with Sprinter and green for those that were performed with the HP ALM manual runner. ➤ **Start Date.** ➤ **Run Name.** ➤ **Status.** ➤ **User.** The user who ran the test.
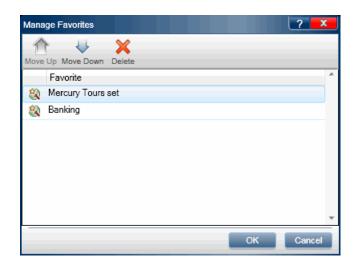
🔖 **Manage Favorites Dialog Box**

This dialog box enables you to change the order of your favorites in the favorites list and delete favorites from the list.

Tasks you can accomplish with the Manage Favorites:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Manage Favorites dialog box.

To access	In the **Run Setup** area, select **Favorites** > **Manage Favorites.**

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

🔍 Settings Dialog Box

This dialog box includes the following panes:

➤ "General Settings Pane (Settings Dialog Box)" on page 63

➤ "Comparison Settings Pane (Settings Dialog Box)" on page 64

➤ "Save Settings Pane (Settings Dialog Box)" on page 66

➤ "Hot Keys Settings Pane (Settings Dialog Box)" on page 68

🔍 General Settings Pane (Settings Dialog Box)
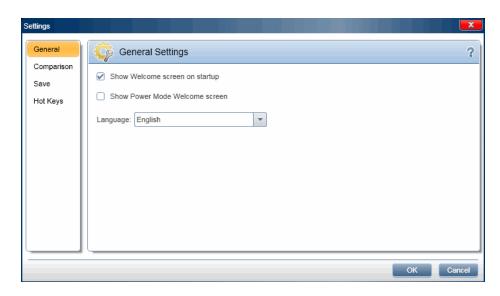
This pane enables you to set general settings for Sprinter.

Tasks you can accomplish with the General pane:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the General Settings pane.

To access	Select **Settings** button 🔧 Settings > **General** node.

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

The Sprinter user interface can be displayed in English, Korean, and Chinese.

To change your language settings, select your language from the list of languages. You will need to restart Sprinter for the new language settings to take effect.

🔍 Comparison Settings Pane (Settings Dialog Box)
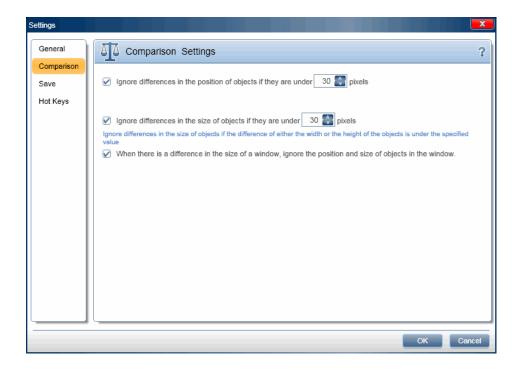
This pane enables you to define how Sprinter compares and detects differences between primary and secondary machines in a test with mirroring.

🅿 Comparison is relevant for tests run in Power Mode only.

Tasks you can accomplish with the Comparison pane:

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Comparison pane.

To access	Select **Settings** button 🔧 > **Comparison** node.
See also	➤ "Testing on Multiple Machines" on page 210 ➤ "Rules Overview" on page 215

User interface elements are described below:

| UI Elements	Description
Ignore differences in the position of objects if they are under <value> pixels	Defines the number of pixels by which the location of an object can be different between the primary and secondary machines. If the same object's location differs by up to this number of pixels between the two machines, it will not be detected as a difference.
Ignore differences in the size of objects if they are under	Defines the number of pixels by which the size of an object can be different between the primary and secondary machines. If the same object's size differs by up to this number of pixels between the two machines, it will not be detected as a difference.
When there is a difference in the size of a window, ignore the position and size of objects in the window	Instructs Sprinter to ignore differences in the size and position of an object, when the window containing the object is a different size in the primary and secondary machines.

🔖 Save Settings Pane (Settings Dialog Box)
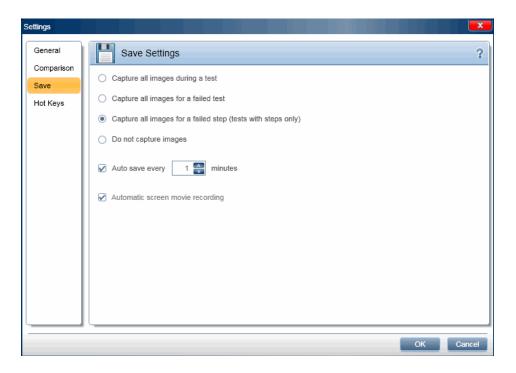
This pane enables you to define when Sprinter saves screen captures and movies of your run, and autosave settings.

Tasks you can accomplish with the Save pane:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Save pane.

To access	Select **Settings** button 🔧 > **Save** node.

Important information	➤ The settings in the **Save** pane that control screen captures are relevant only for tests run in Power Mode and determine which screen captures will be available for display for the actions in the Storyboard. For details, see "Storyboard Window" on page 142.
	➤ Sprinter temporarily captures and saves images for each action in your run. The settings in the **Save** pane determine which captures will be saved with the run results and which will be discarded.
	➤ The options in the **Save** pane can also be enabled and disabled by your HP ALM administrator. If you do not have permissions in HP ALM, the options will be disabled in the **Save** pane.
See also	"Testing on Multiple Machines" on page 210

User interface elements are described below:

UI Elements	Description
Capture all images during a test	Saves a screen capture of the application for every user action. 🔁 Relevant for tests run in Power Mode only.
Capture all images for a failed test	Saves a screen capture of the application for every user action in a failed run. 🔁 Relevant for tests run in Power Mode only.
Capture all images for a failed step (tests with steps only)	Saves a screen capture of the application for all failed steps. 🔁 Relevant for tests run in Power Mode only.
Do not capture images	Does not save any screen captures of the application. 🔁 Relevant for tests run in Power Mode only.

UI Elements	Description
Auto save every <value> minutes	Determines how often Sprinter automatically saves your test during a run.
Automatic screen movie recording	Automatically records a movie of your run. You can use a Smart Defect to attach the recorded movie to an HP ALM defect. The screen movie functionality must first be enabled by your HP ALM administrator.

🔍 Hot Keys Settings Pane (Settings Dialog Box)
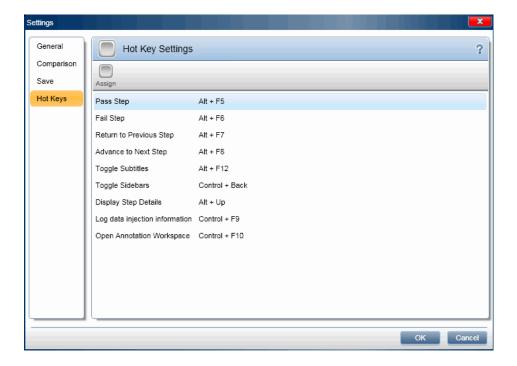
This pane enables you to define hot keys for various functions in Sprinter.

Tasks you can accomplish with the Hot Keys pane:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Hot Keys pane.
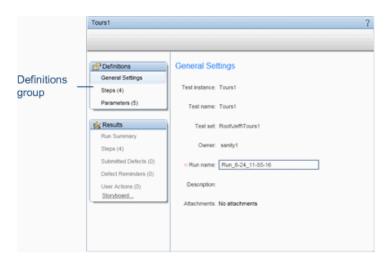
To access	Select **Settings** button > **Hot Keys** node.

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

UI Elements	Description
Assign	Assigns a new hot key to a function. **To change the hot key for a function:** **1** Select the function from the list. **2** Click the **Assign** button. The **Assign Hot Key** dialog box opens. **3** Press the key combination you want for the hot key. **4** Click **OK**.
<Function list>	The list of functions and their currently defined hot keys.

Definitions Group

The Definitions group is located in the left side of the main window.

This group includes the following panes:

➤ "General Settings Pane (Definitions Group)" on page 70

➤ "Steps Pane (Definitions Group)" on page 71

➤ "Parameters Pane (Definitions Group)" on page 73

The **Steps** node and **Parameters** node indicate in parenthesis, the number of steps and parameters for the selected test.

General Settings Pane (Definitions Group)
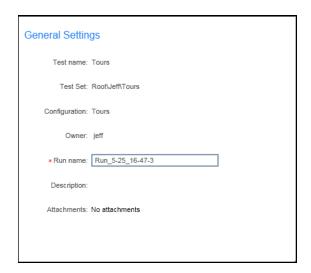
This pane displays your test's details.

Tasks you can accomplish with the General Settings:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the General Settings.

To access	Select a test from the **Tests** list in the Main Window, then select **Definitions** > **General Settings** node.
Important information	➤ If your HP ALM test has user-defined fields that can be edited, they are displayed and can be edited in the General Settings pane. ➤ The test settings for HP ALM tests are defined in HP ALM and are read-only in the General Settings pane.

Descriptions of the user interface elements that can be edited are available in the pane when you move the pointer over them.

Steps Pane (Definitions Group)
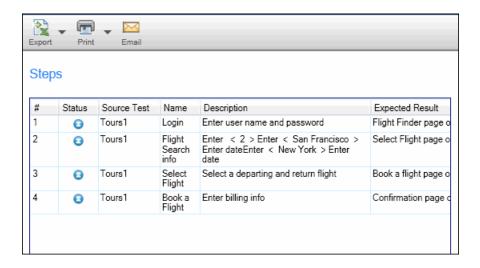
This pane displays the steps in your test. For Business Process Tests it displays the test hierarchy, including components, steps, and iterations.

Tasks you can accomplish with the Steps pane:

➤ "How to Run a Manual Test in Sprinter" on page 38
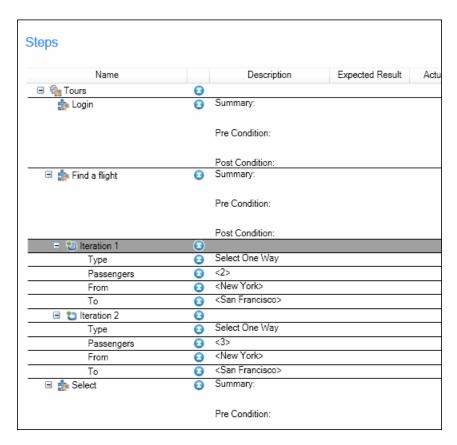
The following image shows the Steps pane for a manual test.

The following image shows the Steps pane for a Business Process Test.

To access	Select a test from the **Tests** list in the Main Window, then select **Definitions** > **Steps** node.

Important information	➤ You can resize the Sprinter window and the columns in the display to view all the information.
	➤ Right-click the column header area to select which columns to display.
	➤ The **Name**, **Description**, and **Expected Result** values can be edited in the Steps Sidebar during the test run (described on page 94).
	➤ Parameters in steps are represented by <**actual value**>. If there is no actual value, the parameter is displayed as <<<**parameter name**>>>.
	➤ You cannot **Export**, **Print**, or **Email** steps in a Business Process Test.
	For details on working with steps in an HP ALM test, see the *HP Application Lifecycle Management User Guide*.

Descriptions of the user interface elements are available in the pane.

Parameters Pane (Definitions Group)
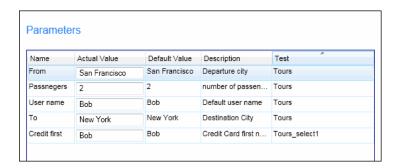
This pane displays and enables you to edit the actual values of the parameters used in your test.

Tasks you can accomplish with the Parameters pane:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Parameters pane.

To access	Select a test from the **Tests** list in the Main Window, then select **Definitions** > **Parameters** node.
Important information	The default values in the Parameters pane are taken from the test. Only the **Actual Value** can be edited from Sprinter. All other values must be edited from HP ALM. For details on using parameters in tests, see the *HP Application Lifecycle Management User Guide*.

User interface elements are described below:

UI Elements	Description
Name	The name of the parameter.
Actual Value	The value that will be used in the test run. If there is no actual value, the default value will be used.
Default Value	The default value for the parameter.
Description	The description of the parameter.
Test	The source test of the parameter.

🔖 Run Control Sidebar

This sidebar enables you to set the status of your test and move between the different tests in the list of tests you are running.

Tasks you can accomplish with the **Run Control** sidebar:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the **Run Control** sidebar in a test without Power Mode.

📘 In Power Mode, this sidebar also enables you to start and stop the recording of user actions and to view the number of user actions in your run.

To access	Click the **Run Control** sidebar tab during a test run.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack 📌 icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.

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

UI Elements	Description
24	🅿 **User Actions.** Displays the number of user actions performed in the current run.
📹	🅿 **Stop/Start Capturing.** Stops and starts Sprinter from capturing each user action as it is performed. ➤ If you stop capturing, all subsequent actions are not represented in the Storyboard Window or the User Actions report. ➤ If you are performing a test on multiple machines (mirroring) and stop capturing, all subsequent actions are not replicated on the secondary machines. ➤ If after you stop capturing, you perform actions in the test that affect the user interface, there may be significant differences between the primary and secondary machines. When you restart capturing, the secondary machines may be unable to replicate the user actions until you manually update the secondary machine user interface to match that of the primary machine.
📎	**Attachments.** Opens the Run/Step Attachments Dialog Box (described on page 79), enabling you to add, edit, or remove attachments in your run.
⚗	**Test Details.** Opens the Test Details Dialog Box (described on page 80).

UI Elements	Description

	Previous Test. Returns to the previous test in the **Tests** list.
	➤ All the sidebars and displays are updated to display the current state of the previous test in the **Tests** list.
	Note:
	➤ When moving between tests, you may need to perform actions in the test application to ensure it is in the proper state for the test you want to perform.
	    ➤ If you are performing a test in Power Mode, you may want to stop capturing while performing these actions, so that they do not appear in the **Run Control** sidebar, the Storyboard Window, or the list of actions in a defect.
	    ➤ If you are running a test with mirroring, you can continue capturing so that these actions are replicated on your secondary machines. If you stop capturing, you will need to perform these user actions on each secondary machine in your run.

<Test list>	The list of tests in your run. Each test in the list includes the date and time of the test and the test status. To move between tests, click the **Previous Test** or **Next Test** buttons, or click the down-arrow next to the **test list** and select a test.
<Test status>	The status of the current test. You can modify the status of the current test by clicking the down-arrow next to the test status icon and selecting a status from the list. **Status values:** The status values include the following default system values as well as any user-defined status values: ➤ **Passed.** The test passed. ➤ **Failed.** The test failed. ➤ **Not Completed.** The test was paused in the middle. ➤ **Blocked.** The test is blocked. ➤ **No Run.** (Default selection) The test has not yet been run. ➤ **N/A.** Current status is not applicable.

UI Elements	Description

	Next Test. Advances to the next test in the **test list**.
	
	➤ All the sidebars and displays are updated to display the current state of the next test in the **Tests** list.
	
	Note:
	
	➤ When moving between tests, you may need to perform actions in the test application to ensure it is in the proper state for the test you want to perform.
	
	   ➤ If you are performing a test with Power Mode, You may want to stop capturing while performing these actions, so that they do not appear in the **Run Control** sidebar, the Storyboard Window, or the list of actions in a defect.
	
	   ➤ If you are running a test with mirroring, you can continue capturing so that these actions are replicated on your secondary machines. If you stop capturing, you will need to perform these user actions on each secondary machine in your run.

	End Run. Ends the testing session and returns to the Main Window.
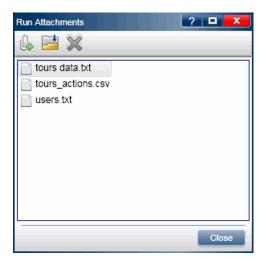
🔍 **Run/Step Attachments Dialog Box**

This dialog box displays run or step attachments, and enables you to add, edit, or remove attachments.

Tasks you can accomplish with the Run/Step Attachments dialog box:

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

The following image shows the Run/Step Attachments dialog box.

To access	Click the **Run/Step Attachments** button 📎 in the Run Control Sidebar or Steps Sidebar.

User interface elements are described below:

UI Elements	Description
	Add Attachment. Enables you to browse to a file and add it as an attachment.
	Open Attachment. Opens the selected attachment in the default program for the attachment's file type.
	Remove Attachment. Removes the selected attachment.

Test Details Dialog Box

This dialog box displays the description and any attachment for your test.

Tasks you can accomplish with the Test Details dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Test Details dialog box.

To access	Select Run Control Sidebar > **Test Details** button.
Important information	Click the thumbnail of an attachment to open it in the default program for the file type.

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

🔍 Running Tests in Power Mode

When you run a manual test in Sprinter, you need to decide if you need to run your test in Power Mode 🔵 .

The following table summarizes the Power Mode features to help you decide if you need to run your test in Power Mode:

Feature	Description
Application	You must define an application for your test to use Power Mode. Defining an application for your test also enables Sprinter to open the application automatically when you start your test.
	Sprinter saves settings and other user-specific configurations and applies this information the next time you run Sprinter.
	Many Power Mode configurations are associated with their specific application.
	Because you define application for your test, all tests have the same defined application will share the same Power Mode configuration.
	For details, see:
	➤ "Applications" on page 149
	➤ "How User Information is Maintained" on page 82
	➤ "Application Pane (Power Mode Group)" on page 156
Data injection	Enables you to automatically enter data into fields in your application. For details, see "Data Injection Overview" on page 190.
Macros	Enables you to record a series of user actions that you can run as a single command during your run. For details, see "Macros Overview" on page 200.
Mirroring	Enables you to replicate the user actions in your test on another computer with a different configuration (operating system, browser). For details, see "Testing on Multiple Machines" on page 210.

Feature	Description
Storyboard	Enables you to view a timeline of the user actions you performed on your test. The Storyboard displays the defects, comments, and defect reminders for each action in your test. For details, see "Storyboard Window" on page 142.
Comments	Enables you to add comments to user actions in your run. These comments can be reviewed later in the Storyboard. For details, see "Comment Dialog Box" on page 125 and "Run Results Overview" on page 132.
User Actions summary	Enables you to view a summary of the user actions in your test. For details, see "User Actions Pane/User Actions Summary Dialog Box" on page 141.

How User Information is Maintained

Sprinter saves settings and other user-specific configurations and applies this information the next time you run Sprinter.

When you run Sprinter, this information is saved in the HP ALM project, per-user (as unique information for each unique HP ALM user in each project). Additionally, it is saved to your local computer, per Windows user profile.

The next time you run Sprinter, it applies these saved settings and configurations, if they are available. Some information is saved and applied per-user and some information is saved and applied depending on the application defined for your test.

The tables below describe how the user information is saved and applied (⊘ Some user information is relevant for Power Mode features only):

Note: When you begin a Sprinter session while not connected to HP ALM, any information that is stored locally is applied to Sprinter. If you then connect to HP ALM, the information stored in HP ALM is applied in addition to the local information. Some of your local information may be replaced by the HP ALM information for your user in your project. This combined set of information is then saved in HP ALM for your user in your project. If there is a conflict between the information stored locally and the information stored in HP ALM, the most recent information is applied.

To maintain a consistent working environment in Sprinter, it is recommended that you connect to HP ALM before making any changes to your settings or configurations.

Information Applied Per-User in Your HP ALM Project

User Information	Where Defined	How Information is Applied
Favorites	"Run Setup Area" on page 52	➤ Uses the list from your last Sprinter session, for your HP ALM user in your current project. ➤ When you load HP ALM tests, Sprinter checks the first test to see if it has a defined application. If it does, Sprinter checks if that application is in your list of applications in the Applications pane. If it is missing, Sprinter adds it to the list and selects it. ➤ If you do not have permissions to modify resources in HP ALM, all your test settings and configurations are saved for your user profile on your local computer only.
Settings	"Settings Dialog Box" on page 62	
Applications	"Application Pane (Power Mode Group)" on page 156	
Secondary Machines	"Mirroring Pane (Power Mode Group)" on page 173	

Information Applied Per-Application

User Information	Where Defined	How Information is Applied
Macros	"Macros Sidebar" on page 202	When you save a macro, add a data set, or create a rule, Sprinter associates the them with the application defined for your test in the Application Pane (Power Mode Group) (described on page 156).
Data Sets	"Data Injection Sidebar" on page 195	When you select an application for your test in the Application pane, all the macros, data sets, and rules associated with that application are available in your test.
Rules	"Rules Manager Dialog Box" on page 243	This information is retrieved per-user in your HP ALM project.
		Note: By default, rules are applied per-application. You can define global rules for all your tests in the Rule Wizard - Rule Details Page (described on page 245).

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for Sprinter.

General

➤ You cannot run Sprinter with a display color depth of 256 colors (8 bit).

➤ You can run only one Sprinter session on a machine at one time.

Sprinter and QuickTest Professional

Sprinter and QuickTest Professional can be installed on the same machine but cannot be open at the same time.

How Sprinter Uses Ports

Sprinter uses ports to enable HP ALM to communicate with Sprinter. It also uses ports when in Power Mode to work with your primary machine and to communicate with your secondary machines.

Sprinter uses the following ports: 9000, 9001, 9002, 9004, 9005, 9006, 9007, 9008, 9009.

If any of these ports are unavailable in your organization, some Sprinter functionality will not work.

3

Tests with Steps

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode icon.

