# HP Sprinter

For Windows

Software Version: 12.00

## Sprinter for ALM User Guide

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# What's New

HP Sprinter 12.00 contains the following new features:

- **Integration with UFT.** When working in Power Mode, you can save manual Sprinter tests as XML files which are compatible with HP Unified Functional Testing (UFT). In UFT you can import the XML file and convert it to an automated GUI test. For details, see http://www.hp.com/go/uft.
- **Performance Improvements.** Performance improvements in many areas of the product, such as opening, loading, and running tests.
- **Manual Mapping.** In Data Injection, you can manually map fields in your application to columns in your data set.
- **Mobile Application Testing.** Ability to test Web or Native applications using a cloud mobile provider (Perfecto Mobile).
- **Expanded View.** Ability to view screen captures, in the Step Tab, as a full image in Run Mode.
- **Link to existing defects.** Ability to link a test run to an existing defect.
- **ALM Reporting Capabilities Improvements.** Ability to see the run steps of manual tests executed with Sprinter in ALM reports.

# How to Find Information

Product Name includes the following the following documents:

| Document | Description | Available Formats | Location |
|---|---|---|---|
| User Guide | Describes how to use HP Sprinter to create and execute manual tests and perform exploratory testing. | Online, and PDF | |
| Readme | Includes download instructions, last minute information, fixed issues, and installation requirements. | HTML | DVD, HPLN, HP Manuals Site |

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# Chapter 1

# 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 story includes:


- "Create Your Test" on page 17
- "Open Your Test and Prepare it for a Run" on page 18
- "Decide if You Want to Run Your Test in Power Mode" on page 20
- " Decide if You Want to Work with Mirroring" on page 23
- "Begin Your Run" on page 24
- "Submit a Defect" on page 26
- " Annotations" on page 28
- "Use Macros" on page 29
- " Use Data Injection" on page 30
- "View Your Run Results" on page 32
- "Run a Test with Mirroring" on page 37

# 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 Application Lifecycle Management test, but you know you can load your Application Lifecycle Management tests in Sprinter, so you decide whether to run your test completely through Sprinter or in Application Lifecycle Management.

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

# Connect to ALM

To start using Sprinter to run Application Lifecycle Management tests, you need to connect Sprinter to Application Lifecycle Management. You click the Application Lifecycle Management Connection button

in the main window to configure your connection.

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

# Create Your Test

You enter **Plan** Mode . This mode lets you manually create or edit a test.

Click the **New** button in the Tests and Components list to create a new test.

In the **Tests** tab, in the **Details** pane, provide information for the test, such as a description and comments. Add an attachment and parameters that will be used for the test. In the **Steps** tab, click the **Add** button to add a test step . You provide a description, expected results, and other relevant information in the step's fields. You format the text in these fields using rich-text capabilities, using the formatting tools in the ribbon. You add an attachment and a screen capture for this step. Insert a parameter that you defined in the **Test** pane, into a step.

Repeat the above to create multiple steps.

Click the **Save** button to save the test.

# Open Your Test and Prepare it for a Run

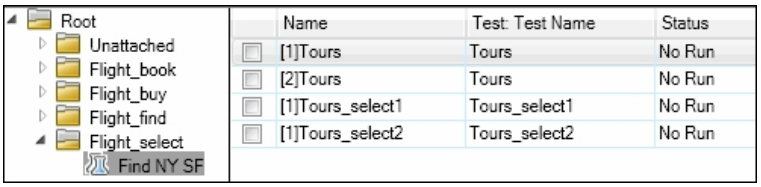
After you create a test in **Plan** mode, open ALM and add it to a test set in the **Test Lab** module.

Return to Sprinter and switch to **Run** Mode

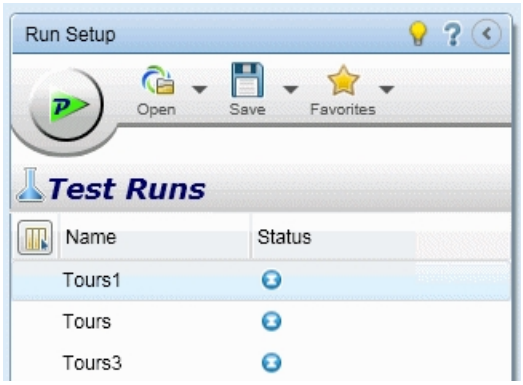
.

Click the **Open** button

in the Run mode's **Run Setup** area to open your test. You see the Test Sets tree and the information from the Execution tab. You select the tests you want to run and open them.



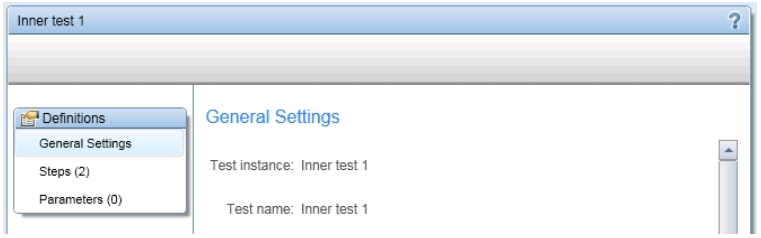

The tests appear in the **Test Runs** list inside the **Run Setup** area, in the main window of Sprinter.




The **Test Runs** list displays tests that you can include in your next run. At this point you can add or remove tests in the **Test Runs** 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 **Test Runs** 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 **Test Runs** 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 Application Lifecycle Management, including the name of the test, the name of the test set, the name of the configuration, the test designer, the name of the run, and the test description.

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. You modify the relevant 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), **mirroring** (replicating user actions on multiple computers), and **scanners** (checking that various aspects of your application behave correctly).