This chapter includes:

Concepts

Tasks

Reference

Concepts

🍡 Tests with Steps - Overview

Sprinter enables you to run the steps in your HP ALM test.

When you run your test, the steps are displayed in the **Steps** sidebar. From the **Steps** sidebar you can:

➤ Navigate your steps

➤ Mark your steps' status

➤ Modify the actual results of your steps

➤ Add attachments to steps

➤ Add screen captures to the actual results of your steps

➤ Edit your steps' details

➤ Submit defects to HP ALM

➤ Search in your steps

➤ View the parameters in your steps (Business Process Testing only)

The **Steps** sidebar also provides a **Subtitles** mode, which displays your step descriptions and enables you to navigate and mark your steps in a one line subtitle, while providing more screen real estate for your application.

When you finish your run, Sprinter saves your changes to the run results for your run. If you made changes to your steps' details, Sprinter prompts you to save your changes to the **Test Plan** module in HP ALM.

If your test is checked-in, Sprinter will automatically check it out, save your changes, and check it back in. If your test is checked-out to another user, Sprinter will warn you that your changes cannot be saved.

Tasks

🔨 How to Navigate Steps

You can view the steps in your test in the **Steps** sidebar or in **Subtitles** mode.

This task includes the following steps:

➤ "Steps Sidebar (Default view)" on page 89

➤ "Subtitles Mode" on page 90

Steps Sidebar (Default view)

The **Steps** sidebar displays all the step information and enables all of the functionality of marking, modifying, and adding attachment to steps, as well as opening defects.

➤ Click the **Expand/Collapse** button to expand and collapse a step. You can also double click a step heading to collapse a step.

    ➤ By default, the **Step Display** area is set to **Auto Expand**, so that clicking on a step heading expands that step. When Auto Expand is not selected, double clicking on the step heading expands the step.

    ➤ When you start a run, the **Step Display Area** displays the first step expanded. If you switch between runs, the last step you marked is expanded.

➤ When you set the status of a step to **Passed**, the **Step Display Area** automatically advances to the next step in the test.

For more details, see "Steps Sidebar" on page 94.

Subtitles Mode

Subtitles mode displays the description of each step as a subtitle on your screen, and enables you to mark the step's status and add attachments to steps.

➤ Click **Steps** sidebar > **Show Subtitles** button to view the steps in subtitles mode.

➤ When you start a run, the subtitle displays the first step. If you switch between runs, the last step you marked is displayed.

➤ When you set the status of a step to **Passed**, the subtitle automatically advances to the next step in the test.

➤ You can modify the appearance of the subtitles in the Subtitles Settings Dialog Box (described on page 107).

➤ You can use **hotkeys** to mark a step's status, navigate steps, and perform other functions in subtitles mode. For details, see "Hot Keys Settings Pane (Settings Dialog Box)" on page 68.

For more details, see "Subtitles Toolbar" on page 101.

How to Mark Steps

You can mark the steps in your test from the following locations:

➤ "Steps Sidebar toolbar" on page 91

➤ "Subtitles Toolbar" on page 91

➤ "Step display area" on page 91

Steps Sidebar toolbar

➤ Select one or more steps in your test and click one of the status buttons to set their status.

  ➤ Ctrl-click to select multiple steps.

  ➤ Shift-click to select a range of steps.

➤ You can also set the status of all the steps up to and including the current step, using the drop-down options next to these buttons.

For more details, see "Steps Sidebar" on page 94.

Subtitles Toolbar

➤ Click the **Pass** or **Fail** buttons to mark the currently displayed step as Passed or Failed.

➤ Click the **Step Status** button to select a step status from the drop-down list.

For more details, see "Subtitles Toolbar" on page 101.

Step display area

➤ You can click the **Status** button (No Run, by default) in the heading of each step in the Steps display area to set the status for that step.

➤ If you select more than one step, you can click the **Status** button in any of the selected steps to set the status of all the selected steps.

  ➤ Ctrl-click to select multiple steps.

  ➤ Shift-click to select a range of steps.

For more details, see "Steps Sidebar" on page 94.

🔧 How to Edit and Add Actual Results and Attachments to Steps

You can edit the actual results of steps, add and delete steps, and add attachments to steps.

This task includes the following steps:

➤ "Edit the actual result of a step" on page 92

➤ "Add attachments to a step" on page 92

➤ "Edit the details of a step" on page 93

➤ "Add and delete steps" on page 93

Edit the actual result of a step

You can edit and add a screen capture to the Actual Result of a step from the following locations:

➤ **The Steps sidebar.** Click the **Actual Result** button to edit or add a screen capture to the actual results of a step. For details, see "Actual Result Dialog Box" on page 104.

➤ **The Subtitles toolbar.** Click the **Actual Result** button to edit or add a screen capture to the actual results of a step. For details, see "Actual Result Dialog Box" on page 104.

➤ **The Annotation Workspace.** Click the **Save to Actual Result** button in the workspace **Tools** sidebar to add an annotated screen capture of your application to the actual results of a step. For details, see "Annotation Tools Sidebar" on page 126.

Add attachments to a step

Click the **Steps** sidebar > **Attachments** button to add an attachment to a step in your test.

For more details, see "Run/Step Attachments Dialog Box" on page 79.

Edit the details of a step

Click the **Steps** sidebar > **Edit Step** button to edit the name, description, or expected result of a step in your test.

For more details, see "Edit Step Dialog Box" on page 106.

Add and delete steps

Click down-arrow next to the **Steps** sidebar > **Edit Step** button and select **Edit Steps**, **Insert Before**, **Insert After**, or **Delete Step** to edit, add, or delete steps in your test.

For more details, see "Edit Step Dialog Box" on page 106.

Reference
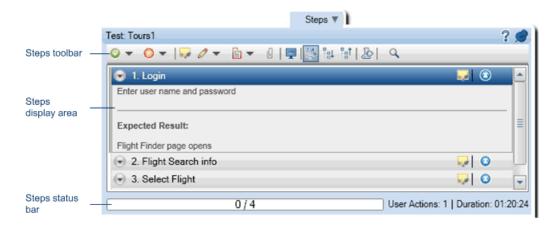
Steps Sidebar

This sidebar enables you to navigate, mark, and edit the steps in your test.
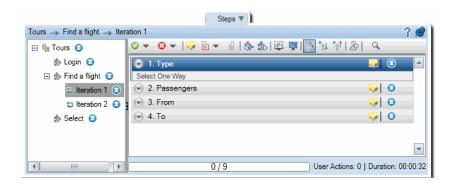
Tasks you can accomplish with the **Steps** sidebar:

➤ "How to Navigate Steps" on page 89

➤ "How to Mark Steps" on page 90

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

The following image shows the **Steps** sidebar.

If you are running a Business Process Test, the **Steps** sidebar displays the test hierarchy and components in an additional pane on the left. The Steps display area displays the steps for the selected component.

To access	Click the **Steps** sidebar tab.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.
Important information	➤ If your application does not have any steps, the **Steps** sidebar is not displayed.
	➤ Some options are available only when you are working with Business Process Testing.

The Steps sidebar contains the following elements:

➤ "Steps Toolbar" on page 96

➤ "Steps Display Area" on page 99

➤ "Steps Status Bar" on page 101

Steps Toolbar

User interface elements are described below:

UI Elements	Description
\<Title bar\>	The title bar of the **Steps** sidebar displays the test name as it appears in Test Plan module of HP ALM. For Business Process Testing tests, the title bar displays the name of the Business Process Test and the current component.
⊘ ▾	**Pass Selected Steps.** (Default) Marks the selected steps as Passed. (Ctrl-click to select multiple steps.) Click on the down arrow for the following options: ➤ **Pass.** Marks the selected steps as Passed. ➤ **Pass All.** Marks all the steps as Passed. ➤ **Pass Selected, Pass Previous Unmarked.** Marks the selected step as Passed, and marks all the unmarked steps prior to the selected step, as Passed. This option is available only when a single step is selected.
✕ ▾	**Fail Selected Steps.** (Default) Marks the selected steps as Failed. (Ctrl-click to select multiple steps.) Click on the down arrow for the following options: ➤ **Fail.** Marks the selected steps as Failed. ➤ **Fail Selected, Pass Previous Unmarked.** Marks the selected step as Failed, and marks all the unmarked steps prior to the selected step, as Passed. This option is available only when a single step is selected.
	Actual Result. Opens the Actual Result Dialog Box (described on page 104), enabling you to modify the actual result and/or add a screen capture or annotated screen capture to the actual result. If your steps have user defined fields from HP ALM, they can be edited in the Actual Result dialog box.

UI Elements	Description
	Edit Step. Opens the Edit Step Dialog Box (described on page 106). (not available for Business Process Tests) Click the down-arrow for the following options: ➤ **Edit Step.** (Default) Opens the Edit Step Dialog Box (described on page 106). ➤ **Insert Before.** Opens the Edit Step Dialog Box (described on page 106), enabling you to insert a new step before the current step. ➤ **Insert After.** Opens the Edit Step Dialog Box (described on page 106), enabling you to insert a new step after the current step. ➤ **Delete Step.** Deletes the selected step.
	Smart Defect. Enables you to submit a defect to HP ALM. Drop-down options: ➤ **Smart Defect.** (Default) Opens the Smart Defect Settings Dialog Box, enabling you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 120. ➤ **New Defect.** Opens the HP ALM New Defect dialog box, enabling you to manually submit a defect to HP ALM. ➤ **Add Defect Reminder.** Opens the Defect Reminder Dialog Box (described on page 124).
	Attachments. Opens the Run/Step Attachments Dialog Box (described on page 79), enabling you to add, edit, or remove attachments in your step.
	Previous Component (Business Process Tests only). Returns the right pane and the Steps display area to the previous component.
	Next Component (Business Process Tests only). Advances the right pane and the Steps display area to the next component.
	Parameters mode (Business Process Tests only). Displays and enables you to edit the actual values of the parameters for the component selected in the left pane.

UI Elements	Description
	Show Subtitles. Displays the steps, as an on-screen subtitle. For details on working with subtitles, see "Subtitles Toolbar" on page 101.
	Auto Expand. Expands each step when you click on its heading.
	Expand All. Expands all the steps in the Steps display area.
	Collapse All. Collapses all the steps in the Steps display area.
	Next Test. Ends the run for the current test and advances to the next test in the run. To return to a previous test, use the **Previous Test** button in the Run Control Sidebar (described on page 75).
	Find. Enables you to search the steps for specific text. ➤ Find searches the step name, description, and expected result for the specified text. ➤ The search text is not case-sensitive. ➤ The first step containing the text is automatically opened.

Steps Display Area

This area displays the steps in the current run. For Business Process Tests, it displays the steps in the current component. In Parameters Mode (Business Process Tests only) displays the parameters for the component selected in the left pane.

Navigating	➤ By default, the Steps display area is set to Auto Expand, so that clicking on a step heading expands that step.
	➤ When you start a run, the Steps display area displays the first step expanded. If you switch to another run that you have not yet completed, the last step you marked is expanded.
	➤ When **Auto Expand** is selected (default), clicking on a step heading selects and expands the step. Clicking again collapses the step.
	➤ When **Auto Expand** is not selected, double-clicking on the step heading selects and expands the step. Double-clicking again collapses the step.
	➤ When you set the status of a step, the Steps display area automatically advances to the next step in the test.

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

UI Elements	Description
	Expand/Collapse. Expands or collapses the selected step. When the step is expanded, the name, description, and expected results are displayed.
	Actual Result. Opens the Actual Result Dialog Box (described on page 104), enabling you to modify the actual result and add a screen capture or annotated screen capture to the actual result.

UI Elements	Description
	Status. Displays a drop-down list that enables you to set the status of the step. **Default status values:** ➤ **Passed.** The step passed. ➤ **Failed.** The step failed. ➤ **Blocked.** The step is blocked. ➤ **Not Completed.** The step was paused in the middle of the run. ➤ **No Run** (Default) The step has not yet been run. ➤ **N/A.** Current status is not applicable. **Note:** In addition to the default status items above, the list includes any user-defined statuses defined for your HP ALM project. If the user-defined status does not have a custom icon assigned to it in HP ALM, an icon is created using the first letter of the status value. For details on user-defined statuses, see the *HP Application Lifecycle Management Administrator Guide*. **Tip:** You can Ctrl-click to select multiple steps and then use the one of the selections in the drop-down list to set the status of all the selected steps.
<Step content>	When a step is expanded, the following are displayed: ➤ **Name.** If the step name is too long to display in the step heading it is truncated, and the full step name is displayed in the step description. ➤ **Description** ➤ **Expected Result** ➤ **Actual Result (if added).** If you added a screen capture to the Actual Result, an icon is added to this area. If you move the cursor over the icon, the screen capture is displayed. ➤ **Step attachments.** If you added an attachment to a step, an icon indicates the attachment. Double-clicking the icon opens the attachment in your default program for that file type. For images, moving the pointer over the icon displays a preview of the attachment.

Steps Status Bar

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

UI Elements	Description
<Steps status bar>	Displays a progress bar and text indicating the number of steps that do not have a status of **No Run**, out of the total number of steps.
User Actions	Displays the number of user actions performed in the current test run.
Duration	Displays the amount of time spent on the current run. The **Duration** counter resets to 0 when you move between runs in the **Run Control** sidebar.

Subtitles Toolbar

This toolbar enables you to run, mark, and edit the steps in your test while in subtitles mode.

Tasks you can accomplish with the Subtitles toolbar:

➤ "How to Navigate Steps" on page 89

➤ "How to Mark Steps" on page 90

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

The following image shows the Subtitles toolbar.

To access	Click the Steps Sidebar > **Subtitles** button 🖥️, and then move the pointer over the subtitle.
Important information	➤ You can use **hotkeys** to mark a step's status, navigate steps, and perform other functions. For details, see "Hot Keys Settings Pane (Settings Dialog Box)" on page 68. ➤ You can still view the **Steps** sidebar while you are in Subtitles mode, by clicking on the **Steps** sidebar tab.

User interface elements are described below:

UI Elements	Description
	Previous Step. Displays the previous step.
	Next Step. Displays the next step.
	Pass. Marks the current step as Passed, and displays the next step.
	Fail. Marks the current step as Failed. The next step is not displayed automatically. This gives you the opportunity to open a defect on the current step.
	Actual Result. Opens the Actual Result Dialog Box (described on page 104), enabling you to modify the actual result and add a screen capture or annotated screen capture to the actual result.
	Step Status. Enables you to select a status for the current step from the drop-down list.
	Hide Subtitles. Hides the subtitles display.
	Settings. Opens the Subtitles Settings Dialog Box (described on page 107).

UI Elements	Description
	Step Details. Displays the following step details: ➤ **Name** ➤ **Description** ➤ **Expected Result** ➤ **Actual Result.** If you added a screen capture to the Actual Result, an icon is added to this area. If you place the cursor over the icon, the screen capture is displayed. ➤ **Step attachments.** If you added an attachment to a step, an icon indicates the attachment. Double-clicking the icon opens the attachment in your default program for that file type. For images, moving the pointer over the icon displays a preview of the attachment. Click the button again to close the step details display.
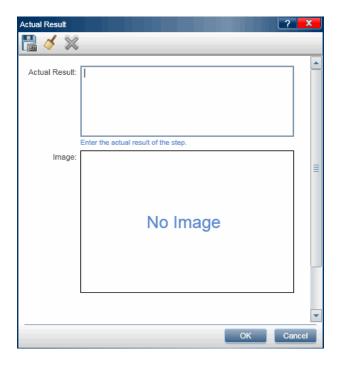
🔍 Actual Result Dialog Box

This dialog box enables you to edit the actual result of a step in your test.

Tasks you can accomplish with the Actual Result dialog box:

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

➤ "How to Submit a Defect" on page 114

The following image shows the Actual Result dialog box.

To access	Do one of the following:
	➤ Click Steps Sidebar > **Actual Result** button .
	➤ Click Steps Sidebar > **Step header** > **Actual Result** button .
Important information	If your steps have user defined fields from HP ALM, they can be edited in the Actual Result dialog box.

User interface elements are described below:

UI Elements	Description
	Save Screen Capture as Actual Result. Saves a screen capture of your application and adds it to the Actual Result for the current step.
	Save Annotation as Actual Result. Opens the Annotation Workspace, enabling you to annotate a screen capture of your application. When you close the Annotation Workspace, the annotated screen capture is added to the Actual Result for the current step. For details on working in the Annotation Workspace, see "Annotation Tools Sidebar" on page 126.
	Remove. Removes the screen capture or annotation from the Actual Result for the current step.
Actual Result	The actual result of the current step.
Image	Displays any image attachment you saved with the actual result of the current step.
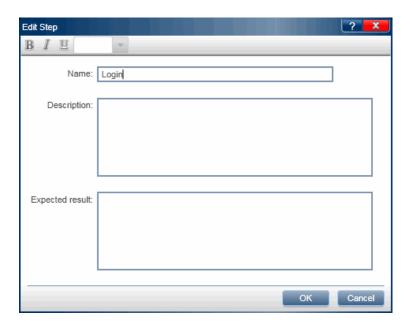
🔍 Edit Step Dialog Box

This dialog box enables you to edit a step in your test.

Tasks you can accomplish with the Edit Step dialog box:

➤ "How to Edit and Add Actual Results and Attachments to Steps" on page 92

The following image shows the Edit Step dialog box.

To access	Click Steps Sidebar > **Edit Step** button 🖉 ▾.
Important information	Changes you make to steps in an HP ALM test are saved in the run results the Test Lab module of HP ALM. When the run ends you have the option to save the changes to the test, in the HP ALM Test Plan module as well.
See also	"Tests with Steps - Overview" on page 88

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

🔖 Subtitles Settings Dialog Box
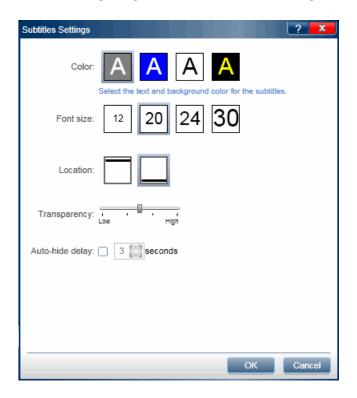
This dialog box enables you to set display options for subtitles.

Tasks you can accomplish with the Subtitles Settings dialog box:

➤ "How to Navigate Steps" on page 89

The following image shows the Subtitles Settings dialog box.

To access	Click the Steps Sidebar > **Subtitles** button 🖥️, move the pointer over the subtitle and click the **Settings** button ⚙️.

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

4

Detecting and Submitting Defects, and Using Tools

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode icon.

This chapter includes:

Concepts

➤ Using Annotation Tools to Detect and Submit Defects Overview on page 110

Tasks

➤ How to Submit a Defect on page 114

Reference

➤ Tools Sidebar on page 117

➤ Annotation Tools Sidebar on page 126

Concepts

🍥 Using Annotation Tools to Detect and Submit Defects Overview

Sprinter provides tools that enable you to detect defects in your application and report them to HP ALM. These tools allow you to detect and report defects without disrupting the test flow.

Sprinter defect detecting tools enable you to examine the display of the application being tested, for defects such as alignment, spacing, and color usage. You can also annotate a screen capture to assist in highlighting and communicating defects.

Sprinter defect submitting tools enable you to submit a defect to HP ALM, email an annotated screen capture of the application screen, or print an annotated screen capture of the application screen.

The defect detecting and submitting tools are located in the Annotation Workspace. When you open the Annotation Workspace, a capture of your current screen is displayed in the workspace. You can examine the elements in this screen capture and add any annotations to it. When you submit a defect and attach a screen capture, add a screen capture to the actual results of a step, or if you keep a record of a defect from the Annotation Workspace, this screen capture is attached with the annotations you added.

This section also includes:

➤ "Using Annotation Tools to Detect Defects" on page 111
➤ "Submitting Defects" on page 112

🔷 **Using Annotation Tools to Detect Defects**

Sprinter provides a variety of tools to enable you to detect defects in the display of your application.

This section includes:

➤ "Ruler Tool" on page 111

➤ "Guides Tool" on page 111

➤ "Color Picker Tool" on page 112

Ruler Tool

The Ruler tool enables you to accurately measure the distance between user interface elements in the application display. The Ruler tool displays the length of the ruler line in pixels.

User interface elements are typically arranged horizontally and vertically on the screen. Therefore, the Ruler tool locks the ruler line along the horizontal or vertical axes when you drag it, to make measuring distances between elements easier. Multiple ruler lines can be placed on the annotation Workspace to enable you to compare the distances of multiple elements in the user interface.

Guides Tool

The Guides tool enables you to examine the alignment of user interface elements in the application.

When you select the Guides tool, vertical and horizontal guide lines follow the cursor as you move over the screen capture of your application in the annotation workspace. When you click the left mouse button, the guide lines are placed on the workspace, which enables you to determine if elements are aligned with one another. You can leave the guide lines on the workspace to be included in the screen capture of the application when you report the defect, or save, email, or print the screen capture. You can place multiple sets of guide lines on the workspace.

Color Picker Tool

The Color Picker tool enables you to detect the color of any point on the screen and to compare the colors of two or more points on the screen. This allows you to determine if colors are used consistently in the application being tested.

When you select the Color Picker tool, a pop-up balloon displays the RGB (Red, Green, Blue) values above the cursor as you move over the Annotation Workspace. By placing multiple pop-up balloons on the workspace, you can determine if the colors of various on-screen elements are consistent. You can leave pop-up balloons on the workspace to be included in the screen capture of the application when you report the defect, or save, email, or print the screen capture.

Submitting Defects

Sprinter gives you the following ways to submit defects to HP ALM:

➤ **Smart Defect**

When you submit a defect in HP ALM using Sprinter's **Smart Defect**, Sprinter lets you select which of the following types of information to automatically add to your defect:

➤ **Defect description.** You can choose to add the defect scenario to the description of your HP ALM defect. The scenario can include an automatically generated list of the test steps and/or a list of the recorded user actions you performed in your run.

After you select which information to include, the HP ALM New Defect dialog opens with the selected information already entered in the defect's description. You then fill in the other defect fields and submit the defect.

➤ **Screen captures and movies.** You can choose to attach a screen capture that illustrates the defect to your HP ALM defect. If you submit the defect from the Annotation Workspace, the screen capture will include any annotations you added. For details, see "Annotation Tools Sidebar" on page 126. You can also attach a movie of your run.

For details on configuring the information to include in your defect, see "Smart Defect Settings Dialog Box" on page 120.

➤ **HP ALM Defect**

You can open the HP ALM New Defect Details dialog box directly from Sprinter and manually fill in all the defect fields.

➤ **Defect Reminder**

You can continue your test run without disrupting its flow with submitting a defect and filling in the required fields in HP ALM, by creating a **Defect Reminder**.

A **Defect Reminder** enables you to summarize the defect in your application. The reminder is included with the test results and can be viewed at the end of your test. You can then submit the defect later from the test **Results**. The same information you have available during the test is also available to you from the results. So you can include annotated screen captures, movies, and step or action information in the defect at that time.

When you submit an HP ALM defect using Sprinter, the defect is created in the HP ALM server, domain, and project that you configured in the HP ALM Connection Dialog Box.

Tasks

🔖 How to Submit a Defect

This task describes the different ways you can submit a defect in HP ALM using Sprinter. You can also email, save, or print a screen capture of a defect in your application.

This task includes the following steps:

➤ "Annotate a screen capture of your application - Optional" on page 114

➤ "Submit a defect" on page 114

➤ "Email, save, or print a screen capture of the defect - Optional" on page 116

Annotate a screen capture of your application - Optional

You can use Sprinter's screen examining and annotations tools to detect and mark defects in a screen capture of your application.

1 Click the **Annotation Workspace** button to open the Annotation Workspace.

2 Use the tools in the **Annotations Tools** sidebar to find defects and prepare your screen capture. For details, see "Annotation Tools Sidebar" on page 126. For more details, see "Using Annotation Tools to Detect and Submit Defects Overview" on page 110

Submit a defect

You can submit a defect from one of the following locations:

➤ **Tools Sidebar**

➤ **Steps Sidebar**

➤ **Annotation Tools Sidebar**

➤ **Storyboard Window**

From any of these locations you can:

➤ Click the **Smart Defect** button in the **Tools**, **Steps**, or **Annotation Tools** sidebars to open a **Smart Defect** (default). Smart defects enable you automatically include detailed defect scenario information in the defect description, as well as a screen capture or movie of a defect in your application. For details, see "Submitting Defects" on page 112.

For details on configuring the information to include in your Smart Defect, see "Smart Defect Settings Dialog Box" on page 120.

For details, see "Submitting Defects" on page 112.

➤ Click the down-arrow next to the **Smart Defect** button and select **New Defect** to open the New Defect Settings dialog box in HP ALM. This enables you to manually set the HP ALM defect fields. For details, see "Submitting Defects" on page 112.

➤ Click the down-arrow next to the **Smart Defect** button and select **Defect Reminder**, to add a reminder to submit a defect at a later time.

For details see "Defect Reminder Dialog Box" on page 124.

If you submit your defect from the **Annotation Workspace**, click the **Close** button in the **Annotation Tools** sidebar to close the Annotation Workspace and return to your application.

For more details, see:

➤ "Tools Sidebar" on page 117.

➤ "Steps Sidebar" on page 94

➤ "Annotation Tools Sidebar" on page 126

You can also submit a defect while reviewing your run results from the Defect Reminders Pane (described on page 140) and while resolving differences in a mirroring test in the Differences Viewer (described on page 238).

Email, save, or print a screen capture of the defect - Optional

You can email, save, or print a screen capture of a defect in your application from one of the following locations:

➤ **Tools sidebar**

➤ **Annotations Tools sidebar**

From any of these locations you can click the down-arrow next to the **Screen Capture** button and select:

➤ **Email** to open an email message in your default email editor and include a screen capture of a defect in your application as an attachment.

➤ **Save** to save a screen capture of a defect in your application to the file system.

➤ **Print** to print a screen capture of a defect in your application.

If you email, save, or print a screen capture from the **Annotation Workspace**, click the **Close** button in the **Annotation Tools** sidebar to close the Annotation Workspace and return to your application.

For more details, see:

➤ "Tools Sidebar" on page 117.

➤ "Annotation Tools Sidebar" on page 126

Reference

🔍 Tools Sidebar

This sidebar enables you to find defects in the user interface of your application and report them to HP ALM. You can open the Annotation Workspace to annotate a screen capture of your application and include it in an HP ALM defect, or you can save, print, or email the screen capture.

🅿 In Power Mode this sidebar also enables you to add a comment to your test, open the Timeline Viewer, or display a list of the user actions in your run.

Tasks you can accomplish with the **Tools** sidebar:

➤ "How to Submit a Defect" on page 114

The following image shows the **Tools** sidebar without Power Mode:

The following image shows the Tools sidebar with Power Mode:

To access	Click the **Tools** sidebar tab during a test run.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack ⬛ icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.
See also	"Using Annotation Tools to Detect and Submit Defects Overview" on page 110

User interface elements are described below:

UI Elements	Description
▤▤▤	**Storyboard.** Opens the Storyboard Window enabling you to view a visual summary of all the user actions in your test. For details on the Storyboard Window, see "Storyboard Window" on page 142.
📝	**User Actions.** Displays a list of the recorded user actions. You can export the list to an **.xsl** or **.csv** file. You can also print or include the summary in an email. For details, see "User Actions Pane/User Actions Summary Dialog Box" on page 141.
📄 ▾	**Smart Defect.** Enables you to submit a defect to HP ALM. Drop-down options: ➤ **Smart Defect.** (Default) Opens the Smart Defect Settings Dialog Box, enabling you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 120. ➤ **New Defect.** Opens the HP ALM New Defect dialog box, enabling you to manually submit a defect to HP ALM. ➤ **Add Defect Reminder.** Opens the Defect Reminder Dialog Box (described on page 124).

UI Elements	Description
	Annotation Workspace. Opens the Annotation Workspace, enabling you to detect user interface defects in your application and add annotations in a screen capture of your application.
	From the Annotation Workspace you can include the annotated screen capture in an HP ALM defect, save it to the actual result of the current step, or you can save, print, or email the annotated screen capture.
	For details see, "Annotation Tools Sidebar" on page 126.
	Screen Capture. Takes a snapshot image of your application.
	Drop-down options:
	➤ **Email.** (Default) Opens a message in your default email application with the attached screen capture of the application.
	➤ **Save.** Saves the screen capture of the application.
	➤ **Print.** Prints the screen capture of the application.
	Add Comment. Opens the Comment Dialog Box, enabling you to add a comment to the current user action. For more details, see "Comment Dialog Box" on page 125.
	You can view the comments you added to your test in the Storyboard Window, for each action. For details on the Timeline Viewer, see "Storyboard Window" on page 142.

🔍 Smart Defect Settings Dialog Box

This dialog box enables you to define the information that will be included in your defect's description, and any defect attachments.

Tasks you can accomplish with the Smart Defect Settings dialog box:

➤ "How to Submit a Defect" on page 114

The following image shows the Smart Defect Settings dialog box.

To access	From one of the following locations: ➤ **Tools** sidebar ➤ **Annotation Tools** sidebar ➤ **Steps** sidebar click the **Smart Defect** button 📄▾ during a test run.
Important information	🅿 Action options are available only if you are working in Power Mode.
See also	"Using Annotation Tools to Detect and Submit Defects Overview" on page 110

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

UI Elements	Description
<Step information>	Enables you to include step information as part of the description of the defect. Drop-down options: ➤ **All steps to current.** Includes the step name and description for all the steps in the test up to the current step. ➤ **All steps.** Includes the step name and description for all the steps in the test. ➤ **Custom.** Opens the Custom Selection Dialog Box (described on page 123), enabling you to select specific steps to include in the defect description. The **expected result** for the last step that you include in the description is also added to the defect description.
Include last step's actual result information	Adds the actual result (if available) for the last step you included in the defect description.

| UI Elements	Description
🅟 **<Action information>**	Enables you to include user action information as part of the description of the defect. Drop-down options: ➤ **Last 5 user actions.** Includes a description of the last five user actions. ➤ **Last 10 user actions.** Includes a description of the last ten user actions. ➤ **All user actions.** Includes a description of all the user actions. ➤ **Custom.** Opens the Custom Selection Dialog Box (described on page 123), enabling you to select specific user actions to include in the defect description.
Description preview	A preview of the information that will be included in the defect description.

Attach to defect	➤ **Current screen capture.** Include a screen capture of the application as an attachment to the defect.
	
	  ➤ If you submit the defect from the Annotation Workspace, the screen capture includes your annotations.
	  ➤ If you submit the defect from the Differences Viewer, screen captures of both machines are attached to the defect.
	
	➤ **Screen movie.** Include a movie of your run. Select a value from the drop-down box to define how much of the movie to include.
	
	  ➤ The screen movie functionality must first be enabled by your HP ALM administrator.
	  ➤ Screen movies can be enabled and disabled in the Save Settings Pane (Settings Dialog Box) (described on page 66).
	  ➤ Sprinter sidebars may not be visible in movies.

Submit Defect	Closes the Smart Defect Settings dialog box and opens the HP ALM New Defect dialog box, enabling you to fill in the remaining information in the defect.
Cancel	Cancels the defect submission.

🔍 Custom Selection Dialog Box
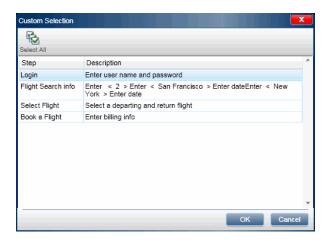
This dialog box enables you to select specific steps or user actions to include in a defect.

Tasks you can accomplish with the Custom Selection dialog box:

➤ "How to Submit a Defect" on page 114

The following image shows the Custom Selection dialog box.

To access	Select **Custom** from **step information** or **action information** drop-down lists in the Smart Defect Settings Dialog Box.

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

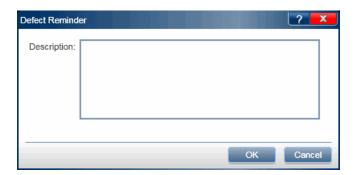| UI Elements	Description
Select All	Selects all the steps or actions in the list.
\<Step / Action list\>	The list of steps or user actions in your test. CTRL+CLICK to select multiple steps or actions. ➤ The list of actions includes only those you performed up to this point in your run. ➤ The list of steps includes all the steps in your test.

🔍 📌 Defect Reminder Dialog Box

This dialog box enables you to add a reminder to open a defect at a later time.

Tasks you can accomplish with the Defect Reminder dialog box:

➤ "How to Submit a Defect" on page 114

The following image shows the Defect Reminder dialog box.

To access	From one of the following locations:
	➤ **Tools** sidebar
	➤ **Steps** sidebar
	➤ **Annotation Tools** sidebar
	Click the down arrow next to the **Smart Defect** button 📄▾ and select **Add Defect Reminder** during a test run.
Important information	You can view your defect reminders:
	➤ In the Storyboard window, for the user action for which the defect reminder was created. For details, see "Storyboard Window" on page 142.
	➤ By selecting **Results** > **Defect Reminders**

🔍 📋 Comment Dialog Box

This dialog box enables you to add a comment to the current user action.

Tasks you can accomplish with the Comment dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Comment dialog box.

Comment	? X
Text:	
	OK Cancel

To access	Select **Tools** sidebar > **Add Comment** button during a test run.
Important information	You can add only one comment per user action. To edit a comment you created for your current action, open the Add Comment dialog box again. You can view your comments: ➤ In the Timeline Viewer, for the user action for which the defect reminder was created. ➤ By selecting **Results** > **Run Summary** and then clicking the link next to **Comments added**.

✎ Annotation Tools Sidebar

This sidebar enables you to add graphic annotations to a screen capture of your application. It also enables you to examine the characteristics of the user interface elements in your application and detect defects in their layout and color.

You can include the annotated screen capture in a defect in HP ALM. You can also print, save, or include the annotated screen capture in an email.

Tasks you can accomplish with the Annotation Tools sidebar:

➤ "How to Submit a Defect" on page 114

The following image shows the **Annotation Tools** sidebar.

To access	In the **Tools** sidebar or the Actual Result Dialog Box, click the **Annotation Workspace** button 🖌.
	The Annotation Workspace opens with the Annotations **Tools** sidebar open.
	➤ Click the sidebar tab, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack 🔵 icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.

Important information	Some objects like drop-down menus automatically close when you open the Annotation Workspace. Use the keyboard shortcut (CTRL + F10) to open the Annotation Workspace with these objects displayed.
See also	"Using Annotation Tools to Detect Defects" on page 111

User interface elements are described below:

UI Elements	Description
Tools	
	Selection. Selects a previously created annotation on the annotation workspace. Once an annotation is selected, it can be moved, resized, or deleted. Click off the annotation to deselect.
	Delete Annotation. Deletes the selected annotations from the workspace.
	Text. Adds a text box to the Annotation Workspace. Use the **Properties** area to determine the background color and text color for the text box. A yellow background has black text, and a black background has white text. Select the color that will be most visible based on the area on which you are drawing the text box.
	Rectangle. Draws an rectangle on the Annotation Workspace. Use the **Properties** area to determine the color and width of the rectangle.
	Ellipse. Draws an ellipse on the Annotation Workspace. Use the **Properties** area to determine the color and width of the ellipse.
	Arrow. Draws an arrow on the Annotation Workspace. Use the **Properties** area to determine the color and width of the arrow.
	Highlight. Highlights an area of the Annotation Workspace. Click and drag to define the length and width of the highlight. Use the **Properties** area to determine the color of the highlight.

UI Elements	Description
	Ruler. Draws a line on the annotation workspace, displaying its length in pixels. The ruler tool locks the ruler line along the horizontal or vertical axes while dragging. To release the axis lock, press the Shift key while dragging. For more details, see "Ruler Tool" on page 111.
	Guides. Displays a vertical and horizontal guide line along the length and width of the annotation workspace, with their intersection under the cursor (crosshair). Guide lines can be repositioned using the **Select** tool. The vertical and horizontal lines can be also be individually selected and repositioned. Click to place the guides on the workspace. For more details, see "Guides Tool" on page 111.
	Color Picker. Displays the RGB values of a point on the Annotation Workspace, in a pop-up window. Click a location to place the pop-up window on the workspace. For more details, see "Color Picker Tool" on page 112.
Properties	
	Color and Weight. Determines the color and width of the currently selected tool from among the Text, Highlight, Arrow, Rectangle, and Circle tools.
Zoom	

UI Elements	Description
	Zoom. Zooms in and out on the display of the Annotation Workspace. The zoom function contains the following controls: ➤ Zooms out on the display. ➤ Restores the display to 100%. ➤ Zooms in on the display. The display cannot zoom in more than 100%. ➤ When you zoom in on the image you can then drag the image by pressing CTRL + LEFT MOUSE BUTTON. The cursor turns into a pointing hand and you can drag different areas of the image in or out of view. You can also zoom in and out using the mouse wheel.
Screen Capture	
	Screen Capture. Takes a screen capture of your application. Drop-down options: ➤ **Save.** Saves the screen capture of the application. ➤ **Print.** Prints the screen capture of the application. ➤ **Email.** Opens a message in your default email application with the screen capture of the application as an attachment.
	Smart Defect. Enables you to submit a defect to HP ALM. Drop-down options: ➤ **Smart Defect.** (Default) Opens the Smart Defect Settings Dialog Box, enabling you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 120. ➤ **New Defect.** Opens the HP ALM New Defect dialog box, enabling you to manually submit a defect to HP ALM. ➤ **Add Defect Reminder.** Opens the Defect Reminder Dialog Box (described on page 124).

UI Elements	Description
	Save to Actual Result. Adds the annotated screen capture to the Actual Results of the current step. Disabled for test with no steps.
Clear All	Removes all of the annotations from the workspace.
Close	Closes the Annotation Workspace.

5

Run Results

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode icon.

This chapter includes:

Concepts

➤ Run Results Overview on page 132

Tasks

➤ How to Review Run Results on page 133

Reference

➤ Results Group on page 136

➤ Storyboard Window on page 142

Concepts

🎱 Run Results Overview

Sprinter's run results provide a summary of your run. In the run results you can:

➤ View a summary of your run including basic run information, the number of user actions, submitted defects, defect reminders and comments, and a breakdown of the steps by status.

➤ View details of all the steps in your run including actual results and any attached screen captures or other attachments.

➤ View details of all the defects you submitted during your run. You can open the HP ALM Defect Details dialog box from the run results to review the information in your defects.

➤ View details of the defect reminders you created during your run. You can submit defects to HP ALM based on these defect reminders.

➤ View details of all the user actions you performed during your run.

➤ Open the Storyboard, enabling you to view detailed information for each user action you performed in your run.

Tasks

🔧 How to Review Run Results

📷 Some steps are relevant only for tests run in Power Mode.

This task describes the various steps you can perform to review your run results:

➤ "Review a summary of your run" on page 133

➤ "Review the steps you performed in your run" on page 133

➤ "Review the defects you submitted during your run" on page 134

➤ "Review the defect reminders you created during your run" on page 134

➤ "Review the user actions you performed during your run" on page 134

➤ "Review details and screen captures of your user actions in the Storyboard" on page 134

Review a summary of your run

The **Run Summary** pane displays a summary of the details of your test run, including basic test and run information as well as a summary of the steps and actions in your test. You can also view the defects you opened and comments you added, and print or email the summary.

Click the **Run Summary** node in the Results Group to display the Run Summary pane.

Review the steps you performed in your run

The **Steps Summary** pane displays a summary of any steps you ran in your test, including actual results and any attached screen captures or other attachments. You can also export, print, or email the steps in your test.

Click the **Steps Summary** node in the Results Group to display the Steps Summary pane. For details, see "Steps Pane" on page 138.

Review the defects you submitted during your run

The **Submitted Defects** pane displays a summary of all the defects you submitted during your run. You can open the HP ALM Defect Details dialog box from the Submitted Defects pane to review the information in your defects. You can also print or email the summary of your submitted defects.

Click the **Submitted Defects** node in the Results Group to display the **Submitted Defects Pane**.

For details, see "Submitted Defects Pane" on page 139.

Review the defect reminders you created during your run

The **Defect Reminders Pane** displays a summary of the defect reminders you created during your run. You can submit defects to HP ALM based on these defect reminders. You can also print or email the summary of your defect reminders.

Click the **Defect Reminders** node in the Results Group to display the **Defect Reminders Pane**.

For details, see "Defect Reminders Pane" on page 140.

Review the user actions you performed during your run

The **User Actions** pane displays a summary of the user actions you performed during your run. You can export the user actions to an **.xls**, **.xlsx**, or **.csv** file. You can also print and email the list of your user actions.

Click the **User Actions** node in the Results Group to display the User Actions pane.

For details, see "User Actions Pane/User Actions Summary Dialog Box" on page 141.

Review details and screen captures of your user actions in the Storyboard

1 **Select the Storyboard node in the Results group.**

The Storyboard opens.

2 **Select an action in the Timeline.**

All the user actions you performed in your run are represented in the Timeline as image thumbnails along the bottom of the Storyboard.

Note: Some user actions in your run may not have a corresponding screen capture. Screen captures are saved per-action based on your settings in the Save Settings Pane (Settings Dialog Box).

When you select an action in the Timeline, its screen capture is displayed in the upper left pane and the action details are displayed in the upper right pane of the Storyboard.

You can filter the actions that are displayed in the Timeline. For details on how to filter and navigate the Timeline, see "Storyboard Window" on page 142.

3 **Review the action details.**

The upper right pane of the Storyboard displays information about the action you selected in the Timeline.
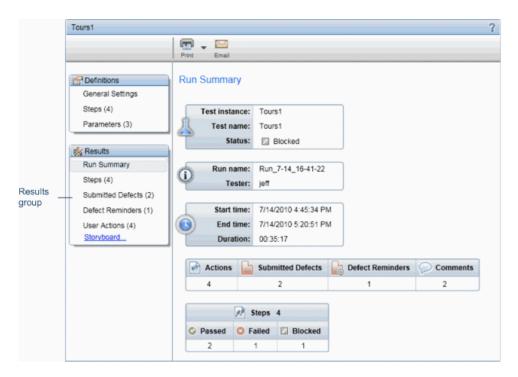
From this pane you can:

➤ View a description of the action.