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."
```

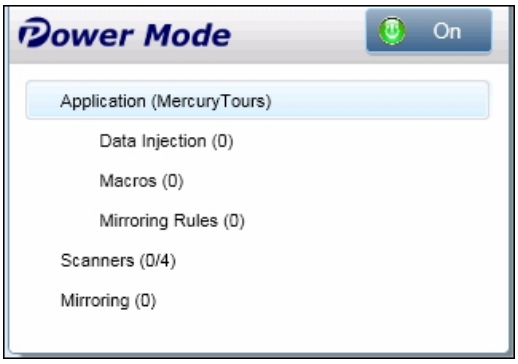
You can view these user actions in your run results or in the Storyboard viewer at the end of your run, which displays each action you performed in your test. You can also include a list of the relevant user actions in any defect you submit to let Sprinter automatically insert a defect scenario.

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 activate Power Mode by clicking the Power Mode button in the Power Mode group under the **Test Runs** 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.

## Using Scanners

Sprinter's scanners enable you to check whether strings in your application are spelled correctly, whether the application conforms to Web Standards (Web applications only), if there are broken links, or whether the user interface of your application is translated correctly.

You can turn the scanners on or off as needed. Use the **Scanners** pane (Power Mode group) to turn on the relevant scanners. During the test run, you use the **Scanners** sidebar to begin a scan.

# 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.

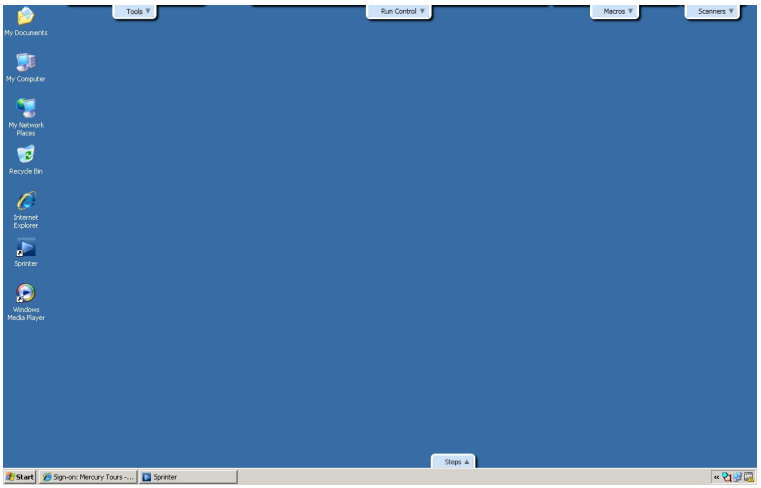
When you work with **mirroring**, every user action you perform in your application on your **primary machine** is replicated on the defined **secondary machines**.

To read more about configuring a test to run with mirroring, see "Mirroring Tests" on page 36.

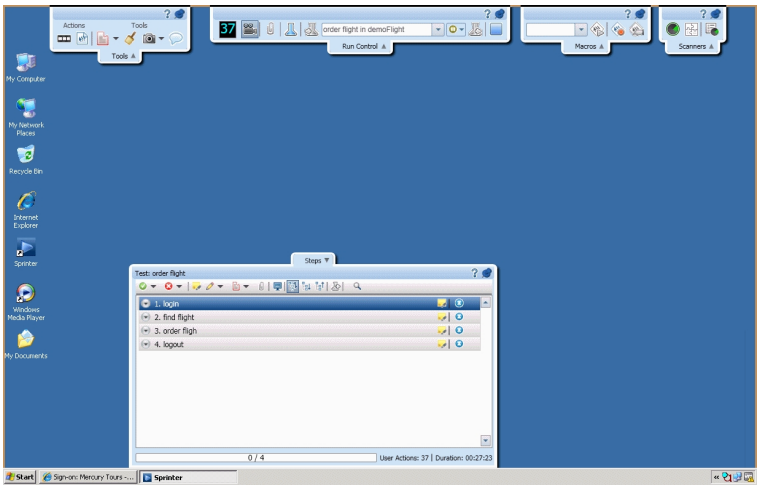
# Begin Your Run

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.



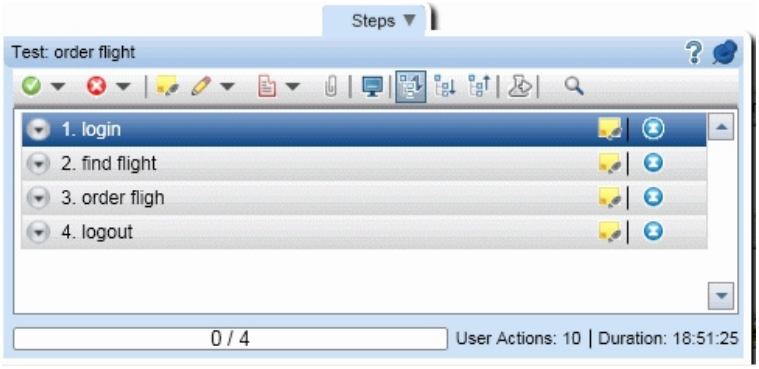

You can open one, several, or all of the sidebars at once by clicking their tabs. Sidebars automatically open and close as you click on or off them, and you can lock them in the open position and reposition them, as needed.




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.

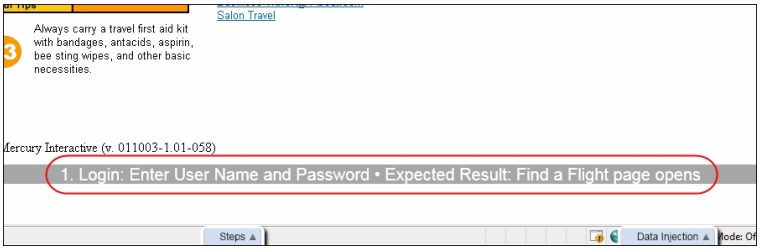
Since you used the **Quick Add** feature to define the application for your test, Sprinter starts your application automatically at the beginning of the run for you.

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




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

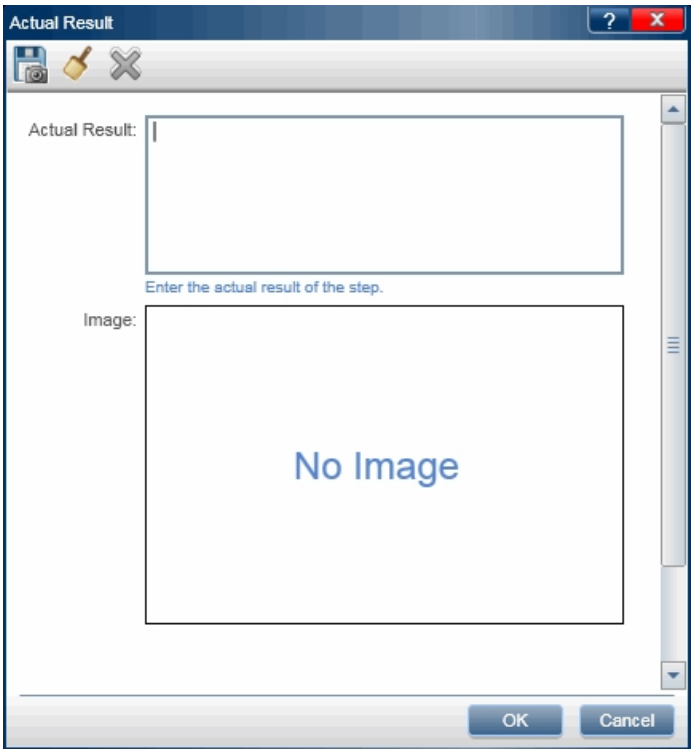
Since you already skimmed through all the steps in your test, you decide to switch to **Subtitles** mode by clicking the Subtitles button in the **Steps** sidebar. Subtitles mode displays the description of each step as a subtitle on your screen instead of the sidebar, and enables you to mark the step's status and add attachments to steps. 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 in the right column, for example **Passed** or **Failed**.

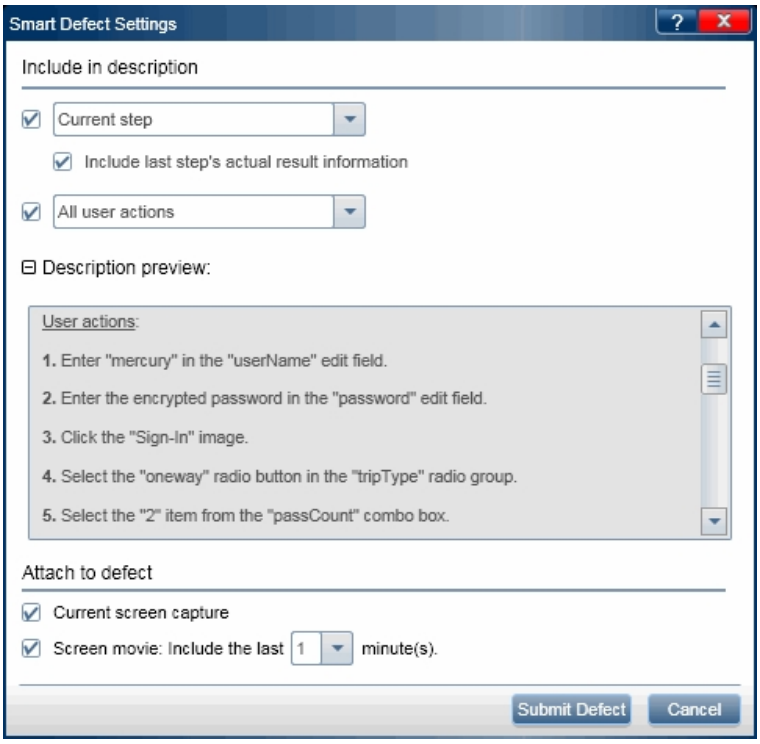
# Submit a Defect

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**. First you mark the status as **Failed**. Then click the **Actual Result** button for the step. In the **Actual Result** dialog box, you enter text to describe what actually happened in your application.




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.



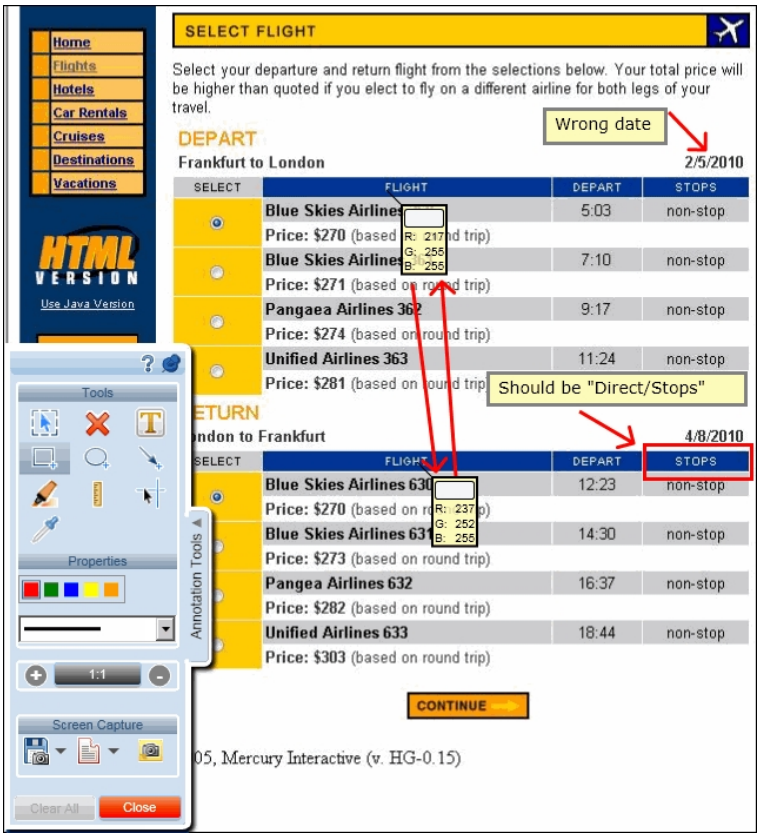

You continue with your run and discover another defect, although this defect is much more basic. Since you do not want to disrupt the flow of your run by submitting a defect and filling in the required fields inApplication Lifecycle Management, you decide to create a **Defect Reminder**.

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. This allows you to include annotated screen captures, movies, and step or action information when you submit a defect.

# 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 **Rectangle**, **Color Picker** and **Arrows** to highlight the problem and then 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

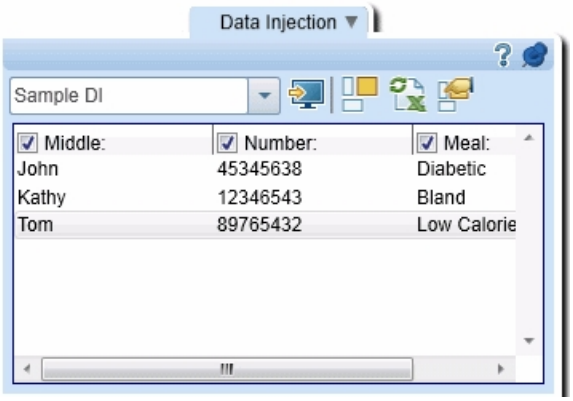
You continue performing the steps in your test, and you get to the area in your application where you have a series of actions that you want Sprinter to perform for you. You click the **Macros** tab to open the **Macros** sidebar.

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

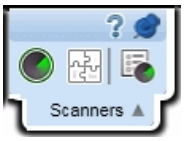
You continue performing the steps in your test, and you get to the area in your application where you need to search for a flight. You click the **Data Injection** tab to open the **Data Injection** sidebar.



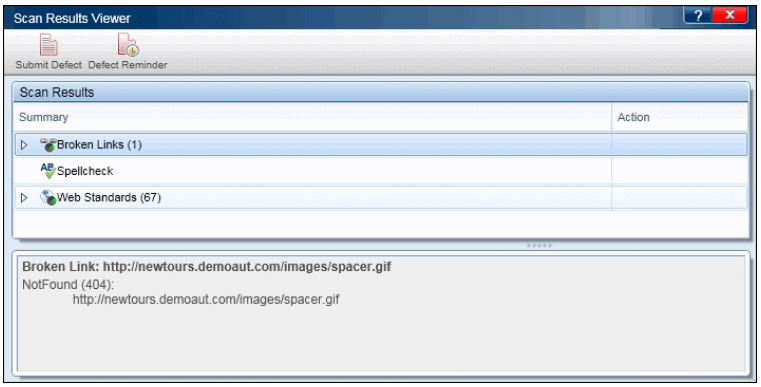

In the **Data Injection** sidebar, you select which data set you want to use in your application. You then select the row of information for the search you want to perform and inject the data into your application. Then you watch as Sprinter sends the data from that row to the relevant locations in the form.

# Use the Scanners

When you get to the area in your application where you need to check for broken links or compliance with Web standards (Web applications), proper translations, and misspellings, use the built-in scanners. Click the **Scanners** tab to open the **Scanners** sidebar and then click the **Start Scan** button .

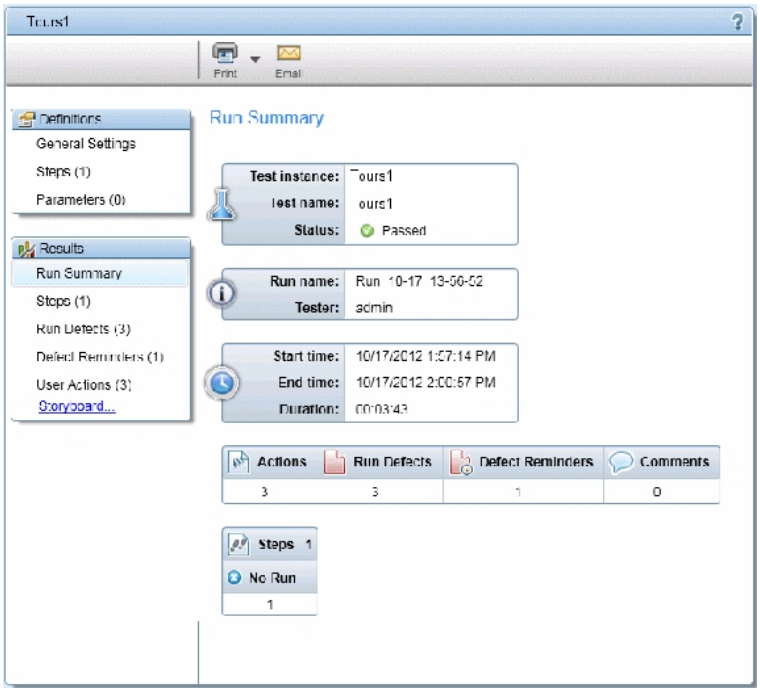



After the scan ends, the Scan Results Viewer opens. Handle the results for each scanner by creating a defect or a defect reminder or by performing a scanner-specific actions, such as adding a word to the dictionary.



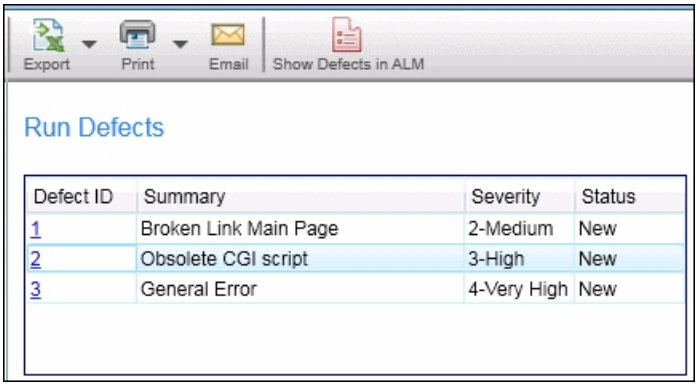
# View Your Run Results

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.



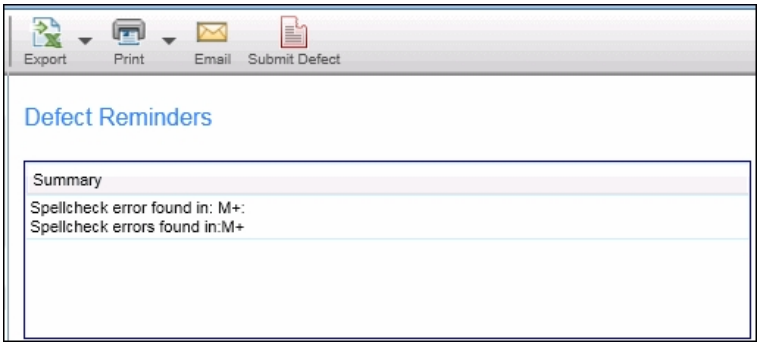

Each of the **nodes** in the **Results** group can be selected to display more details in the right pane.

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



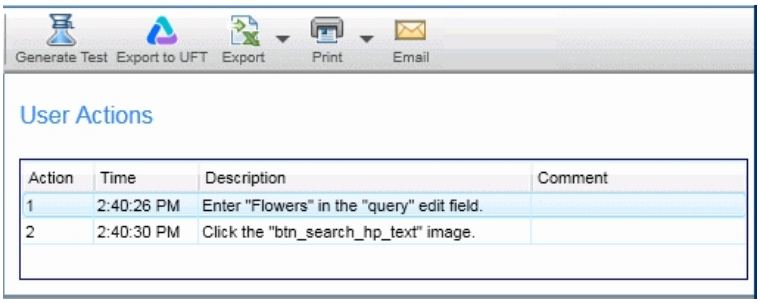

You can click the **Defect ID** number to open the ALM Defect Details dialog box for that defect.

You then select the **Defect Reminders** node to view a list of the defect reminders you created during your test.



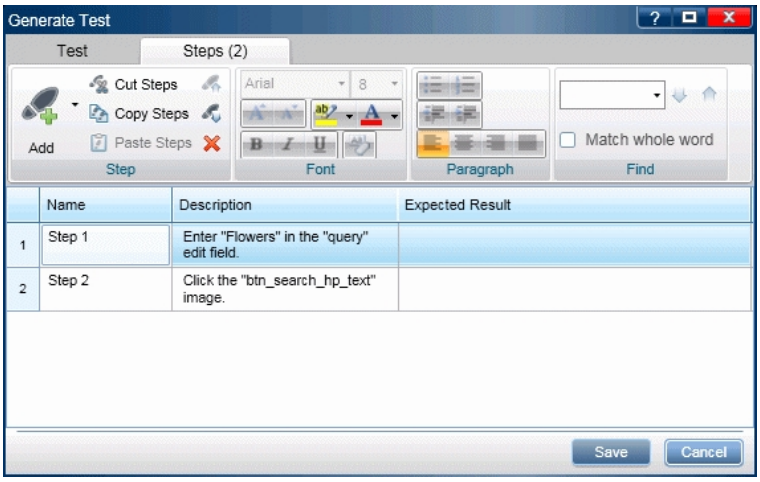

You select a reminder and click **Submit Defect**, to submit the defect. All the information for the defect is still available in the run results. You can include an annotated screen capture, a movie, the step information or user action information with your defect.

Since you decided to run your test in Power Mode, you select the **User Actions** node and view a list of the user actions you performed during your run.

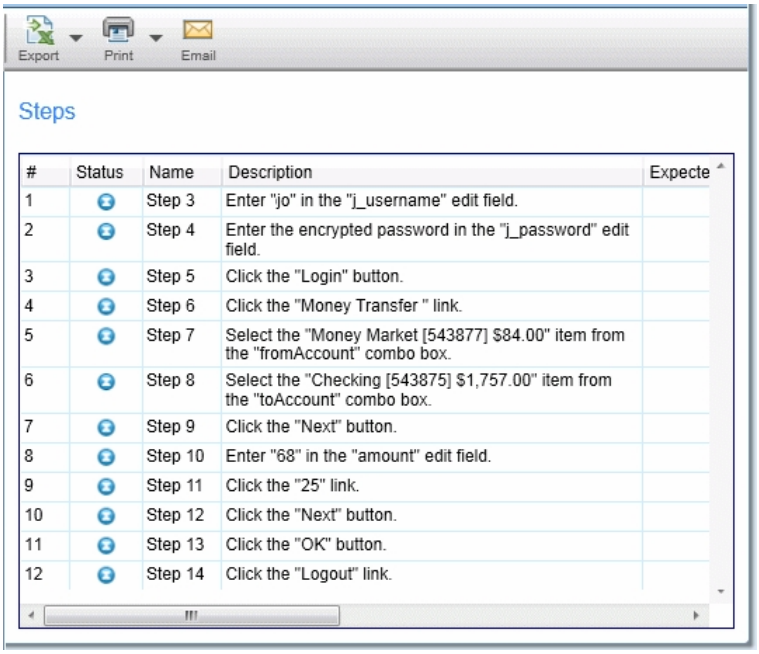



This list of user actions can be exported to an Excel spreadsheet or as a Unified Functional Testing test.

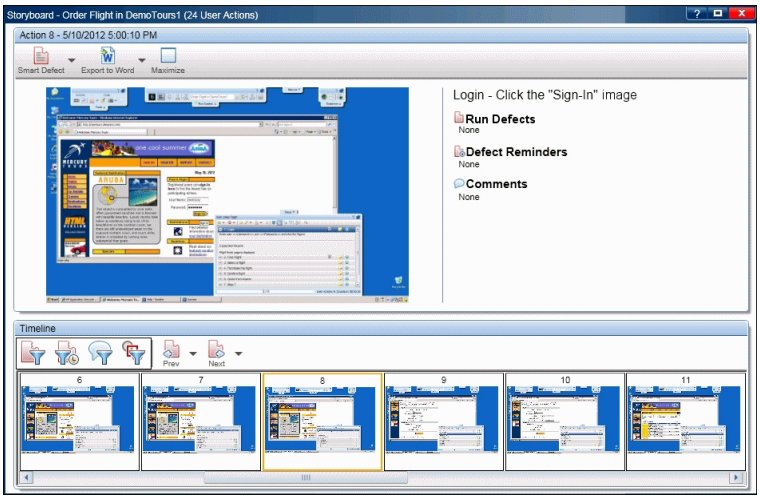
You click the **Generate Test** button to use the current test run as a template for creating a new manual test.



You open the **Steps** node to see details about each of the steps. The summary includes Status, Name, Description, Expected and Actual Results, Screen Captures, and Attachments.




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 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.

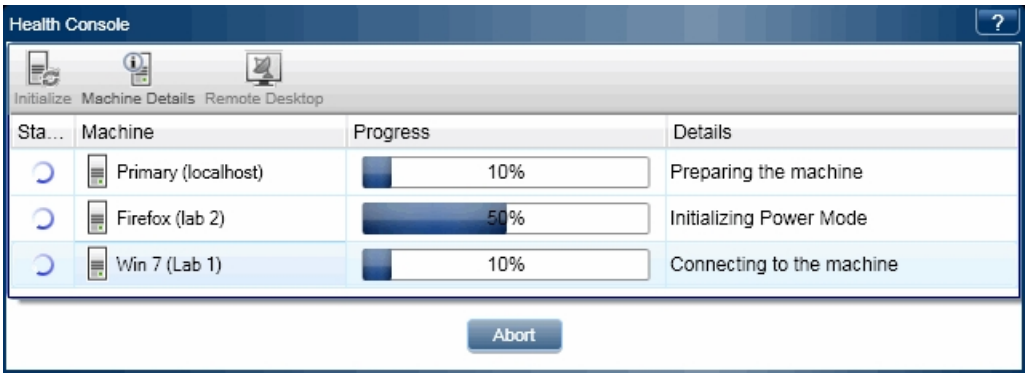
To work with mirroring, you select the Mirroring node in the Power Mode group and configure the secondary machines for your test. You then click the **Add** button to add a new machine for your application.

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.

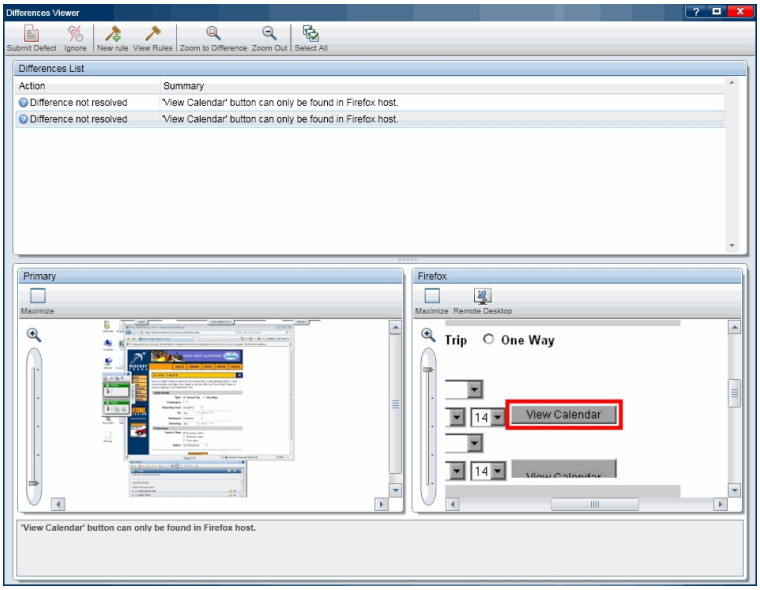
In this case, any subsequent user actions you perform are not replicated on the secondary machine where the failure occurred, until you address the replication problem between the machines.

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 display 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.

# Chapter 2

# Sprinter at a Glance

This chapter includes:

**Concepts**


- "Sprinter Overview" on the next page
- "How User Information is Maintained" on page 44


**Tasks**


- "How to Get Started with Sprinter" on page 46


**Reference**


- "Welcome Dialog Box" on page 48
- "Application Lifecycle Management Connection Dialog Box" on page 52
- "Main Window" on page 50
- "Settings Dialog Box" on page 55

"Troubleshooting and Limitations - General" on page 68

# 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 also enables you to create, edit, and manage manual tests and business components directly in Sprinter, and then save them to Application Lifecycle Management.

Sprinter is fully integrated with Application Lifecycle Management, enabling you to get the maximum benefit from both solutions.

With Sprinter you can:

- **Create manual tests and business components**.
  In Sprinter's **Plan** mode, you can create and edit manual tests and business components. You can add steps manually or automatically using the **Steps Capture** tool**.** For details, see "Creating Tests and Business Components" on page 70.

- **Run manual tests and Business Process tests with a new step display, utilizing the following features:**

  - **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 156.

  - **Navigation.** 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.

  - **Ability to edit parameters during a test run.** You can easily edit the actual values of parameters in your test, during your test run.

  - **Multiple views.** You can 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 156.

  - **Screen captures.** You can attach a plain or annotated screen capture of your application to the step's actual value. For details, see "Steps Sidebar" on page 156.

- **Run exploratory tests with no predefined steps.** If you run a test without predefined steps, Sprinter records 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:

  - A formal manual test. All user actions are converted to steps.

  - An Excel spreadsheet. You can then modify the text as needed and import the spreadsheet to a test in, 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 211.

- **Submit defects to Application Lifecycle Management.** Submit an Application Lifecycle Management defect directly from within Sprinter. For details, see "Tools Sidebar" on page 184.

  - **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 188.

  - 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 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 196.

- **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 262.

- **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 253.

- **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 - Overview" on page 289.

- **Scan your application for potential defects.** Scanners enable you to check that various aspects of your application behave correctly during a run session. You can then report defects on any results found during the scanning process. For details, see "Scanners Overview" on page 269.

- **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. For details, see "Run Results Overview" on page 201.

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

# 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 Application Lifecycle Management project, per-user (as unique information for each unique Application Lifecycle Management 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, as indicated by the Power Mode icon ).

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

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

### Information Applied Per User in Your Application Lifecycle Management Project

| User Information | Where Defined | How Information is Applied |
|---|---|---|
| Favorites | "Run Setup Area" on page 133 | • Uses the list from your last Sprinter session.<br>• When you load 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.<br>• If you do not have permissions to modify resources in Application Lifecycle Management, all your test settings and configurations are saved for your user profile on your local computer only. |
| Settings | "Settings Dialog Box" on page 55 | |
| Applications | "Application Pane (Power Mode Group)" on page 227 | |
| Scanners | "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276 | |
| Secondary Machines | " Mirroring Pane (Power Mode Group)" on page 309 | |

### Information Applied Per Application

| User Information | Where Defined | How Information is Applied |
|---|---|---|
| Macros | "Macros Sidebar" on page 262 | When you save a macro, add a data set, or create a rule, Sprinter associates them with the application defined for your test in the "Application Pane (Power Mode Group)" (described on page 227).<br>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.<br>This information is retrieved per-user in your Application Lifecycle Management project.<br>**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 338). |
| Data Sets | "Data Injection Sidebar" on page 253 | |
| Rules | "Rules Manager Dialog Box" on page 336 | |

# How to Get Started with Sprinter

The following steps describe the general prerequisites to using Sprinter, and how to start using Sprinter.

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

This task includes the following steps:

- Prerequisites
- Connect to ALM
- Create and edit test
- Run a test

## Prerequisites

- Sprinter functionality is available with:
  - HP **Application Lifecycle Management 12.00**
  - Application Lifecycle Management **Quality Center 12.00 Enterprise Edition**
- You must have the following permissions in Application Lifecycle Management 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 Application Lifecycle Management 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 |

- To create new manual tests, you need the following additional permissions:

| Permission | Permission Level |
|---|---|
| **Test Plan > Test** | Create, update, and delete |
| **Test Plan > Test Folder** | Create, update, and delete |
| **Test Plan > Test Parameters** | Create, update, and delete |

## Connect to Application Lifecycle Management

If you are going to run an Application Lifecycle Management test, report defects to Application Lifecycle Management, or if you want your configurations and settings to be saved for your Application Lifecycle Management user, you need to connect to an Application Lifecycle Management project.

You also need to be connected to Application Lifecycle Management if you want to run a test with mirroring on more than one secondary machine. For details on testing with mirroring, see "Testing on Multiple Machines - Overview" on page 289.

You must be connected to Application Lifecycle Management to run a test in Sprinter.

Click the Application Lifecycle Management button

to open the Application Lifecycle Management **Connection** dialog box and connect to Application Lifecycle Management.

If you do not connect to Application Lifecycle Management, you will be prompted to connect when you open a test.

For details, see "Application Lifecycle Management Connection Dialog Box" on page 52.

## Create and edit a test or component

For details, see "How to Author a Test or Component" on page 72.

## Run a test or test set

For details, see "How to Run a Manual Test in Sprinter" on page 119.

# Welcome Dialog Box

This dialog box provides quick access to Sprinter Help and feature movies. It also lets you open or create a test or business component.

| | |
|---|---|
| **To access** | Do one of the following:<br>• Start Sprinter.<br>• In the main window, select **Welcome Screen** from the drop-down arrow adjacent to the **Help** button. |
| **Important Information** | The **Show on startup** option instructs Sprinter to display the Welcome dialog box each time Sprinter is opened.<br>You can configure Sprinter to bypass the Welcome dialog box in the "General Settings Pane (Settings Dialog Box)" (described on page 55). |

## Introduction Tab

The **Introduction** tab lists the new Sprinter features and provides links to feature movies.

## Help Tab

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

## Plan Tab

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

| UI Elements | Description |
|---|---|
| **New HP ALM Test** | Opens the **Authoring** pane and adds a new test entry to the **Tests and Components** list.<br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens to enable you to connect to Application Lifecycle Management. |
| **New HP ALM Business Component** | Opens the **Authoring** pane and adds a new business component entry to the **Tests and Components** list.<br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens to enable you to connect to Application Lifecycle Management. |

| UI Elements | Description |
|---|---|
| **Open HP ALM Test** | Opens the "Open Dialog Box" on page 143 (described on page 143) to the parent **Subject** root in ALM's Test Lab module.<br><br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens to enable you to connect to Application Lifecycle Management. |
| **Open HP ALM Business Component** | Opens the "Open Dialog Box" (described on page 143) to the parent business component root.<br><br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens to enable you to connect to Application Lifecycle Management. |

## Run Tab

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

| UI Elements | Description |
|---|---|
| **Open HP ALM Test** | Opens the "Open Dialog Box" (described on page 143) to allow you to open a test from ALM's Test Lab module.<br><br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens to enable you to connect to Application Lifecycle Management first. |
| **Favorites** | The list of your favorite Sprinter tests. |

# Main Window

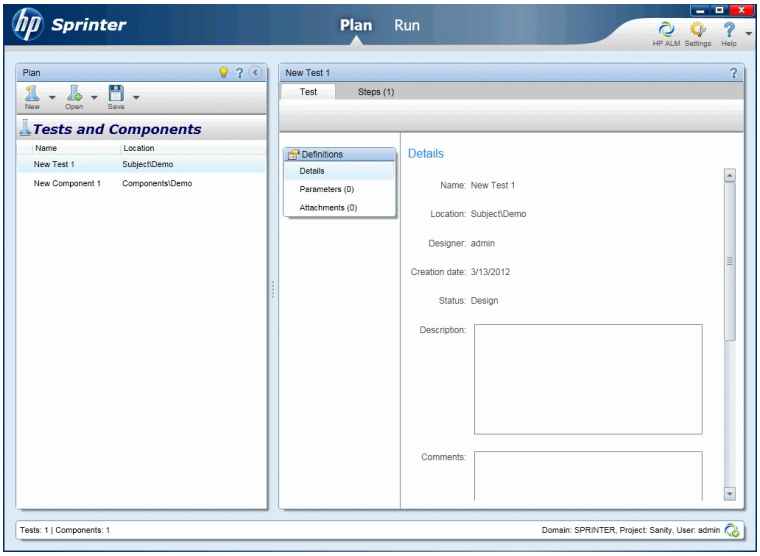
This window enables you to manage your tests and components, set test and component definitions, view test results, and configure Sprinter settings. You can also access the Settings dialog box and Application Lifecycle Management Connection dialog box.

The panes displayed in the main Sprinter window differ depending on whether you are authoring a test or component, or running a test.

Tasks you can accomplish with the main window:

- "How to Get Started with Sprinter" on page 46
- "How to Author a Test or Component" on page 72
- "How to Run a Manual Test in Sprinter" on page 119
- "How to Review Run Results" on page 202

The following image shows the main window for **Plan** mode.




| | |
|---|---|
| **To access** | 1. Start Sprinter and close the **Welcome** window, if open.<br>2. Select **Plan** from the main toolbar. |
| **Important information** | • The information available in the **Details** pane depends on the selected test in the **Test and Components** list.<br>• To exit Sprinter, close the main window. |

| See also | • "Sprinter Overview" on page 41<br>• "Test and Component Authoring Overview" on page 71<br>• "Power Mode Overview" on page 116 |
|---|---|

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

| UI Elements | Description |
|---|---|
| | Indicates that Sprinter is in **Run** mode and shows the **Run Setup** area in the left pane. For details, see "Run Setup Area" on page 133. |
| | Indicates that Sprinter is in **Plan** mode and shows the **Authoring** area in the left pane. For details, see "Plan Area" on page 76. |
| | Opens the "Application Lifecycle Management Connection Dialog Box" (described on page 52), enabling you to configure your Application Lifecycle Management connection and connect to a Application Lifecycle Management project. |
| | Opens the "Settings Dialog Box" (described on page 55). |
| | Opens the Help for the main window.<br>Drop-down options:<br>• **Help**<br>• **Printer-Friendly Documentation.** Opens a printer-friendly version of the Sprinter documentation, in Adobe Acrobat Reader (PDF) format.<br>• HP **Software Support.** Connects you to the HP Software Support Online Web site.<br>• **Welcome Screen**<br>• **About** |

| UI Elements | Description |
|---|---|
| **<Status bar>** | The status bar displays the following information:<br>**Plan Mode**<br>• **Test and Component Count** Tests: 1 \| Components: 1 . The number of tests and components in the **Tests and Components** list.<br>**Run Mode**<br>• **Test Runs** list **status** Tests: 3 \| Active Tests: 3 . The number of tests in the **Test Runs** list, followed by the number of tests within the list that will be included in the next run.<br>• Application Lifecycle Management **connection status**. The state of Sprinter's connection to Application Lifecycle Management. The icon is deactivated when you are disconnected from Application Lifecycle ManagementYou can double-click this icon to open the "Application Lifecycle Management Connection Dialog Box" (described on page 52). |

The main window also contains the following areas:

**Plan Mode**

- "Plan Area" on page 76
- "Definitions Group (Test/Component Tab)" on page 88
- "Steps Tab" on page 96

**Run Mode**

- "Run Setup Area" on page 133
- "Power Mode Group" on page 225
- "Run Setup Definitions Group" on page 145
- "Results Group" on page 205

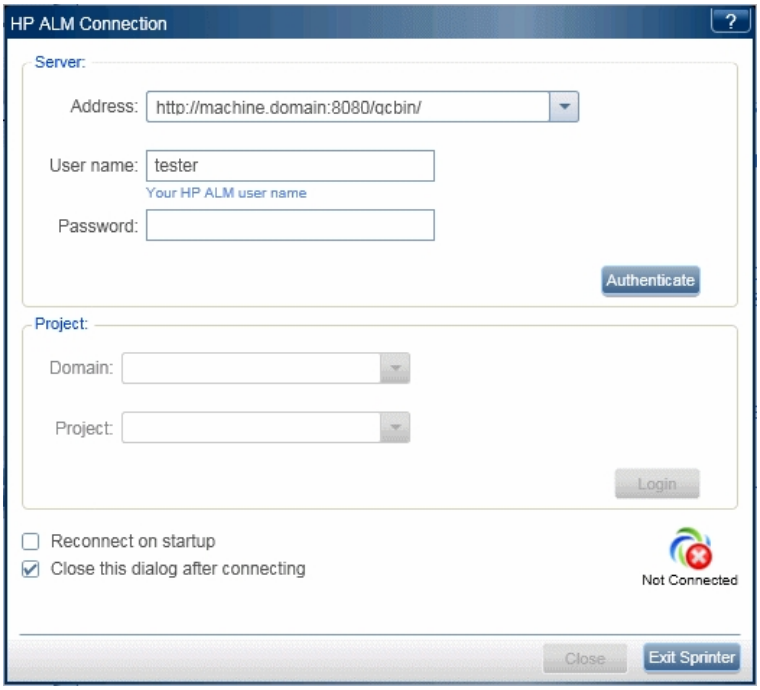
# Application Lifecycle Management Connection Dialog Box

This pane enables you to connect to Application Lifecycle Management.

Tasks you can accomplish with the Application Lifecycle Management Connection dialog box:

- "How to Run a Manual Test in Sprinter" on page 119

The following image shows the Application Lifecycle ManagementConnection dialog box.




| | |
|---|---|
| **To access** | Do one of the following:<br>• In the main window, click the Application Lifecycle Managementbutton .<br>• In the status bar, double-click the Application Lifecycle Management icon . |
| **Important information** | • The server **Address** must be entered in the format: `http://<Application Lifecycle Management server name>[<:port number>]/qcbin`.<br>• Your Application Lifecycle Management connection status is displayed in the status bar. When you are connected to Application Lifecycle Management, the Application Lifecycle Management icon is active and when you are disconnected it is deactivated.<br>• The **Domain** and **Project** fields are not case-sensitive.<br>• If your connection to Application Lifecycle Management is lost and there are tests in the Test Runs 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 hover over them.

# Settings Dialog Box

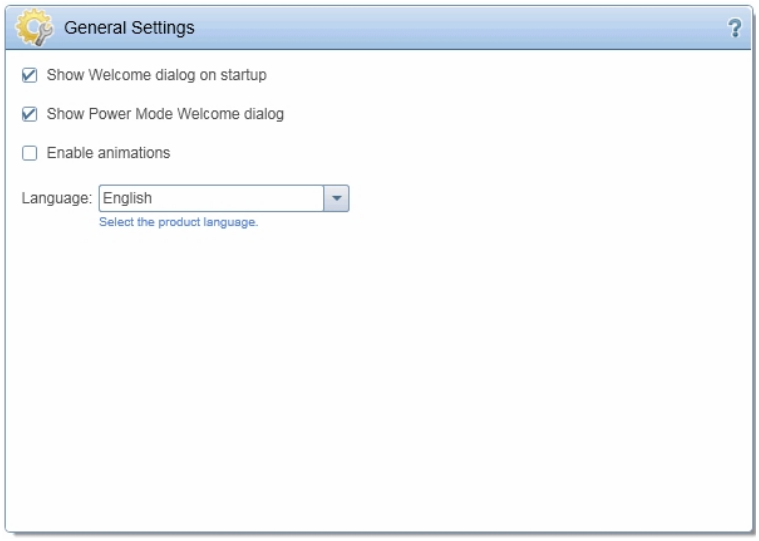
This dialog box includes the following panes:

- "General Settings Pane (Settings Dialog Box)" on the next page
- "Hot Key Settings Pane (Settings Dialog Box)" on page 58
- "Plan Settings Pane (Settings Dialog Box)" on page 59
- "Run Settings Pane (Settings Dialog Box)" on page 60
- "Mirroring Settings Pane (Settings Dialog Box)" on page 62
- "Mobile Settings Pane (Settings Dialog Box)" on page 63

# General Settings Pane (Settings Dialog Box)

This pane enables you to set general settings for Sprinter.

The following image shows the General Settings pane.




| | |
|---|---|
| **To access** | Select **Settings** button **> General** node. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| **Show Welcome dialog on startup** | Opens the Welcome dialog box each time you start Sprinter. For details, see "Welcome Dialog Box" on page 48.<br><br>**Tip:** You can also disable this dialog by clearing the **Show on startup** check box in the dialog box. |