➤ View a list of any **defects** you submitted for the action. You can click the defect ID link to open the Defect Details dialog box from HP ALM and view or edit your defect.

➤ View a list of any **defect reminders** you created for the action. You can submit defects to HP ALM based on these reminders.

➤ View the **comment,** if you added one to the action.

➤ View any **differences** that may have been found for the action (Tests run with mirroring only).

For more details on how to review the user action details, see "Storyboard Window" on page 142.
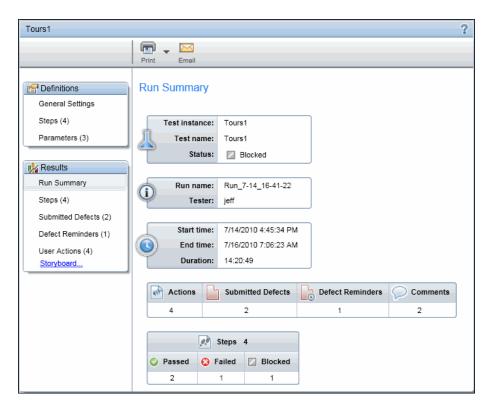
5

🔦 Run Summary Pane

This pane displays a summary of the details of your test run. You can view basic test and run information as well as a summary of the steps and actions in your test and the defects and comments you opened.

Tasks you can accomplish with the Run Summary pane:

➤ "How to Review Run Results" on page 133

The following image shows the Run Summary pane.

Some result information is available only for tests run in Power Mode 🅿 .

To access	Select the **Results** > **Run Summary** node.

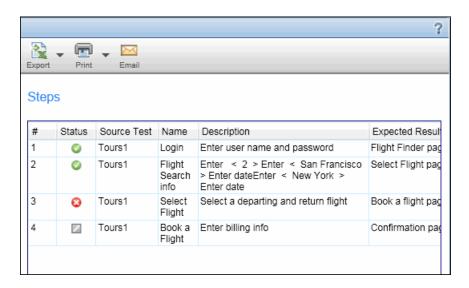Descriptions of the user interface elements are available in the pane.

🔍 Steps Pane

This pane displays a summary of the steps you performed in your test. It also enables you to export, print, or email your step information.

Tasks you can accomplish with the Steps pane:

➤ "How to Review Run Results" on page 133

The following image shows the Steps pane.

To access	Select the **Results** > **Steps** node.
Important information	➤ You can resize the Sprinter window and the columns in the display to view all the information. ➤ Double-clicking a thumbnail in the **Screen Capture** column or the **Attachments** column opens the attachment in the default program on your computer for that file type. ➤ You cannot **Export**, **Print**, or **Email** steps in a Business Process Test.

Descriptions of the buttons are available in the pane when you move the pointer over them.
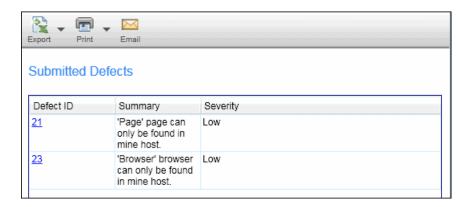
🔍 Submitted Defects Pane

This pane displays a summary of the defects you submitted during your test run. You can also export, print, or email a summary of your submitted defects.

Tasks you can accomplish with the Submitted Defects pane:

➤ "How to Review Run Results" on page 133

The following image shows the Submitted Defects pane.

To access	Select the **Results** > **Submitted Defects** node.
Important information	➤ Clicking the **Defect ID** number opens the Defect Details dialog box from HP ALM.

Descriptions of the buttons are available in the pane when you move the pointer over them.

🔍 Defect Reminders Pane

This pane displays a summary of the defect reminders you created during your test run. It enables you to submit defects based on information in your defect reminders, and to export, print, or email your defect reminders.

Tasks you can accomplish with the Defect Reminders pane:

➤ "How to Review Run Results" on page 133

The following image shows the Defect Reminders pane.

To access	Select the **Results** > **Defect Reminders** node.

Descriptions of the buttons are available in the pane when you move the pointer over them. The table below provides additional information for some of these elements:

| UI Elements	Description
Submit Defect	**Submit Defect.** Opens the Smart Defect Settings Dialog Box (described on page 120), enabling you to automatically include defect scenario information in your defect. When you create a defect from the defect reminders pane, the same information is available for you to include in the defect as is available when you open the defect during the run. You can include a screen capture of the application as it appeared for the user action when the reminder was created, and the steps or actions in your test run. When you create a defect from a defect reminder, the defect reminder is deleted.
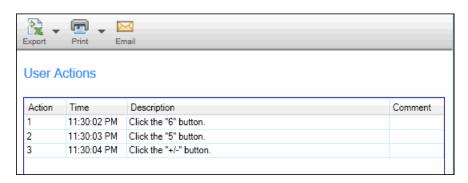
🔖 📝 User Actions Pane/User Actions Summary Dialog Box

This area displays a summary of the user actions you performed during your run and any comments you added for each action. It also enables you to export, print, or email your user action information.

Tasks you can accomplish with the User Actions pane/User Actions Summary dialog box:

➤ "How to Review Run Results" on page 133

The following image shows the User Actions pane.

To access	Do one of the following: ➤ Select the **Results** > **User Actions** node. ➤ During a run, select the **Tools** sidebar > **Show User Actions** button.
Important information	➤ The User Actions Summary dialog box displays user action information during a test run. It contains the same information and contains the same functionality as the User Actions pane. ➤ User actions are recorded only in Power Mode.

Descriptions of the buttons are available in the pane when you move the pointer over them.

Storyboard Window

This window displays information for each user action in your run. You can:

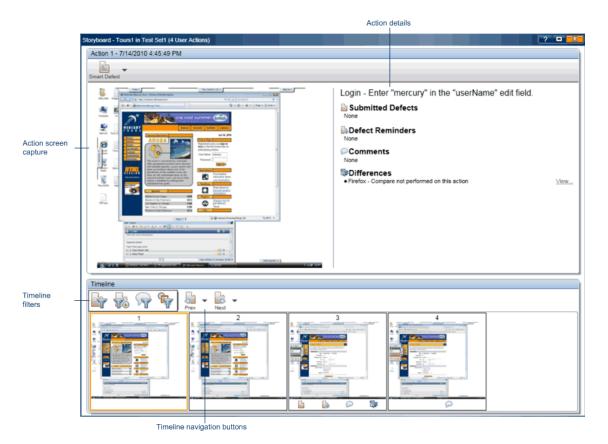➤ View the description of each user action

➤ View the defects submitted, defect reminders, comments, and differences found for each action.

➤ Filter the displayed actions.

Note: You can view the Storyboard at the end of a test run in the Run Results or during a test run from the Tools Sidebar.

Tasks you can accomplish with the Storyboard:

➤ "How to Review Run Results" on page 133

The following image shows the Storyboard.

To access	Do one of the following:
	➤ During a run, click **Tools** sidebar > **Storyboard**.
	➤ Select the **Results** > **Storyboard** node.
	➤ Right-click a test in the **Tests** list, and select **Show All Runs**. The Test <'Test Name'>: All Runs Dialog Box opens. Click the **Storyboard** button.
Important information	Some actions may not have a corresponding screen capture. Screen captures are saved per-action based on your settings in the Save Settings Pane (Settings Dialog Box) (described on page 66).

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

UI Elements	Description
Smart Defect	Enables you to submit a defect to HP ALM. Drop-down options: ➤ **Smart Defect.** (Default) Opens the Smart Defect Settings Dialog Box (described on page 120), enabling you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 120. ➤ **New Defect.** Opens the HP ALM New Defect dialog box, enabling you to manually submit a defect to HP ALM. When you create a defect from the Storyboard, the same information is available for you to include in the defect as is available when you open the defect during the run. You can include a screen capture of your application during your user action, and a list of the steps or actions in your test run.
<Action screen capture>	Displays a screen capture of the action selected in the Timeline.

UI Elements	Description
<Action details>	Displays the following: ➤ A description of the user action. ➤ **Defects.** All the defects submitted to HP ALM for the action. Clicking the link for a defect opens the Defect Details dialog box from HP ALM. ➤ **Defect Reminders.** A list of all the defect reminders you created for the action. Click **Create Defect** to open the Smart Defect Settings Dialog Box, enabling you to automatically include defect scenario information in your defect. ➤ **Comments.** A list of all the comments you added to the action. ➤ **Differences.** A list of all the differences found for the action. Click **Show**, to open the Differences Viewer. The Differences Viewer displays the details of the differences and any rules you created for the action. You can also open a new defect from the Differences Viewer.
Timeline	Displays a thumbnail view of each action in the run. Each thumbnail can contain any of the following icons indicating the details of the action: ➤ A defect was submitted for this action. ➤ A defect reminder was created for this action. ➤ A comment was added to this action. ➤ Differences were found for this action.

UI Elements	Description
<Timeline filtering options>	The Timeline contains the following filter buttons: ➤ Defects. ➤ Defect Reminders. ➤ Comments. ➤ Differences. When you click a filter button, the Timeline displays only those actions that contain the selected filter item. Click the filter button again to turn the filter off.
<Timeline navigation buttons>	The Timeline contains the following navigation buttons: ➤ Advances the Timeline one defect forward. ➤ Returns the Timeline one defect back. If you filter the Timeline, the **Prev** and **Next** buttons advance or return you to the next or previous action in the filtered list of actions. You can also filter just the **Prev** and **Next** behavior using the drop-down options under these buttons. These drop-down options control the functionality of the Prev and Next buttons, but do not filter the Timeline. When you select a drop-down option in one button, the same option is automatically selected in the other button, and the **Prev** and **Next** buttons advance or return you to the previous or next action that contains the selected option. Drop-down options: ➤ Defects. ➤ Defect Reminders. ➤ Comments. ➤ Differences.

6

Power Mode

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode 🅿 icon.

This chapter includes:

Concepts

Tasks

Reference

Concepts

Power Mode Overview

When you run a test in Power Mode, Sprinter learns your application's display and identifies its objects. This information enables Sprinter to track your activity during your test run and perform some user actions for you on your application.

With this information, Sprinter can:

➤ Create and run macros to allow Sprinter to perform a set of actions in your application for you.

➤ Automatically enter data into fields in your application.

➤ Replicate your user actions on multiple machines.

➤ Keep a record of your user actions. Add comments and reminders to the recorded user actions in your run, for later review.

➤ Keep a record of the defects you submitted for each action.

➤ Automatically include the list of your steps or user actions in any defect you submit to create a defect scenario for you.

For Sprinter to be able to learn your application's display, you need to define the application you will be testing.

For more details, see:

➤ "Applications" on page 149

➤ "How to Prepare a Test to Run in Power Mode" on page 152

When you run a test in Power Mode, you can accomplish the following tasks:

➤ "How to Inject Data into your Application" on page 193

➤ "How to Record and Run Macros" on page 201

➤ "How to Run a Test with Mirroring" on page 223

For more details, see "Running Tests in Power Mode" on page 81.

Applications

To work with Power Mode features, you must define the application you will be testing. This enables Power Mode to run advanced features such as data injection and macros on your application.

Many Power Mode configurations are associated with their specific application.

Because you define application for your test, all tests have the same defined application will share the same Power Mode configuration. This saves you the time of redefining these configurations for each one of your tests.

Example:

Suppose you are testing a banking application. You create a test and define your application with the name My_Banking_App. During your test you then record a macro on the login page and save it with the name Login_Macro. Sprinter remembers that the Login_Macro macro was recorded for the My_Banking_App application.
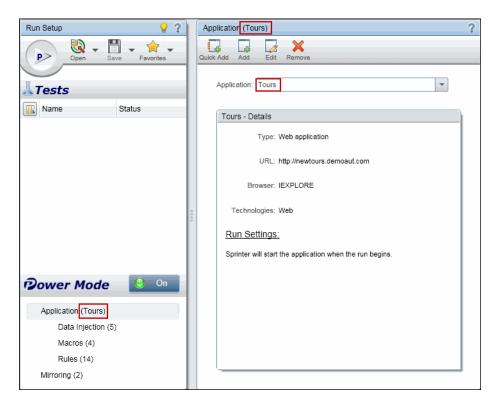
In the future, whenever you run a test with My_Banking_App defined as its application, the Login_Macro macro will be available for your test.

The following information is associated with the application in your test:

➤ Data injection data sets

➤ Macros

➤ Rules (for use with mirroring)

When you define an application, you provide Sprinter with a logical name for the application. Power Mode associates your information with this logical name. This logical name is displayed next to the Application node in the Power Mode Group (described on page 154), and in the Application Pane (Power Mode Group) (described on page 156).

You may want to create more than one version of an application with different logical names, and associate specific information with each version.

Example:

Suppose you are testing a banking application that has multiple versions for different languages. Each version of the actual application is named Banking. You can define multiple banking applications for your tests, and give each one a meaningful, logical name such as Banking_Spanish and Banking_French.

You can then associate different information with each version of the application. For example, you can associate Spanish data sets with the Banking_Spanish application and French data sets with the Banking_French application.

Whenever you run a test with Banking_Spanish as the defined application, the Spanish data sets will be available. Whenever you run a test with Banking_French as the defined application, the French data sets will be available.

For details on how to configure Power Mode features, see "How to Prepare a Test to Run in Power Mode" on page 152.

For more details on how Sprinter maintains application information and which features are associated with the defined application, see "How User Information is Maintained" on page 82.

Tasks

⚒ 𝓟 How to Prepare a Test to Run in Power Mode

The following steps describe how to prepare a test to run using the advanced features available with Power Mode.

This task assumes you already understand how to run a test in Sprinter. For details, see "How to Run a Manual Test in Sprinter" on page 38.

This task does not include information about how to prepare a test to run with mirroring. For details on running a test with mirroring, see "How to Prepare a Test for Mirroring" on page 220.

For details on Power Mode features, see "Running Tests in Power Mode" on page 81.

➤ "Enable Power Mode for your test" on page 152

➤ "Configure the application for your test" on page 152

➤ "Configure data injection" on page 153

➤ "Review the macros for your application" on page 154

➤ "Results" on page 154

Enable Power Mode for your test

Click the **Power Mode** button in the Power Mode group. The **Power Mode** button turns green and displays **On**, the **Run** button displays the Power Mode icon 🅿, and the Power Mode group nodes are displayed.

Configure the application for your test

You must configure an application for your test to run it with Power Mode.

Click the **Application** node in the **Power Mode** group and use the options in the Application pane to configure your application.

For details on working in the Application pane, see "Application Pane (Power Mode Group)" on page 156.

Configure data injection

1 Create a data set.

To use data injection you must first create a data set in **.xls**, **.xlsx**, or **.csv** format. For details on how to format a data set, see "Guidelines for Creating Data Injection Data Sets" on page 191.

After you create a data set you can store it in your file system or in HP ALM. To store data sets in HP ALM, upload them to the **Resources** folder for your project. For details on uploading resources, see the *HP Application Lifecycle Management User Guide*.

Note: Sprinter stores user information in the **Sprinter** folder in the **Resources** folder. It is recommended that you not modify this folder.

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2 Associate the data set with your application.

After you create the data set, you associate it with your application in the **Data Injection** pane of the Tests Explorer. For details, see "Data Injection Pane (Power Mode Group)" on page 166.

Data can be automatically entered into forms only in the application that is defined in the Application Pane (Power Mode Group). For details, see "Application Pane (Power Mode Group)" on page 156.

3 Define which fields you want to inject, and in what order - Optional.

If you want to use all the fields in your data set, in the order they appear, you can skip this step.

Click the **Customize Fields** button in the **Data Injection** pane to define which field you want automatically enter in your application and in what order they should be entered. For details, see "Customize Fields Dialog Box" on page 169.

Review the macros for your application

If you have already defined macros for this application, click the Macros node to review, edit, and delete the Macros associated with your application.

For more details, see "Macros Pane (Power Mode Group)" on page 171.

Results

You are now ready to run a test in Power Mode, as described in "How to Run a Manual Test in Sprinter" on page 38.

Reference

🔍 🄿 Power Mode Group
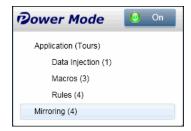
The Power Mode group enables you to turn Power Mode on and off. When you turn Power Mode on and select one of the nodes in the Power Mode group, the right pane displays the settings for that node.

For details on which features are available in Power Mode, see "Running Tests in Power Mode" on page 81.

Tasks you can accomplish with the Power Mode group:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Power Mode group.

To access	Click the **On** button in the **Power Mode** group.
Important information	You must define an application for your test to run it in Power Mode.

The Power Mode group contains the following nodes:

UI Elements	Description
Application	Defines the application you want to test. The application currently defined for your test is displayed in parenthesis in the Application node. For details, see "Application Pane (Power Mode Group)" on page 156.
Data Injection	Defines the data sets you want to use with the data injection feature. The number of data sets currently defined for use with your application is displayed in parenthesis in the Data Injection node. For details, see "Data Injection Pane (Power Mode Group)" on page 166.
Macros	Displays the macros that are associated with the currently defined application. The number of macros currently defined for use with your application is displayed in parenthesis in the Macros node. For details, see "Macros Pane (Power Mode Group)" on page 171.
Rules	Displays the rules that are associated with the currently defined application. The number of rules currently defined for use with your application is displayed in parenthesis in the Rules node. For details, see "Rules Pane (Power Mode Group)" on page 172.
Mirroring	Defines the secondary machines on which you want to replicate the actions you perform during your run. The number of secondary machines currently defined for with your application is displayed in the parenthesis in the Mirroring node. For details, see "Mirroring Pane (Power Mode Group)" on page 173.

🔍 🔁 **Application Pane (Power Mode Group)**
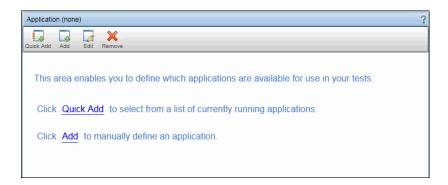
This pane enables you to define or select the application that your test will use. You can also add, edit, or delete existing applications.
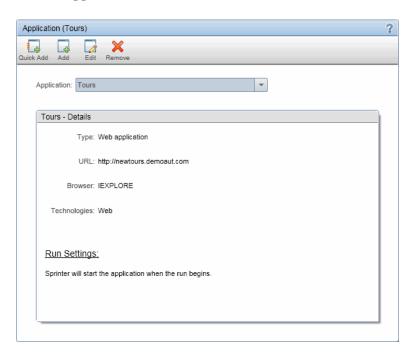
Tasks you can accomplish with the Application pane:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Application pane when there are no previously defined applications.

The following image shows the Application pane when there are previously defined applications.

To access	Select **Power Mode** group > **Application** node.
Important information	For details on how Sprinter maintains the list of applications, see "How User Information is Maintained" on page 82.
See also	"Applications" on page 149

Application Pane with No Applications Defined

When you have no previously defined applications, the Application pane contains the user interface elements as described below:

UI Elements	Description
Quick Add	Opens the Quick Add Application Dialog Box (described on page 160), enabling you to automatically define an application from a list of currently running applications.
Add	Opens the Add/Edit Application Dialog Box (described on page 162), enabling you to manually define a new application.

Application Pane with Applications Defined

When you have previously defined applications, the Application pane contains the user interface elements as described below:

UI Elements	Description
Quick Add	Opens the Quick Add Application Dialog Box (described on page 160), enabling you to add an application to your application list from a list of currently running applications.
Add	Opens the Add/Edit Application Dialog Box (described on page 162), enabling you to manually define a new application to add to your application list.
Edit	Opens the Add/Edit Application Dialog Box (described on page 162), enabling you to edit the application details for the selected application in the application list.
Remove	Removes the selected application from the application list.

| UI Elements	Description
Application	The list of available applications. Use the **Add**, **QuickAdd**, **Edit**, and **Remove** buttons to manage your list of applications. To use a previously defined application, enter the first few characters of the name and then select it from the displayed list. For details on how Sprinter maintains the list of applications, see "How User Information is Maintained" on page 82.
Application details area	Displays information about the application you selected in the Application list. Click the **Edit** button to open the Add/Edit Application Dialog BoxAdd/Edit Application Dialog Box (described on page 162) and edit these details.

✎ ⱷ Quick Add Application Dialog Box
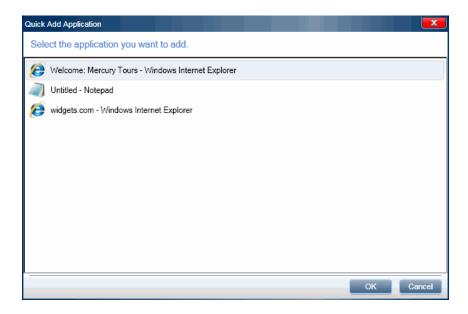
This dialog box enables you to add a new application to your application list by selecting it from a list of currently running applications.

Tasks you can accomplish with the Quick Add Application dialog box:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Quick Add Application dialog box.

To access	Select **Power Mode** group > **Application** node > **Quick Add** button.
Important information	**Application details are entered automatically.** ➤ To change the application details, open the Add/Edit Application Dialog Box (**Power Mode** group > **Application** node. Select the application from the application list and click the **Edit** button.) ➤ Quick Add does not automatically enter the URL of Web applications in the URL field. You need to enter the URL information manually in the Add/Edit Application Dialog Box. **Quick Add automatically selects the technologies used in developing the application being tested.** ➤ You need to ensure that all the technologies that were used to develop your application are selected. ➤ Some technologies depend on other technologies to run. Some of these dependencies are automatically selected and disabled in the Technologies list. ➤ Web is selected by default for Web applications. **For desktop applications that use ActiveX and Web applications:** ➤ Sprinter can only work with these applications if they start when the runs begins. Sprinter is set by default to start these applications when the run begins. **For desktop applications that do not use ActiveX:** ➤ Sprinter can work with these applications if they were already running when the run begins. Sprinter is set by default to not run these applications when the run begins.

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

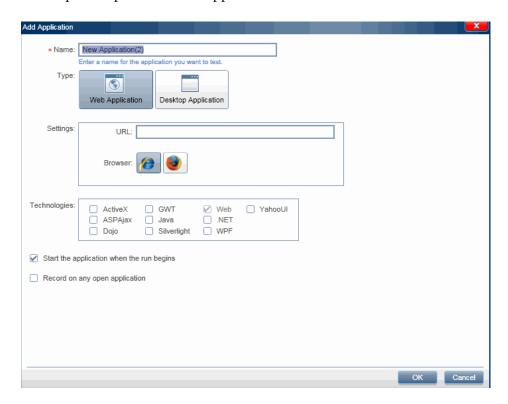## 🔍 � Add/Edit Application Dialog Box

This dialog box enables you to define the settings for an application in the Application Pane (Power Mode Group).
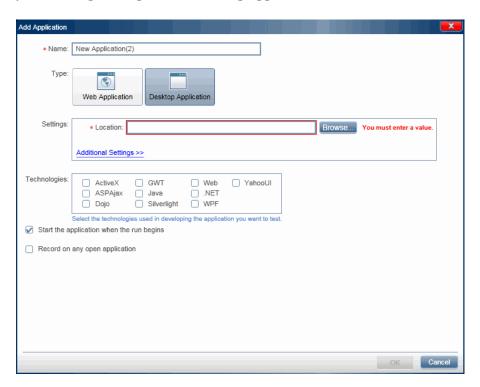
Tasks you can accomplish with the Add/Edit Application dialog box:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

When you select the **Web Application** button, the **Settings** area enables you to set options specific to Web applications.

When you select the **Desktop Application** button, the **Settings** area enables you to set options specific to desktop applications.

To access	Select **Power Mode** group > **Application** node > **Add** button.
See also	"Applications" on page 149

User interface elements are described below:

UI Elements	Description
Name	The name of the application you want to run in your test. You can give the application any name that will help to clarify the application.
	For example, you might want to use a name that identifies the application as the foreign language version of an application, such as My application - Spanish.

UI Elements	Description
Type	**Web Application.** Select this button if you want to define a web application. **Desktop application.** Select this button if you want to define a desktop application.
Settings (when defining a Web application)	**URL.** The URL address of the Web application you are defining. **Browser.** The browser in which you want to run the Web application.
Settings (when defining a desktop application)	**Location.** The path to the desktop application. Additional Settings: 　**Parameters.** Any parameters you want Sprinter to use when it starts the application. 　**Working folder.** The working folder for the desktop application. The working folder is used by the application to search for related files. If a working folder is not specified, the application's executable folder is used as the working folder.
Technologies	The technologies used in developing the application being tested. ➤ For Power Mode to work, you need to ensure that all the technologies that were used to develop your application are selected. Consult the application developers if you are not sure which technologies to select. Some technologies depend on other technologies to run. Some of these dependencies are automatically selected and disabled in the Technologies list. ➤ Web is selected by default for Web applications. ➤ For best performance it is recommended to avoid selecting unnecessary technologies. ➤ You can make use of Web Extensibility packages developed for QuickTest to enable Power Mode to support objects that are not supported out-of-the-box. For details, see "Using Extensibility Packages" on page 257.

UI Elements	Description
Start the application when the run begins	Instructs Sprinter to automatically start the application when you start your run. For desktop applications that use Java, ActiveX, and Web applications: ➤ Sprinter can only work with these applications if they start when the runs begins. ➤ If you do not configure Sprinter to start your application when the run begins, you need to manually start your application after you begin your run. ➤ Sprinter will work with any Java application that is started when the run begins or after the run begins. For desktop applications that do not use ActiveX: ➤ Sprinter can work with these applications that were already running before the run begins. Sprinter is set by default to not start these applications when the run begins.
Record on any open application	Instructs Sprinter to record user actions on any open application and not only the application defined in the Add Application dialog box. This can be useful when your test involves using more than one application and you want to record the user actions for all applications. Selecting this option may affect performance.

🔧 ⒫ Data Injection Pane (Power Mode Group)
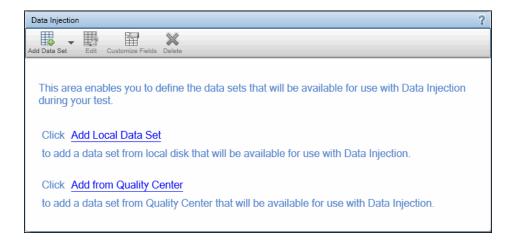
This tab enables you to define which data sets will to be available to use with the Data Injection feature during a test run.

You can also delete data sets and define which fields from your data set will be injected, and in which order.
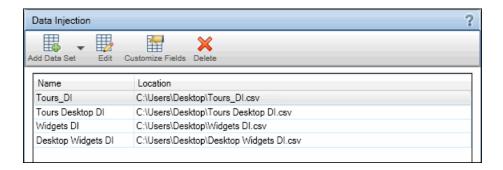
Tasks you can accomplish with the Data Injection pane:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Data Injection pane when there are no define data sets.

The following image shows the Data Injection pane with defined data sets.

To access	Select **Power Mode** group > **Data Injection** node.
Important information	➤ Data sets can be **.xls**, **.xlsx**, or **.csv** files. ➤ For details on how Sprinter maintains the list of data sets, see "How User Information is Maintained" on page 82.
See also	"Data Injection Overview" on page 190

User interface elements are described below:

| UI Elements	Description
Add Data Set	Drop-down options: ➤ **Add Local Data Set.** Opens the Data Set Details Dialog Box (described on page 168), enabling you to define a new data set for your application from your file system. ➤ **Add from HP ALM.** Opens the Data Set Details Dialog Box (described on page 168), enabling you to define a new data set for your application from your HP ALM **Resources** folder.
Edit	Opens the Data Set Details Dialog Box (described on page 168), enabling you to edit the data set information for your application.
Customize Fields	Opens the Customize Fields Dialog Box (described on page 169), enabling you to define which fields from your data will be injected, and in which order.
Delete	Removes the selected data set from your application.

🔍 📘 Data Set Details Dialog Box
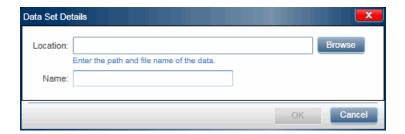
This dialog box enables you to define a data set for your application, to be used with the Data Injection feature during a test run.

Tasks you can accomplish with the Data Details dialog box:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Data Details dialog box.

To access	Do one of the following:
	➤ Select **Power Mode** group > **Data Injection** node > **Add** button.
	➤ Select **Power Mode** group > **Data Injection** node. Select from the list of defined data sets and click the **Edit** button.
Important information	➤ Data sets can be **.xls**, **.xlsx**, or **.csv** files.
	➤ Data sets cannot be edited from within Sprinter.
See also	"Data Injection Overview" on page 190

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.
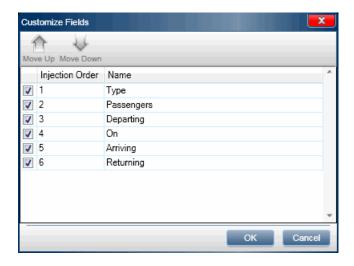
🔍 𝒫 Customize Fields Dialog Box

This dialog box enables you to define which fields from your data set will be injected, and in which order.

Tasks you can accomplish with the Customize Fields dialog box:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Inject Data into your Application" on page 193

The following image shows the Customize Fields dialog box.

To access	Do one of the following:
	➤ Select **Power Mode** group > **Data Injection** node > **Customize Fields** button.
	➤ During a run select **Data Injection** sidebar > **Customize Fields** button.
See also	"Data Injection Overview" on page 190

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

UI Elements	Description
Move Up	Moves the selected field up one level in the order of injected fields.
Move Down	Moves the selected field down one level in the order of injected fields.
<Enable check box>	Select or deselect the check box to enable or disable the field.
Order	The order in which the data will be injected in your application. Use the **Move Up** and **Move Down** buttons to modify the order.
Name	The name of the field as it appears in the column header of the data set.
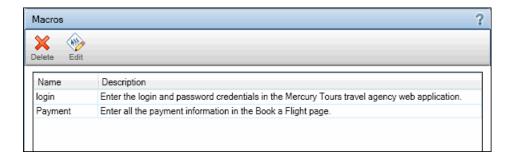
🔍🍥 Macros Pane (Power Mode Group)

This pane displays the macros that are associated with the currently defined application.

Tasks you can accomplish with the Macros pane:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Macros pane.

To access	Select **Power Mode** group > **Macros** node.
Important information	You can edit only the macro Name and Description.
See also	"Macros Overview" on page 200

Descriptions of the user interface elements are available in the pane when you move the pointer over them.

🔑 📀 Rules Pane (Power Mode Group)
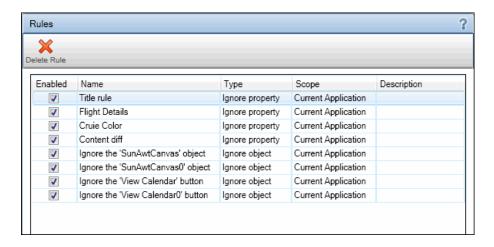
This pane enables you to view and delete the rules that are associated with the currently defined application. (Relevant for mirroring only.)

Tasks you can accomplish with the Rules pane:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

The following image shows the Rules pane.

To access	Select **Power Mode** group > **Rules** node.
Important information	For details on the **Type** and **Scope** of a rule, see the **Custom Rules** section in "Rules Overview" on page 215.

Descriptions of the user interface elements are available in the pane when you move the pointer over them.

🔖 📄 Mirroring Pane (Power Mode Group)
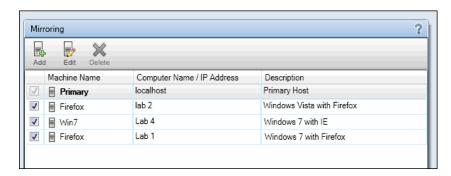
This pane enables you to add, edit, and delete secondary machines for your test.

Tasks you can accomplish with the Mirroring pane:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Mirroring pane.

To access	Select **Power Mode** group > **Mirroring** node.
Important information	➤ By default, your local computer is defined as the **Primary** machine. ➤ For details on how Sprinter maintains the list of secondary computers, see "How User Information is Maintained" on page 82.
See also	"Testing on Multiple Machines" on page 210

User interface elements are described below:

UI Elements	Description
Add	Opens the New Machine dialog box, enabling you to define the configuration of a secondary machine.
	The New Machine dialog box contains the following tabs:
	➤ "General Tab (New Machine/Machine Details Dialog Box)" on page 175
	➤ "Remote Desktop Connection Tab (New Machine/Machine Details Dialog Box)" on page 181
	➤ "Run Configuration Tab (New Machine/Machine Details Dialog Box)" on page 178
Edit	Opens the Machine Details dialog box, enabling you to edit the configuration of a secondary machine.
	The Machine Details dialog box contains the following tabs:
	➤ "General Tab (New Machine/Machine Details Dialog Box)" on page 175
	➤ "Remote Desktop Connection Tab (New Machine/Machine Details Dialog Box)" on page 181
	➤ "Run Configuration Tab (New Machine/Machine Details Dialog Box)" on page 178
Delete	Deletes the selected machine from the list of secondary machines.
	Note: You can disable a secondary machine for a particular test run by clearing its check box, without removing it from the list of machines. It will then be available with its configuration, for use in future tests.

🔍 𝒫 General Tab (New Machine/Machine Details Dialog Box)
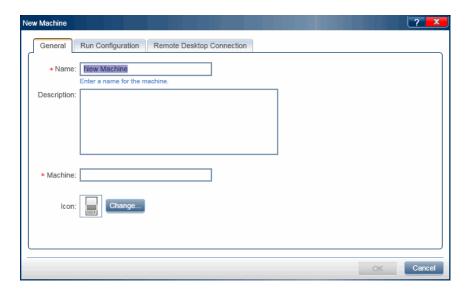
This tab enables you to define the configuration of a secondary machine.

Tasks you can accomplish with the General tab:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the General tab.

To access	**1** Select **Power Mode** group > **Mirroring** node.
	2 In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.
	3 Select **New Machine** dialog box > **General** tab.
See also	"Testing on Multiple Machines" on page 210

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them. The table below provides additional information for some of these elements:

UI Elements	Description
Machine	The name of the computer or virtual machine you want to use as a secondary machine.
	The following are valid entries:
	➤ The IP address of the computer or virtual machine
	➤ The machine name of the computer or virtual machine in one of the following formats:
	➤ MachineName.DomainName
	➤ DomainName\MachineName
Icon	The icon that will be displayed in the **Machines** sidebar, to represent the secondary machine.
	Click the **Change Icon** button to open the Change Icon Dialog Box and select a different icon for the secondary machine.
	You may want to select an icon that helps you identify the specific configuration of the secondary machine. For example, if the secondary machine is testing a different browser, you can use an icon to represent that browser.

🔍📎 Change Icon Dialog Box

This dialog box enables you to select an icon to represent the secondary machine in the **Machines** sidebar.

Tasks you can accomplish with the Change Icon dialog box:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Change Icon dialog box.

To access	**1** Select **Power Mode** group > **Mirroring** node.
	2 In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.
	3 Select **New Machine** dialog box > **General** tab > **Change** button.
See also	

User interface elements are described below:

UI Elements	Description
Select an icon from the list below	The list of categories from which to select an icon for the machine. The category you select changes the displayed list of icons available in the right pane.
<Icon display>	A display of the icons you can select to represent the machine.
Add	Enables you to browse the file system and select an icon for the machine.

🔍🅿 Run Configuration Tab (New Machine/Machine Details Dialog Box)

This tab enables you to define how the secondary machine will run the application in your test run.

When you have a desktop application selected in the Application Pane (Power Mode Group), this tab displays options for desktop applications.

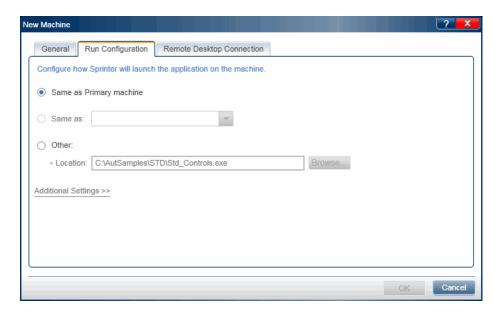When you have a Web application selected in the Application Pane (Power Mode Group), this tab displays options for Web applications.
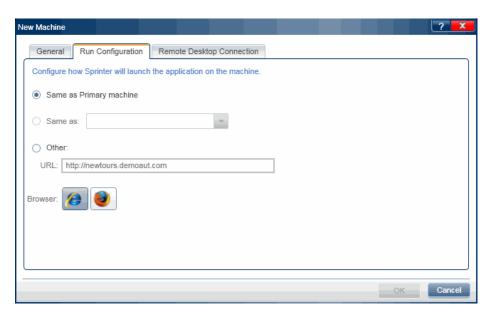
Tasks you can accomplish with the Application Run Configuration tab:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Run Configuration tab with options for a desktop application.

The following image shows the Run Configuration tab with options for a Web application.

To access	1 Select **Power Mode** group > **Mirroring** node.
	2 In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.
	3 Select **New Machine** dialog box > **Application Run Configuration** tab.
Important information	Sprinter remembers your modifications to the run configuration as long as you continue to work with your currently defined application. If you change applications, the run configurations return to their default settings.
See also	"Testing on Multiple Machines" on page 210

User interface elements are described below. Some options are displayed differently, depending on whether you are working with a desktop or Web application:

UI Elements	Description
Same as Primary machine	Instructs the machine to run the application according to the settings for the application in the Application Pane (Power Mode Group) described on page 156. (Default)
Same as <secondary machine>	Instructs the machine to run the application according to the settings for the selected secondary machine. Only secondary machines that have unique run settings are displayed in this list.
Other (for desktop applications)	Defines new run settings for the application, for this machine. **Path.** The path to the desktop application. The **Browse** option displays the file system for your local computer and not the secondary machine. Additional Settings: **Parameters.** Any parameters you want to run the application with. Parameter settings are maintained per-application. When you select an application in the Application name field, any previously defined parameters are run by default. To change or remove the parameters, edit them in the Parameters field. **Working folder.** The working folder for the desktop application.
Other (for Web applications)	**URL.** The URL address of the Web application you want to run in your test. **Browser.** The browser in which you want to run the Web application.
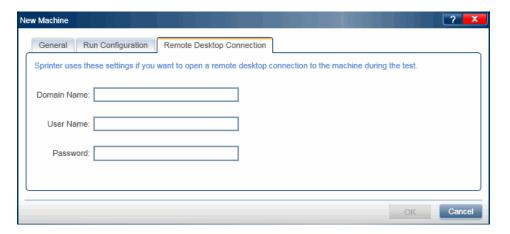
🔖 𝒫 Remote Desktop Connection Tab (New Machine/ Machine Details Dialog Box)

This tab enables you to provide login information for your secondary machine. This information is used if you need to open a remote desktop connection during your test.

Tasks you can accomplish with the Remote Desktop Connection tab:

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Prepare a Test for Mirroring" on page 220

The following image shows the Remote Desktop Connection tab.

To access	**1** Select **Power Mode** group > **Mirroring** node. **2** In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens. **3** Select **New Machine** dialog box > **Remote Desktop Connection** tab.
Important information	➤ If you try to connect to the machine during your run and you did not enter the remote desktop connection credentials in this tab or the credentials are incorrect, you will be prompted for this information. ➤ The credentials you provide must match the credentials for the user currently logged on to the secondary machine. If they do not match, you will be prompted for this information.
See also	"Testing on Multiple Machines" on page 210

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them.

🔍🔁 Health Console
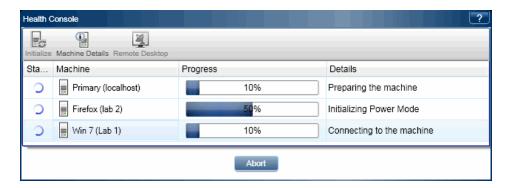
This window displays the status of each machine in a mirroring test.

Tasks you can accomplish with the Health Console:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Health Console as it prepares a run with mirroring with two secondary machines.

To access	➤ The Health Console automatically opens when you run a test with mirroring.
	➤ During a run you can also access the health console by clicking **Machines** sidebar > **Health Console** button 🩵.

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

UI Elements	Description
Initialize	Instructs Sprinter to attempt to initialize the Sprinter Agent on the selected machine if it failed to connect.
Machine Details	Opens the Machine Details Dialog Box (described on page 184) for the selected machine.

UI Elements	Description
Open Remote Desktop	Opens a remote desktop connection to the selected machine.
\<Machine list\>	The list of machines for the current run. The machine list displays the status, machine name, a progress bar, and details for each machine.

🔍 ℗ **Machine Details Dialog Box**
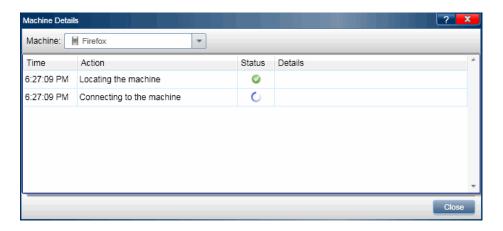
This dialog box displays the details of the connection process for machines during a mirror test.

Tasks you can accomplish with the Machine Details dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Machine Details dialog box.

To access	In the Health Console, click the **Machine Details** button.

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

UI Elements	Description
Machines	A drop-down list of the machines for this run.
<Action list>	The list of actions for the selected machine. The action list displays the **Time**, **Action**, **Status**, and **Details** for each action. ➤ If an action completes successfully, no details are displayed. ➤ If an action fails, the **Details** column displays the specific problem. You can click on the error message and select **More Details** to open the Error Details Dialog Box (described on page 186).

🔍📄 **Error Details Dialog Box**
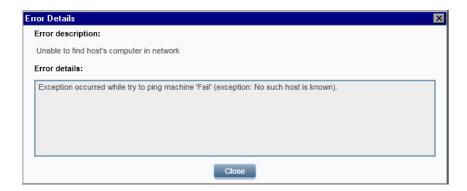
This dialog box displays error information when Sprinter fails to connect to a machine.

Tasks you can accomplish with the Error Details dialog box:

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Error Details dialog box.

To access	**1** In the **Health Console** for a failed connection, click the Machine Details Dialog Box button.
	2 The details column displays the specific problem. Click on the error message and select **More Details**.
See also	"Testing on Multiple Machines" on page 210

Descriptions of the user interface elements are available in the dialog box.

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for Power Mode.