| **Show Power Mode Welcome dialog** | Opens the Welcome to Power Mode dialog box when you activate Power Mode.<br><br>**Tip:** You can also hide this dialog by clearing the **Display this screen when Power Mode is turned on** check box in the dialog box. |
| **Enable Animations** | Enables animations for Data Injection and Annotations during test runs. Animation enhances the look and feel of the run, showing the operations within the applications in an animated way.<br><br>**Note:** Enabling animation may affect performance. |

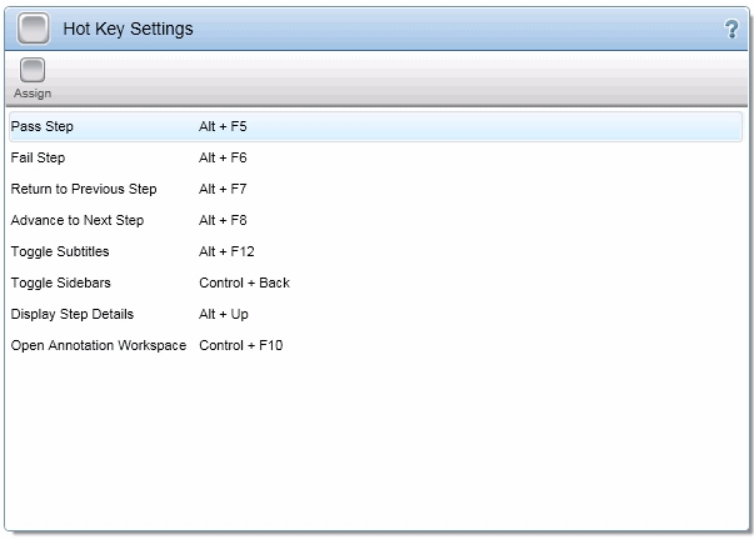
| UI Elements | Description |
|---|---|
| **Language** | A drop-down indicating the interface language.<br><br>**Note:** For a change in the interface language to take effect, you must restart Sprinter. |

# Chapter 2

## Hot Key Settings Pane (Settings Dialog Box)

This pane enables you to define hot keys for various functions in Sprinter.

The following image shows the Hot Key Settings pane.




| | |
|---|---|
| **To access** | Select **Settings** button Settings **> Hot Keys** node. |

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

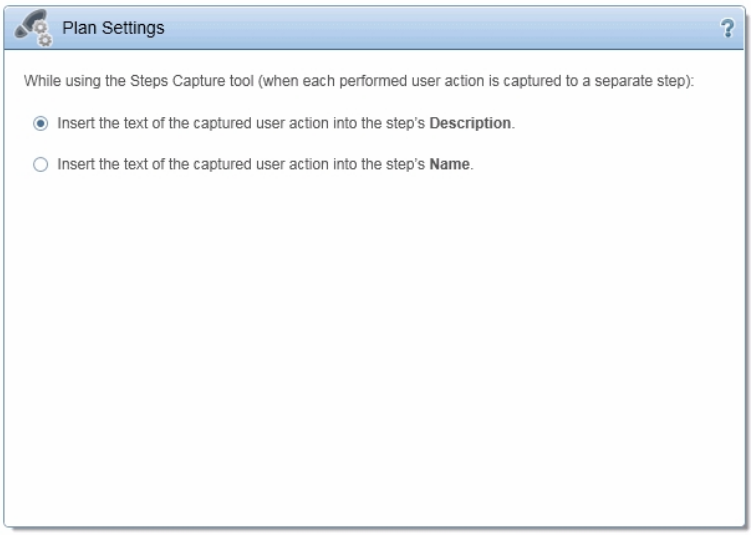
| UI Elements | Description |
|---|---|
| **Assign** | Assigns a new hot key to a function.<br>To change the hot key for a function:<br>1. Select the function from the list.<br>2. Click the **Assign** button. The **Assign Hot Key** dialog box opens.<br>3. Press the key combination you want for the hot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

# Chapter 2

## Plan Settings Pane (Settings Dialog Box)

The **Plan** pane enables you to define the test's Plan mode settings.

The following image shows the Plan Settings pane.




| | |
|---|---|
| **To access** | Select **Settings** button > **Plan** node. |
| **Important information** | This settings only applies when Single User Action per Step is selected in a Steps Capture session. |

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

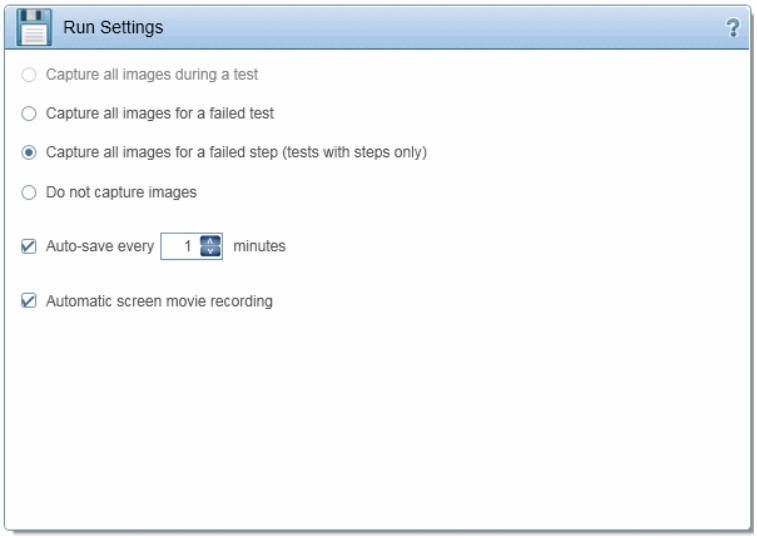
| UI Elements | Description |
|---|---|
| **Plan Settings** | These options indicate where to place the text of the captured action:<br>• **Insert the text of the captured user action into the step's Description.**<br>• **Insert the text of the captured user action into the step's Name.** |

# Chapter 2

## Run Settings Pane (Settings Dialog Box)

This pane enables you to define when Sprinter saves screen captures and movies of your run, and autosave settings.

The following image shows the Run Settings pane.




| | |
|---|---|
| **To access** | Select **Settings** button Settings **> Run** node. |
| **Important information** | • The options in the **Run Settings** pane that control screen captures are relevant only for tests that were 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 214.<br>• Sprinter temporarily captures and saves images for each action in your run. The options in the **Run** pane determine which captures will be saved with the run results and which will be discarded.<br>• If the **Capture all images in a test** option is disabled in the Setting dialog box, your ALM administrator can enable it in the project. In ALM, select **Tools > Customize**. In the Project Customization window, select the **Sprinter** node, and select the desired options in the Screen Captures section. For example, **Enable Storing of all images during a test**. For details, see " Sprinter Customization in ALM " on page 64. |
| **See also** | "Testing on Multiple Machines - Overview" on page 289 |

User interface elements are described below:

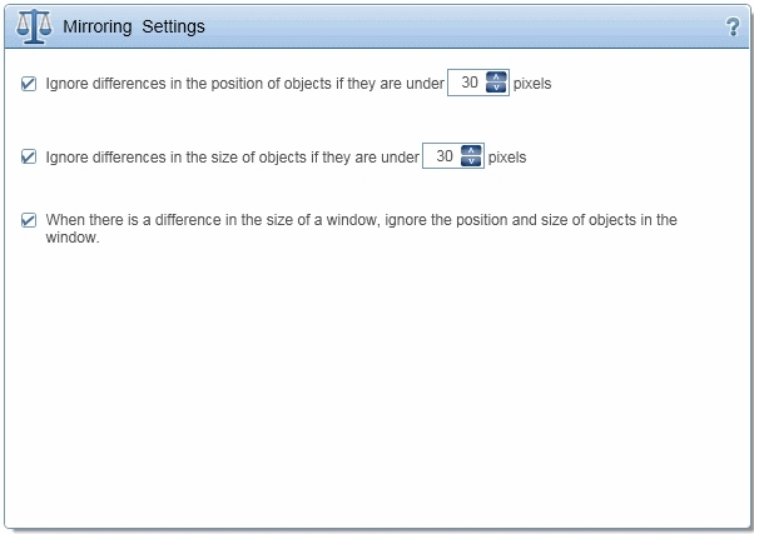
| UI Elements | Description |
|---|---|
| **Capture all images during a test** | Saves a screen capture of the application for every user action.<br><br>Relevant for tests run in Power Mode only.<br><br>**Note:** Capturing all images may cause a delay in the time it takes to submit a defect to Application Lifecycle Management and increase the storage needs of your platform server. |
| **Capture all images for a failed test** | Saves a screen capture of the application for every user action in a failed run.<br><br>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.<br><br>Relevant for tests run in Power Mode only. |
| **Do not capture images** | Does not save any screen captures of the application.<br><br>Relevant for tests run in Power Mode only. |
| **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 a defect.<br><br>**Default state:** Cleared<br><br>• You must be connected to Application Lifecycle Management to use screen movies.<br><br>The screen movie functionality must first be enabled by your Application Lifecycle Management administrator. |

# Mirroring 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.

Mirroring is relevant for tests run in Power Mode only.

The following image shows the Mirroring pane.




| | |
|---|---|
| **To access** | Select **Settings** button Settings **> Mirroring** node. |
| **See also** | • "Testing on Multiple Machines - Overview" on page 289<br>• "Rules Overview" on page 295 |

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.<br><br>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. |

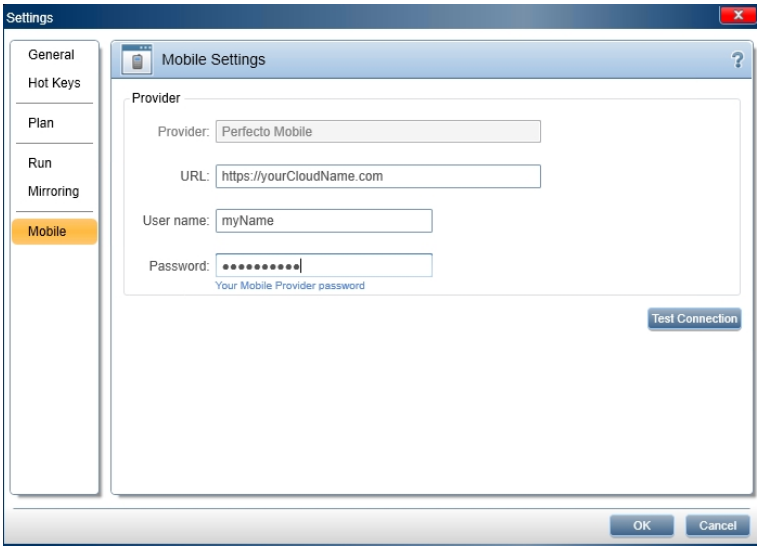
| UI Elements | Description |
|---|---|
| **Ignore differences in the size of objects if they are under <value> pixels** | Defines the number of pixels by which the size of an object can be different between the primary and secondary machines.<br><br>If the same object's size differs by up to this number 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. |

# Mobile Settings Pane (Settings Dialog Box)

This pane enables you to configure your mobile testing provider account.

Mobile is relevant for tests run in Power Mode only.

The following image shows the Mobile Settings pane.




| | |
|---|---|
| **To access** | Select **Settings** button Settings **> Mobile** node. |
| **See also** | • "How to Prepare a Test to Run in Power Mode" on page 223<br>• "How to Run a Test Using a Mobile Cloud Provider" on page 130<br>• "Mobile Device List dialog box" on page 141 |

| | |
|---|---|
| **Important Information** | The following are system requirements for integration with Perfecto Mobile:<br>**General Requirements**<br>• IE 7 or later is required.<br>• Adobe Flash player plug-in version 11.1 (or later) is required.<br>If you work in Citrix environment, you need administrative privileges to view Adobe Flash player objects.<br>**Network Requirements**<br>• Bandwidth (Download speed)<br>1.5Mbps for the first device plus 500 kbps for each additional device.<br>• Video Streaming and connection protocols:<br>For RTMP, com port 1935 is enabled.<br>For RTMPT, com port 80 is enabled.<br>For RTMPS, com port 443 is enabled. |

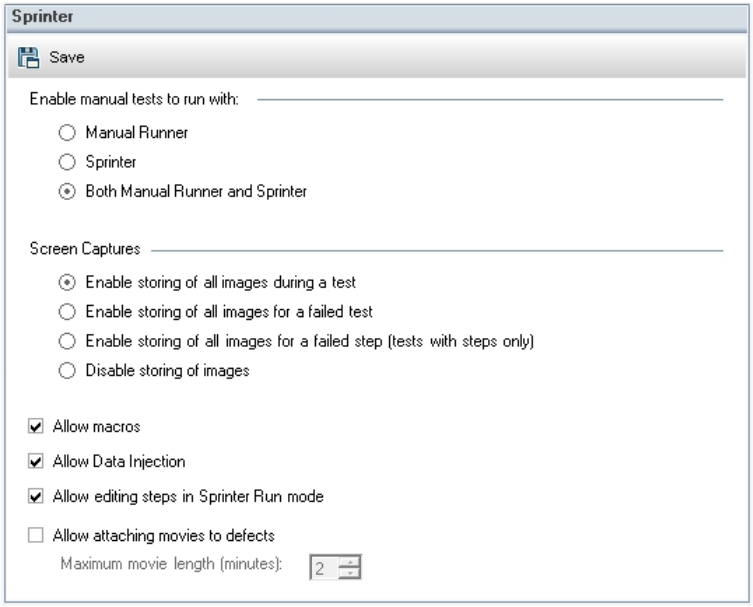
User interface elements are described below:

| UI Elements | Description |
|---|---|
| **Provider** | The name of your mobile provider. |
| **URL** | Your mobile provider URL. For example, `http://yourCloudName.com`. |
| **User name** | Your mobile provider user name. |
| **Password** | Your mobile provider password. |
| **Test Connection** | Test the connection to your mobile provider. |

# Sprinter Customization in ALM

This page is only available in ALM, and allows you to customize and override the settings in Sprinter.

This dialog box enables you to activate or deactivate Sprinter features. Deactivated features are visible in the Sprinter user interface, but are inactive.




| | |
|---|---|
| **To access** | In an ALM project, click **Tools > Customize**. Then click the **Sprinter** node in the left pane. |
| **Important information** | The settings available in the Sprinter page control which features are enabled in Sprinter. Users still need the correct permissions within ALM that allow them to perform various functions.<br><br>For example, suppose you select **Allow editing of steps in Sprinter Run Mode**. The features that allow step editing will be enabled in Sprinter. However, users that do not have test editing permissions in ALM will still be unable to edit steps in a test. |
| **See also** | "Run Settings Pane (Settings Dialog Box)" on page 60 |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| **Save** | Saves Sprinter customization changes. |

| UI Elements | Description |
|---|---|
| **Enable manual tests to run with** | Options include:<br>• **Manual Runner.** Enable manual tests to run with the Manual Runner only.<br>• **Sprinter.** Enable manual tests to run with Sprinter only.<br>• **Both Manual Runner and Sprinter.(Default)** Enable manual tests to run with Manual Runner or Sprinter. |
| **Screen Captures** | • Sprinter temporarily saves the screen captures of all the actions in your test. You indicate which images to capture during the run, in Sprinter's Settings dialog box, in the **Run** pane. For details, see "Run Settings Pane (Settings Dialog Box)" on page 60.<br>• The settings below control access to the corresponding options in Sprinter's **Run** pane. These are useful for administrators, as it allows them to limit the amount of images saved during test runs.<br>▪ **Enable storing of all images during a test.** Enables the storing of all images during a run.<br>**Note:** Storing all images during a test may cause a delay due to traffic and increase the storage needs on the ALM repository.<br>▪ **Enable storing of all images for a failed test. (Default)** Enables the storing of all images for a failed test during a run.<br>▪ **Enable storing of all images for a failed step (tests with steps only)**. Enables the storing of all images for a failed step during a run.<br>▪ **Disable storing of images.** Disables the storing of any images during a run.<br>• Regardless of your selection, you can always attach screen captures to defects, both during your test, and at the end of your test from the test results. |
| **Allow macros** | Enable recording and running macros in Sprinter. Macros are available only for tests run in Sprinter using Power Mode. |
| **Allow Data Injection** | Enable Sprinter's Data Injection feature, allowing you to automatically enter data into fields in your test application. Data Injection is available only for tests run in Sprinter using Power Mode. |

| UI Elements | Description |
|---|---|
| **Allow editing of steps in Sprinter** | Enable adding, deleting, and modifying the name or description of steps in a test.<br><br>If this option is cleared, you are still able to modify the actual results of a step and add screen captures to steps. |
| **Allow attaching movies to defects** | Enable attaching movies to defects when opening a defect from Sprinter's Tools sidebar, Workspace Tools sidebar, or from the test results.<br><br>• **Maximum movie length (minutes).** The maximum length of the movie that you can attach to a defect. The movie length for each defect is set in Sprinter's Smart Defect Settings dialog box. You can attach a movie to a defect, of a size that is up to the length of time defined by this setting. The maximum allowable length of a movie is 10 minutes.<br><br>**Note:**<br>▪ Increasing the length of movies that can be attached to defects may cause a delay in the time it takes to submit a defect to ALM and increase the storage needs of your ALM server.<br>▪ The length of the movie you can attach to a defect may be limited by the maximum size of an attachment you are allowed to attach to a defect in ALM. |

# Troubleshooting and Limitations - General

This section describes troubleshooting and limitations for Sprinter.

## Sprinter Integrations

- Sprinter stores user information in Application Lifecycle Management, in the Sprinter folder in the **Resources** folder. You should not modify this folder.
- When the Application Lifecycle Management Test Instances Filter dialog box is open, if you navigate away from the dialog box, you may need to press ALT+TAB (for local machines) or ALT+INSERT (for remote machines) to return to the dialog box.
- Sprinter 12.00 and QuickTest Professional 11.00 or UFT 11.50 cannot be installed on the same machine. Sprinter 12.00 and UFT 12.00 can be installed on the same machine. However, you may be unable to run tests in Power mode while UFT is running.
- Installing Sprinter 12.00 may interfere with a manually entered UFT registry entry "AbortIfHangInSendData" under HKEY_LOCAL_MACHINE\SOFTWARE\Mercury Interactive\QuickTest Professional\MicTest\.
  **Workaround**: On machines with UFT 12.00, add this registry entry manually after the Sprinter installation.

## Sprinter Agent Timeout

During Steps Capture or Run Test startup, the first time you perform the operation on a given machine, a popup message may report that the Sprinter Agent is not responding. This may indicate that the initialization of the agent exceeded the allotted time.

**Workaround 1: (per machine)**
Repeat the operation several times. If you do not succeed, refer to Workaround 2.

**Workaround 2: (per machine)**

1. Close Sprinter.
2. Increase the agent's initialization time. Open the **Sprinter.exe.config** file located in Sprinter's **bin** folder and locate the entry *Initialize:80*. Increase its value, for example to *Initialize:280*.
3. Start Sprinter and repeat the problematic operation (Steps Capture or Run Test startup).
4. If the operation succeeds, open the above **Sprinter.exe.config** file that you modified earlier. Revert to the original value—*Initialize:80*.

# Sprinter Ports

By default, Sprinter chooses ports during runtime. You can control the ports used by Sprinter when it communicates with the agent and other clients. This may be required if you are working over a firewall.

To set the ports, modify Sprinter's configuration files, located in the installation's **bin** folder. Uncomment the appropriate keys according to the table below. Accept the default value or provide a custom port.

| File to Edit | Affected Process | Key to uncomment and edit |
|---|---|---|
| Sprinter.exe.config | The port number to use by the TCP listener at the Sprinter.exe process (to enable requests from the AlmClient.exe process). | <!--<add key="Port.IMnR.Tcp" value="9091"/>--> |
| SprinterRTE.exe.config | The port number to use by the TCP listener at the SprinterRTE.exe process (to enable requests from the Sprinter.exe process). | <!--<add key="Port.Station.Tcp" value="9092"/>--> |
| SprinterAgent.exe.config | The port number to use by the TCP listener at the SprinterAgent.exe process (to enable requests from the Sprinter.exe process). | <!--<add key="Port.Agent.Tcp" value="9093"/>--> |

The changes will take affect the next time you start Sprinter or the Sprinter Agent. (To restart the Agent, right-click its tray icon and select **Exit**. To start it again, select **Sprinter Agent** from the Start menu.)

For additional information about each of the settings, refer to the comments in the configuration files.

**Note:** This configuration only allows you to run a single instance of Sprinter per machine. Therefore, you will be unable to run multiple instances of Sprinter on terminal servers or Citrix environments on the same machine.

# Chapter 3

# Creating Tests and Business Components

This chapter includes:

**Concepts**


- "Test and Component Authoring Overview" on the next page


**Tasks**


- "How to Author a Test or Component" on page 72


**Reference**


- "Plan Area" on page 76
- "Things to Remember When You Work with the Tests and Components List " on page 80
- "Open Dialog Box" on page 81
- "Save/Save As Dialog Box" on page 83
- "Check Out Dialog Box" on page 86
- "Check In Dialog Box" on page 87
- "Definitions Group (Test/Component Tab)" on page 88
- "Steps Tab" on page 96
- " Call to Test Dialog Box" on page 104
- " Select Application Dialog Box" on page 106
- "Capture Sidebar" on page 108
- "Captured Steps Sidebar" on page 110

# Test and Component Authoring Overview

Sprinter's **Plan** mode enables you to create and edit tests or components directly in Sprinter and save them to the Application Lifecycle Management. You can create and edit steps manually in the Steps tab, or use **Steps Capture** to automatically generate steps based on your user actions. You can then add screen captures or attachments to steps. You can define input parameters for each step, and also output parameters for components.

For task details, see "How to Author a Test or Component" on the next page"How to Author a Test or Component" on the next page.

For user interface details, see "Plan Area" on page 76.

# How to Author a Test or Component

This following steps describe how to create and manage tests and components in Sprinter.

This task includes the following steps:

- Prerequisites
- Create a new test or component
- Open an existing test or component
- Manage version-controlled tests or components
- Manually add and edit steps
- Automatically add steps using Steps Capture
- Manage step parameters
- Manage step attachments
- Manage component snapshots
- Save the test

## Prerequisites

Ensure that you have the required user permissions and connect to Application Lifecycle Management as described in "How to Get Started with Sprinter" on page 46. Make sure that the toolbar shows **Plan** mode

.

## Create a new test or component

- To create a new test, click the **New** button

in the **Plan** area. A new test is added to the **Tests and Components** list.
- To create a new business component, select **New > New HP ALM Business Component**. A new business component is added to the **Tests and Components** list.

## Open an existing test or component

- To open a test, click the **Open** button

in the **Plan** area.

- To open a business component, select **Open > Open HP ALM Business Component**.

If you are already connected to Application Lifecycle Management, the **Open** dialog box opens, enabling you to select which Application Lifecycle Management tests or components you want to open.

If you are not connected to Application Lifecycle Management, the Application Lifecycle Management **Connection** dialog box opens enabling you to first enter the server information. For details, see "Application Lifecycle Management Connection Dialog Box" on page 52.

For details on the **Open** Application Lifecycle Management **Test/Component** dialog box, see the "Open Dialog Box" on page 81.

## Manage version-controlled tests or components

If you open a test or component from an Application Lifecycle Management project that supports version-control, the test or component opens in read-only mode unless you have already checked it out. The following functionality is available from the **Plan** area's **Versions** menu for managing version-control:

- To enable editing, use the **Check Out** option. The test or component is checked out for you, and only you can edit its contents. You can only check out the last version—not older versions.
- To release the check out of the test or component, use the **Check In** option. The test or component is checked in to the Application Lifecycle Management project, and other users can now check out and edit that test or component.
- To cancel the check out of the test or component without changing the version number or saving any changes that you made to it, use the **UndoCheck Out** option. The test or component is checked back in and all changes that you made after the check out are lost.

For details on the **Check Out** dialog box, see the "Check Out Dialog Box" on page 86.

For details on the **Check In** dialog box, see the "Check In Dialog Box" on page 87.

## Manually add and edit steps

Use the **Steps** tab to:

- add, edit, move, and delete test or component steps
- import steps from Excel or CSV files
- format steps using rich text editing capabilities
- add screen captures and attachments to steps

- insert calls to an external Application Lifecycle Management test
- insert parameters to steps

For details, see the "Steps Tab" on page 96.

**Note:** It is recommended that you limit the content of all fields that support rich text, such as **Description**, to 2500 characters.

### Automatically add steps using Steps Capture

In the **Steps** tab, select an application for your test and then click the **Steps Capture** button to navigate within your application and perform typical user actions. For details, see "Steps Tab" on page 96.

While you perform actions, Sprinter captures them and converts the actions into steps. Using the **Captured Steps** sidebar, you can define whether to convert each user action to a step or to group multiple user actions into steps. For details, see "Captured Steps Sidebar" on page 110.

### Manage step parameters

Add parameters to your test or component using the **Test/Component** tab's **Parameters** pane. You can then associate these parameters with steps in the **Steps** tab.

**Note:** For tests, only input parameters are supported. For components, input and output parameters are supported, per component.

For details on the **Parameters** pane,see "Parameters Pane (Plan Mode Definitions Group)" on page 91.

### Manage step attachments (tests only)

Use the **Test** tab's **Attachments** pane to add and remove test attachments.

This pane is not available for components.

For details on the **Attachments** pane, see "Attachments Pane (Plan Mode Definitions Group)" on page 94.

### Manage component snapshots (components only)

Use the **Snapshots** pane to add, annotate, or remove screen captures for components. These screen captures are then saved with your component in Application Lifecycle Management.

This pane is not available for tests.

For details on the **Snapshots** pane, see Snapshot Pane (Plan Mode Definitions Group).

### Save the test or component in Application Lifecycle Management

In the **Tests and Components** pane, do one of the following:

- Click the **Save** button. The Save dialog box opens for tests or components that you save for the first time.
- Select **Save** > **Save As.** The Save As dialog box opens and allows you to save your test or component under another name.

For details on the **Save/Save As** dialog box, see "Save/Save As Dialog Box" on page 83.

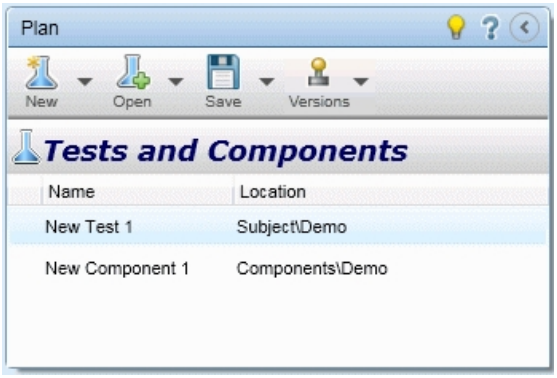
# Plan Area

This area enables you to create, open, and save tests and components.

Tasks you can accomplish with the **Plan** area:

- "How to Author a Test or Component" on page 72

The following image shows the Plan area.




| | |
|---|---|
| **To access** | 1. Start Sprinter and close the **Welcome** window, if open.<br>2. Click **Plan** in the Sprinter title bar. |
| **Important information** | If you are not connected to Application Lifecycle Management and you create or open a test or component, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, enabling you to connect to Application Lifecycle Management first. |
| **See also** | "Things to Remember When You Work with the Tests and Components List " on page 80 |

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

| UI Element | Description |
|---|---|