➤ If you do not have Excel 2007 installed on your machine, you must have the 2007 Office System Driver installed, to work with data sets in the **.xlsx** format. The 2007 Office System Driver is available for download here.

➤ Before Sprinter can work with **Java** objects for the first time on the **Windows 7** or **Vista** operating systems, you need to run the **Sprinter JRE Support Tool** (JavaEnabler.exe).

   ➤ You need to run this tool before you work with Java object for the first time, and anytime after you install a new JRE.

   ➤ You need to run this tool on every machine in your run that works with these operating systems. The tool can be found in the **C:\\<Sprinter installation folder>\\bin** directory.

   ➤ For more information, run the **Sprinter JRE Support Tool** and click the **Help** button.

➤ Applications that use **WPF** technology may crash if the application is opened manually and not automatically by Sprinter. This occurs only if the user is logged on to the primary machine without administrator permissions.

   ➤ **Workaround:** Log on to the primary machine with administrator permissions and run a test on any application that uses WPF technology. Make sure the WPF check box is checked in the Add/Edit Application Dialog Box (described on page 162). End the run. You can now run tests on applications that use WPF technology without logging in to the primary machine with administrator permissions.

➤ Applications that have a hidden mode may not display in the list of applications, if they were hidden when you opened the **Quick Add Application** dialog box.

7

Data Injection

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode icon.

This chapter includes:

Concepts

➤ Data Injection Overview on page 190

Tasks

➤ How to Inject Data into your Application on page 193

Reference

➤ Data Injection Sidebar on page 195

Troubleshooting and Limitations on page 197

Concepts

Data Injection Overview

During the testing process, it is often necessary to enter pre-defined data into a form in the application being tested. To make the data entry process faster and less error-prone, data injection enables you to automatically enter data contained in an **.xls**, **.xlsx**, or **.csv** file (data set) into fields in your application.

You can store data sets in your file system or in HP ALM. To store data sets in HP ALM, upload them to the **Resources** folder for your project. For details on uploading resources, see the *HP Application Lifecycle Management User Guide*.

Note: Sprinter stores user information in the **Sprinter** folder in the **Resources** folder. It is recommended that you not modify this folder.

After you create the data set, you associate it with your application in the Data Injection pane of the main window. When you associate a data set with an application, it is available for use in any test that is configured to use the currently defined application.

If you previously associated a data set with your application it is automatically available for your test.

To use data injection during your run, you select which data set you want to use, in the **Data Injection** sidebar. You then select the appropriate row of information and inject the data into your application.

Data injection maps between the column headings of your data set and the field names in your application and enters the data from that row, in the matching fields in the form.

You can define which fields in your data set you want automatically enter in your application and in what order they should be entered. For details, see "Customize Fields Dialog Box" on page 169.

For details on preparing a test to run with data injection, see "How to Prepare a Test to Run in Power Mode" on page 152.

For details on associating a data set with your application, see "Data Injection Pane (Power Mode Group)" on page 166.

For details on using data injection during a test run, see "How to Inject Data into your Application" on page 193.

Guidelines for Creating Data Injection Data Sets

To use data injection you must first create a data set in **.xls**, **.xlsx**, or **.csv** format.

➤ Each application field into which you want to inject data must be represented by a column in your data set. The column header should be the field name of the field in your application. Data injection matches the column headers with the field names in your application.

  ➤ Field matching is not case-sensitive.

  ➤ Field matching ignores leading and trailing blank spaces in column headers.

  ➤ Field matching ignores double blank spaces in column headers.

  ➤ If a field in your application has a very long text label, the column header needs to include at least the first 10 characters of the label for field matching to create a match.

➤ To use Data Injection to select a check box in your application, use the field name of the check box as the column header, and use any of the following as the data value to set the check box as selected/deselected:

  ➤ On/Off

  ➤ Yes/No

  ➤ Y/N

  ➤ 1/0

  ➤ True/False

  ➤ Succeed/Fail

  ➤ Success/Failure

➤ To use Data Injection for drop-down boxes, use the field name of the drop-down as the column header, and the selection from the drop-down list as the data value.

➤ Data Injection cannot be used on radio buttons.

➤ If your application has a field name that is followed by multiple unlabeled fields (for example a Date field that is followed by edit boxes for Day, Month, and Year, but which are not individually labeled), Data Injection will inject data only into the first field.

Tasks

🔧 How to Inject Data into your Application

This task describes how to automatically enter pre-defined data into a form in your application. Entering data automatically can make the data entry process faster and less error-prone.

📌 Data Injection can be used only in tests run in Power Mode.

This task includes the following steps:

➤ "Prerequisites" on page 193

➤ "Define which fields you want to inject, and in what order - Optional" on page 193

➤ "Inject the data into your application during your run" on page 194

1 Prerequisites

➤ To use data injection, you must first configure data injection for your application. For details, see the step on configuring data injection in "How to Prepare a Test to Run in Power Mode" on page 152.

➤ To use data injection, you must have only one instance of your application open.

2 Define which fields you want to inject, and in what order - Optional

If you want to use all the fields in your data set, in the order they appear, you can skip this step.

To define which fields you want automatically enter in your application and in what order they should be entered, click the **Customize Fields** button in the Data Injection Sidebar. For details, see "Customize Fields Dialog Box" on page 169.

3 Inject the data into your application during your run

a In the **Data Injection** Sidebar select the data set you want to use from the list of data sets.

b To verify the field mapping between your data set and the fields in your application click the **Field Mapping** button.

c Select the row of data you want to inject and click the **Inject** button.

d The **Data Injection** sidebar displays an icon in its tab indicating the success or failure of the injection. Click the icon for more details.

For more details, see "Data Injection Sidebar" on page 195.

Reference
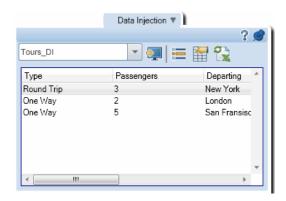
🔖 🅟 Data Injection Sidebar

This sidebar enables you to automatically enter data into forms in desktop applications or Web pages.

Tasks you can accomplish with the **Data Injection** sidebar:

➤ "How to Inject Data into your Application" on page 193

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the **Data Injection** sidebar.

To access	Click the **Data Injection** sidebar tab during a test run.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack 📌 icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.
Important information	If your application does not have any associated data sets, the **Data Injection** sidebar is not displayed.
See also	"Data Injection Overview" on page 190

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

UI Elements	Description
<Data set list>	A drop-down list of the data sets associated with your application.
	Inject. Injects the data from the selected row of the data table into the fields in your application.
	Display Field Mapping. Highlights and labels the fields in the application that match the column headings in the data set. The column headings in the data set are displayed in the highlighted fields in the application. Click again to turn off the highlighting. For more details, see "Data Injection Overview" on page 190.
	Customize Fields. Opens the Customize Fields Dialog Box, enabling you to define which fields from your data will be injected, and in which order. For details, see "Customize Fields Dialog Box" on page 169.
	Refresh Data. Reloads the data from the data set into the **Data Injection** sidebar.
<Data injection status>	The **Data Injection** sidebar displays an icon in its tab indicating the success or failure of data that was most recently injected. Click the icon for more details.

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for data injection.

➤ Data injection may not work with all technologies.

➤ If data injection cannot identify the matching field in the application, the data will not be injected.

➤ The following characters are replaced if they appear in the column headers of a data set. Data injection will treat the original character and its replacement as identical:

   ➤ ! is replaced with _

   ➤ # is replaced with .

➤ The following characters are not displayed if they appear in the column headers of a data set. This affects the display only. Data injection will still identify the matching field:

   ➤ [ ] { } / \ ,

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Macros

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode icon.

This chapter includes:

Concepts

➤ Macros Overview on page 200

Tasks

➤ How to Record and Run Macros on page 201

Reference

➤ Macros Sidebar on page 202

Troubleshooting and Limitations on page 207

Concepts

🔩 Macros Overview

During the testing process, you may have parts of your test that require performing a series of user actions that you want Sprinter to perform for you. You may also have parts of your test that involve performing the same set of actions in multiple areas of your application. Having Sprinter perform the set of actions can save testing time and reduce errors.

A macro is a series of actions that you can save and run as a single command.

Sprinter can perform these actions for you when you create and run macros.

For example, you may want to use macros to:

➤ Automate a login procedure.

➤ Perform a series of introductory steps to set up your application for testing.

Sprinter only saves a macro if it contains at least one user action. Your user actions are only learned after they are completed. For edit boxes and combo boxes, the action is not complete, and will not be learned, until you move the focus off the box.

Tasks

🔨 How to Record and Run Macros

This task describes how to use macros to have Sprinter perform a series of user actions in your test and run them as a single command, and includes the following steps:

➤ "Record a macro" on page 201

➤ "Run a macro" on page 201

1 Record a macro

If your application already has a macro associated with it that you want to run, you can skip this step.

a In the **Macros** sidebar click the **Record** button .

b Perform the actions you want to include in your macro.

c In the **Macros** sidebar, click the **Stop** button . The Macro Details Dialog Box opens.

d Set the definitions for your macro and save it. For details, see "Macro Details Dialog Box" on page 204.

For more details, see "Macros Sidebar" on page 202.

2 Run a macro

a In the **Macros** sidebar select the macro you want to run from the **macros drop-down list**.

b In the **Macros** sidebar click the **Run** button.

c The **Macros** sidebar displays an icon in its tab indicating the progress and success or failure of the macro. Click the icon for more details.

For more details, see "Macros Sidebar" on page 202.

For more details on using macros in your test, see "Macros Overview" on page 200.

Reference

🔍 🏷 Macros Sidebar

This sidebar enables you to record and run macros during your test run.

Tasks you can accomplish with the **Macros** sidebar:

➤ "How to Record and Run Macros" on page 201

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the **Macros** sidebar.

To access	Click the **Macros** sidebar tab during a test run.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack 📌 icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.
See also	"Macros Overview" on page 200

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

| UI Elements	Description
	Record/Stop. Starts and stops recording user actions you perform in your application. When you stop recording your macro, the Macro Details Dialog Box opens, enabling you to name and save your macro. For details, see "Macro Details Dialog Box" on page 204.
	Run. Runs the selected macro from the macros drop-down list.
	Manage. Opens the Manage Macros Dialog Box. For details, see "Manage Macros Dialog Box" on page 206.
<Macros drop-down list>	The list of macros you can run in this test. Sprinter associates macros with the application for which they were created.
<Macro status>	The **Macros** sidebar displays an icon in its tab indicating the progress of the macro and the success or failure of a macro that was run. Click the icon for more details.

🔍 🅿 **Macro Details Dialog Box**
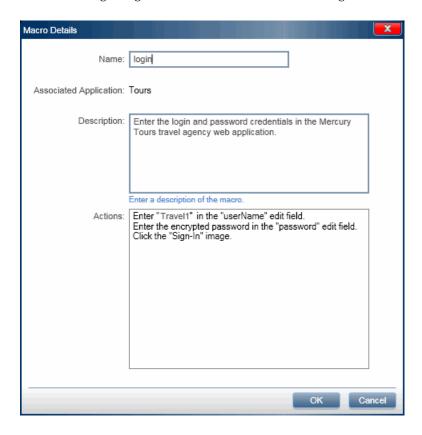
This dialog box enables you to name your macro and view and edit its details.

Tasks you can accomplish with the Macro Details dialog box:

➤ "How to Record and Run Macros" on page 201

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Macro Details dialog box.

To access	Do one of the following:
	➤ After recording a new macro click the **Macros** sidebar > **Stop** button .
	➤ In the **Macros** sidebar click the **Manage Macros** button . Select a macro in the **Macros** pane and click the **Edit** button.
	➤ In the Power Mode Group in the **main** window select the **Macros** node. Select a macro in the **Macros** pane and click the **Edit** button.
See also	"Macros Overview" on page 200

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them. The table below provides additional information for some of these elements:

UI Elements	Description
Associated application	The application for which this macro is available. The associated application is the application that was defined for the test in which the macro was recorded.
Steps	A list of the steps that were recorded in the macro. Each user action in the application is recorded as a step in the macro.
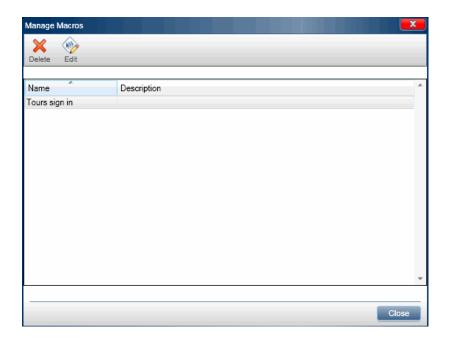
🔍 𝒫 **Manage Macros Dialog Box**

This dialog box enables you to delete and modify the details of your macros.

Tasks you can accomplish with the Manage Macros dialog box:

➤ "How to Record and Run Macros" on page 201

➤ "How to Prepare a Test to Run in Power Mode" on page 152

➤ "How to Run a Manual Test in Sprinter" on page 38

The following image shows the Manage Macros dialog box.

To access	Click the **Macros** sidebar > **Manage Macros** button 🔖 .
Important information	Changes that you make to a macro affect the running of that macro in all tests that are configured to use your current application.
See also	"Macros Overview" on page 200

Descriptions of the user interface elements are available in the dialog box when you move the pointer over them. The table below provides additional information for some of these elements:

UI Elements	Description
Macros List	The list of macros that are associated with your application. ➤ To edit a macro, select it from this list and click the **Edit** button. The Macro Details Dialog Box opens enabling you to edit the macro. ➤ To delete a macro, select it from this list and click the **Delete** button.

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for macros.

➤ Macros may not work with all technologies.

➤ User actions on an edit box are recorded only after you move the focus off the edit box.

For example, if you click the Record button, enter text in an edit box, and then click the Stop button, your action is not recorded in your macro. You need to perform an action on another object in your application for your action on the text box to be recorded.

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Mirroring Tests

Throughout this guide, descriptions of features that are available only in Power Mode are identified by the Power Mode ![Power Mode icon] icon.

This chapter includes:

Concepts

Tasks

Reference

Concepts

🔹 Testing on Multiple Machines

A common testing requirement is the need to test your application's compatibility with different computer configurations, and in the case of Web applications, with different browsers.

Sprinter's **Mirroring** feature enables you to run your test simultaneously on multiple machines with different configurations.

A test run with mirroring has a **primary machine** and **secondary machines**:

➤ **Primary machine.** The machine on which you manually perform all the user actions in your test.

➤ **Secondary machine.** The machines on which Sprinter **replicates** your user actions.

To run a test with Mirroring, you configure each of the secondary machines with the specific configuration you want to test. After you perform each user action on your primary machine, Sprinter replicates that user action on your secondary machines.

When you configure your secondary machines, consider that Sprinter replicates your user actions the same way they were performed on your primary machine. You need to configure your secondary machines in such a way that there will not be a conflict between the actions that are performed on all the machines.

Example:

Suppose your application works with a database. When you create or modify a record in your primary machine, Sprinter will attempt to create or modify the same record when it replicates your action in the secondary machines. Therefore, you cannot use the same database schema in your primary and secondary machines.

To address this issue, you can configure each secondary machine in your run to work with its own database, or with a dedicated database schema.

You can **compare** your primary machine with all the secondary machines in your run, to see if there are differences in their displays. Sprinter provides a number of different options to resolve differences it detects between the displays.

Sprinter associates the list of secondary machines available for mirroring with your user in your HP ALM project.

This section also includes:

➤ "How Sprinter Replicates Your User Actions" on page 211

➤ "Comparing Machines" on page 212

➤ "Resolving Problems on and Unlocking Secondary Machines" on page 213

How Sprinter Replicates Your User Actions

Each time you perform a user action on your primary machine, Sprinter updates the action number on the primary machine display in the **Machines** sidebar.

Sprinter then replicates that action on all the secondary machines in your run. As the action is replicated, there is a visual indication on the **Machines** sidebar tab, as well as on the replication icon for each secondary machine display. The replication icon for each secondary machine also turns gray during the replication process.

If the action is replicated successfully, the replication status returns to green and the action number for that machine is updated to reflect the performed action.

If Sprinter was unable to replicate your user action, the replication status turns red. Sprinter also turns the secondary machine display red and locks the secondary machine.

When a secondary machine is locked, you can continue to perform actions on your primary machine. These actions will be **pending** for any secondary machines that are locked. When you perform these actions, the action number of the primary machine will advance, but those of any locked secondary machines will remain at the action number that caused the failure.

Pending actions may or may not be replicated when you unlock the machine, depending on how you resolve the differences between machines. For details, see "Resolving Problems on and Unlocking Secondary Machines" on page 213.

During replication, Sprinter checks only those user interface elements that are needed to replicate the action, to determine if it can replicate the action. All other objects in the user interface are not compared between the primary and secondary machines.

To check for all differences between the displays of the primary and secondary machines, you perform a **Compare All** operation from the **Machines** sidebar.

Comparing Machines

When you compare machines, Sprinter compares the display of your primary machine with those of all the secondary machines in your run.

When Sprinter begins comparing the machines, the display on your primary machine will display a gray overlay, indicating that Sprinter is learning all the objects in your primary display. There is also a visual indication on the **Machines** sidebar tab. During the learning process, Sprinter learns each of the individual objects in the displays as well as their properties, and compares them.

After Sprinter learns the display of your primary machine, it compares it to the displays of the secondary machines. While each secondary machine is being compared, the comparison status turns gray. If Sprinter did not detect any differences in the displays, the comparison icon returns to green

If Sprinter detects differences between the displays, the comparison status and the secondary machine display both turn red and Sprinter locks the secondary machine.

When a secondary machine is locked, you can continue to perform actions on your primary machine. These actions will be **pending** for any secondary machines that are locked. Pending actions may or may not be replicated, depending on how you resolve the differences between machines.

❁ Resolving Problems on and Unlocking Secondary Machines

When a secondary machine is locked, you need to address the problem and unlock the machine so that Sprinter to continue replicating your user actions.

Sprinter provides the following operations to address problems on the secondary machine:

➤ **Stop/Continue Replication.** When you stop replication on a secondary machine, any actions you perform on the primary machine are not kept as pending actions and will not be replicated on the secondary machine.

This may be useful if you need to perform actions to resolve the difference that are not part of your test on your primary machine, and that you do not want replicated. You can also use the **Stop Recording** button in the **Tools** sidebar to stop recording all your user actions on your primary machine.

➤ **Differences Viewer.** The Differences Viewer enables you to view the details of differences that were found during a **Compare All** operation. From the Differences Viewer you can:

   ➤ Submit a defect to HP ALM about the problem.

   ➤ Ignore the difference.

   ➤ Create a rule so that Sprinter ignores the difference now and in the future.

If you use the Differences Viewer to ignore all the differences or to create rules for all the differences, the secondary machine is unlocked and Sprinter attempts to replicate any pending actions.

> ➤ **Open Remote Desktop.** You can open a remote desktop connection from the **Machines** sidebar or the Differences Viewer.
>
> This may be useful if the problem with the secondary machine is due to a display issue that is not related to the application you are testing. You can open a remote desktop connection and correct the problem. You would then use one of the operations below to unlock the machine.
>
> ➤ **Show Screen.** Displays a current screen capture of the secondary machine.

Sprinter provides the following operations to unlock the machine after you address the problem:

> ➤ **Skip.** You can ignore the problem that Sprinter found with the secondary machine and continue replicating pending user actions.
>
> ➤ **Sync.** You can ignore the problem that Sprinter found with the secondary machine, delete all pending actions, and synchronize the actions number with the primary machine.
>
> ➤ **Retry.** You can try to replicate the failed user action again.
>
> This may be useful if you opened a remote desktop connection to address a display issue that is not related to the application you are testing. After addressing the issue, you can try to replicate the action again.
>
> ➤ **Recompare.** You can recompare the secondary machine with the primary machine.
>
> After you resolve differences that were detected by a **Compare All** operation, you can recompare the machines to confirm that there are no differences, and to unlock the secondary machine.
>
> If you resolved the differences between machines using the Differences Viewer, the machines are automatically recompared and unlocked when all the differences are resolved.

When you recompare machines, the secondary machine is compared with the primary machine at the state the primary machine was in when the secondary machine became locked. If you made any changes to the state of the primary machine after the secondary machine was locked, they are not recognized by the **Recompare** operation.

Note: The **Recompare** operation is designed to be used after you resolve differences that were found between machines. You cannot perform a **Recompare** operation if you perform a user action on your primary machine after a **Compare All** operation.

If you click the **Stop Recording** button in the **Tools** sidebar, you can perform user actions on your primary machine and still perform a **Recompare** operation on your secondary machine when you continue recording.

Rules Overview

During a test run with mirroring, you may want to periodically compare the display of your primary machine with those of your secondary machines. When you compare the displays, Sprinter detects differences between the displays.

Once you resolve the difference between the displays, you may want Sprinter to ignore similar differences in the future.

When you create a **rule**, you teach Sprinter to ignore certain types of differences during a compare operation.

Rules are associated with a specific application, and are available for all tests that are configured to use that application. You can also create rules that apply to all your Sprinter tests, regardless of their configured application.

When you create a rule in the **Differences Viewer**, Sprinter automatically re-compares the secondary machine with the primary machine, to determine if the difference is no longer detected.