| | Creates a new test or component and adds it to the **Tests and Components**list.<br><br>Drop-down options:<br><br>• **New HP** Application Lifecycle Management **Test.** (Default) Adds a new blank test to the **Tests and Components** list.<br><br>• **New HP** Application Lifecycle Management **Business Component.** Adds a new component to the **Tests and Components** list. |
| | Adds an existing test or component to the **Tests and Components** list.<br><br>Drop-down options:<br><br>• **Open HP** Application Lifecycle Management **Test.** (Default) Opens the Open ALM Test dialog box. The tests you select are added to the **Tests and Components** list.<br><br>• **Open HP** Application Lifecycle Management **Business Component.** Opens the Open ALM Business Component dialog box. The components you select are added to the **Tests and Components** list.<br><br>For details, see "Open Dialog Box" on page 81. |
| | Opens the "Save/Save As Dialog Box" (described on page 83), which enables you to save the items in the **Tests and Components** list.<br><br>**Shortcut key:** `Ctrl+S`<br><br>Drop-down options:<br><br>• **Save.** Saves the selected test or component.<br><br>• **Save As.** Saves a copy of the selected test or component to the specified location.<br><br>**Note:** The save options are disabled when more than one test or component is selected. |

| UI Element | Description |
|---|---|
| | Enables you to manage versions of tests and components.<br><br>Drop-down options:<br><br>• **Check Out.** Checks out the test or component from HP ALM.<br><br>• **Check In.** Checks the test or component into HP ALM.<br><br>• **Undo Check Out.** Cancels the check out of the test or component and discards all of the changes made since it was checked out.<br><br>**Notes:**<br><br>• These options are enabled only when you are connected to an Application Lifecycle Management project that supports version control.<br><br>• Viewing version history and baseline history of tests and components is not supported.<br><br>**Important:**<br><br>• Before upgrading a project in ALM, make sure to check-in all Sprinter files in the Test Resources module. |

| UI Element | Description |
|---|---|
| **Name** | The list of open tests and components.<br><br>**Notes:**<br><br>• When you select a test or component, the details pane displays the **Definitions Group** for that test or component. For details, see the "Definitions Group (Test/Component Tab)" on page 88.<br><br>• An asterisk next to a test or component name indicates the test or component has changes that have not been saved.<br><br>• A warning symbol ⚠ next to a test or component indicates a problem with the definitions of the test or component or in the **Steps** tab. When you select the test or component, the warning symbol is also displayed adjacent to the node in the Definitions group or step, that is causing the warning. Select the node and review the displayed definitions for any warning messages. For details, see the "Definitions Group (Test/Component Tab)" on page 88.<br><br>• A lock symbol next to a test or component indicates that it is currently locked (in a non-versioned project) or checked-out to another user (in a versioned project). |
| **<Context menu (right-click) options>** | The following options are available from the context menu, when you select a test or component from the list.<br><br>• **Check Out.** Checks out the test or components from HP ALM.<br><br>• **Check In.** Checks in the test or components into HP ALM.<br><br>• **Undo Check Out.** Cancels the check out of the test or component and discards all of the changes made since it was checked out.<br><br>• **Remove.** Removes the selected tests or components from the **Tests and Components** list.<br><br>• **Save.** Saves the selected test or component.<br><br>• **Save As.** Saves a copy of the selected test or component to the specified location. |
| | **Hide/Show.** Hides or shows the **Plan** area. |

# Things to Remember When You Work with the Tests and Components List

- A warning symbol ⚠ next to a test or component indicates a problem with the definitions of the test or component or in the **Steps** tab. When you select the test or component, the warning symbol is also displayed adjacent to the node in the **Definitions** group or step, that is causing the warning. Select the node and review the displayed definitions for any warning messages. For details, see "Definitions Group (Test/Component Tab)" on page 88.

- A lock symbol next to a test or component indicates that it is currently locked by another user (in a non-versioned project) or checked-out by another user (in a versioned project).

- For a full description of all the features in the **Tests and Components** list, see "Plan Area" on page 76.

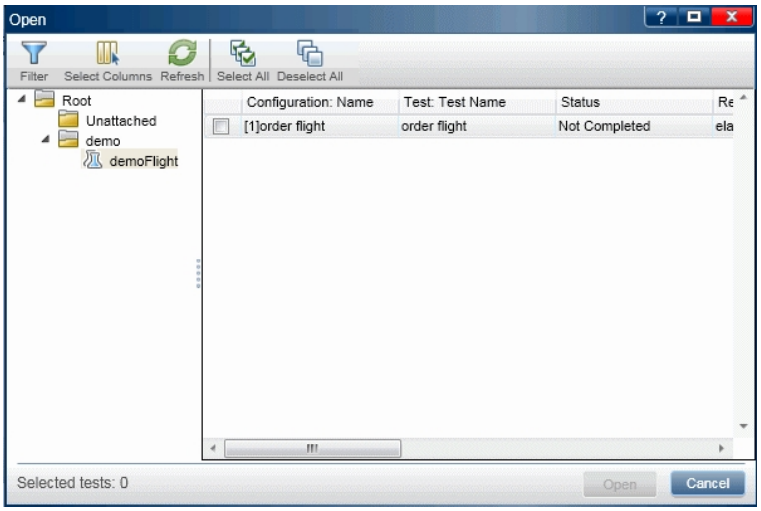
# Open Dialog Box

This dialog box enables you to open a test or component from Application Lifecycle Management. For tests, you open a test from the Application Lifecycle Management Test Plan module. For components, you open a component from the Application Lifecycle Management Business Components module.You can filter the tests or components that are displayed to make their selection easier.

Tasks you can accomplish with the Open dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Open dialog box.




| | |
|---|---|
| **To access** | In the **Plan** area, select**Open** > **Open HP** Application Lifecycle Management **Test** or **Open** > **Open HP** Application Lifecycle Management **Business Component**. |
| **Important information** | The options in this dialog box are identical when opening tests and components. |

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

| UI Elements | Description |
|---|---|
| | Opens the Filter dialog box, enabling you to filter the tests or components based on specific criteria. For details, click **Help** in the Filter dialog box. |
| | Opens the Select Columns dialog box, enabling you to select the columns to display. For details, click **Help** in the Select Columns dialog box. |

| UI Elements | Description |
|---|---|
| | Reloads the data from HP ALM. |
| | Selects all the currently displayed tests or components in the list. |
| | Deselects all the currently displayed tests or components in the list. |
| **<folder list>** | Located on the left side of the dialog box. Displays all the test or component folders available in your project.<br>**Note:** You cannot move items within a folder. |
| **<Test list>/ <Component list>** | Located on the right side of the dialog box. The list of tests or components in the selected folder in the folder list. Select the check boxes next to the tests or components you want to open in Sprinter. |

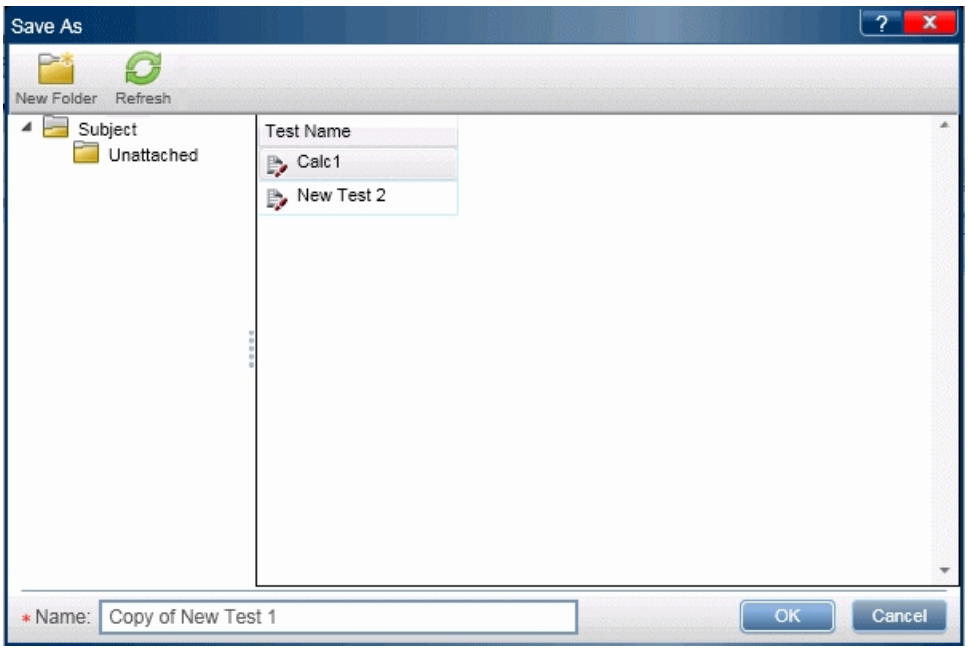
# Save/Save As Dialog Box

This dialog box enables you to select a location in which to save your test or component.

Tasks you can accomplish with the Save/Save As dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Save As dialog box.




| | |
|---|---|
| **To access** | In the **Plan** area, do one of the following:<br>• Click **Save** or press CTRL+S<br>• Select **Save** > **Save As** |
| **Important information** | • The options in the Save dialog box are identical to the options in the Save As dialog box.<br>• The options in the Save/Save As dialog box are identical when saving tests or components.<br>• The **Save** dialog box opens for tests or components that you save for the first time.<br>• The **Save As** dialog box opens and allows you to rename a tests or component. |

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

| UI Element | Description |
|---|---|
| | Opens the " New Folder Dialog Box" (described on page 85), which enables you to add a folder under the currently selected folder in the folder list. |
| | Refreshes the pane of the selected folder displaying its current contents. |
| **<folder list>** | Located on the left side of the dialog box. Displays all the tests or components folders available in your project.<br>**Note:** You cannot move items within a folder. |
| **<Test list>/ <Component list >** | Located on the right side of the dialog box. The list of tests or components in the selected folder in the folder list. |

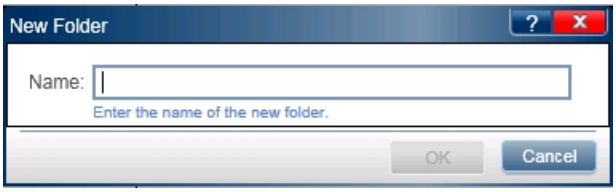
# New Folder Dialog Box

This dialog box enables you to create a new folder in Application Lifecycle Management in which to save your test or component.

Tasks you can accomplish with the New Folder dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the New Folder dialog box.




| | |
|---|---|
| **To access** | In the Save/Save As dialog box, click **New Folder**. |
| **See also** | "Save/Save As Dialog Box" on page 83 |

Descriptions of the user interface elements are shown when you hover over them.

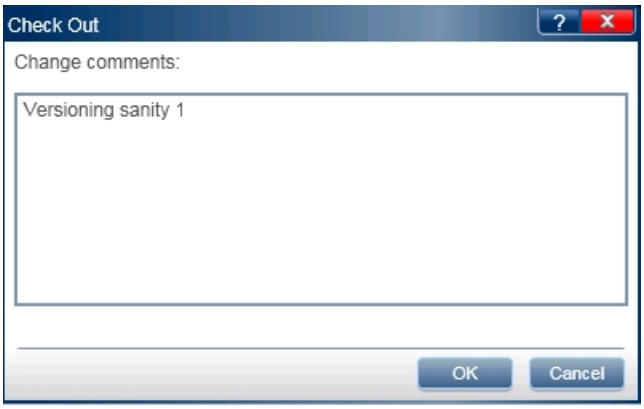
# Check Out Dialog Box

This dialog box enables you to add a comment that will be associated with the checkout.

Tasks you can accomplish with the Check Out dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Check Out dialog box.




| | |
|---|---|
| **To access** | In the **Plan** area, select **Versions** > **Check Out**. |
| **Important information** | You can only check out the latest version. |
| **See also** | "How to Author a Test or Component" on page 72 |

User interface elements are described below:

| UI Element | Description |
|---|---|
| **Change Comments** | A text area for describing the reason for the check out. |

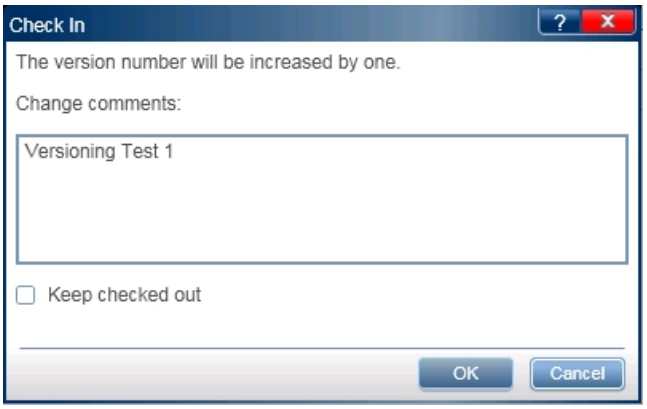
# Check In Dialog Box

This dialog box enables you to add a comment that will be associated with the checkin.

Tasks you can accomplish with the Check In dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Check In dialog box.




| | |
|---|---|
| **To access** | In the **Plan** area, select **Versions** > **Check In**. |
| **Important information** | After the checkin, the version number will be increased by one. |
| **See also** | "How to Author a Test or Component" on page 72 |

User interface elements are described below:

| UI Element | Description |
|---|---|
| **Change comments** | A text area for describing the change. |
| **Keep checked out** | Keeps the test or component checked out. This is ideal for:<br>• Creating a new test version. When you enable this option, provide a comment, and click **OK**. Sprinter creates a new version of the test in ALM.<br>• Entering comments while still working in a change. |

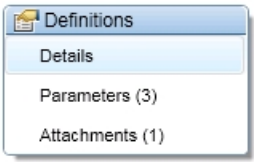
# Definitions Group (Test/Component Tab)

The Plan mode's **Definitions** group is located in the left side of the **Test** or **Component** tab in the main window.

This group includes the following panes:

- "Details Pane (Plan Mode Definitions Group)" on the next page
- "Parameters Pane (Plan Mode Definitions Group)" on page 91
- "Attachments Pane (Plan Mode Definitions Group)" on page 94 (Tests only)
- Snapshot Pane (Plan Mode Definitions Group) (Components only)

The **Parameters** and **Attachments** nodes indicate in parenthesis the number of included items for the selected test or component.



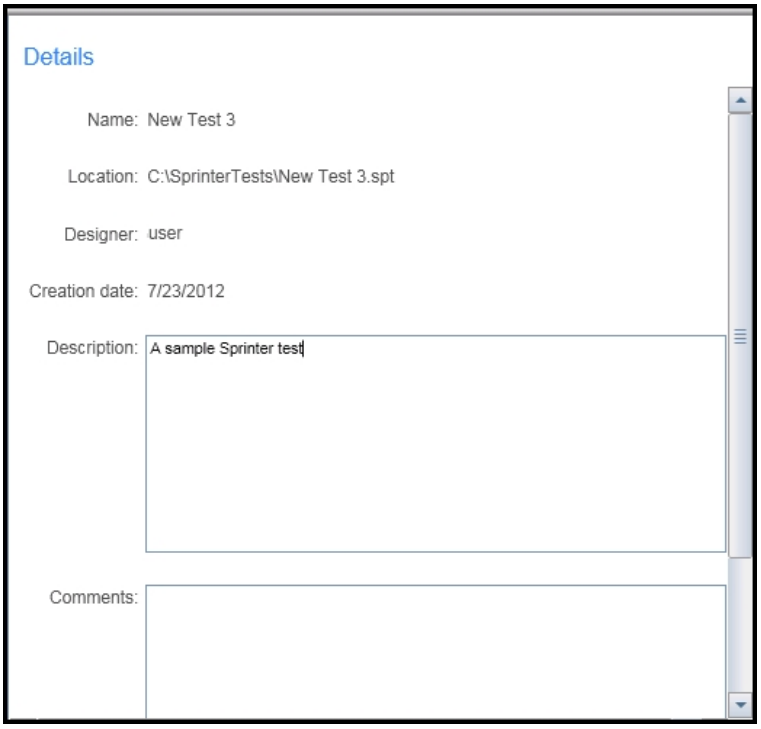
# Details Pane (Plan Mode Definitions Group)

This pane displays the test or component details.

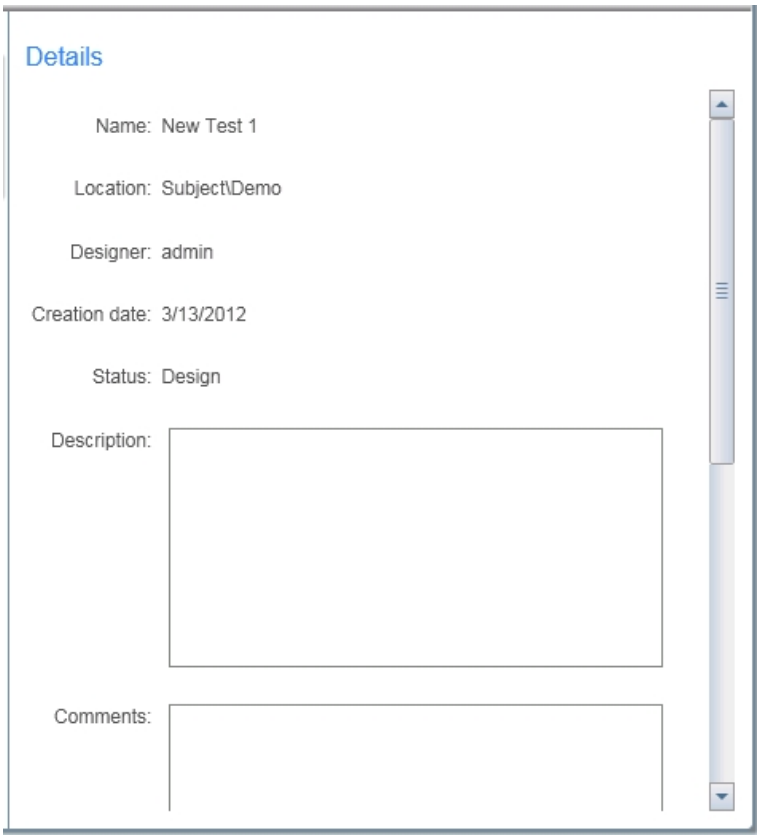
Tasks you can accomplish with the General Settings:

- "How to Author a Test or Component" on page 72

The following image shows the Details pane.




The following image shows the Details pane for tests.




| | |
|---|---|
| **To access** | Do the following:<br>1. In the **Plan** area, select a test or component in the **Tests and Components** list.<br>2. Click the **Test** or **Component** tab in the right pane.<br>3. Select the **Definitions** > **Details** node. |
| **Important information** | The Details pane for tests has a read-only **Designer** field.<br>• The Details pane for components has a read-only **Created by** field.<br>• If your test or component has user-defined fields, they are displayed and can be edited in the **Details** pane.<br>• You can save tests and components only after you enter information in mandatory user-defined fields (marked with an asterisk), if they were defined for the project. |

Descriptions of the user interface elements are available when you hover over them.

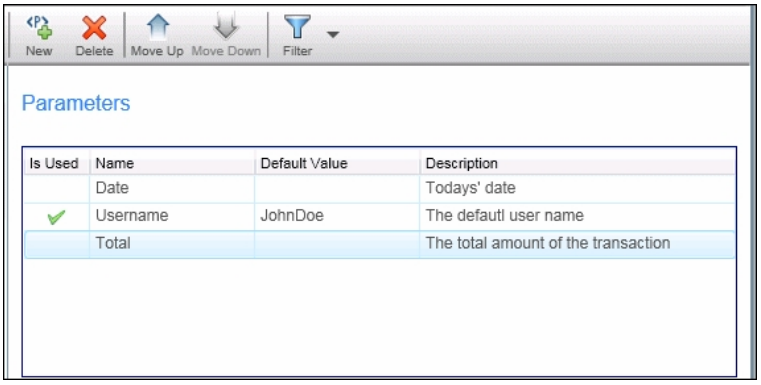
# Parameters Pane (Plan Mode Definitions Group)

This pane enables you to create parameters and edit their details. It displays existing parameters and allows you to edit their values.

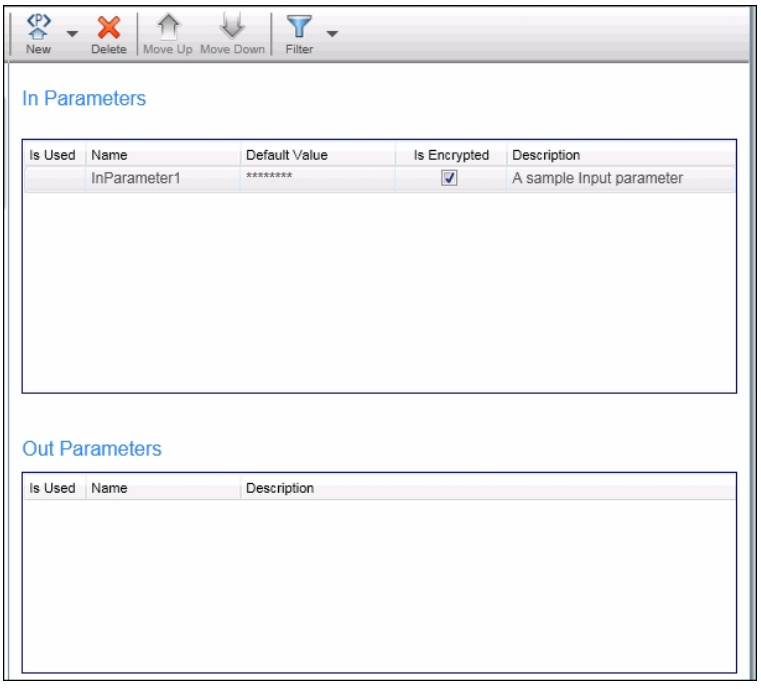
Tasks you can accomplish with the Parameters pane:

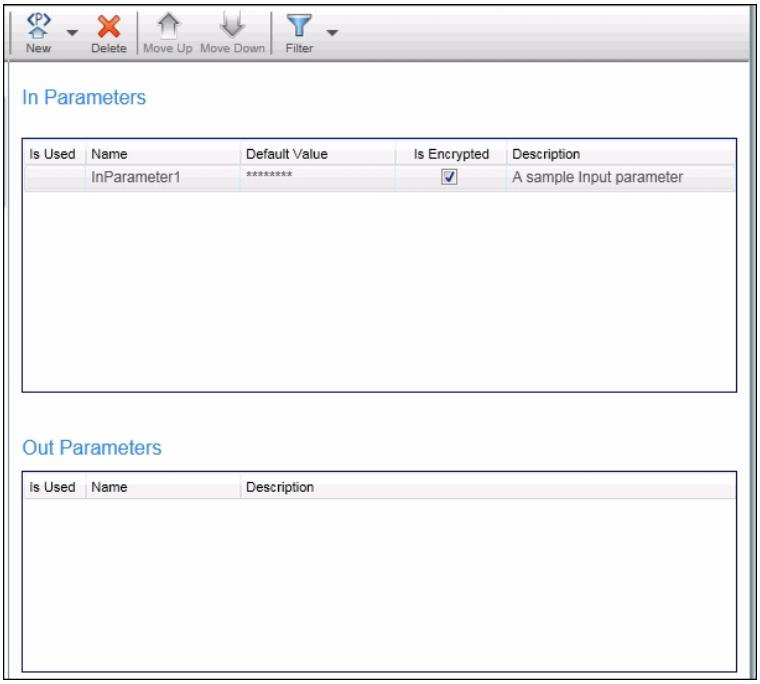
- "How to Author a Test or Component" on page 72

The following image shows the Parameters pane for tests.




The following image shows the Parameters pane for components.



| | |
|---|---|
| **UI Example - Components** |  <br>Click thumbnail to view full size image. |
| **To access** | Do the following:<br>1. In the **Plan** area, select a test or component from the **Tests and Components** list.<br>2. Click the **Test** or **Component** tab in the right pane<br>3. Select the **Definitions** > **Parameters** node. |
| **Important information** | For tests, only input parameters are supported. For components, both input and output parameters are supported. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | Adds a new input parameter for tests. |
| | Adds a new input or output parameter (for components only). The drop-down provides these options:<br>• **New Input Parameter** (default)<br>• **New Output Parameter** |

| UI Elements | Description |
|---|---|
| | Deletes the selected parameters from the list. |
| | Moves the selected parameter up the list. |
| | Moves the selected parameter down the list. |
| | Enables you to filter the parameter list according to a text string.<br>**Note:** You can use plain text with the wildcard, *. |
| **Is Used** | Indicates whether the parameter is used by the test or component. |
| **Name** | The name of the parameter. |
| **Default Value** | The default value for an input parameter. |
| **Value** | The value of the parameter.<br>**Available only for:** output parameters in components |
| **Is Encrypted** | Indicates whether to encrypt the parameter. This option is automatically selected if the parameter is already encrypted in ALM.<br>**Available only for:** input parameters defined for components |
| **Description** | A description of the parameter and its purpose. |

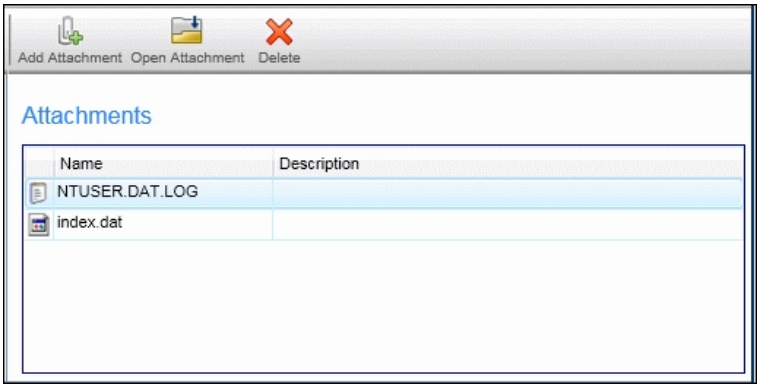
# Attachments Pane (Plan Mode Definitions Group)

This pane displays and enables you to manage attachments that are used in your test. This pane is not available for components.

Tasks you can accomplish with the Attachments pane:

- "How to Author a Test or Component" on page 72

The following image shows the Attachments pane.




| | |
|---|---|
| **To access** | Do the following:<br>1. In the **Plan** area, select a test from the **Tests and Components** list.<br>2. Click the **Test** tab in the right pane.<br>3. Select the **Definitions** > **Attachments** node. |
| **Important information** | This pane is only available for tests. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | Adds an attachment to the list. |
| | Opens the selected attachment in an external application, corresponding to the attachment's file type.<br>**Note:** To open the attachment, the associated application must be installed on your computer. |

| UI Elements | Description |
|---|---|
| | Deletes the selected attachment from the list. |
| **Name** | The file name of the attachment. |
| **Description** | A textual description of the attachment. |

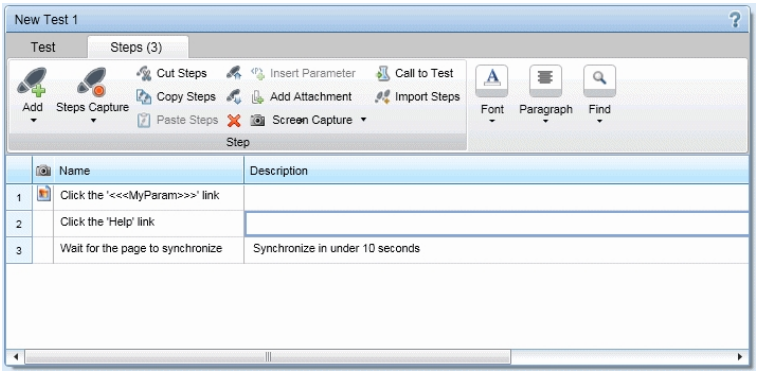
# Steps Tab

This tab displays the steps in your test or component and enables you to edit, move, and delete steps. You can also add attachments, calls to external Application Lifecycle Management tests, and screen captures.

Tasks you can accomplish with the Steps tab:

- "How to Author a Test or Component" on page 72

The following image shows the Steps tab for a manual test.




| | |
|---|---|
| **To access** | Do the following:<br>1. In the **Plan** area, select a test or component from the **Tests and Components** list.<br>2. Click the **Steps** tab. |
| **Important information** | • You can resize the Sprinter window and the columns in the display to view all the information.<br>• Right-click the column header area to select which columns to display.<br>• Parameters in steps are represented by <<<**parameter name**>>>. If a parameter was deleted from the Parameters list, it is displayed as **<parameter name>.** |
| **See also** | "Capture Sidebar" on page 108 |

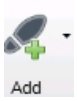
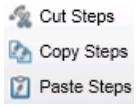
The Steps tab contains a ribbon and a grid representation of the steps.

## Steps Tab - Ribbon

The Ribbon contains the **Step**, **Font**, **Paragraph**, and **Find** sections.

### Step Section

The ribbon's **Step** section lets you manage the test's or component's steps. The following table describes the user interface elements:

| UI Elements | Description |
|---|---|
|  | Adds a new step to the steps grid.<br><br>Drop-down options:<br><br>• **After Current Step** (Default) (ALT+N)<br><br>• **Before Current Step** (SHIFT+ALT+N)<br><br>• **After All Steps** (CTRL+ALT+N) |
| | Starts a **Steps Capture** session, in which you navigate your application and perform user actions as you would in a regular run session. Sprinter captures each user action, converts it to a step, and adds it after the selected step in the steps grid.<br><br>For details on the functionality available with a **Steps Capture** session, see "Captured Steps Sidebar" on page 110. |
|  | **Cut/Copy/Paste Steps.** Allows you to use cut, copy, and paste individual or multiple steps. |
| | **Move Step Up/Down.** Moves the selected step up or down the steps grid. |
| | **Delete Steps.** Deletes the selected steps. |
| | **Insert Parameter.** Opens the "Insert Parameter Dialog Box" (described on page 102), which enables you to insert a parameter at the cursor's location in the **Description** or **Expected Results** fields. |
| | **Add Attachment.** Adds a file from the file system as an attachment to the selected step (tests only). |

**, continued**

| UI Elements | Description |
|---|---|
| | **Screen Capture.** Enables you to add a screen capture to the selected step (ALT+C).<br><br>Drop-down options:<br><br>• **Take Screen Capture.** Opens the Capture sidebar, allowing you to take a screen capture of the desktop and attach it to the selected step. For details, see "Capture Sidebar" on page 108.<br><br>• **Delete Screen Capture.** Removes the attached screen capture from the selected step. |
| | **Call to Test.** Opens the " Call to Test Dialog Box" (described on page 104), which enables you to insert a call to an external Application Lifecycle Management test as a step in your test. When you run your test, the steps of the external test are displayed in the Steps sidebar.<br><br>**Note:** You can only insert calls to manual tests. |

**, continued**

| UI Elements | Description |
|---|---|
| | **Import Steps.** Enables you to import steps from an Excel or CSV file.<br><br>The imported file should comply with the following guidelines:<br><br>• The table must be located in the workbook's first sheet.<br><br>• The steps must be declared in a table structure, with the headers on the top and the step data beneath them.<br><br>• The table's headers must match the columns in the Steps pane. For CSV files, make sure the header row is separated from the data row with a character defined as a common separator in the machine's locale.<br><br>• The standard columns (**Name**, **Description**, **Expected Result**) can have either an English or local language title.<br><br>• When importing steps from a CSV file in a non-English operating system in which the separator is not a comma, all data appears in a single column. For example, in German Windows 7, the default separator, a semicolon, is ignored. **Workaround:** Change the default separator in your locale to a comma. Select Control Panel > Regional and Language > Additional Settings. Change the **List separator** value to a comma.<br><br>• User defined (UDF) column names should be identical to the field's label in ALM Customization. |

### Font Section

The ribbon's **Font** section lets you format text in fields using rich-text capabilities, such as **Description** and **Expected Result**, or user-defined fields of **Memo** type. It includes the following standard controls:

- Select a Font
- Set the Font Size
- Increase/Decrease Font Size
- Set the Text Highlight Color
- Set the Text Color

- Set Text Decoration: Bold/Italic/Underline
- Remove Text Formatting

### Paragraph Section

The ribbon's **Paragraph** section lets you set the paragraph properties to text in the **Description** and **Expected Result** fields. It includes the following standard controls:

- Create Bulleted Entries
- Create Numbered Entries
- Indent Right/Left
- Align Text Left/Center/Right/Justify

### Find Section

The ribbon's **Find** section lets you search the text associated with the steps. The following table describes the user interface elements:

| UI Elements | Description |
|---|---|
| **<search text>** | The text to find in the search in the steps. You can search for text in the **Name**, **Description** or **Expected Results** fields, or in any user-defined field. |
| | Search Down/Up. Allows you to choose the direction of the search. |
| **Match whole word** | Instructs the search engine to find a whole word. |

## Steps Tab - Steps Grid

The Steps grid shows the tests or components in a grid representation. The following table describes the user interface elements (unlabeled elements are shown in angle brackets):

| UI Elements | Description |
|---|---|
| | **Screen Capture.** Indicates whether a screen capture is attached to the selected step. The Screen Capture icon indicates that a screen capture exists. |

| UI Elements | Description |
|---|---|
| **Name** | The name of the step.<br><br>**Default value (for new steps):** `Step <NUMBER>` |
| **Description** | A textual description of the step.<br><br>**Tip:** This field supports rich-text. |
| **Expected Result** | The expected result of the step.<br><br>**Tip:** This field supports rich-text. |
| **<user-defined fields>** | (Optional) If your Application Lifecycle Management project has user-defined fields, they are displayed in the steps grid by their logical names. A red asterisk in the header of a user-defined field, indicates that the field is mandatory—you must provide a value. |
| **Attachments** | The list of files that are attached to the step (tests only). |
| **<Context menu (right-click) options> - Steps column** | The following options are available when you right-click the Step number column in the Steps grid:<br><br>• Cut Steps (CTRL + X)<br>• Copy Steps (CTRL + C)<br>• Paste Steps (CTRL + V)<br>• Add Step Before Current Step (SHIFT + ALT + N)<br>• Add Step After Current Step (ALT + N)<br>• Delete Step (CTRL + DEL) |
| **<Context menu (right-click) options> - editable text columns** | The following options are available when you right-click editable text in the steps grid:<br><br>• **Cut**<br>• **Copy**<br>• **Paste** |

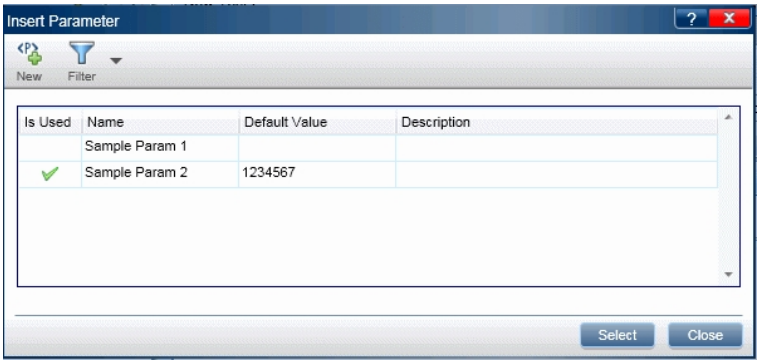
# Insert Parameter Dialog Box

This dialog box enables you to select a parameter from a list to insert and use in a step. You can also add a new parameter to the list.

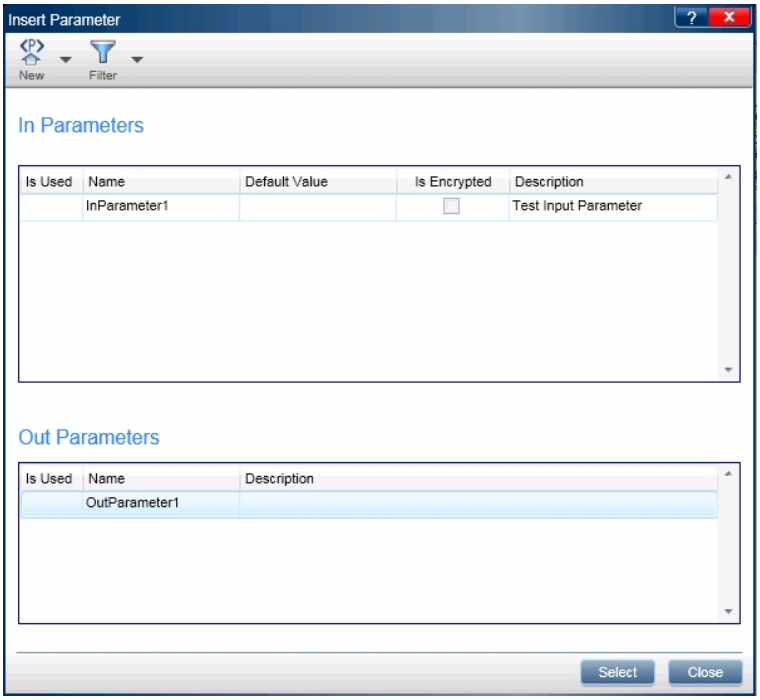
Tasks you can accomplish with the Insert Parameter dialog box:

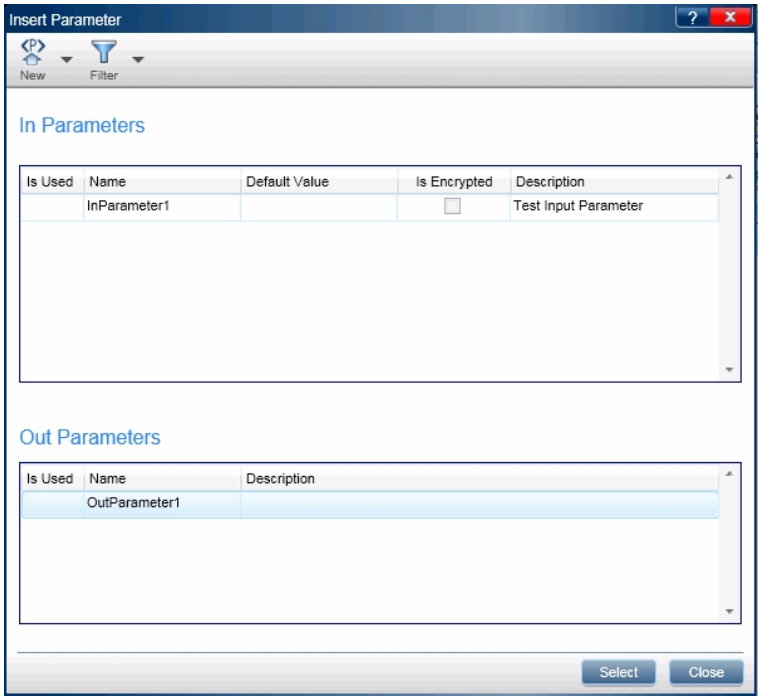
- "How to Author a Test or Component" on page 72

The following image shows the Insert Parameter dialog box for tests .




The following image shows the Insert Parameter dialog box for components.



| | |
|---|---|
| **UI Example - Components** |  <br>Click thumbnail to view full size image. |
| **To access** | Do the following:<br>1. In the Steps Table, click within a step's **Description** or **Expected Result** column.<br>2. Click **Insert Parameter**. |
| **Important information** | For tests, only input parameters are supported. For components, input and output parameters are supported. |
| **See also** | "New Parameter Dialog Box" on the next page |

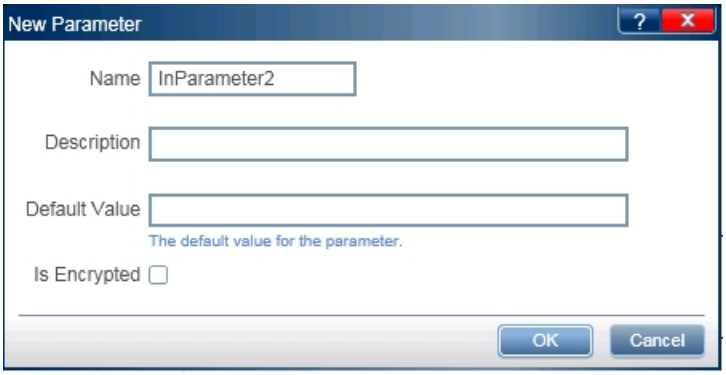
# New Parameter Dialog Box

This dialog box enables you to define a new parameter to add to the list of available parameters.

Tasks you can accomplish with the New Parameter dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the New Parameter dialog box.




| | |
|---|---|
| **To access** | In the "Insert Parameter Dialog Box" on page 102, click **New**. |
| **Important information** | • The **Is Encrypted** option is only available for input business components. When checked, the **Default Value** field shows an encrypted value and is not editable.<br>• You can also add parameters directly to the "Parameters Pane (Plan Mode Definitions Group)" (described on page 91). |

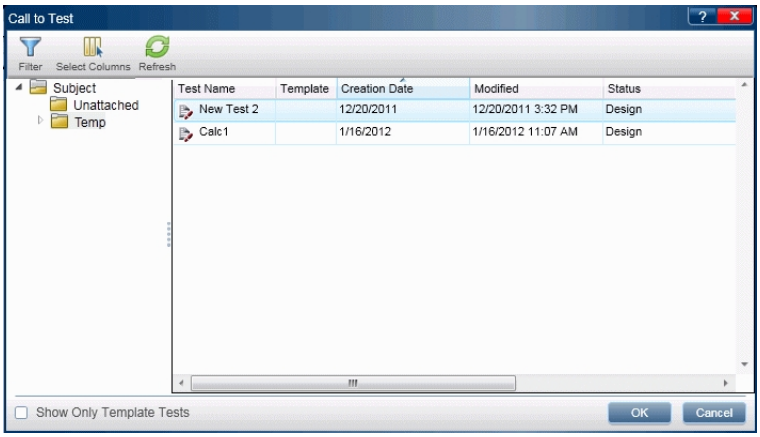
# Call to Test Dialog Box

This dialog box enables you to insert a call to an external Application Lifecycle Management test as a step in your test. When you run your steps, the steps of the external test are displayed in the Steps sidebar. This feature is not supported for components.

Tasks you can accomplish with the Call to Test dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Call to Test dialog box.




| | |
|---|---|
| **To access** | In the "Steps Tab" on page 96, click the **Call to Test** button. |
| **Important information** | • You can only insert calls to manual tests.<br>• Call to Test is not supported for components. |

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

| UI Elements | Description |
|---|---|
| | Opens the Application Lifecycle Management Filter dialog box, enabling you to filter the tests based on specific criteria. For details on filtering tests and components, click **Help** in the Test Instances Filter dialog box. |
| | Opens the Application Lifecycle Management Select Columns dialog box, enabling you to select which columns to view in the dialog box. For details on selecting columns, click **Help** in the Select Columns dialog box. |
| | Refreshes the pane of the selected folder displaying its current contents. |
| **<folder list>** | Located on the left side of the dialog box. Displays all the test folders available in your project.<br>**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 folder in the folder list. Select the test you want to call. |
| **Show only template tests** | Filters the test list to display only template tests.<br>**Default state:** `Selected` |

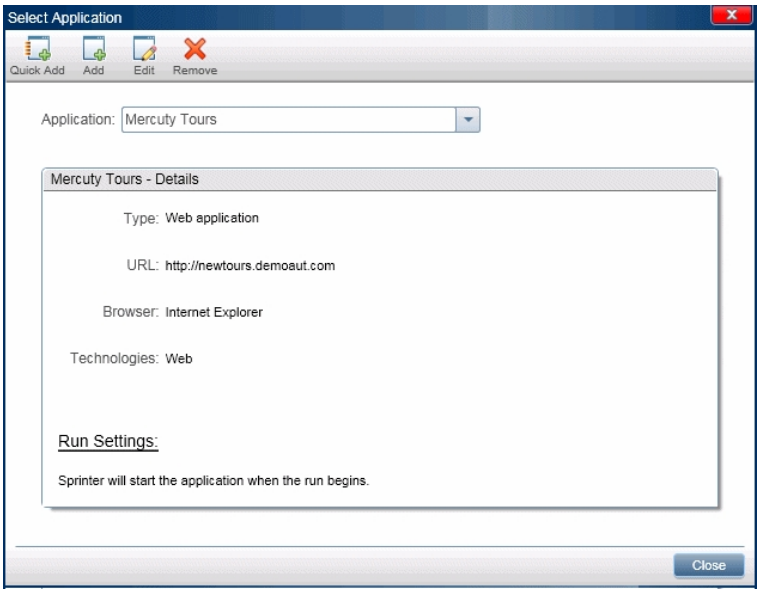
# Select Application Dialog Box

This dialog box 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 Select Application dialog box:

- "How to Author a Test or Component" on page 72

The following image shows the Select Application dialog box when there are previously defined applications.




| | |
|---|---|
| **To access** | Do the following:<br>1. Enter **Plan** mode.<br>2. Open or create a new test or business component.<br>3. Select the **Steps** tab.<br>4. Expand the **Steps Capture** button and choose **Select Application** from the drop-down. |
| **Important information** | For details on how Sprinter maintains the list of applications, see "How User Information is Maintained" on page 44. |
| **See also** | The functionality of this dialog box is similar to the functionality for managing applications when working in Run mode. For details, see "Applications" on page 220. |

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

| UI Elements | Description |
|---|---|
| | Opens the "Quick Add Application Dialog Box" (described on page 234), enabling you to add an application to your application list from a list of currently running applications. |
| | Opens the "Add/Edit Application Dialog Box" (described on page 229), enabling you to manually define a new application to add to your application list. |
| | Opens the "Add/Edit Application Dialog Box" (described on page 229), enabling you to edit the application details for the selected application in the application list. |
| | Removes the selected application from the application list. |
| **Application** | The list of available applications. Use the **Add**, **Quick Add**, **Edit**, and **Remove** buttons to manage the list of applications.<br><br>To use a previously defined application, enter the first character of the name and then select it from the displayed list.<br><br>For details on how Sprinter maintains the list of applications, see "How User Information is Maintained" on page 44. |
| **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 Box" (described on page 229) and edit these details. |

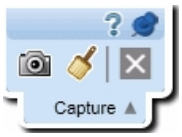
# Capture Sidebar

This sidebar enables you to add a snapshot to a business component or to a test or component step.

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

- "How to Author a Test or Component" on page 72

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




| | |
|---|---|
| **To access - Component snapshot** | To add a Component snapshot:<br>1. In the **Plan** area, select a component in the **Tests and Components** list.<br>2. In the right pane, select the Component tab and click on the **Snapshot** node.<br>3. Click the **Screen Capture** button. |
| **To access - Step snapshot** | To add a Step snapshot:<br>1. In the **Plan** area, select an entry in the **Tests and Components** list.<br>2. In the right pane, select the **Steps** tab.<br>3. Click the **Screen Capture** button. |
| **Important information** | • To close the sidebar, click the **Cancel** button.<br>• To lock the sidebar in the open position, click the thumbtack icon.<br>• To reposition the sidebar, click and drag on the sidebar header. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | **Capture.** Captures the current screen and closes the sidebar. |
| | **Annotate Screen Capture.** Captures a screenshot of the screen and opens it in the annotation workspace. For details, see the "Annotation Tools Sidebar" on page 196. |
| | **Cancel.** Ends the capture session without performing a screen capture. |

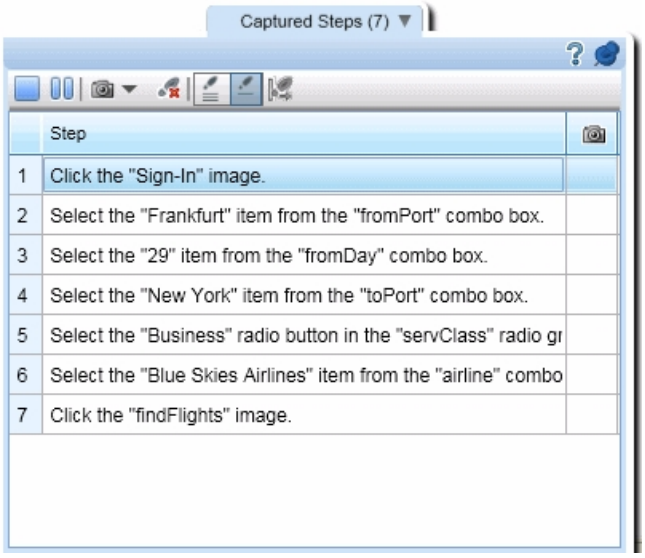
# Captured Steps Sidebar

This sidebar displays the steps that result from the user actions that are performed during your Steps Capture session.

Tasks you can accomplish with the **Captured Steps** sidebar:

- "How to Author a Test or Component" on page 72

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




| | |
|---|---|
| **To access** | In Plan Mode, click the Steps tab's **Steps Capture** button.<br>• To close the sidebar, click the **End Steps Capture Session** button.<br>• To lock the sidebar in the open position, click the thumbtack icon.<br>• To reposition the sidebar, click and drag on the sidebar header. |
| **Important information** | • The steps in this sidebar are displayed in read-only mode. To edit steps, first end the Steps Capture session and then edit the steps in the "Steps Tab" on page 96.<br>• By default, multiple user actions are added to a single step, until you instruct the Steps Capture tool to begin a new step. To automatically create a new step for every action performed, click the **Single User Action per Step** button described below. |

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

| UI Elements | Description |
|---|---|
| | **End Steps Capture Session.** Ends the Steps Capture session and adds the captured steps to the Steps grid. |
| | • **Pause Capture.** Temporarily pauses the capturing of user actions.<br>• **Resume Capture.** Resumes the capturing of user actions. |
| | Tools to manage the screen captures:<br>• **Screen Capture.** Takes a capture of the screen and attaches it to the step selected in the sidebar.<br>• **Annotated Screen Capture.** Opens the Annotated Tools sidebar. The annotated screen capture will be attached to the step selected in the sidebar. For details, see "Annotation Tools Sidebar" on page 196.<br>• **Delete Screen Capture.** Deletes the selected step's screen capture. |
| | **Delete Step.** Deletes the selected step from the Steps grid. |
| | **Multiple User Actions per Step.** Instructs Sprinter to add all user actions to the last step. |
| | **Single User Action per Step.** Creates a new step for each user action. |
| | **Start a New Step.** Creates a new step to which Sprinter will add all future user actions.<br>**Note:** This button is only relevant when **Multiple User Actions per Step** is enabled. |
| **Steps Display area** | A grid representation of the steps showing:<br>**Step number.** The sequential number of the step.<br>**Step.** A textual description of the performed user action. When the Steps Capture session ends, this text is added by default to the step's description area. Alternatively, you can configure this to be added to the Step's **Name** field instead. For details, see "Plan Settings Pane (Settings Dialog Box)" on page 59.<br>**Capture.** An icon indicating that there is a screen capture associated with the step. If no icon is present, the step has no screen capture. |

# Chapter 4

# Running Tests

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

This chapter includes:

**Concepts**


- "Tests with Steps" on page 114
- "Exploratory Tests" on page 115
- "Power Mode Overview" on page 116
- "Running Tests in Power Mode" on page 117


**Tasks**


- "How to Run a Manual Test in Sprinter" on page 119
- "How to Navigate Steps" on page 123
- "How to Mark Steps" on page 125
- "How to Edit and Add Actual Results and Attachments to Steps" on page 127
- "How to Run an Exploratory Test in Sprinter" on page 129
- "How to Run a Test Using a Mobile Cloud Provider" on page 130


**Reference**


- "Run Setup Area" on page 133
- "Things to Remember When You Work with the Test Runs List " on page 132
- "Test <'Test Name'>: All Runs Dialog Box" on page 140
- "Open Dialog Box" on page 143

- "Run Setup Definitions Group" on page 145
- "Run Control Sidebar" on page 150
- "Steps Sidebar" on page 156
- "Generate Test Dialog Box" on page 171

"Troubleshooting and Limitations - Running Tests and Components " on page 172

# Tests with Steps

Sprinter enables you to run steps that you manually add to your test or those that you imported from an external file.

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

- Navigate your steps
- Mark the status of your steps
- 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
- 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 Application Lifecycle Management.

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.

# Exploratory Tests

With Power Mode enabled, you can navigate your application without the need to follow predefined steps. While you navigate your application, Sprinter captures each user action that you perform.

You can then export these user actions to a new manual test, to a Unified Functional Testing test, or to an Excel file. For details, see "How to Run an Exploratory Test in Sprinter" on page 129.

# Power Mode Overview

When you run a Sprinter test in Power Mode, Sprinter is able to 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 the future.

After a test run, you can use the test steps as a template and automatically generate a test. For details, see the "Generate Test Dialog Box" on page 171.

Sprinter's built-in scanners let you scan your application for spelling errors, Web Standards errors, broken links, or localization errors.

Power Mode allows you to take advantage of these advanced testing features. To use Power Mode, click the Power Mode button in the "Main Window" on page 50 and configure each node in the "Power Mode Group" on page 225.

For more details, see "Power Mode" on page 218 and "Running Tests in Power Mode" on the next page.

# 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.<br><br>Sprinter saves settings and other user-specific configurations and applies this information the next time you run Sprinter.<br><br>Many Power Mode configurations are associated with their specific application.<br><br>Because you define application for your test, all tests have the same defined application will share the same Power Mode configuration.<br><br>For details, see:<br><br>• "Applications" on page 220<br><br>• "How User Information is Maintained" on page 44<br><br>• "Application Pane (Power Mode Group)" on page 227 |
| **Data injection** | Enables you to automatically enter data into fields in your application. For details, see "Data Injection Overview" on page 241. |
| **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 258. |
| **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 - Overview" on page 289. |
| **Scanners** | Enables you to check that various aspects of your application behave correctly during a run session. You can scan your application for spelling errors, broken links (Web applications only), Web Standards errors (Web applications only), and localization errors. For details, see "Scanners Overview" on page 269. |

| 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 214. |
| **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 195 and "Run Results Overview" on page 201. |
| **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 211. |

# How to Run a Manual Test in Sprinter

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

Sections marked with the Power Mode icon are only relevant when Power Mode is active.

This task includes the following steps:

- Prerequisites
- Open a test or component
- Configure your test definitions
- Configure Power Mode
- Start your run and perform the user actions in your test
- Detect and submit defects
- Use data injection and macros in your test
- Use mirroring with your test
- Use scanners in your test
- Stop your run and view and analyze the run results

## Prerequisites

Ensure that you have the required user permissions and connect to Application Lifecycle Management as described in "How to Get Started with Sprinter" on page 46.

## Open a test

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

- **Open an** Application Lifecycle Management **test from within** Sprinter.

  Click the **Open** button

in the **Run Setup** area.

  If you are already connected to Application Lifecycle Management, the **Open** dialog box opens, enabling you to select which Application Lifecycle Management tests you want to open.

  If you are not connected to Application Lifecycle Management, the Application Lifecycle Management **Connection** dialog box opens first, enabling you to connect to Application Lifecycle Management, and then the **Open** dialog box opens.

For details, see the "Open Dialog Box" on page 143.

- **Open an** Application Lifecycle Management **test from within** Application Lifecycle Management**.**
  - In Application Lifecycle Management, 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 with Sprinter**. If you are continuing a previous run that was run with Sprinter, click **Continue run with Sprinter**.

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 in your test
- Stop your run and view and analyze the run results

## 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 "Run Setup Definitions Group" on page 145.

## Configure Power Mode

Before running your test with Power Mode, you need to configure Power Mode for the application you are testing. Decide if you need use data injection, macros, and other advanced features provided by Power Mode. For details, see "Running Tests in Power Mode" on page 117 and "How to Prepare a Test to Run in Power Mode" on page 223.

- **Set up Mirroring.** Use the mirroring feature to replicate your user actions on multiple computers with different configurations, such as operating systems, browsers, and so forth. To run a test

with mirroring, you must configure all the machine that you intend to use for your test.

For details, see "How to Prepare a Test for Mirroring" on page 298.

- **Scanners.** Use scanners to check that various aspects of your application behave correctly during the run session, such as W3C compliance, broken links, spelling and localization. You can also configure the Scanner settings during the run session. However, to display the Scanners sidebar, you need to configure settings for one or more scanners before the run session begins.

For details, see "How to Scan Your Application For Potential Defects" on page 271.

### Start your run and perform the user actions in your test

Click the **Run** button . For details, see the "Main Window" 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.

  **Note:** To enable Power Mode to work with your application, it is recommended that you configure Sprinter to start your application when the run begins.

- If you are running a test with steps you can run those steps directly.
- You can perform the steps you imported to your local test from an external file as described in the "Steps Tab" on page 96.

For details about running the test steps, see:

- "How to Navigate Steps" on page 123
- "How to Mark Steps" on page 125
- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

- If your test does not have steps, you can begin your test run and perform exploratory user actions. For details, see "How to Run an Exploratory Test in Sprinter" on page 129

### Detect and submit defects

Sprinter enables you to submit defects to Application Lifecycle Management. 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 details, see "How to Detect and Submit a Defect" on page 181.

### 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 244
- "How to Record and Run Macros" on page 259

### 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 301.

For details on the mirroring feature, see "Testing on Multiple Machines - Overview" on page 289.

### Use scanners in your test

When you perform scans during a run session, you can monitor the progress of each scanner in the Scan Progress window. After each scan ends, you can view and address the results.

For details, see:

- "Scan Progress Window" on page 282
- "Scan Results Viewer" on page 284

## Stop your run and view and analyze the run results

Click the **End Run** button . For details, see the "Run Control Sidebar" on page 150.

You can now view the results of your run in the main window. For details, see "How to Review Run Results" on page 202.

# How to Navigate Steps

**Note:** This task is part of a higher-level task. For details, see "How to Run a Manual Test in Sprinter" on page 119.

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

## Steps Sidebar (default mode)

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 or 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 156.

## 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 as described in the " Subtitles Settings Dialog Box" on page 170.
- You can use hotkeys to mark a step's status, navigate steps, and perform other functions in subtitles mode. For details, see "Hot Key Settings Pane (Settings Dialog Box)" on page 58.

For more details, see "Subtitles Toolbar" on page 168.

# How to Mark Steps

**Note:** This task is part of a higher-level task. For details, see "How to Run a Manual Test in Sprinter" on page 119.

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

- Steps Sidebar toolbar
- Subtitles toolbar
- Step display area

## Steps Sidebar toolbar

- Select one or more steps in your test and click one of the status buttons to set their status.
  - CTRL-click multiple steps to select them.
  - Click a step and then SHIFT-click another step 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 156.

## Subtitles Toolbar

- Click **Steps** sidebar **> Show Subtitles** button to view the steps in subtitles mode.
- 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 168.

## 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 steps in the selection.

- CTRL-click to select multiple steps.
- SHIFT-click to select a range of steps.

For more details, see "Steps Sidebar" on page 156.

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

**Note:** This task is part of a higher-level task. For details, see "How to Run a Manual Test in Sprinter" on page 119.

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
- Add attachments to a step
- Edit the details of a step
- Add and delete steps

## 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 166.
- **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 166.
- **The Annotation Workspace.** In the **Tools** sidebar click the **Annotation Workspace** button. In Annotation mode, click the **Save to Actual Result** button to add an annotated screen capture of your application to the actual results of a step. For details, see "Annotation Tools Sidebar" on page 196.

## 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 Attachments Dialog Box" on page 154.

## 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 Steps Dialog Box" on page 165.

## 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 Steps Dialog Box" on page 165.

# How to Run an Exploratory Test in Sprinter

**Relevant for Power Mode only**

The following steps describe how to run an exploratory test in Sprinter.

This task includes the following steps:

- Prepare the exploratory test
- Explore your application
- Review and export the captured user actions

## Prepare the exploratory test

- Ensure that you have the required user permissions and connect to Application Lifecycle Management as described in "How to Get Started with Sprinter" on page 46.
- Open a test in Sprinter, as described in "How to Run a Manual Test in Sprinter" on page 119.
- Turn on Power Mode and select an application for your test, as described in the " Configure Power Mode " on page 120 step.

## Explore your application

Begin the run session, and perform any user action in your application. Sprinter captures all of the user actions that you perform. You can manage the capturing of user actions and view the status of your exploratory run in the "Run Control Sidebar" on page 150. For example, you can pause the capturing of user actions temporarily, and resume the capturing when it is relevant.