This section also includes:

➤ "Built-in Rules" on page 216

➤ "Pre-Defined Rules" on page 216

➤ "Custom Rules" on page 217

➤ "Rules for Nested Objects" on page 218

Built-in Rules

Sprinter provides you with a set of built-in rules that address the most common differences that can occur between machines. These rules tell Sprinter to ignore differences up to a certain amount, in the position, size, and location of objects in your display. By default, Sprinter will not detect differences between displays, that meet these rules. Built-in rules apply to all your Sprinter tests, regardless of their configured application.

For more details on these rules and how to enable, disable, and configure them, see "Comparison Settings Pane (Settings Dialog Box)" on page 64.

Pre-Defined Rules

When you view a difference in the Differences Viewer, you have the option to create a new rule to resolve the difference. When you create a new rule, Sprinter first gives you the option to select from a set of pre-defined rules.

A pre-defined rule teaches Sprinter to ignore the same type of difference in the future. For example, if the difference is that an object is present in one display and missing in another, a pre-defined rule would ignore the missing object in the future.

If the difference is that a property value of an object is different between machines, the pre-defined rule would ignore that property value in the future.

For details on the specific options available when you select a pre-defined rule, see "New Rule Dialog Box" on page 241.

If a pre-defined rule does not meet your needs, you can create a custom rule.

Custom Rules

You create a custom rule using the Rule Wizard. The rule wizard gives you control over the following aspects of a rule:

➤ **Type.** The type determines whether the rule will ignore a specific object, a property of a specific object, but not the entire object, or a property of all objects. When you define the rule type you do not define which object or object property will be ignored, only what type of action the rule will take.

➤ **Scope.** The scope determines when the rule will apply. You can choose to have the rule apply to the currently configured application, or to all applications. Applying the rule to all applications means that the rule will apply whenever you run a test in Sprinter with mirroring.

➤ **Target.** The target is the object to which the rule will apply. If your rule **Type** ignores a specific object property, the object you select determines which properties are available to ignore.

➤ **Action.** The action determines the specific action the rule will take when it is applied. If your rule **Type** ignores an object, the action will be to ignore the object. If, however, your rule **Type** ignores a specific property, the action enables you to select the specific properties you want to ignore. The properties you can ignore will be the properties associated with your **Target** object.

➤ **Condition.** The condition determines the specific conditions under which the rule will apply.

The condition does not have to depend on the property value you want to ignore.

For example: Suppose you create a rule to ignore the color of a button. But you know that the color will only be different when the text in the button displays OK instead of Yes. You want to ignore the color of the button, but when you want to ignore the color depends on the text in the button.

You can create a rule to ignore the value of the **Color** property, and then set the condition for the rule so that it applies only when the **Text** value is OK.

It is not necessary to set a condition for a rule. If you do not set a specific condition for a rule, the rule will apply whenever the property value you selected for the rule is different between machines.

Rules for Nested Objects

When Sprinter detects differences between machines, it sometimes combines multiple differences into one difference to simplify the displayed information.

Example:

Suppose Sprinter detects a difference between two machines, where one machine displays a table and the other does not. In this case, Sprinter will list the missing table as a difference in the Differences Viewer, but will not list each individual cell within the table as a difference.

When you create a rule to resolve a difference, Sprinter recompares the two displays to apply the new rule and remove the difference from the list of detected differences.

When Sprinter applies a rule to a difference that combined many differences and removes it, the individual differences it combined are now detected separately.

Example:

In the above example, when you create a rule to ignore the difference of the missing table between the two machines, Sprinter recompares the machines to apply the new rule and removes the missing table from the list of differences. Once the missing table is no longer detected, Sprinter detects all the individual cells within the table as differences between the machines.

In this case, when you create a rule to resolve a difference, you may see new differences appear in the Differences Viewer. You need to create a rule for each of these newly detected differences as well. Sprinter may detect multiple differences for Web objects as well, such as browser, page, and frame objects in the same window.

Tasks

🔧 How to Prepare a Test for Mirroring

This task describes how to prepare your test to run with mirroring.

This task includes the following steps:

➤ "Prerequisites" on page 220

➤ "Configure your comparison settings - Optional" on page 222

➤ "Review the rules for your application" on page 222

➤ "Configure the secondary machines for your run" on page 222

1 Prerequisites

a Install Sprinter on the computers or virtual machines you want to use as your secondary machines.

Confirm that the Sprinter Agent icon is displayed in the task bar and that the computers or machines are not locked. The Sprinter application does not need to be running on the secondary machines.

b You should disable screen savers for the secondary machines in your run.

c You should ensure that your application is not running on the secondary machines.

d The secondary machines in your run cannot be locked.

e If you open an external remote desktop connection to a secondary machine (not via Sprinter), make sure it is not minimized.

f Make sure that the firewall on all secondary machines is configured to allow the SprinterAgent.

g The **Sprinter Agent** must be run with administrator permissions on each secondary machine. Therefore, if the user that started a secondary machine does not have administrator permissions on that machine, mirroring will work only if you have an active remote desktop connection to that machine.

h Working with mirroring requires that you have the required number of available HP ALM licenses. The number of licenses you need depends on the number of secondary machines you want to use in your test.

You can work with a maximum of five secondary machines in a run.

The following table describes the total number of licenses required in a run with mirroring:

Secondary Machines	Total Number of HP ALM Licenses Required
1	1
2-3	2
4-5	3

i If you want to use Remote Desktop Connection during your mirroring test, Remote Desktop Connection (Terminal Services Client 6.0) must be installed on your primary machine. If it is missing, Sprinter will prompt you to install it.

j For more things to consider when preparing your test for mirroring, see "Mirroring Test Preparation" on page 254 inTroubleshooting and Limitations.

2 **Configure your comparison settings - Optional**

Your comparison settings control which built-in rules you want to activate for your run.

For details on comparison settings and built-in rules, see

➤ "Comparison Settings Pane (Settings Dialog Box)" on page 64

➤ The section on **Built-in Rules** in "Rules Overview" on page 215

3 **Review the rules for your application**

Click the **Rules** node in the Power Mode Group to view or delete any rules you may have already created for your application.

For details on rules, see "Rules Overview" on page 215.

4 **Configure the secondary machines for your run**

A test run with mirroring has a primary machine on which you manually perform all the user actions in your test and secondary machines on which Sprinter replicates your user actions.

When you configure a secondary machine, you provide the information Sprinter needs to connect to the machine and how Sprinter will start the application on the secondary machine. You can also provide the information needed to open a remote desktop connection. (This can be provided during the run as well.)

For details on configuring secondary machines, see "Mirroring Pane (Power Mode Group)" on page 173.

🪶 How to Run a Test with Mirroring

The following steps describe how to run a test with Mirroring. This task assumes that you already understand the basic functionality of Sprinter and how to run a test without Mirroring, and includes the following steps:

➤ "Prerequisites" on page 220

➤ "Start the run" on page 223

➤ "Perform the user actions in your test" on page 224

➤ "View the status of your secondary machines in the Machines sidebar" on page 224

➤ "View a current screen capture of all the machines in your run - Optional" on page 224

➤ "Compare the displays of your primary and secondary machines - Optional" on page 225

➤ "Resolve replication or comparison problems on a secondary machine - Optional" on page 225

➤ "Continue with your test as usual" on page 225

1 Prerequisites

"How to Prepare a Test for Mirroring" on page 220

2 Start the run

When you start a run with mirroring, the **Health Console** (described on page 183) opens, displaying the status and connection progress of all the machines in the run.

From the Health Console you can:

➤ **Initialize a machine that failed to connect**

➤ **Open the Machine Details Dialog Box**

➤ **Open a remote desktop connection to the machine**

When all the machines connect successfully, the Health Console closes and the run begins.

3 Perform the user actions in your test

Run your test as usual. Each of the user actions you perform on your primary machine are replicated on your secondary machines.

Note: Sprinter replicates your user actions only after they are completed. For edit boxes and combo boxes, the action is not complete, and will not be replicated, until you move the focus off the box.

4 View the status of your secondary machines in the Machines sidebar

The **Machines** sidebar displays:

➤ The number action that was last attempted on each machine.

➤ The status of each machine, by moving the mouse over the machine display.

➤ The replication status of your action.

➤ The comparison status of each machine.

For details on using the **Machines** sidebar, see "Machines Sidebar" on page 231.

5 View a current screen capture of all the machines in your run - Optional

Click the **Machines Viewer** button to open the Machines Viewer (described on page 236).

6 Compare the displays of your primary and secondary machines - Optional

Click the **Compare All** button to compare the display of your primary machine with those of all your secondary machines.

Compare All compares only those secondary machines whose **action numbers** are the same as the primary machine.

7 Resolve replication or comparison problems on a secondary machine - Optional

If Sprinter could not replicate your user action on a secondary machine, or if it detected differences between your machines during a **Compare All** operation, the **Machines** sidebar indicates the problem and the secondary machine is locked.

In order for subsequent user actions to be replicated, you must resolve the replication problem or difference and unlock the machine.

For details on how to handle differences and replication errors, see:

➤ "How to Resolve Differences During a Run" on page 226

➤ "How to Handle Replication Errors During a Run" on page 229

For more details, see:

➤ "Resolving Problems on and Unlocking Secondary Machines" on page 213

➤ The section on **Secondary Machines Display** in "Machines Sidebar" on page 231

➤ The section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 231

➤ "How Sprinter Replicates Your User Actions" on page 211

➤ "Comparing Machines" on page 212

8 Continue with your test as usual

Continue performing the user actions in your test as usual.

🔨 How to Resolve Differences During a Run

If you run your test on multiple machines (as described in "How to Run a Test with Mirroring" on page 223), you may want to compare the display of the secondary machines to that of the primary machine, and find those areas where the displays may not match.

Sprinter detects differences between these displays. It also enables you to address these differences and continue your test.

During the time that you are resolving differences, you may need to perform actions on your primary machine. In this case you may want to stop capturing your user actions so they are not replicated on your secondary machines. For details on stopping capturing, see "Tools Sidebar" on page 117.

The following steps describe how to resolve differences detected between displays.

➤ "Determine the type of difference" on page 226

➤ "Resolve the difference" on page 227

➤ "Unlock the secondary machine" on page 228

1 Determine the type of difference

Before you can resolve a difference between machines, you need to understand the type of difference Sprinter found. You can view the difference in one of the following ways:

➤ Open the Differences viewer to view the difference. The Differences Viewer displays the differences between machines, and enables you to create a rule or submit a defect based on the difference. For details on the Differences Viewer, see "Differences Viewer" on page 238.

➤ Display a screen capture of the current state of a secondary machine with the **Show Screen** operation.

➤ Open a remote desktop connection to the secondary machine.

These operations are available for each of the secondary machines in the **Machines** sidebar. For more details on these options, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 231.

2 **Resolve the difference**

Once you determine the type of difference, you can decide the best method to resolve it. The following are the types of differences and options for resolving them:

➤ **A one-time difference between displays.** This might be a message box, warning, or other object that displays in a machine, based on settings for that machine. It may not represent a defect in the application, and it is not likely to occur again during your test.

   ➤ You might resolve this type of difference by opening a remote desktop connection to the secondary computer and performing the actions necessary to resolve the difference.

   ➤ If the difference represents a defect in your application, you can submit a defect for this difference. For details on submitting defects, see "How to Submit a Defect" on page 114.

➤ **A difference in the displays that is likely to occur again.**

   If the difference is likely to occur again, it is recommended that you resolve the difference through the Differences Viewer.

   ➤ If the difference represents a defect in your application, you can submit a defect for this difference. In the Differences Viewer, click the **Submit Defect** button to submit the defect to HP ALM. For more details, see "Differences Viewer" on page 238.

   When you submit a defect, Sprinter also creates a rule to ignore this specific difference on this object, with its current properties.

➤ If the difference does not represent a defect, but it is likely to occur again, you may want to teach Sprinter to ignore similar differences in the future.

In the Differences Viewer, click the **New Rule** button to open the New Rule Dialog Box (described on page 241), and follow the on screen instructions.

When you create a rule to ignore a difference, Sprinter automatically recompares the secondary machine with the primary machine, to determine if the difference is no longer detected.

3 Unlock the secondary machine

If you resolved the difference by creating a rule, the secondary machine is unlocked, and you can continue your test. A secondary machine will only be unlocked if all the detected differences are resolved.

If you used a different method to resolve the difference, you need to unlock the secondary machine to continue replicating your user actions on that machine.

➤ **Right-click** > **Skip** unlocks the machine and attempts to replicate any pending user action.

➤ **Right-click** > **Recompare** compares the secondary machine with the primary machine, and unlocks the machine if no differences are found.

For more details, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 231.

⚒ How to Handle Replication Errors During a Run

If you run your test on multiple machines (as described in "How to Run a Test with Mirroring" on page 223), you may experience a replication error on a secondary machine.

Replication errors can occur due to differences between the displays of the primary and a secondary machine, or due to a communication error with the secondary machine.

During the time that you are handling replication errors, you may need to perform actions on your primary machine that are not part of your test. In this case you may want to stop capturing your user actions so they are not replicated on your secondary machines. For details on stopping capturing, see "Tools Sidebar" on page 117.

For details on how Sprinter replicates user actions, see "How Sprinter Replicates Your User Actions" on page 211.

➤ "Determine the type of replication error" on page 229

➤ "Handle the error" on page 230

➤ "Unlock the secondary machine" on page 230

1 Determine the type of replication error

Before you can handle a replication error, you need to understand its cause by viewing the current display of the secondary machine. You can view the secondary machine in one of the following ways:

➤ Display a screen shot of the current state of a secondary machine with the **Show Screen** operation.

➤ Open a remote desktop connection to the secondary machine.

You can also move the pointer over the secondary machine display to view details of the error.

These operations are available for each of the secondary machines in the **Machines** sidebar. For more details on these options, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 231.

2 **Handle the error**

Once you determine the cause of the error, you can decide the best method to handle it. The following are the types of errors and options for handling them:

➤ **A problem with the display.** This might be a message box, warning, or other object that displays in a machine, based on settings for that machine. It could also represent a defect in your application.

   ➤ You can handle this type of error by opening a remote desktop connection to the secondary machine and performing the actions necessary to modify the display to match that of the primary machine.

   ➤ If the problem was caused by a defect in your application, you can report it by submitting a defect to HP ALM. For details, see "How to Submit a Defect" on page 114.

➤ **A communication problem with the secondary machine.**

   ➤ A replication error may occur if the connection to the secondary machine is lost. You can use the options in the Health Console (**Machines** sidebar > **Health Console** button 🖥) to reconnect to a secondary machine. For details, see "Health Console" on page 183.

3 **Unlock the secondary machine**

After you handle a replication error you need to unlock the secondary machine to continue replicating your user actions on that machine. You can unlock a machine in one of the following ways:

➤ **Skip.** This option unlocks the machine and attempts to replicate any pending user action.

➤ **Sync.** This option unlocks the machine and does not replicate any pending user actions. The action number is set to match the number of actions on the primary machine.

➤ **Retry.** Retries replicating the failed user action.

For more details on these options, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 231.

Reference

🔖 Sprinter Agent

The Sprinter Agent enables Sprinter to run tests in Power Mode and with mirroring.

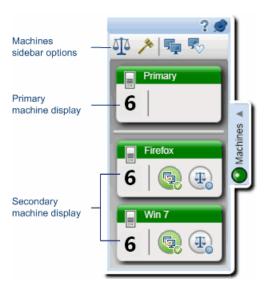|	
To access	Right-click the **Sprinter Agent icon** 🔧 in the task bar to display the Sprinter Agent options.
Important information	When you move the pointer over the Sprinter Agent icon, the Agent status is displayed. For a secondary machine, the status displays if the agent is in use in a test with mirroring, or if it is available for use.

🔖 Machines Sidebar

This sidebar enables you to work with your secondary machines during a test with mirroring.

Tasks you can accomplish with the **Machines** sidebar:

➤ "How to Run a Test with Mirroring" on page 223

➤ "How to Resolve Differences During a Run" on page 226

➤ "How to Handle Replication Errors During a Run" on page 229

The following image shows the **Machines** sidebar with two secondary machines.

To access	Click the **Machines** sidebar tab during a test run.
	➤ Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.
	➤ To lock the sidebar in the open position, click the thumbtack icon.
	➤ To reposition the sidebar, click and drag on the sidebar header.
See also	➤ "Testing on Multiple Machines" on page 210
	➤ "How Sprinter Replicates Your User Actions" on page 211
	➤ "Comparing Machines" on page 212
	➤ "Resolving Problems on and Unlocking Secondary Machines" on page 213
	➤ "Rules Overview" on page 215

Machines Sidebar Operations

User interface elements are described below:

UI Elements	Description
	Compare All. Compares the display of the primary machine against the displays of all the secondary machines in your run. **Compare All** compares the primary machine only with secondary machines that are synchronized with the primary machine. **Note:** If you edit an edit box or combo box, the **Compare All** option is disabled until you move the focus off the box. User actions on edit boxes and combo boxes are not replicated until you move the focus off the box. The **Compare All** operation is therefore disabled, to prevent Sprinter from comparing edit boxes and combo boxes that have not yet been updated on the secondary machines.
	Show Rules. Opens the Rules Manager Dialog Box (described on page 243) enabling you to create, view, edit, and delete the rules in your test.
	View Machines. Opens the Machines Viewer (described on page 236), displaying the current display of all the machines in your test.
	Health Console. Opens the Health Console, displaying the connection status of each machine. For details, see "Health Console" on page 183.

Secondary Machine Display

Each secondary machine display provides information that is specific to its
machine, indicates the status of the machine, and provides you with
operations you can perform on the machine.

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

UI Elements	Description
	Replication status. Indicates the status of replication on the secondary machine. ➤ After every action you perform on the primary machine, there is a visual indication on this icon telling you that your action is being replicated on the secondary machine. ➤ If your action was replicated successfully, the icon turns green. If the action could not be replicated, the icon turns red and the secondary machine is locked. ➤ For details on how to handle replication problems and unlock the secondary machine, see "How to Handle Replication Errors During a Run" on page 229.
	Comparison status. Indicates the status of the comparison of the secondary machine with the primary machine. ➤ Secondary machines are compared with the primary machine when you click the **Compare All** button 🔱, or when you select **Recompare** from the Secondary Machine Right-click Options. ➤ If the comparison did not detect any differences between the primary and secondary machine, the icon turns green. If the comparison detected differences, the icon turns red and the secondary machine is locked. ➤ For details on how to handle differences and unlock the secondary machine, see "How to Resolve Differences During a Run" on page 226.

UI Elements	Description
\<tooltip\>	When you move the pointer over the Secondary Machine Display a tooltip is displayed, providing you with information about the machine. ➤ **Action.** Lists the number of the action performed on the machine and provides a description of the action. ➤ **Status.** Indicates the status of the machine. If the machine is locked, provides a description of the problem. Indicates connections status with primary machine. Click the Health Console button 🖥 to address connection problems.
\<right-click options\>	The right-click options for each machine enable you to control your secondary machines and address replication and comparison errors on machines. For details, see Secondary Machine Right-click Options.

Secondary Machine Right-click Options

The right-click options for each secondary machine are described below:

| UI Elements	Description
Start/Stop Replication	Starts or Stops replicating user actions performed on the primary machine, on the secondary machine. When you stop replicating on the secondary machine, any user actions performed on the primary machine are not replicated on the secondary machine.
Skip	Ignores the problem found with replication or comparison and unlocks the machine, enabling replication of user actions to continue. Any pending actions that have not yet been replicated are performed on the secondary machine.
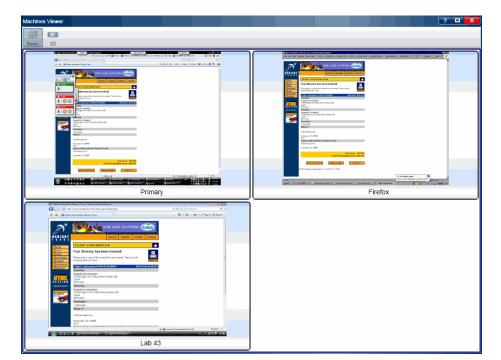
UI Elements	Description
Sync	Synchronizes the secondary machine with the primary machine. ➤ Ignores the replication error and unlocks the machine, enabling replication of user actions to continue. ➤ The user action and any pending actions that failed to replicate are not performed on the secondary machine. ➤ The number of user actions is set to match the number of actions on the primary machine.
Retry	Retries replicating the current user action on the secondary machine.
Show Screen	Displays a screen capture of the secondary machine.
Recompare	Compares the secondary machine with primary machine . Comparing an individual secondary machine can be performed only after performing a **Compare All** operation from the Machines Sidebar Operations.
Differences Viewer	Opens the Differences Viewer (described on page 238), enabling you to view and resolve differences that were detected between machines.
Remote Desktop	Opens a remote desktop connection with the secondary machine. You should not have an external remote desktop connection (not via Sprinter) open, when you open a remote desktop connection via Sprinter.

Machines Viewer

This viewer displays a current screen capture of the machines in the run.

Tasks you can accomplish with the Machines Viewer:

➤ "How to Run a Test with Mirroring" on page 223

➤ "How to Resolve Differences During a Run" on page 226

➤ "How to Handle Replication Errors During a Run" on page 229

The following image shows the Machines Viewer.

To access	Select **Machines** side bar > **View Machines** button 🖥️.