For details, see "Run Control Sidebar" on page 150.

## Review and export the captured user actions

At the end of the run session, review the captured user actions in the User Actions pane of the "Results Group" on page 205. For user interface details, see "User Actions Pane/User Actions Summary Dialog Box" on page 211.

In this pane you can export the captured user actions to:

- **a new manual test with steps.** In the new test, each user action is converted to a manual step. Before saving the new test to Application Lifecycle Management, you can edit its details, steps, and any user-defined information that your Application Lifecycle Management project requires. For details, see "Generate Test Dialog Box" on page 171.
- **a Unified Functional Testing-compatible automated test data file.** This XML file contains all

the user actions and test object representations of the controls in your application that you used during the run session. You can then import this file to HP Unified Functional Testing, where it is converted to a GUI test with a local object repository.

- **an Excel or CSV file.** This file contains all the user actions that you performed during the run session. You can edit the content of the file and then import it into an existing test or component.

# How to Run a Test Using a Mobile Cloud Provider

Sprinter integrates with mobile cloud providers enabling you to test either Web or native applications on mobile devices. The following steps describe how to use the advanced features available with Power Mode to run a test on a mobile device in the cloud.

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 119.

1. **Prerequisites**
   Create a mobile provider account with a supported mobile cloud provider.

   For example, create an account with Perfecto Mobile by navigating to Perfecto Mobile.

2. **Configure the Mobile Settings Pane**
   Select **Settings > Mobile** to configure a connection to your mobile cloud provider. For details see, "Mobile Settings Pane (Settings Dialog Box)" on page 63.

3. **Create a test plan**
   For details, see "How to Author a Test or Component" on page 72.

4. **Prepare your test for Power Mode**
   a. Select **Application** from the Power Mode tab.

   b. Select your mobile application from the drop-down list in the Application pane or add a new application. For details on adding applications, see "Add/Edit Application Dialog Box" on page 229.

5. **Select mobile devices**
   From the Mobile Device list, select up to three mobile devices.

   For details, see "Mobile Device List dialog box" on page 141.

6. **Run your test on the mobile cloud provider site.**

For more information on using the site contact your mobile cloud provider or select Help from the product menu.

# Things to Remember When You Work with the Test Runs List

- The **Test Runs** list contains the list of all the tests you can include in your next run. Any changes you make to the **Test Runs** list do not affect the **Test Lab** module in Application Lifecycle Management.
- When you click the **Run** button, only **active** tests in the **Test Runs** 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" on the next page. Deactivated tests appear disabled (gray) in the **Test Runs** list.
  - After you run a test, the test becomes **deactivated** in the **Test Runs** 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 indicate which columns to display in the **Test Runs** list and add columns to the display, by clicking the Select columns button or right-clicking on the column headers. 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 that is causing the warning. Select the node and review the displayed definitions for any warning messages. For details, see the "Run Setup Definitions Group" on page 145
- A lock symbol 🔒 next to a test indicates that the test is currently locked. This occurs when the test or run is locked in Application Lifecycle Management.
- For a full description of all the features in the **Test Runs** list, see "Run Setup Area" on the next page.

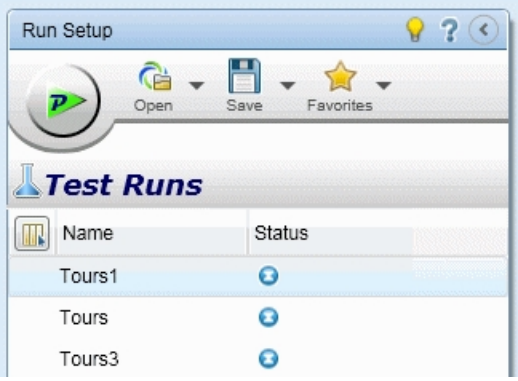
# Run Setup Area

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 119
- "How to Prepare a Test to Run in Power Mode" on page 223
- "How to Prepare a Test for Mirroring" on page 298
- "How to Review Run Results" on page 202

The following image shows the Run Setup area.




| | |
|---|---|
| **To access** | Enter **Run** mode. The **Run Setup** area is in the left pane. |
| **Important information** | • The **Test Runs** list contains the list of all the tests you can include in your next run. Any changes you make to the **Test Runs** list do not affect Application Lifecycle Management or the Application Lifecycle Management Test Lab module.<br>• Tests in the **Test Runs** list correspond to **instances** of a **configuration** in Application Lifecycle Management. These instances are referred to as **tests** throughout the product and this guide. |
| **See also** | "Things to Remember When You Work with the Test Runs List " on the previous page |

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

| UI Elements | Description |
|---|---|
| | **Run**<br>• Runs all the **activated** tests in the **Test Runs** list.<br>• For details on activating and deactivating tests, see the description of the **context menu (right-click) options** for the **Test Runs** list, below. |
| | **Run in** Power Mode to enable data injection, mirroring, scanners, and macros.<br>• Runs all the **activated** tests in the **Test Runs** list.<br>• For details on activating and deactivating tests, see the description of the **context menu (right-click) options** for the **Test Runs** list, below. |
| | Adds a test to the **Test Runs** list.<br>Drop-down options:<br>• **Open HP** Application Lifecycle Management Test. (Default) Opens the "Open Dialog Box" on page 143. If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, enabling you to connect to Application Lifecycle Management first.<br>If you have tests in the **Test Runs** 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.<br>• **Append HP** Application Lifecycle Management **Test.** Opens the "Open Dialog Box" on page 143. The tests you select are appended to the **Test Runs** list. If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, enabling you to connect to Application Lifecycle Management first.<br>The **Append** option adds your selection to the end of the **Test Runs** list. |

**, continued**

| UI Elements | Description |
|---|---|
| | Saves the selected tests in the **Test Runs** list.<br><br>**Shortcut key:**`Ctrl+S`<br><br>Drop-down options:<br><br>• **Save.** Saves the run definitions for the selected tests.<br><br>• **Save All.** Saves the run definitions for all the tests in the **Test Runs** list.<br><br>Application Lifecycle Management tests are automatically saved to Application Lifecycle Management throughout the test run. If you lose your connection to Application Lifecycle Management 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 Application Lifecycle Management in the "Application Lifecycle Management Connection Dialog Box" on page 52 and then click the **Save** button to manually save the run results to Application Lifecycle Management. |
| | Enables you to save the current list of tests as a favorite and load a saved list of tests into the **Test Runs** list.<br><br>For details on how Sprinter maintains the list of favorites, see "How User Information is Maintained" on page 44.<br><br>Drop-down options:<br><br>• **Add to Favorites.** Saves the current **Test Runs** list as a favorite in the **Favorites** list.<br><br>• **Manage Favorites.** Allows you to change the order of your Favorites list and remove favorites from the list. For details, see the "Manage Favorites Dialog Box" on page 139. |
| | **Select Columns.** Allows you to select which columns to display in the **Test Runs** list. For example to add the run name column to the display, select **Run**.<br><br>You can also select columns by right-clicking on the column headers. |

**, continued**

| UI Elements | Description |
|---|---|
| **Name** | The list of tests available to be included in the next run.<br><br>Tests in the **Test Runs** list correspond to **instances** of a **configuration** in Application Lifecycle Management. These instances are referred to as **tests** throughout the product and this guide.<br><br>• When you click the **Run** button, only active tests in the **Test Runs** 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 **Test Runs** list.<br><br>• Right-click a test in the **Test Runs** list to view the context menu (right-click) options described below.<br><br>• 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.<br><br>• When you select a test in the **Test Runs** list, the details pane displays the groups for that test. For details, see "Run Setup Definitions Group" on page 145 and "Results Group" on page 205.<br><br>• An asterisk next to a test name indicates the test has changes that have not been saved.<br><br>• 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 that is causing the warning. Select the node and review the displayed definitions for any warning messages. For details, see the "Run Setup Definitions Group" on page 145.<br><br>• 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 Application Lifecycle Management.<br><br>• The **Name** and **Status** columns are displayed by default. You can right-click on the column headers of the **Test Runs** 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. |

**, continued**

| UI Elements | Description |
|---|---|
| **<Context menu (right-click) options>** | • **Move Up.** Moves the selected test up the **Test Runs** list.<br>• **Move Down.** Moves the selected test down the **Test Runs** list.<br>• **Remove.** Removes the selected tests from the **Test Runs** list.<br>• **Activate/Deactivate Test.** Includes or removes the selected tests from the next run session. Deactivated tests appear disabled (gray) in the **Test Runs** list.<br>• **Run This Test Only.** Starts a run with the selected test only.<br>• **Replace with New Run.** Removes the selected test from the **Test Runs** list, replaces it with a new copy and saves any run results. (This can be useful if a test in the **Test Runs** list failed and you want to re-run the test.)<br>• **Add New Run.** Adds a new run of the selected tests to the **Test Runs** list.<br>• **Show All Runs.** Opens the "Test <'Test Name'>: All Runs Dialog Box" on page 140. |
| **Status** | The status values include the following default system values as well as any user-defined status values:<br>• **Passed.** The test passed.<br>• **Failed.** The test failed.<br>• **Blocked.** The test is blocked.<br>• **Not Completed.** The test was paused in the middle of the run.<br>• **No Run.** (Default selection) The test has not yet been run.<br>• **N/A.** Current status is not applicable.<br>The **Name** and **Status** columns are displayed by default. You can right-click on the column headers of the **Test Runs** 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. |

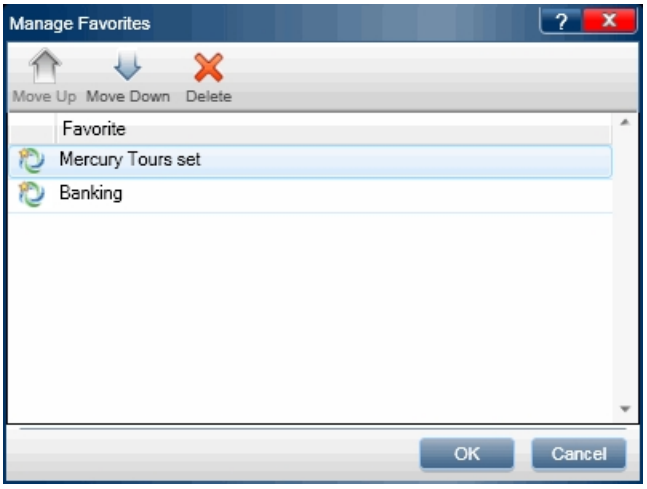
**, continued**

| UI Elements | Description |
|---|---|
| **Test Name** | (Not displayed by default) The name of the test as it appears in the **Test Plan** in Application Lifecycle Management.<br><br>Right-click on the column headers of the **Test Runs** 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 Application Lifecycle Management.<br><br>Right-click on the column headers of the **Test Runs** list to select which columns to display. |
| **Run** | (Not displayed by default) The name of the run.<br><br>Right-click on the column headers of the **Test Runs** 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 225. |

# 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.

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 hover over them.

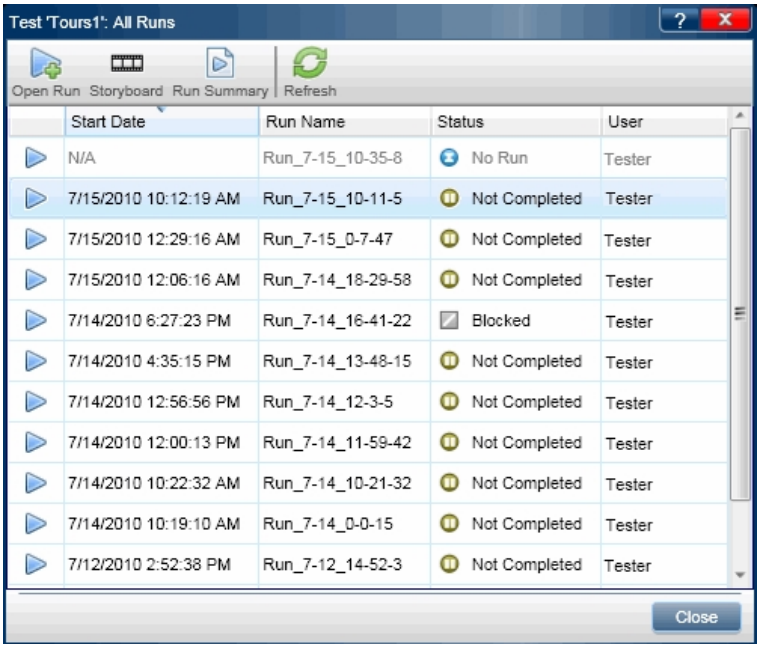
# Test <'Test Name'>: All Runs Dialog Box

This dialog box enables you to view previous run results. You can load a previous run in the **Test Runs** 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 202

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




| | |
|---|---|
| **To access** | In the **Test Runs** list, **Right-click** a test and select **Show All Runs**. |
| **Important information** | The current run in the **Test Runs** 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 |
|---|---|
| | Adds the selected run to the **Test Runs** list. |
| | Opens the "Storyboard Window" on page 214 for the selected run. |

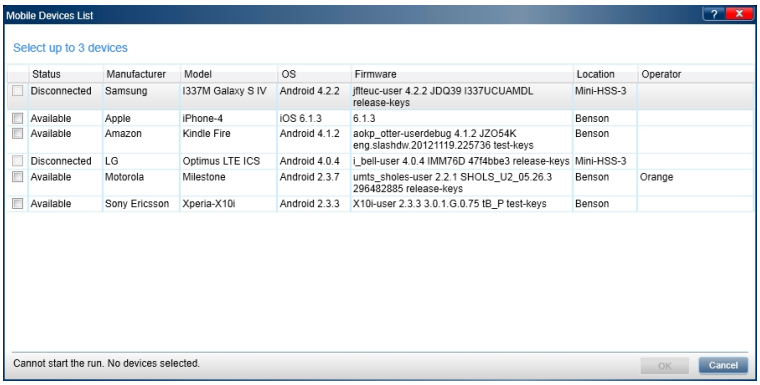
| UI Elements | Description |
|---|---|
| | Displays the Run Summary for the selected run. |
| | Refreshes the list of runs from Application Lifecycle Management. |
| **<Run list>** | The list of runs for the test. The run list displays the following columns:<br>• **Run Icon.** This icon is blue for runs that were performed with Sprinter and green for those that were performed with the Application Lifecycle Management manual runner.<br>• **Start Date.** The data and time that the test run began.<br>• **Run Name.** The name you assigned to the run in the General Settings pane.<br>• **Status.** The current status of the test.<br>• **User.** The user who ran the test. |

# Mobile Device List dialog box

This pane enables you to select mobile testing devices from your cloud provider.

Mobile is relevant for tests run in Power Mode only.

The following image shows the Mobile Device List dialog box.




| | |
|---|---|
| **To access** | Run test in Power Mode with a mobile application. |
| **See also** | • "Mobile Settings Pane (Settings Dialog Box)" on page 63<br>• "How to Run a Test Using a Mobile Cloud Provider" on page 130 |
| **Important Information** | You can select up to three devices. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| **Manufacturer** | The manufacturer of the mobile device. For example, Apple or Samsung. |
| **Model** | The model of the mobile device. |
| **Status** | The status of the mobile device:<br>**Available.** Device is ready for use.<br>**Busy.** Device is opened by another user.<br>**Opened.** Device is opened by you.<br>**Disconnected.** Device is not available.<br>**Error.** Device is not working.<br>**Reserved.** Device has been reserved by you on the cloud provider site. |
| **OS** | The operating system installed on the mobile device. |
| **Firmware** | The firmware installed on the mobile device. |
| **Location** | Where the mobile device is located. |
| **Operator** | The cellular provider for the mobile device. |

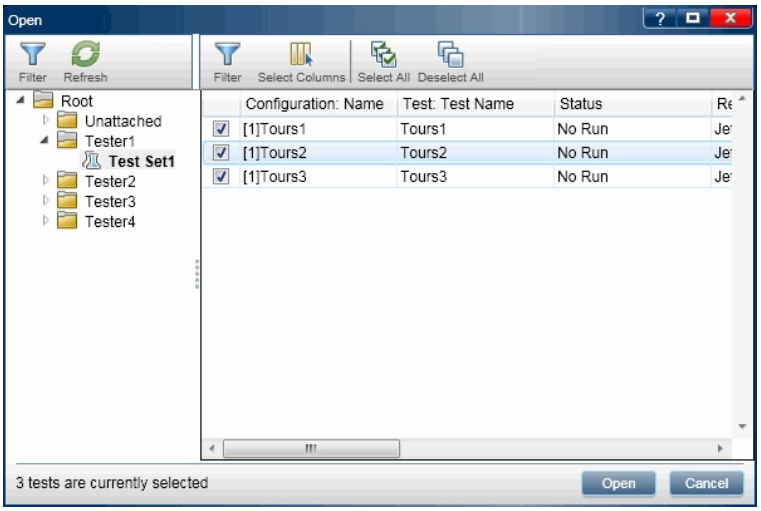
# Open Dialog Box

This dialog box enables you to open a test from Application Lifecycle Management (from the Application Lifecycle Management 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 119

The following image shows the Open dialog box.




| | |
|---|---|
| **To access** | In the **Run Setup** area, select **Open** > **Open** Application Lifecycle Management **Test** or **Append** Application Lifecycle Management **Test**. |

User interface elements are described from left to right (unlabeled elements are shown in angle brackets):

| UI Elements | Description |
|---|---|
| | **Filter folders.** Opens the Filter dialog box enabling you to filter the list of displayed folders. For details, click **Help** in the Filter dialog box. |
| | Reloads the data from the HP ALM project. |
| | **Filter tests.** Opens the Filter dialog box enabling you to filter the displayed tests. |

| UI Elements | Description |
|---|---|
| | Opens the Application Lifecycle Management Select Columns dialog box, enabling you to select which columns to view. For details, click **Help** in the Select Columns dialog box. |
| | Selects all the currently displayed tests in the list. |
| | Deselects all the currently displayed tests in the list. |
| **<Test set tree>** | Located on the left side of the dialog box. Displays your test sets hierarchically. A test set contains a subset of the tests in your project.<br>**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. |

# Run Setup Definitions Group

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

This group includes the following panes:

- "General Settings Pane (Run Setup Definitions Group)" on the next page
- "Steps Pane (Run Setup Definitions Group)" on page 147
- "Parameters Pane (Run Setup Definitions Group)" on page 149

The number in the **Steps** and **Parameters** nodes within parentheses, indicate the number of steps and parameters for the selected test.

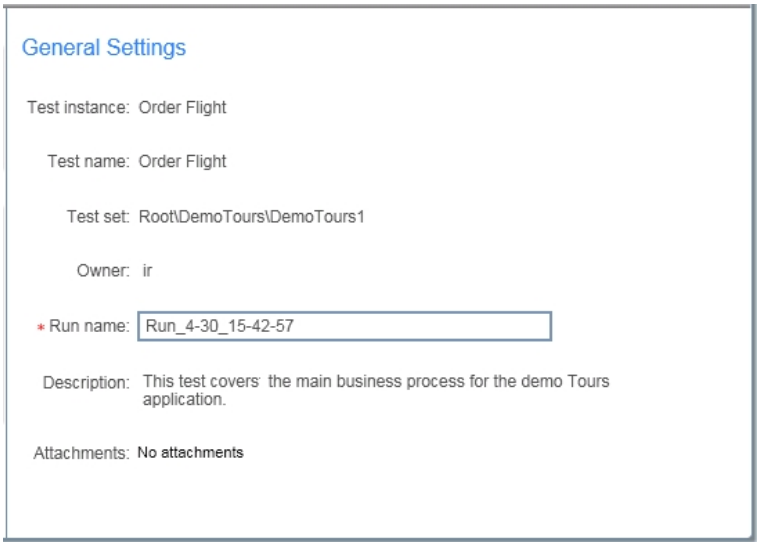
# General Settings Pane (Run Setup Definitions Group)

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 119
- "How to Run an Exploratory Test in Sprinter" on page 129

The following image shows the General Settings.




| | |
|---|---|
| **To access** | In the main window, select a test from the **Test Runs** list and then select **Definitions** > **General Settings** node. |
| **Important information** | • If your Application Lifecycle Management test has user-defined fields that can be edited, they are displayed and can be edited in the General Settings pane.<br>• The test settings for Application Lifecycle Management tests are defined in Application Lifecycle Management 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 hover over them.

If Application Lifecycle Intelligence (ALI) is enabled for your ALM project, the General Settings pane provides an additional field—**Test Build.** This drop-down enables you to select a specific build (build ID) upon which to run your test.

# Steps Pane (Run Setup Definitions Group)

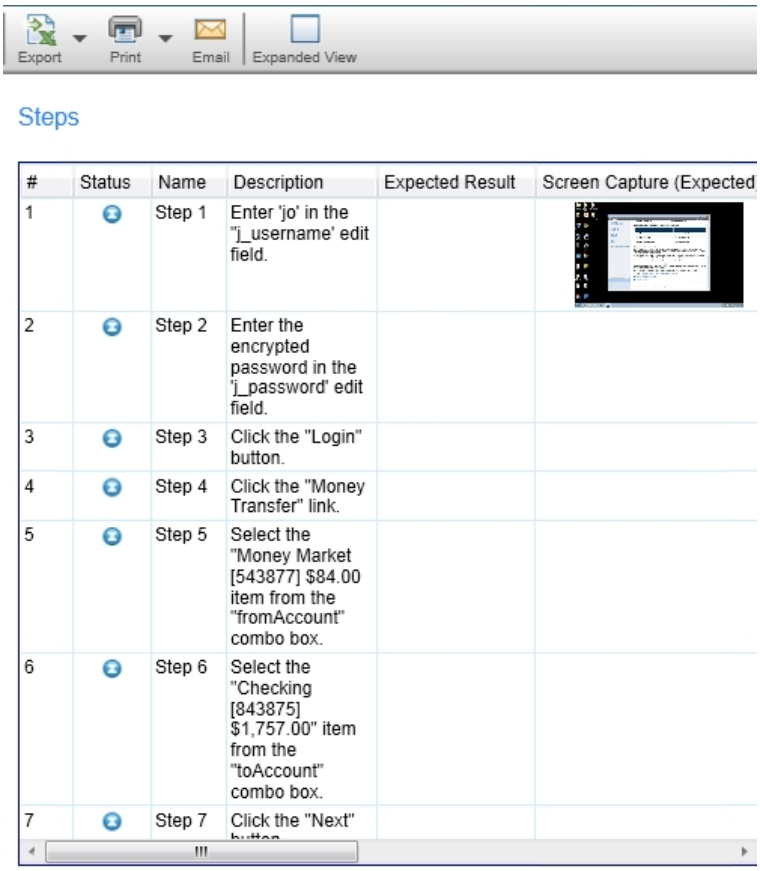
This tab displays the steps in your test. For Business Process Tests it displays the test hierarchy, including components, steps, groups, flows, and iterations.

It also enables you to import steps to a test from an external file.

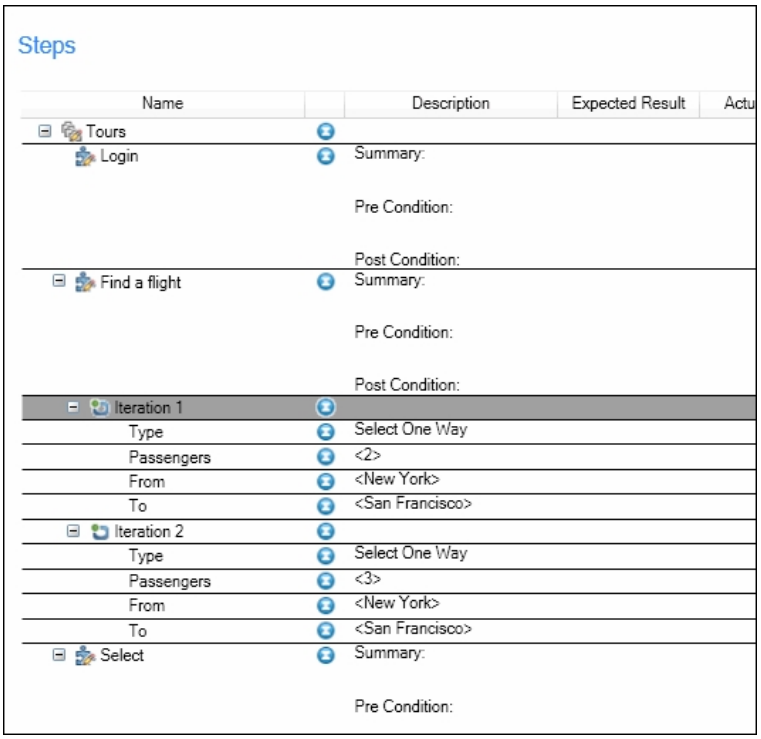
Tasks you can accomplish with the Steps tab:

- "How to Run a Manual Test in Sprinter" on page 119

The following image shows the Steps tab for a test.




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




| | |
|---|---|
| **To access** | In the main window, select a test from the **Test Runs** list and then select **Definitions** > **Steps** node. |
| **Important information** | • You can resize the Sprinter window and the columns in the display to view all the information.<br>• You can expand thumbnail images in your steps by double clicking the image or by selecting the **Expanded View** button from the toolbar.<br>• Right-click the column header area to select which columns to display.<br>• The **Name**, **Description**, and **Expected Result** values can be edited in the "Steps Sidebar" during the test run (described on page 156).<br>• Parameters in steps are represented by <**actual value** >. If there is no actual value, the parameter is displayed as <<<**parameter name**>>> .<br>• You cannot **Export**, **Print**, or **Email** steps in a Business Process Test. |

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

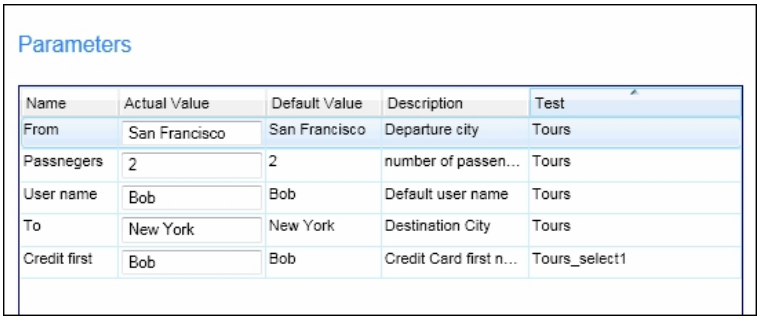
# Parameters Pane (Run Setup Definitions Group)

This pane displays and enables you to edit the actual values of the parameters used in your test. For Business Process Testing, this pane only shows the input parameters.

Tasks you can accomplish with the Parameters pane:

- "How to Run a Manual Test in Sprinter" on page 119

The following image shows the Parameters pane.




| | |
|---|---|
| **To access** | In the main window, select a test from the **Test Runs** list and 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 Application Lifecycle Management.<br>For details on using parameters in tests, see the 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. |

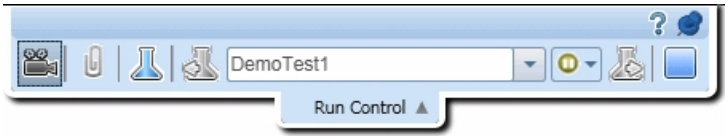
# Run Control Sidebar

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.

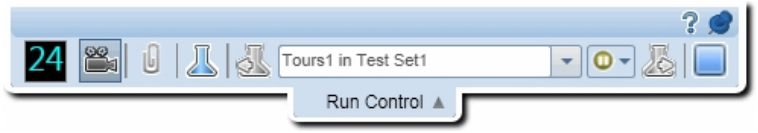
Tasks you can accomplish with the **Run Control** sidebar:

- "How to Run a Manual Test in Sprinter" on page 119
- "How to Run an Exploratory Test in Sprinter" on page 129

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




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




| | |
|---|---|
| **To access** | Do the following:<br>1. Enter Run mode<br>2. Open a test or component.<br>3. Click the Run or the Power Mode Run button.<br>To end the run and close the sidebar:<br>1. Expand the sidebar.<br>2. Click the Stop button.<br>**Tip:** 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 |
|---|---|
| | **User Actions.** Displays the number of user actions performed in the current run. |
| | **Pause/Resume Capturing.** Pauses and resumes Sprinter from capturing each user action as it is performed.<br>• If you pause capturing, all subsequent actions are not represented in the "Storyboard Window" on page 214 or the User Actions report. If you enabled **Automatic screen movie recording** in the Settings dialog box, this is also paused. For details, see "Run Settings Pane (Settings Dialog Box)" on page 60.<br>• If you are performing a test on multiple machines (mirroring) and pause capturing, all subsequent actions are not replicated on the secondary machines.<br>• If after you pause 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 (tests only).** Opens the "Run Attachments Dialog Box" (described on page 154), enabling you to add, edit, or remove attachments in your run. |
| | **Test Details (tests only).** Opens the "Test Details Dialog Box" (described on page 155). |

| UI Elements | Description |
|---|---|
| | **Previous Test.** Returns to the previous test in the **Test Runs** list.<br>• All the sidebars and displays are updated to display the current state of the previous test in the **Test Runs** list.<br>• 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.<br>• If you are working 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" on page 214, or the list of actions in a defect.<br>• 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.<br>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.<br>**Status values:**<br>The status values include the following default system values as well as any user-defined status values:<br>• **Passed.** The test passed.<br>• **Failed.** The test failed.<br>• **Not Completed.** The test was paused in the middle.<br>• **Blocked.** The test is blocked.<br>• **No Run.** (Default selection) The test has not yet been run.<br>• **N/A**. Current status is not applicable. |

| UI Elements | Description |
|---|---|
| | **Next Test.** Advances to the next test in the **Test Runs** list.<br>• All the sidebars and displays are updated to display the current state of the next test in the **Test Runs** list. 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.<br>• 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" on page 214, or the list of actions in a defect.<br>• 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" on page 50. |