User interface elements are described below:

| UI Elements	Description
Basic	Displays the machines in a split-screen view. Clicking on a machine brings that machine into the main view. Clicking again returns the display to the split-screen view.
3D	Displays the machines in a three dimensional view. Clicking on a machine rotates that machine into the main view. You can also scroll through the machines by using the scroll bar on the bottom of the screen.

Differences Viewer
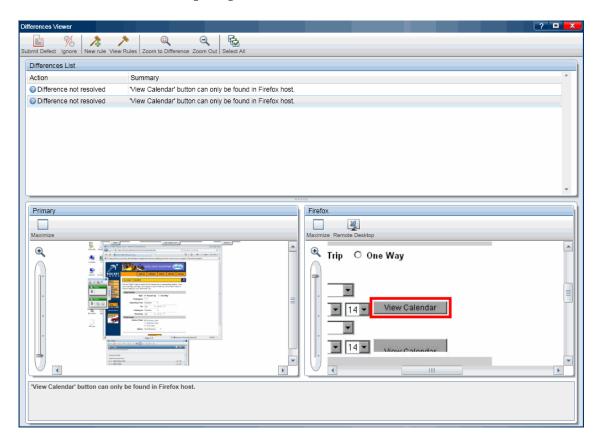
This viewer displays the differences detected between the displays of the primary machine and secondary machines in your test.

The Difference Viewer also enables you to address the differences by creating rules for them or ignoring them. You can also submit defects to HP ALM based on the detected differences.

Tasks you can accomplish with the Differences Viewer:

➤ "How to Run a Test with Mirroring" on page 223

➤ "How to Resolve Differences During a Run" on page 226

The following image shows the Differences Viewer.

To access	Do one of the following:
	➤ Right-click a secondary machine with c**omparison errors** in the **Machines** sidebar and select **Differences Viewer**.
	➤ Select **Results** > **Storyboard**. Select an action where differences were found and in the **action details area** click the **Show** link in the **Differences** section.
See also	"Rules Overview" on page 215

User interface elements are described below:

UI Elements	Description
Submit Defect	➤ **Submit Defect.** Opens the Smart Defect Settings Dialog Box (described on page 120), enabling you to automatically include defect scenario information in your defect. The defect summary includes a description of the difference.
	➤ If you choose to attach a screen capture to your defect, screen captures of both machines are attached to the defect.
	➤ When you submit a defect in the Differences Viewer, Sprinter also creates a rule to ignore this specific difference on this object, with its current properties.
Ignore	Ignores the selected differences.
	When you create a rule to ignore a difference, Sprinter automatically recompares the secondary machine with the primary machine, to determine if the difference is no longer detected.
	Not available when you open the Differences Viewer from the **Storyboard**, **Results**, or the **Sprinter Standalone Results Viewer**.

| UI Elements	Description
New rule	Opens the New Rule Dialog Box (described on page 241). When you create a rule to ignore a difference, Sprinter automatically recompares the secondary machine with the primary machine, to determine if the difference is no longer detected. Not available when you open the Differences Viewer from the **Storyboard**, **Results**, or the **Sprinter Standalone Results Viewer**.
View Rules	Opens the Rules Manager Dialog Box (described on page 243).
Zoom to Difference	Zooms the display in to the selected difference.
Zoom Out	Zooms the display out to 100%.
Select All	Selects all the differences in the Differences List.
Differences List	The list of differences detected between the primary machine and the secondary machine. Select a difference in the list to perform an action on it.
<Difference display>	The display of the difference. The difference is indicated in the display in a red box. In the case of a missing object there is no indication in the display where the object is missing. The difference display contains the following elements: ➤ **Maximize/Minimize.** Expands the machine's display to fill the entire Differences Viewer window. Minimize returns the display to normal. ➤ **Slider control.** Zooms in and out on the display. ➤ **Remote Desktop.** (Secondary machines only) Opens a remote desktop connection to the secondary machine.
<Difference description>	A text description of the difference.
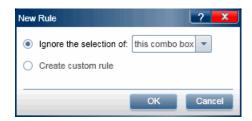
New Rule Dialog Box

This dialog box enables you to accept a pre-defined for the difference, or create a custom rule.

Tasks you can accomplish with the New Rule dialog box:

➤ "How to Resolve Differences During a Run" on page 226

The following image shows the New Rule dialog box.

To access	From the **Differences Viewer** select a difference and click the **New Rule** button.
Important information	The options displayed in the dialog box are different depending on the type of difference detected.
See also	"Rules Overview" on page 215

Options when the object is found in one display and missing in another:

User interface elements are described below (variable text is shown in angle brackets):

UI Elements	Description
Ignore the <object name> <object type>	Ignore every occurrence of the specified object.

UI Elements	Description
Create custom rule	Opens the Rule Wizard (described on page 245).
Ignore all the objects in the area that contains the \<object type\> (the \<area name\> \<area type\>)	Ignore all the objects in the area where this specified object is located. **Note:** This option is displayed only in certain cases where the object that is missing is located within a container object, but that container object is not a window.

Options when a specific property value is different between machines

User interface elements are described below (variable text is shown in angle brackets):

| UI Elements	Description
Ignore the \<property name\> of \<object\>	Defines when the property value that was different will be ignored. ➤ **this \<object name\>.** Ignore the property value for this specific object only. For example: Ignore the color of the OK button. ➤ **all \<object type\>.** Ignore the property value for all objects of the same type as this object. For example: Ignore the color of all buttons. ➤ **all objects.** Ignore the property value for all objects. For example: Ignore the color of all objects. **Note:** This option is displayed only for the following properties that are common to all objects: ➤ **background color** ➤ **enabled state** ➤ **location** ➤ **size**
Create custom rule	Opens the Rule Wizard (described on page 245).
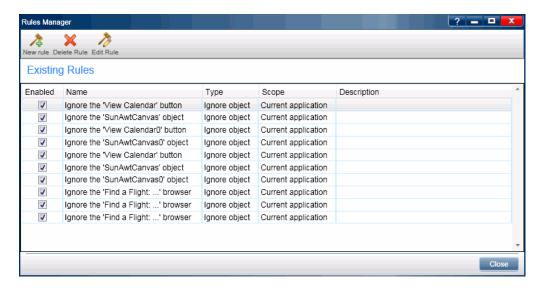
🔍 Rules Manager Dialog Box

This dialog box enables you to create, view, edit, and delete the rules for your application.

Tasks you can accomplish with the Rules Manager dialog box:

➤ "How to Resolve Differences During a Run" on page 226

The following image shows the Rules Manager dialog box.

To access	Click the **View Rules** button from the **Machines** sidebar or the **Differences Viewer.**
See also	"Rules Overview" on page 215

User interface elements are described below:

| UI Elements	Description
New rule	Opens the Rule Wizard, enabling you to create a custom rule. For details, see "Rule Wizard - Rule Details Page" on page 245.
Delete Rule	Deletes the selected rule. The rule will no longer be available depending on its scope, as defined in the Rule Wizard - Rule Details Page (described on page 245).
Edit Rule	Opens the Rule Wizard for the selected rule, enabling you to edit the rule. For details, see "Rule Wizard - Rule Details Page" on page 245.

Existing Rules	➤ **Enabled.** Select the check box next to the rule to enable it for your run.
	➤ **Name.** The name of the rule as defined in the Rule Wizard.
	➤ **Type.** The type of rule.
	  ➤ **Ignore Property.** Ignores a specific property of an object.
	  ➤ **Ignore Object.** Ignores all objects of a specific type.
	➤ **Scope.** When the rule is applied.
	  ➤ **Current Application**
	  ➤ **All Applications**
	➤ **Description.** The description of the rule as defined in the rule wizard.
	
	For more details on rule definitions and settings, see "Rule Wizard - Rule Details Page" on page 245.
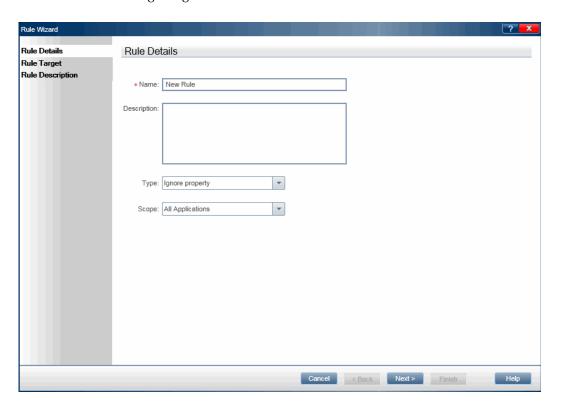
🔍 Rule Wizard - Rule Details Page

This wizard enables you to create a custom rule to resolve differences between machines in a test with mirroring.

Tasks you can accomplish with the Rules Wizard:

➤ "How to Resolve Differences During a Run" on page 226

The following image shows the Rules Wizard.

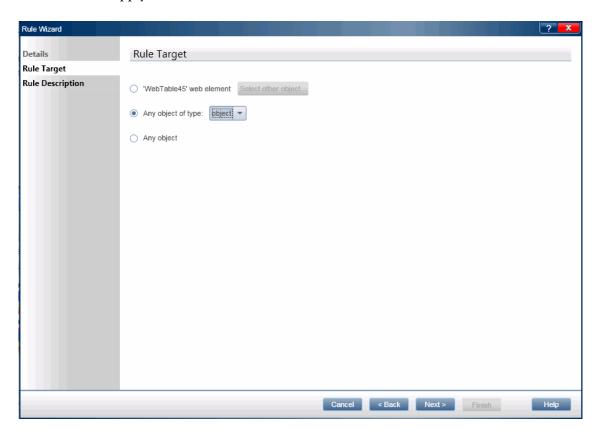| To access	Use one of the following:
	➤ Select **Differences Viewer** > **New Rule** button > **Create custom rule** option.
	➤ Select **Rules Manager** > **New Rule** button.
	➤ Select **Rules Manager** > **Edit Rule** button.

Wizard map	This wizard contains: **Rule Details page** > Rule Target Page > Rule Description Page
See also	"Rules Overview" on page 215

Descriptions of the user interface elements are available on the wizard page when you move the pointer over them. The table below provides additional information for some of these elements:

UI Elements	Description
Action	Determines what the rule will ignore. ➤ **Ignore property.** Only differences in the specific property of the object will be ignored. ➤ **Ignore object.** All differences in the object will be ignored.
Scope	Determines when the rule will apply. ➤ **All Applications.** The rule will apply to all test runs. ➤ **Current Application.** The rule will apply to the application currently defined for the test only. Any tests configured to use the same application will use this rule.

🔍 Rule Target Page

This wizard page enables you to define the object to which your rule will apply.

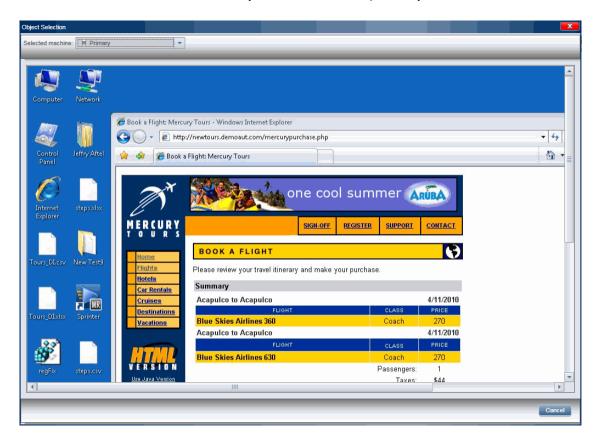| Wizard map	This wizard contains:
	Rule Wizard - Rule Details Page > **Rule Target Page** > Rule Description Page

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

UI Elements	Description
<object name> <object type> / Specific object	Define a specific object for which the rule will apply. ➤ When you access the wizard from the Differences Viewer, the object on which the difference was found is automatically selected. Click the **Select other object** button to open the Object Selection Window (described on page 249), and select a different object for the rule. ➤ When you access the wizard by creating a new rule from the Rules Manager, no object is selected. Click the **Select object** button to open the Object Selection Window (described on page 249), and select an object for the rule.
Any object of type <object drop-down box>	Apply the rule to all objects of a specific type.
All objects	Apply the rule to all objects.

🔍 Object Selection Window

This window enables you to define an object for your rule.

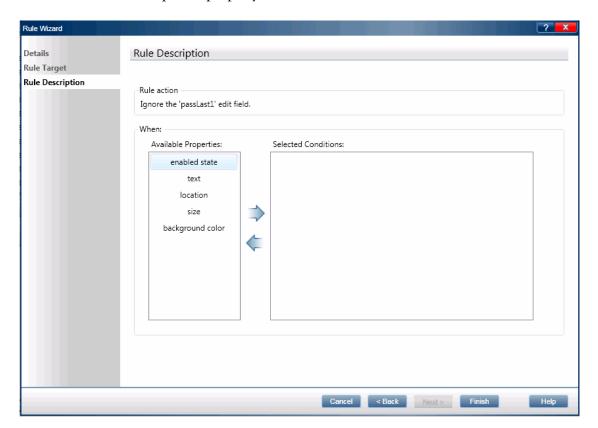| To access	In the **Rules Wizard** > Rule Target Page, click the **Select other object** button.
Relevant tasks	"Resolving Problems on and Unlocking Secondary Machines" on page 213
See also	"Rules Overview" on page 215

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

UI Elements	Description
Select machine	Select the machine to display in the Display window.
<Display window>	Displays the selected machine. As you move the pointer over the display, each object in the display is highlighted in red. Click on an object to select it for the rule.

Rule Description Page

This wizard page enables you to define when the rule will be applied and on which specific property.

Important information	The options displayed in the page are different depending on the selections in previous pages.
Wizard map	This wizard contains: Rule Wizard - Rule Details Page > Rule Target Page > **Rule Description Page**

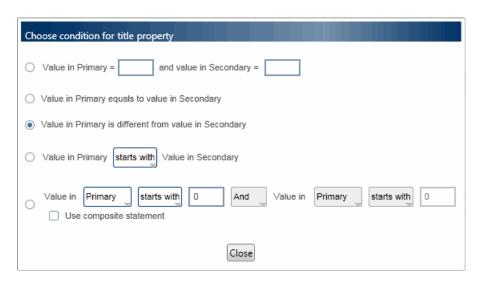User interface elements are described below:

UI Elements	Description
Rule Action	This area defines the specific action the rule will take. Its display depends on selections you made earlier in the wizard. ➤ **Ignore the <object name> <object type>.** If you selected **Ignore object** in the Rule Details page, the rule action is set to ignore the object you selected in the Rule Target page. ➤ **Select Properties to ignore.** If you selected **Ignore property** in the Rule Details page, you need to select the properties you want the rule to ignore. Click the browse button [...] to select from a list of properties for the object you selected in the Rule Target page. Press Enter to accept your selections.

UI Elements	Description
When	This area defines the specific conditions under which the rule will be applied.
	Select properties and conditions to limit when the rule will be applied.
	➤ **Available Properties.** The list of properties that are available for the selected object. Select a property from the list and click the right arrow to move it to the **Selected Conditions** list.
	➤ **Selected Conditions.** When you move a property to this list it is automatically set to apply the rule when the property is different between machines.
	You can create a more specific definition of the conditions under which the rule will apply, by clicking the browse button ⬚ ... ⬚. For details on the selections available, see "Property Conditions" on page 253.
	Note: You do not need to set any conditions in this area. If no conditions are set, the rule action will be applied based on your previous selections in the wizard with no additional limiting conditions.
	For example: Suppose these are your selections in the previous wizard pages:
	➤ In the Rule Details page - you selected **Ignore Property**.
	➤ In the Rule Target page - you selected the **Any object of type radio button** and selected **image**.
	If you do not set any conditions in the **When** area, the properties you selected in the **Rule Action** area will be ignored for all **image** objects.

Property Conditions

The property conditions enable you to set a specific condition under which the rule will apply.

The selections available in the property conditions depend on the property you selected in the Selected Conditions section of the Rule Description page.

Some selections are available for integer values only, some for boolean values only, and some for text values only.

Some conditions can be a simple or **composite** statement. The simple statement compares the property value with a value that you set. To enable the composite statement, select the **Use composite statement** check box. This enables the second part of the statement so you can further refine the condition.

🔍 Troubleshooting and Limitations

This section describes troubleshooting and limitations for mirroring.

Mirroring Test Preparation

➤ Actions on objects in desktop applications that are visible on the primary machine display, but are not visible on the secondary machine display, are not replicated.

➤ You cannot use a machine as a secondary machine in your run, if you are not the active user for that machine, and there is another active user on the machine. In this case, replication will not work for that machine.

➤ See the list of **Prerequisites** in "How to Prepare a Test for Mirroring" on page 220.

General Limitations

➤ Mirroring may not work with all technologies.

➤ The following actions performed on your application window are not replicated in secondary machines for web applications:

  ➤ Maximize

  ➤ Minimize

  ➤ Restore from task bar

  ➤ Restore size

  ➤ Move

  ➤ Resize

➤ If a browser automatically enters a password, that user action is not learned by Sprinter.

  ➤ **Workaround:** Delete the automatically entered password, place the pointer focus on a different object, and re-enter the password manually.

  Alternatively, you can disable automatic password completion in the browser.

➤ When working on Internet Explorer 8 and Windows Vista or Windows 7, browser navigation operations (back, forward, navigate, home) are not learned by Sprinter.

  ➤ **Workaround:** Turn off Protected Mode in Internet Explorer 8.

    Go to **Tools** > **Internet Options** > **Security** tab and deselect the **Enable Protected Mode** check box for the relevant security zone.

➤ For some technologies, Sprinter does not learn the inner objects of tables. Sprinter will not detect differences between tables in this case.

➤ If you run Sprinter on a machine via a remote desktop connection and use the 3D mode in the Machines Viewer, memory consumption on some operating systems can be very high.

  In this case, it is recommended that you minimize your use of in the Machines Viewer 3D mode.

A

Using Extensibility Packages

You can make use of Web Extensibility packages developed for QuickTest Professional to enable Power Mode to learn Web objects that are not supported out-of-the-box.

After you obtain an Extensibility package, install it by placing the files that it contains under the Sprinter installation folder as described in the sections below. The next time you open Sprinter, the Extensibility package appears in the list of technologies in the **Add/Edit Application** dialog box as a sub-node under the relevant technology. To work with an Extensibility package, select the package and its parent technology.

For the Extensibility packages to take effect, rerun the applications you are testing.

This chapter includes:

➤ Web Extensibility Package Content on page 258

➤ Installing a Web Extensibility Package on page 258

Web Extensibility Package Content

The Web Extensibility package consists of:

➤ **XML files.**

  ➤ One test object file named **<Extensibility Package Name>TestObjects.xml**

  ➤ One configuration file named **<Extensibility Package Name>.xml** (or **.cfg** for WPF and Silverlight)

➤ **JavaScript files (.js)**

➤ **Icon and Help files (Optional).**

  Icons can be provided in the following file types: **.ico**, **.exe**, **.dll**.

  Help files are provided as **.chm** files.

Installing a Web Extensibility Package

To install a Web Extensibility package, place the files that it contains in the locations specified below. If any of the sub-folders in the specified paths do not exist, create them.

Extensibility Package File	Location on Sprinter Machine
<Extensibility Package Name>TestObjects.xml **Note:** If there is more than one test object configuration file, place them all in the same folder.	**<Sprinter Installation folder>\dat\Extensibility\Web**
<Extensibility Package Name>.xml	**<Sprinter Installation folder>\dat\Extensibility\Web\Toolkits\<Extensibility package name>**

Extensibility Package File	Location on Sprinter Machine
JavaScript files	The **.js** files can be located on the computer on which Sprinter is installed, or in an accessible network location. Their locations are specified in the **<Extensibility Package Name>.xml** file. Do the following: **1** Search the XML file for lines that contain one of the following: **file_name, default_imp_file, common_file, file_for_func_to_get_base_elem, JSLibrary**. **2** Place the files referenced in those lines in the specified locations. **Note:** ➤ You can place the files in another location, and adjust the location specified in the XML file accordingly. ➤ If the specified location is not a full file system path, it is relative to the **<Sprinter installation folder>\dat\Extensibility\Web\Toolkits\<Extensibility package name>** folder. ➤ If the specified file location begins with INSTALLDIR, this refers to the Sprinter installation path.

Extensibility Package File	Location on Sprinter Machine
Icon files (optional)	The files can be **.dll**, **.exe**, or **.ico** files, located on the computer on which Sprinter is installed, or in an accessible network location. Their locations are specified in the **<Extensibility Package Name>TestObjects.xml** file. Search the XML file for lines that contain **IconFile**, and then place the files referenced in those lines in the specified locations. **Note:** ➤ You can place the files in another location, and adjust the location specified in the XML file accordingly. ➤ If the specified file location begins with INSTALLDIR, this refers to the Sprinter installation path.
Help files (optional)	These are **.chm** files, which must be located on the computer on which Sprinter is installed. Their locations are specified in the **<Extensibility Package Name>TestObjects.xml** file. Search the XML file for lines that contain **HelpFile**, and then place the files referenced in those lines in the specified locations. **Note:** ➤ You can place the files in another location, and adjust the location specified in the XML file accordingly. ➤ If the specified file location begins with INSTALLDIR, this refers to the Sprinter installation path.