# Run Attachments Dialog Box

This dialog box displays run attachments, and enables you to add, edit, or remove attachments (not available for business component steps).

Tasks you can accomplish with the Run Attachments dialog box:

- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

The following image shows the Run Attachments dialog box.

| | |
|---|---|
| **To access** | In the "Run Control Sidebar" on page 150 click the **Run Attachments** button . |

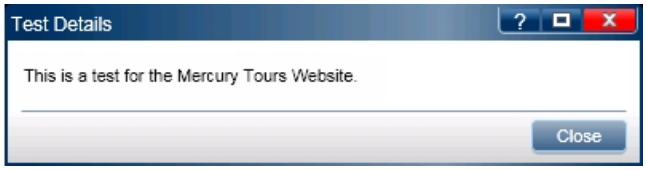
User interface elements are described below:

| 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.

The following image shows the Test Details dialog box.




| | |
|---|---|
| **To access** | Select "Run Control Sidebar" on page 150 > **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 hover over them.

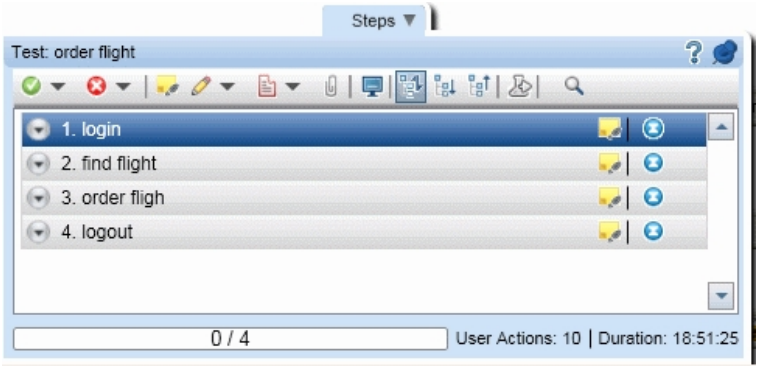
# Steps Sidebar

This sidebar enables you to navigate, mark, and edit the steps in your test.

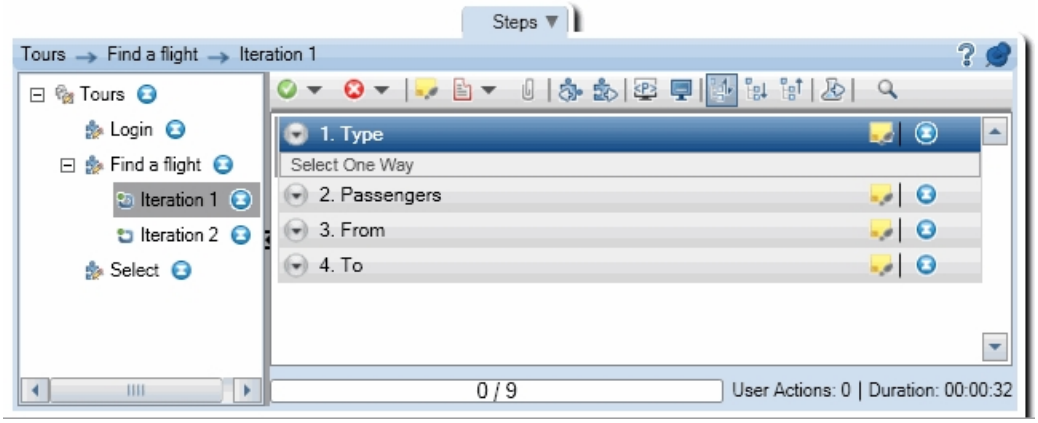
Tasks you can accomplish with the **Steps** sidebar:

- "How to Navigate Steps" on page 123
- "How to Mark Steps" on page 125
- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

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** | Do the following:<br>1. Enter **Run** mode<br>2. Open a test or component.<br>3. Click the Run or the Power Mode Run button.<br>**Tip:** 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 manual test does not have any steps and you did not manually change the Sprinter configuration file, the **Steps** sidebar is not displayed.<br>• Some options are available only when you are connected to Application Lifecycle Management.<br>• Some options are available only when you are working with Business Process Testing.<br>• Steps in components are displayed in the order in which they were created and not by their logical order in the component.<br>• User defined fields in steps are not supported in Application Lifecycle Management business process tests. |

The Steps sidebar contains the following elements:

- "Steps Toolbar" on the next page
- "Steps Display Area" on page 161
- "Steps Status Bar" on page 163

## 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 Application Lifecycle Management.<br><br>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.)<br><br>Click on the down arrow for the following options:<br><br>• **Pass.** Marks the selected steps as Passed.<br><br>• **Pass All.** Marks all the steps as Passed.<br><br>• **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.)<br><br>Click on the down arrow for the following options:<br><br>• **Fail.** Marks the selected steps as Failed.<br><br>• **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.** Enables you to modify the actual result and/or add a regular or annotated screen capture to the actual result. For details, see the "Actual Result Dialog Box" on page 166<br><br>If your steps have user defined fields from Application Lifecycle Management, they can be edited in the Actual Result dialog box. |

| UI Elements | Description |
|---|---|
| | **Edit Step.** Opens the "Edit Steps Dialog Box" on page 165. (not available for Business Process Tests)<br><br>Click the down-arrow for the following options:<br><br>• **Edit Step.** (Default) Enables you to edit a step.<br><br>• **Insert Before.** Enables you to insert a new step before the current step.<br><br>• **Insert After.** Enables you to insert a new step after the current step.<br><br>• **Delete Step.** Deletes the selected step. |
| | **Smart Defect.** Enables you to submit a defect to Application Lifecycle Management.<br><br>Drop-down options:<br><br>• **Smart Defect.** (Default) Opens the "Smart Defect Settings Dialog Box" on page 188, enabling you to include automatically generated defect scenario information in your defect description.<br><br>• **New Defect.** Opens the New Defect dialog box, enabling you to manually submit a defect to Application Lifecycle Management. When you create a new defect, add the relevant attachments and the steps required to reproduce the defect.<br><br>• **Add Defect Reminder.** Opens the "Defect Reminder Dialog Box" on page 193.<br><br>If you are not connected to Application Lifecycle Management, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, to enable you to connect to Application Lifecycle Management first. |
| | **Attachments.** (Tests only) Opens the "Run Attachments Dialog Box" on page 154, 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. |

| UI Elements | Description |
|---|---|
|  | **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. |
| | **Show Subtitles.** Displays the steps, as an on-screen subtitle.<br>For details on working with subtitles, see "Subtitles Toolbar" on page 168. |
| | **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 **PreviousTest** button in the "Run Control Sidebar" (described on page 150). |
| | **Find.** Enables you to search the steps for specific text.<br>• Find searches the step name, description, and expected result for the specified text.<br>• The search text is not case-sensitive.<br>• 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) it 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.<br>• 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.<br>• When **Auto Expand** is selected (default), clicking on a step heading selects and expands the step. Clicking again collapses the step.<br>• When **Auto Expand** is not selected, double-clicking on the step heading selects and expands the step. Double-clicking again collapses the step.<br>• 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" on page 166, 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.<br><br>**Default status values:**<br><br>• **Passed.** The step passed.<br>• **Failed.** The step failed.<br>• **Blocked.** The step is blocked.<br>• **Not Completed.** The step was paused in the middle of the run.<br>• **No Run** (Default) The step has not yet been run.<br>• **N/A.** Current status is not applicable.<br><br>**Note:** In addition to the default status items above, the list includes any user-defined statuses defined for your Application Lifecycle Management project. For details on user-defined statuses, see the Application Lifecycle Management Administrator Guide.<br><br>**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 fields are displayed:<br><br>• **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.<br>• **Description**<br>• **Expected Result**<br>• **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.<br>• **Step Attachments.** If you added an attachment to a step, an icon indicates that there is an attachment.<br><br>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. |

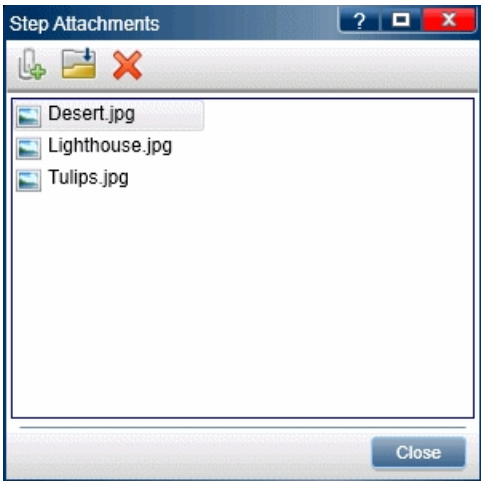
# Step Attachments Dialog Box

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

Tasks you can accomplish with the Step Attachments dialog box:

- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

The following image shows the Step Attachments dialog box.




| | |
|---|---|
| **To access** | In the **Steps** Sidebar, click the **Step Attachments** button . |

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. |

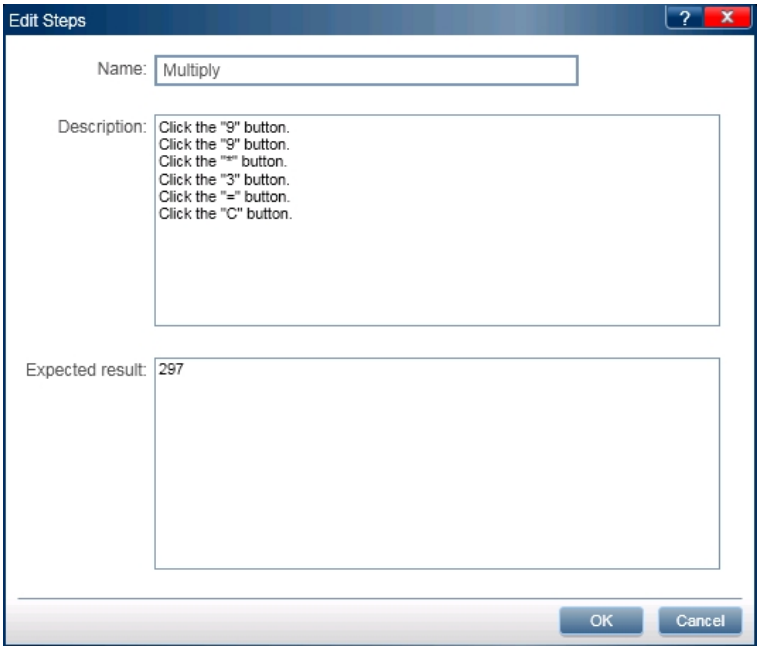
# Edit Steps Dialog Box

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

Tasks you can accomplish with the Edit Steps dialog box:

- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

The following image shows the Edit Steps dialog box.




| | |
|---|---|
| **To access** | Click "Steps Sidebar" on page 156 > **Edit Steps** button . |
| **Important information** | Changes you make to steps in an Application Lifecycle Management test are saved in the run results the Test Lab module of Application Lifecycle Management. When the run ends you have the option to save the changes to the test, in the Application Lifecycle Management Test Plan module as well.<br>• Changes you make to steps that were imported into your test from an external file are saved in your test, but not in the external file. |
| **See also** | "Tests with Steps" on page 114 |

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

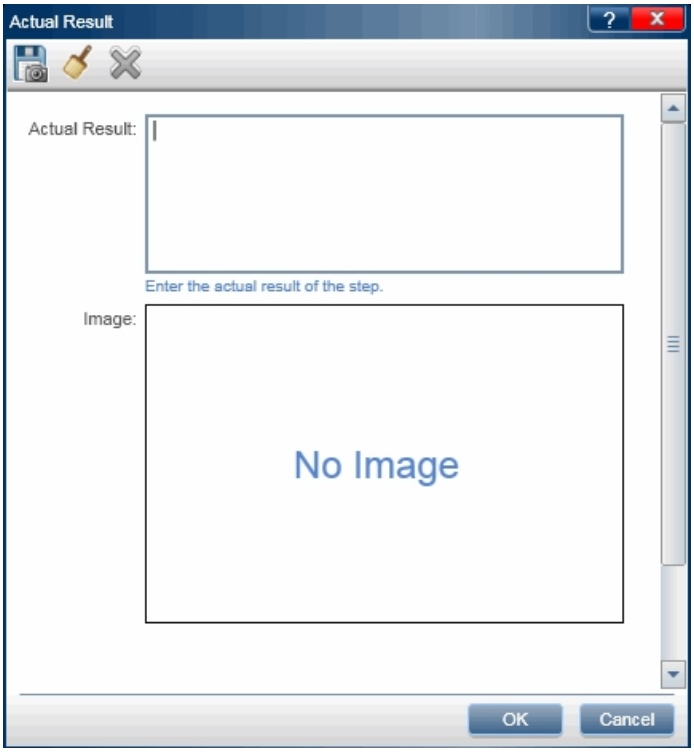
# Actual Result Dialog Box

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 127
- "How to Detect and Submit a Defect" on page 181

The following image shows the Actual Result dialog box.




| | |
|---|---|
| **To access** | Do one of the following:<br>• Click "Steps Sidebar" on page 156 > **Actual Result** button .<br>• Click "Steps Sidebar" on page 156 > Step header > **Actual Result** button .<br>  • Click "Tools Sidebar" on page 184 > **Screen Capture** section > **Save To Actual Result** button . |
| **Important information** | If your steps have user defined fields from Application Lifecycle Management, they can be edited in the Actual Result dialog box. |

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

| 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 196. |
| | **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. |
| **<user defined fields>** | Additional fields defined for the **Step** entity in the ALM project's customization. For details, see the ALM documentation. |

# 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 123
- "How to Mark Steps" on page 125
- "How to Edit and Add Actual Results and Attachments to Steps" on page 127

The following image shows the Subtitles toolbar.

| | |
|---|---|
| **To access** | Click the "Steps Sidebar" on page 156 > **Subtitles** button , and then hover over the subtitle. |
| **Important information** | • You can use **hot keys** to mark a step's status, navigate steps, and perform other functions. For details, see "Hot Key Settings Pane (Settings Dialog Box) " on page 58.<br>• 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:

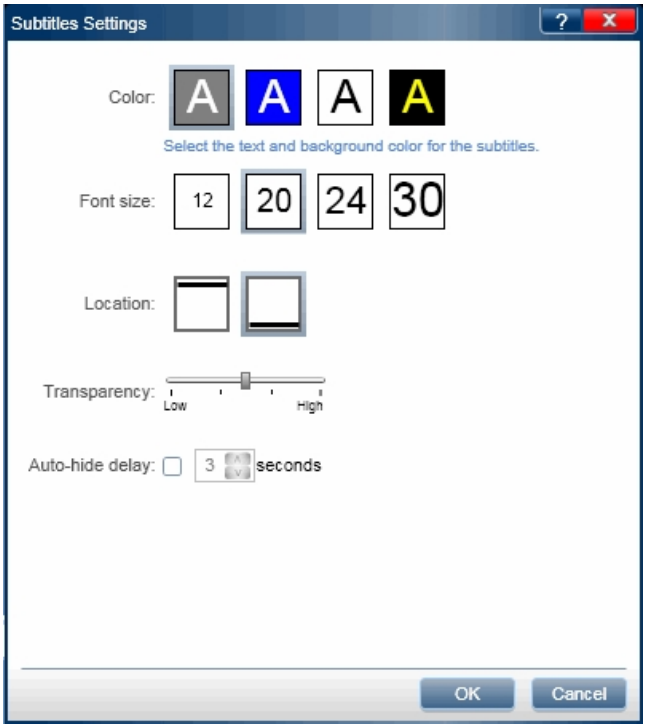
| UI Elements | Description |
|---|---|
| | **Previous Step.** Displays the previous step. |
| | **Next Step.** Displays the next step. |
| | **Pass.** Marks the current step as Passed, and displays the next step. |
| | **Fail.** Marks the current step as Failed. The next step is not displayed automatically. This gives you the opportunity to open a defect on the current step. |
| | **Actual Result.** Opens the "Actual Result Dialog Box" on page 166, enabling you to modify the actual result and add a screen capture or annotated screen capture to the actual result. |

| UI Elements | Description |
|---|---|
| | **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" on the next page. |
| | **Step Details.** Displays the following step details:<br>• **Name**<br>• **Description**<br>• **Expected Result**<br>• **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.<br>• **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.<br>Click the button again to close the step details display. |

# Subtitles Settings Dialog Box

This dialog box enables you to set display options for subtitles.

The following image shows the Subtitles Settings dialog box.




| | |
|---|---|
| **To access** | Click the "Steps Sidebar" on page 156 > **Subtitles** button , hover over the subtitle and click the **Settings** button . |

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

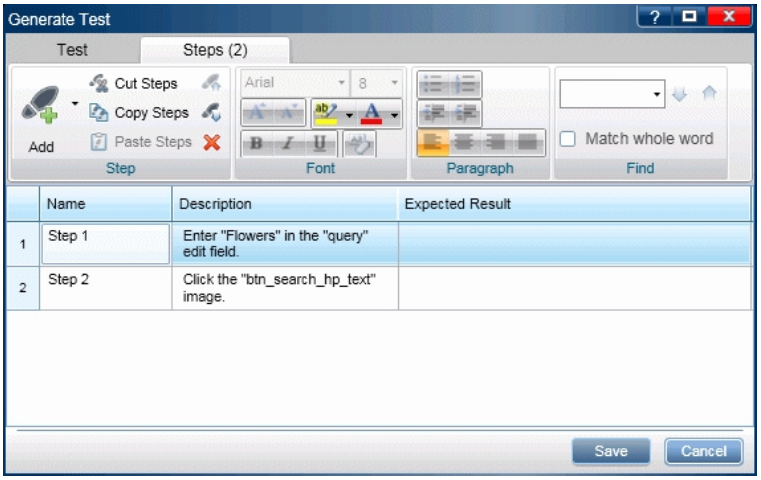
# Generate Test Dialog Box

This dialog box enables you to edit the test details and steps for a new manual test. This test is based on user actions that you performed during an exploratory run session.

Tasks you can accomplish with the Generate Test dialog box:

- "How to Run an Exploratory Test in Sprinter" on page 129

The following image shows the Steps tab in the Generate Test dialog box.




| | |
|---|---|
| **To access** | In the "Results Group" on page 205, select **User Actions** and click the **Generate Test** button . |
| **Important information** | • This functionality is available only at the end of the run session.<br>• This functionality is not available when viewing the results in the **Results Viewer**, even when Sprinter is installed. |

The Generate Test dialog box includes the following user interface elements:

| UI Elements | Description |
|---|---|
| **Test tab** | Provides the same functionality that is available in the "Details Pane (Plan Mode Definitions Group)" on page 89. |
| **Steps tab** | Provides the same functionality that is available in the "Steps Tab" on page 96. |
| **Save** | Opens the save dialog box for specifying a test location. |

# Troubleshooting and Limitations - Running Tests and Components

This section describes troubleshooting and limitations for running tests with steps and Business Process Tests.

- You cannot run Sprinter with a display color depth of 256 colors (8 bit).
- To work with the Silverlight add-in, your Silverlight application must be initialized with the **EnableHtmlAccess** property value set to 'True'. For details, see http://msdn.microsoft.com/en-us/library/cc838264.aspx.
- When running a Sprinter test in ALM, the Cross Run report does not show the Sprinter test steps. To access the report, click the **Test Runs** tab and select **Analysis > Reports > Cross Run with Steps**.
- Microsoft Excel is required to run a business component with static configuration using Sprinter 11.50 and ALM 11.00. When working with ALM 11.50, Excel is not required.
- The run results of a Business Process test which was run in Sprinter 11.50 against ALM 11.0, is presented in the Results Viewer as a flat list instead of as a structured tree.
  **Workaround:** Install the ALM 11.0 Patch 10 or higher.
- When moving a jQuery slider with the mouse, the "mouse up" action must be performed while the mouse pointer is over the slider. Otherwise, the user action will not be recorded.
- If you close the **Run Attachments** dialog box and reopen it while an attachment is still uploading, the attachment is not displayed. Do not delete run attachments until they finish uploading.
- Certain ASPajax controls may not be recognized by Sprinter. Try refreshing the page.
- When working with Sprinter on a Windows Server 2008 or 2008 R2 machine, you must install the Desktop Experience feature in order to successfully display all image attachments in ALM.

  **To install Desktop Experience**:
  - On the server machine, select **Start > Administrative Tools >Server Manager**.
  - Select the **Features** node, and click **Add Features** in the right pane.
  - In the Add Features Wizard window, select the **Desktop Experience** check box, and click **Next**.

- Click **Install** to complete the installation through the wizard.

For more information about this issue, see `http://technet.microsoft.com/en-us/library/cc772567.aspx`.

## Business Process Testing Limitations

- If you open a business process test that cannot be run, Sprinter displays the test without any steps. This may occur in, but is not limited to, the following situations:

  - Your business process test has an input parameter linked to an output parameter, but the number of iterations for the components that contain the input and output parameters do not match.

  - You created an output parameter for a flow but it is not linked to an existing parameter in a component.

  Note that Sprinter will not display an error message for the test in this case.

- If a Business Process Testing configuration includes multiple iterations and you open it from Sprinter, the configuration parameters are not displayed in the **Parameters** pane of the Run Setup Definitions Group.

# Chapter 5

# 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**


- "Detecting and Submitting Defects Overview" on the next page
- "Using Annotation Tools to Detect Defects" on page 177
- "Submitting Defects" on page 179


**Tasks**


- "How to Detect and Submit a Defect" on page 181

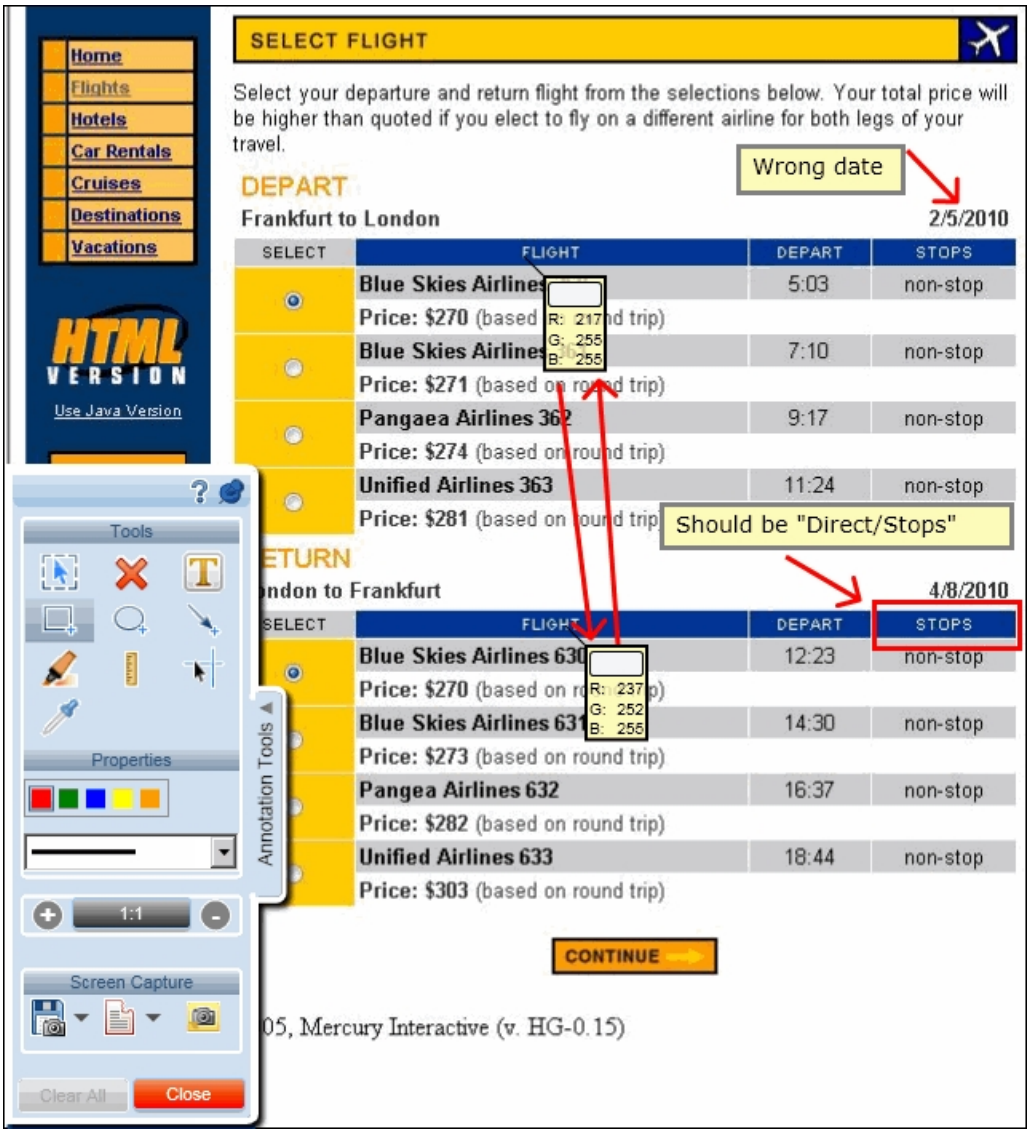

**Reference**


- "Tools Sidebar" on page 184
- "Smart Defect Settings Dialog Box" on page 188
- "Custom Selection Dialog Box" on page 192
- "Link Existing Defect Dialog Box" on page 194
- "Defect Reminder Dialog Box" on page 193
- "Comment Dialog Box" on page 195
- "Annotation Tools Sidebar" on page 196

# Detecting and Submitting Defects Overview

Sprinter provides tools that assist you to detect defects in your application and report them to 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 with shapes, lines, arrows, and text, to assist in highlighting and communicating defects.




Sprinter defect submitting tools enable you to submit a defect to 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 the next page
- "Submitting Defects" on page 179

# Using Annotation Tools to Detect Defects

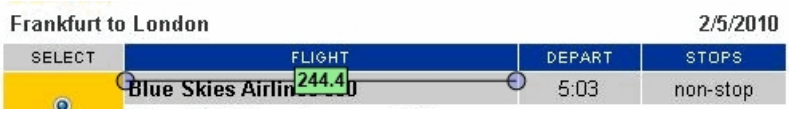
Sprinter provides a variety of tools to enable you to detect defects in the display of your application.

This section includes:

- Ruler Tool
- Guides Tool
- Color Picker Tool

## 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 (SHIFT-drag to unlock), 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. You can zoom in on the annotations workspace to more accurately measure elements.

The Ruler tool snaps on to each element to assist you in accurately measuring the distance between two user interface elements.

## 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. You can zoom in on the annotations workspace to more accurately view the alignment of elements.

## 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.

**Parent topic:** "Detecting and Submitting Defects Overview" on page 175

# Submitting Defects

Sprinter gives you the following ways to submit defects:

- **Smart Defect**

When you submit a defect using Sprinter's **Smart Defect**, you can indicate the type of information to automatically add to your defect:

- **Defect description.** You can choose to add the defect scenario to the description of your 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 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 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 196. 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 188.

- **New Defect**

You can open the New Defect Details dialog box directly from Sprinter and manually fill in all the defect fields. The annotation is saved with the Sprinter test or component—it is not added as an attachment to the defect.

- **Link existing defect**

You can link to an existing defect in Application Lifecycle Management from Sprinter . The annotation is saved as a linked entity in Application Lifecycle Management.

- **Defect Reminder**

You can continue your test run without disrupting its flow 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 screen captures, movies, and step or action information in the defect at that time.

When you submit an ALM defect using Sprinter, the defect is created in the ALM server, domain, and project that you configured in the "Application Lifecycle Management Connection Dialog Box" on page 52.

# How to Detect and Submit a Defect

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

This task includes the following steps:

- Examine and annotate a screen capture of your application - Optional
- Submit a defect
- Create a defect reminder
- Email, save, or print a screen capture of the defect - Optional

## Examine and 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. In the **Tools** sidebar, 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 196. For more details, see "Detecting and Submitting Defects Overview" on page 175

## Submit a defect

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

- "Tools Sidebar" on page 184
- "Steps Sidebar" on page 156
- "Annotation Tools Sidebar" on page 196
- "Storyboard Window" on page 214

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 179.

For details on configuring the information to include in your Smart Defect, see "Smart Defect Settings Dialog Box" on page 188.

For details, see "Submitting Defects" on page 179.

- Click the down-arrow next to the **Smart Defect** button and select **New Defect** to open the New Defect dialog box. This enables you to manually set the ALM defect fields. For details, see "Submitting Defects" on page 179.

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 184
- "Steps Sidebar" on page 156
- "Annotation Tools Sidebar" on page 196

You can also submit a defect while reviewing your run results from the "Defect Reminders Pane (Results Group)" on page 209 and while resolving differences in a mirroring test in the "Differences Viewer" on page 331.

### Create a defect reminder

You can create a defect reminder from one of the following locations:

- "Tools Sidebar" on page 184
- "Steps Sidebar" on page 156

From any of these locations you can:

- 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 193.

### 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 the "Tools Sidebar" on the next page and the "Annotation Tools Sidebar" on page 196.

# Tools Sidebar

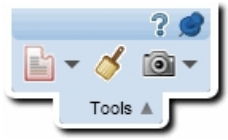
This sidebar enables you to find defects in the user interface of your application and report them to ALM. You can open the Annotation Workspace to annotate a screen capture of your application and include it in a defect, or you can save, print, or email the screen capture.

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.

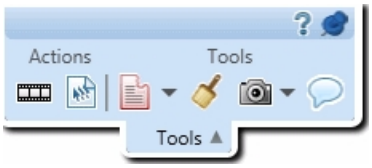
Tasks you can accomplish with the **Tools** sidebar:

- "How to Detect and Submit a Defect" on page 181

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




The following image shows the Tools sidebar with Power Mode:




| | |
|---|---|
| **To access** | Do the following:<br>1. Enter Run mode<br>2. Open a test or component.<br>3. Click the Run or the Power Mode Run button.<br>**Tip:** 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** | "Detecting and Submitting Defects Overview" on page 175 |

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, see "Storyboard Window" on page 214. |
| | **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 211. |
| | **Smart Defect.** Enables you to submit a defect.<br><br>Drop-down options:<br><br>• **Smart Defect**. (Default) Enables you to include automatically generated scenario information in the defect description. For details, see "Smart Defect Settings Dialog Box" on page 188.<br><br>• **New Defect.** Enables you to manually submit a new defect.<br><br>• **Add Defect Reminder.** Lets you add a descriptive defect reminder. For details, see the "Defect Reminder Dialog Box" on page 193.<br><br>• **Link existing defect.** Enables you to link to an existing defect in Application Lifecycle Management.<br><br>If you are not connected to ALM, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, to enable you to first connect to ALM. |
| | **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.<br><br>From the Annotation Workspace you can include the annotated screen capture in the defect, save it to the actual result of the current step, or you can save, print, or email the annotated screen capture.<br><br>For details see, "Annotation Tools Sidebar" on page 196. |

| UI Elements | Description |
|---|---|
| | **Screen Capture.** Takes a snapshot image of your application.<br><br>Drop-down options:<br><br>• **Email.** (Default) Opens a message in your default email application with the attached screen capture of the application.<br><br>• **Save.** Saves the screen capture of the application.<br><br>• **Print.** Prints the screen capture of the application. |
| | **Add Comment.** Enables you to add a comment to the current user action. For more details, see "Comment Dialog Box" on page 195.<br><br>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 214. |
| **<custom icon>** | An icon representing the first custom tool. For details see below. |

## Adding Custom Tools to the Tools Sidebar

Sprinter allows you to add additional tools to the Tools Sidebar. These tools will be available during the test run, similar to all other buttons on the Tools Sidebar.

A tool can be any program that you can run from the command line. For example, an executable file, a VB script and so forth. To add a tool:

1. Open the **<Installation Folder>/bin** folder and locate the **CustomCommands.xml** file. The file contains several examples in the commented section.
2. Open the XML file for editing.
3. Specify an executable file, or any program that can be run from the command line. For example `<FileName>notepad.exe</FileName>`
4. Provide arguments using the syntax that can be used on the command line. For example, `<Arguments>C:\temp.txt</Arguments>`
5. Specify the path of an icon representing the tool. For example, `<ImageSource>C:\MyIcon.jpg</ImageSource>`

6. Specify the title of the tool as it will appear on the drop-down on the Tools Sidebar. For example, `<Title>Notepad</Title>`

7. Indicate the action of the tool as it will appear in the tooltip's header. For example, `<TooltipHeader>Opens Notepad</TooltipHeader>`

8. Provide a description of the tool as it will appear in the tooltip's header. For example, `<TooltipDescription>Opens Notepad with the “C:\temp.txt” file</TooltipDescription>`

9. Save and close the file.

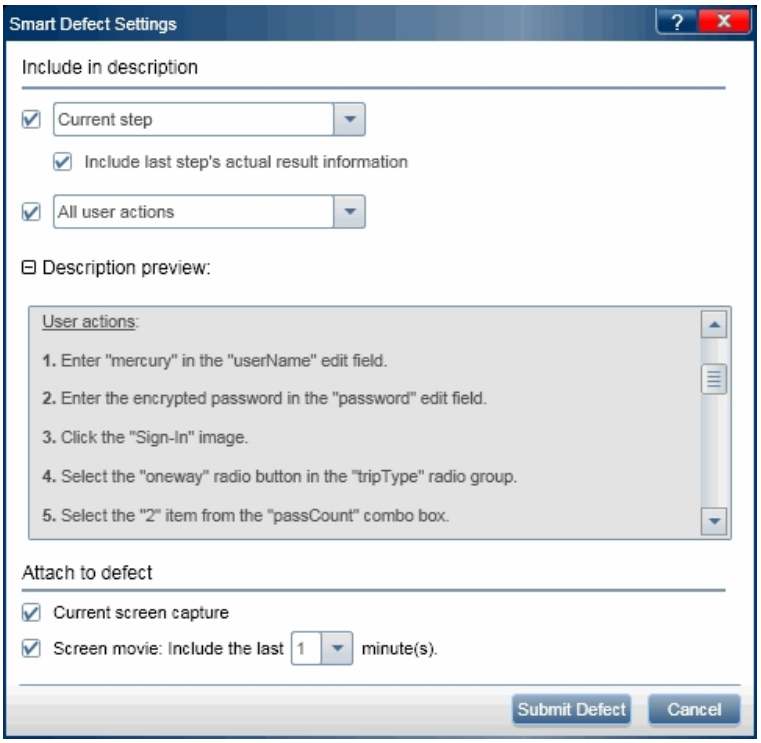
# Smart Defect Settings Dialog Box

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 Detect and Submit a Defect" on page 181

The following image shows the Smart Defect Settings dialog box.




| | |
|---|---|
| **To access** | During a test run, click the **Smart Defect** button from one of the following locations:<br>• **Tools** sidebar<br>• **Steps** sidebar<br>• **Annotation Tools** sidebar<br>• **Scanner Results** dialog box<br>• Storyboard window |

| | |
|---|---|
| **Important information** | • If you are not connected to ALM, the "Application Lifecycle Management Connection Dialog Box" on page 52 opens, to enable you to connect to ALM first.<br><br>Action options are available only if you are working in Power Mode. |
| **See also** | "Detecting and Submitting Defects Overview" on page 175 |

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

| UI Elements | Description |
|---|---|
| **<Step information>** | Available only when you are working in test with steps.<br><br>Enables you to include step information as part of the description of the defect.<br><br>Drop-down options:<br><br>• **All steps to current.** Includes the step name and description for all the steps in the test up to the current step.<br><br>• **All steps.** Includes the step name and description for all the steps in the test.<br><br>• **Custom.** Enables you to select specific steps to include in the defect description. For details, see the "Custom Selection Dialog Box" on page 192.<br><br>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.<br><br>Drop-down options:<br><br>• **Last 5 user actions.** Includes a description of the last five user actions.<br><br>• **Last 10 user actions.** Includes a description of the last ten user actions.<br><br>• **All user actions.** Includes a description of all the user actions.<br><br>• **Custom.** Enables you to select specific user actions to include in the defect description. For details, see the "Custom Selection Dialog Box" on page 192. |
| **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.<br><br>▪ If you submit the defect from the Annotation Workspace, the screen capture includes your annotations.<br><br>▪ If you submit the defect from the Differences Viewer, screen captures of both machines are attached to the defect.<br><br>• **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.<br><br>▪ The screen movie functionality must first be enabled by your ALM administrator.<br><br>▪ Sprinter supports recording screen movies of up to 10 minutes. However, your ALM administrator may have reduced the maximum allowable movie length in the Sprinter section of the Project Customization page in ALM.<br><br>▪ Screen movies can be enabled and disabled. You must enable screen movies prior to running your test. For details, see the "Run Settings Pane (Settings Dialog Box)" on page 60.<br><br>▪ Sprinter sidebars may not be visible in movies. |

| UI Elements | Description |
|---|---|
| **Submit Defect** | Closes the Smart Defect Settings dialog box and opens the New Defect dialog box, enabling you to fill in the remaining information in the defect. |
| **Cancel** | Cancels the defect submission. |

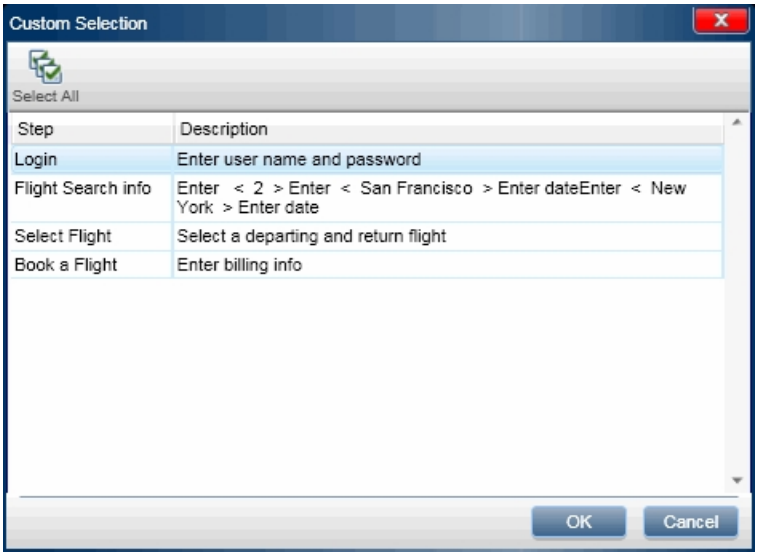
# Custom Selection Dialog Box

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 Detect and Submit a Defect" on page 181

The following image shows the Custom Selection dialog box.




| | |
|---|---|
| **To access** | In the "Smart Defect Settings Dialog Box" on page 188, select **Custom** from the **step information** or **action information** drop-down lists. |

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.<br>• The list of actions includes only those you performed up to this point in your run.<br>• The list of steps includes all the steps in your test. |

# Defect Reminder Dialog Box

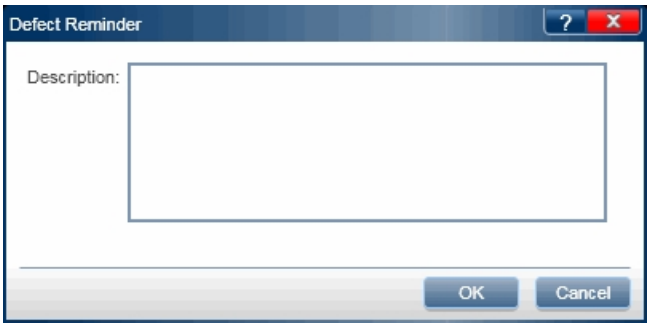
**Relevant for Power Mode only**

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 Detect and Submit a Defect" on page 181

The following image shows the Defect Reminder dialog box.




| | |
|---|---|
| **To access** | During a test run, from one of the following locations:<br>• **Tools** sidebar<br>• **Steps** sidebar<br>Click the down arrow next to the **SmartDefect** button and select **Add Defect Reminder**. |
| **Important information** | You can view your defect reminders:<br>• In the Storyboard window, for the user action for which the defect reminder was created. For details, see "Storyboard Window" on page 214.<br>• By selecting **Results > Defect Reminders**<br>**Note:** Defect reminders are discarded when you remove a run from the **Run Setup** area, replace a run with a new run, or close Sprinter. If the run you are closing contains defect reminders, a warning message is displayed. |

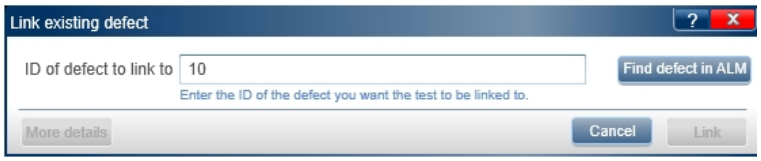
# Link Existing Defect Dialog Box

This dialog box enables you to link a test run to an existing defect in Application Lifecycle Management.

Tasks you can accomplish with the Link Existing Defect dialog box:

- "How to Detect and Submit a Defect" on page 181

The following image shows the Link Existing Defect dialog box.




| | |
|---|---|
| **To access** | During a test run, from one of the following locations:<br>• **Tools** sidebar<br>• **Steps** sidebar<br>Click the down arrow next to the **NewDefect** button and select **Link existing defect**. |
| **Important information** | • To link to a test run, specify an existing defect in the dialog box and select **Find defect in ALM**.<br>Once Sprinter has retrieved the defect from Application Lifecycle Management, you can select the **More Details** button to see defect details.<br>• You can view your linked defects:<br>In the Storyboard window, for the user action for which the linked defect was created. For details, see "Storyboard Window" on page 214. |

# Comment Dialog Box

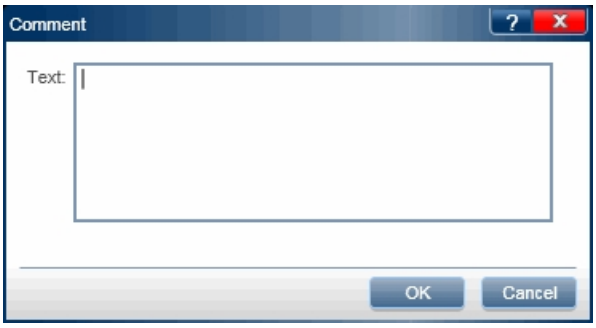
**Relevant for Power Mode only**

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 119

The following image shows the Comment dialog box.




| | |
|---|---|
| **To access** | During a test run, select **Tools** sidebar **> Add Comment** button . |
| **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.<br>You can view your comments:<br>• In the Timeline Viewer, for the user action for which the defect reminder was created.<br>• 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 with the defect in 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 Detect and Submit a Defect" on page 181

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

| | |
|---|---|
| **To access** | In the **Tools** sidebar or the "Actual Result Dialog Box" on page 166, click the **Annotation Workspace** button .<br>The Annotation Workspace opens with the Annotations **Tools** sidebar open.<br>• Click the sidebar tab, or click off the sidebar tab, to close the sidebar.<br>• To lock the sidebar in the open position, click the thumbtack icon.<br>• 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 177 |

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. |
| | **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 "Using Annotation Tools to Detect Defects" on page 177. |

| UI Elements | Description |
|---|---|
| | **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.<br><br>Click to place the guides on the workspace. For more details, see "Using Annotation Tools to Detect Defects" on page 177. |
| | **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 "Using Annotation Tools to Detect Defects" on page 177. |
| **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.** Zooms in and out on the display of the Annotation Workspace.<br><br>The zoom function contains the following controls:<br><br>• Zooms out on the display.<br>• Restores the display to 100%.<br>• Zooms in on the display. The display cannot zoom in more than 100%.<br><br>▪ 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 using the mouse or keyboard arrows<br><br>You can also zoom in and out using the mouse wheel. |
| **Screen Capture** | |

| UI Elements | Description |
|---|---|
| | **Screen Capture.** Takes a screen capture of your application.<br>Drop-down options:<br>• **Save.** Saves the screen capture of the application.<br>• **Print.** Printsthe screen capture of the application.<br>• **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 ALM.<br>Drop-down options:<br>• **Smart Defect.** (Default) Opens the "Smart Defect Settings Dialog Box" on page 188, enabling you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 188.<br>• **New Defect.** Opens the New Defect dialog box, enabling you to manually submit a defect to ALM. |
| | **Save to Actual Result.** Adds the annotated screen capture to the Actual Results of the current step. Disabled for test with no steps. |
| **Close** | Closes the Annotation Workspace. |

# Chapter 6

# 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 the next page

**Tasks**

- "How to Review Run Results" on page 202

**Reference**

- "Results Group" on page 205
- "User Actions Pane/User Actions Summary Dialog Box" on page 211
- "Storyboard Window" on page 214

# 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, run defects, 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 Application Lifecycle Management 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 based on these defect reminders. (Not available when viewing the results in the **Results Viewer** without Sprinter installed.)
- View details of all the user actions you performed during your run, and convert them to a Unified Functional Testing-compatible data file.
- Open the Storyboard, enabling you to view detailed information for each user action you performed in your run, and export this information to a PDF or Microsoft Word file.
- Sprinter temporarily saves the screen captures of all the actions in your test. You can indicate whether Sprinter should save the images shown in the Storyboard or discard them after the run. To indicate which images to capture, open the **Run** area in the Settings dialog box. For details, see "Run Settings Pane (Settings Dialog Box)" on page 60.
- If the **Capture all images in a test** option is disabled in the Setting dialog box, your ALM administrator can enable it in the project. If you do not have permissions in Application Lifecycle Management, this pane's options will be disabled.

For details, see the "Results Group" on page 205.

# 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
- Review the steps you performed in your run
- Review the defects you submitted during your run
- Review the defect reminders you created during your run
- Review the user actions you performed during your run
- Review details and screen captures of your user actions in the Storyboard

## 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 Tab (Results Group)" on page 207.

## Review the defects you submitted during your run

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

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

For details, see "Run Defects Pane (Results Group)" on page 207.

## Review the defect reminders you created during your run

**Note:** The **Defect Reminders Pane** is not available when viewing the results in the **Results Viewer** without Sprinter installed.

The **Defect Reminders Pane** displays a summary of the defect reminders you created during your run. You can submit defects 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 (Results Group)" on page 209.

## 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 211.

## 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.

   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 214.

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 Application Lifecycle Management and view or edit

your defect.

- View a list of any **defect reminders** you created for the action. You can submit defects 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).

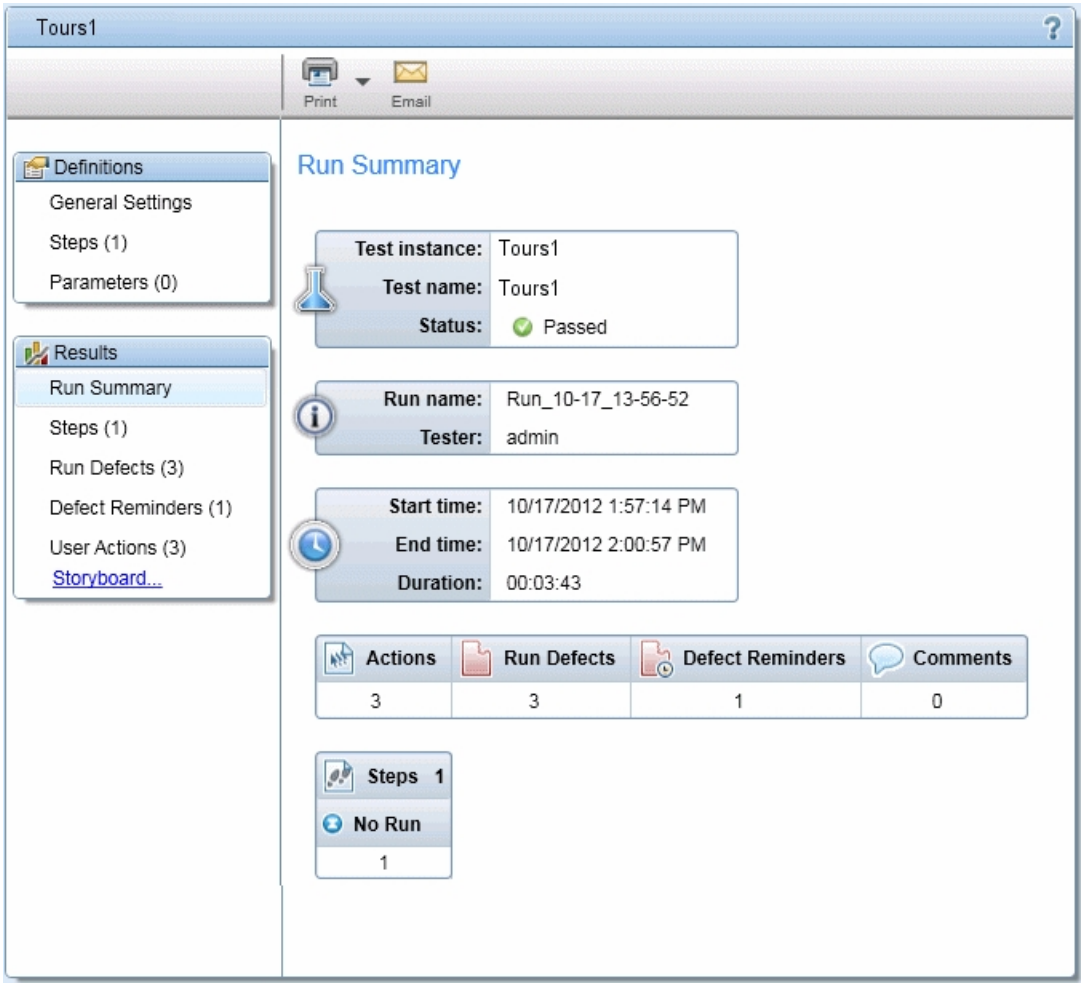
4. **Export the storyboard to a PDF or Word file.**

   Select a location in the file system in which to save the PDF file. This file includes run information, step status information, and the action details for the entire run session.

   For more details on how to view and navigate the storyboard, see "Storyboard Window" on page 214.

# Results Group

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




The Results group contains the following panes:

- "Run Summary Pane (Results Group)" on the next page
- "Steps Tab (Results Group)" on page 207
- "Run Defects Pane (Results Group)" on page 207
- "Defect Reminders Pane (Results Group)" on page 209
- "User Actions Pane/User Actions Summary Dialog Box" on page 211
- "Storyboard Window" on page 214

# Run Summary Pane (Results Group)

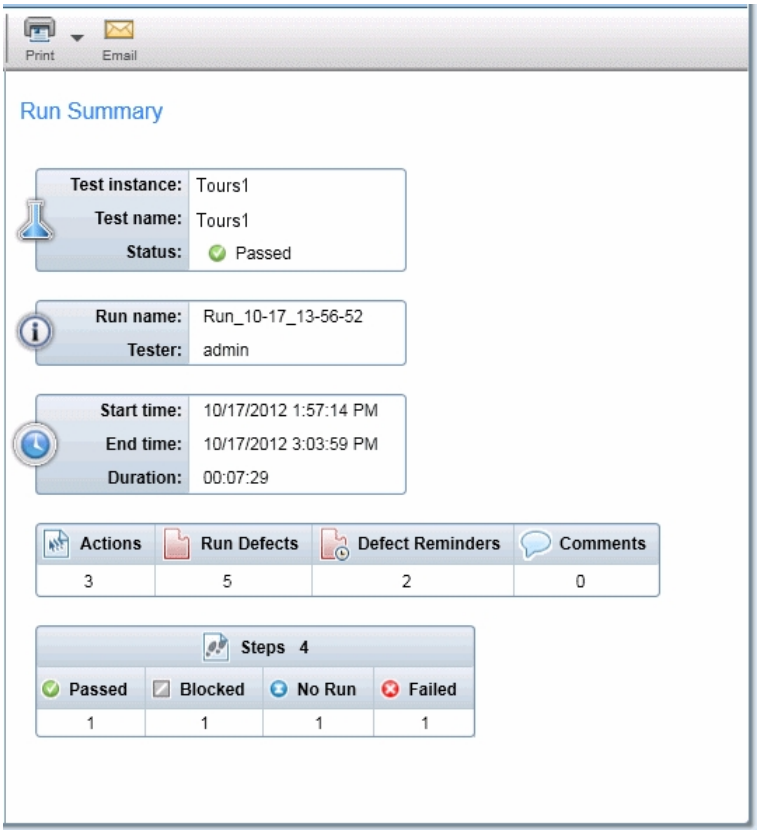
This pane displays a summary of the details of your test run. You can view basic test and run information as well as a summary of the steps and actions in your test and the defects and comments you opened.

Tasks you can accomplish with the Run Summary pane:

- "How to Review Run Results" on page 202

The following image shows the Run Summary pane.

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




| | |
|---|---|
| **To access** | After a run, select the **Results > Run Summary** node. |

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

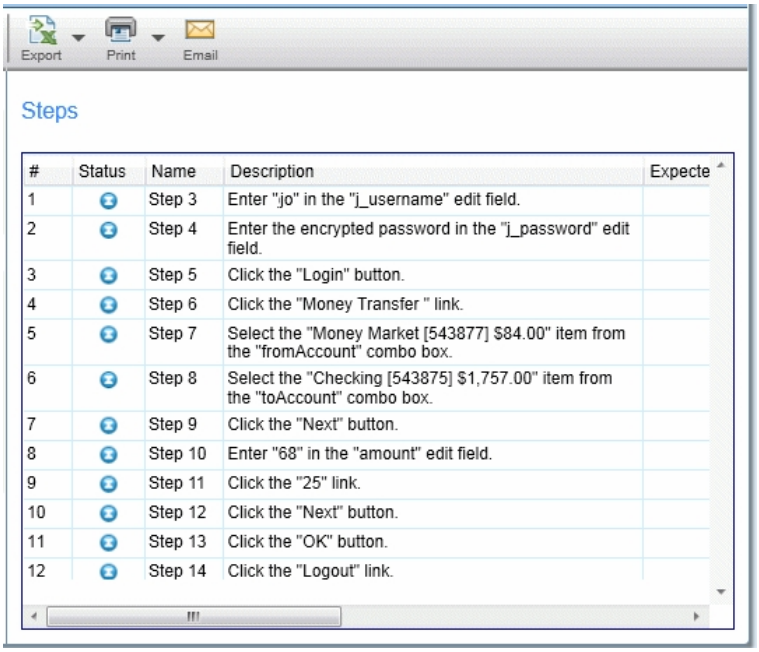
# Steps Tab (Results Group)

This tab 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 tab:

- "How to Review Run Results" on page 202

The following image shows the Steps tab.




| | |
|---|---|
| **To access** | After running a test or component, select the **Results > Steps** node. |
| **Important information** | • You can resize the Sprinter window and the columns in the display to view all the information.<br>• 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.<br>• You cannot **Export**, **Print**, or **Email** steps in a Business Process Test. |

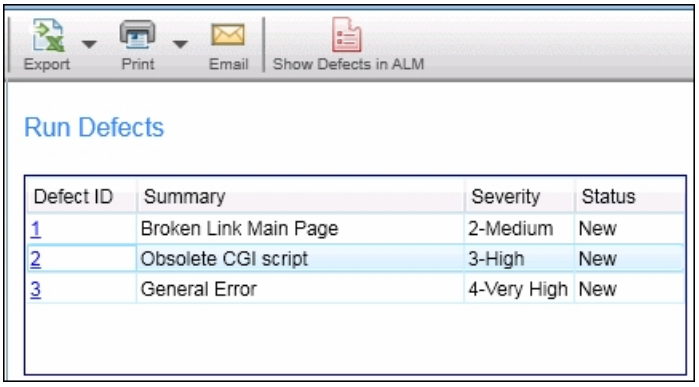
# Run Defects Pane (Results Group)

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 run-time defects.

Tasks you can accomplish with the Run Defects pane:

- "How to Review Run Results" on page 202

The following image shows the Run Defects pane.




| | |
|---|---|
| **To access** | After a run, select the **Results > Run Defects** node. |
| **Important information** | • Clicking the **Defect ID** number opens the Defect Details dialog box . |

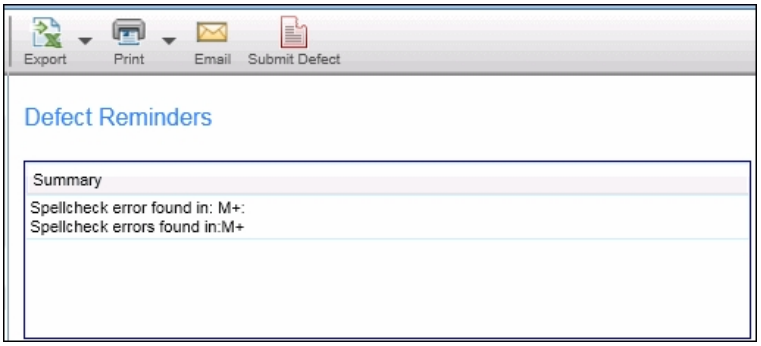
# Defect Reminders Pane (Results Group)

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 202

The following image shows the Defect Reminders pane.




| | |
|---|---|
| **To access** | After running a test or component, select the **Results > Defect Reminders** node. |
| **Important information** | • Defect reminders are discarded when you remove a run from the Run Setup area, replace a run with a new run, or close Sprinter. If the run you are closing contains defect reminders, a warning message is displayed. |

The table below provides additional information for some of these elements:

| UI Elements | Description |
|---|---|
| | Drop-down options:<br>• **New Defect.** Opens the New Defect dialog box, enabling you to manually submit a defect.<br>• **Submit Defect.** (Default) Enables you to automatically include defect scenario information in your defect. For details, see the "Smart Defect Settings Dialog Box" on page 188.<br>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.<br>When you create a defect from a defect reminder, the defect reminder is deleted. |

# User Actions Pane/User Actions Summary Dialog Box

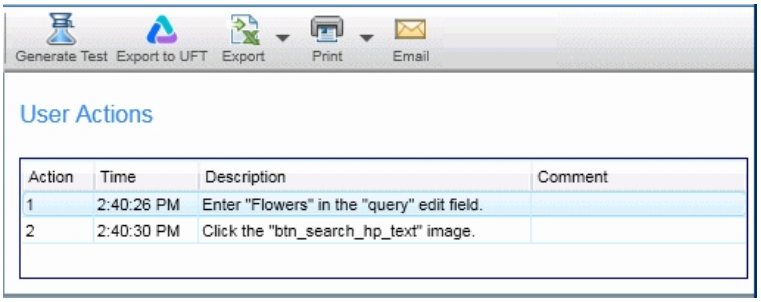
**Relevant for Power Mode only**

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. This pane also allows you to export the run to a manual test or to a Unified Functional Testing (UFT) test.

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

- "How to Review Run Results" on page 202

The following image shows the User Actions pane.




| | |
|---|---|
| **To access** | • After a test run, select the **Results > User Actions** node.<br>• During a run, select the **Tools** sidebar > **Show User Actions** button.<br>• Select the **Results > User Actions** node.<br>Select the **Results > User Actions** node. |
| **Important information** | • The User Actions Summary dialog box displays user action information during a test run. It contains most of the information and most of the functionality as the User Actions pane.<br>• User actions are recorded only in Power Mode. |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| **Generate Test** | Enables you to export all user actions as test steps in a new manual test. You can add test details, format and edit the steps, and save the new test to Application Lifecycle Management. For details, see "Generate Test Dialog Box" on page 171.<br><br>**Note:** This option is available only at the end of the run session. |
| **Export to UFT** | Enables you to export all user actions and application control definitions to an XML file and save this file in the file system.<br><br>This file can be converted to a GUI test with a local object repository in HP Unified Functional Testing. For details on the functionality available with HP Unified Functional Testing, go to the HP Software Web site at www.hp.com/go/software.<br><br>**Note:** This option is available only at the end of the run session. If you close the test and reopen it in Run mode, you will not be able to perform this export. |
| **Export** | Enables you to export all user actions to an external spreadsheet. You can modify the data in the external file and then use the **Import Steps** option in the Plan mode's **Steps** tab.<br><br>Drop-down options:<br><br>• **Export to Excel**<br><br>• **Export to CSV** |
| **Print** | Prints the user action list.<br><br>Drop-down options:<br><br>• **Print**<br><br>• **Print Preview** |
| **Email** | Enables you to email the user action list as an attachment. A default mail client must be installed on the Sprinter machine.<br><br>**Note:** On Windows Vista or XP, you must install The XPS Viewer in order to view the report attached to the email. This viewer is available from the Microsoft website. |

| UI Elements | Description |
|---|---|
| **User Actions** | A list of user actions performed during the run session. The following information is available for each user action:<br>• **Action**<br>• **Time**<br>• **Description**<br>• **Comment** |

# Storyboard Window

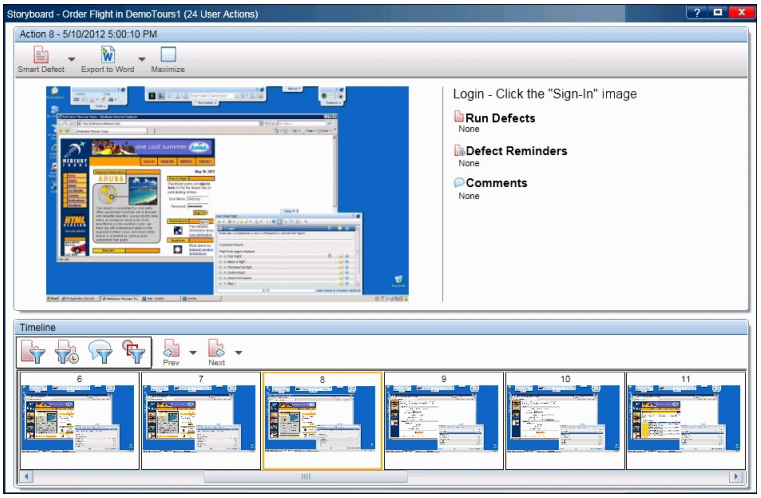
This window displays information for each user action in your run. You can:

- View the description of each user action
- View the defects submitted, defect reminders, comments, and differences found for each action.
- Filter the displayed actions.
- Export the storyboard to a PDF or Microsoft Word file.

Tasks you can accomplish with the Storyboard:

- "How to Review Run Results" on page 202

The following image shows the Storyboard.




| | |
|---|---|
| **To access** | Do one of the following:<br>• During a run, click **Tools** sidebar > **Storyboard**.<br>• Select the **Results** > **Storyboard** node.<br>• Right-click a test in the **Test Runs** list, and select **Show All Runs**. In the The "Test <'Test Name'>: All Runs Dialog Box" on page 140 opens. Click the **Storyboard** button. |

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 Application Lifecycle Management.<br><br>Drop-down options:<br><br>• **Smart Defect.** (Default) Enables you to include automatically generated defect scenario information in your defect description. For details, see "Smart Defect Settings Dialog Box" on page 188.<br><br>• **New Defect.** Opens the New Defect dialog box, enabling you to manually submit a defect.<br><br>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. |
| **Export to Word** | A drop-down menu that lets you to export the storyboard to a Word or PDF file. This file contains the run summary, step status, and defect information for the run session.<br><br>**Note:** If you want it to also include images, make sure to enable image captures in the **Run** area of the Settings dialog box before the run. For details, see "Run Settings Pane (Settings Dialog Box)" on page 60.<br><br>If the **Capture all images in a test** option is disabled, your ALM administrator can enable it for the project. In ALM, select **Tools > Customize**. In the Project Customization window, select the **Sprinter** node, and select the desired options in the Screen Captures section. For example, **Enable Storing of all images during a test** . |
| **Maximize/Minimize** | Zooms in or out of the screen capture selected in the Timeline. |
| **<Action screen capture>** | Displays a screen capture of the action selected in the Timeline. |

| UI Elements | Description |
|---|---|
| **<Action details>** | Displays the following:<br>• A description of the user action.<br>• **Defects.** All the defects submitted for the action. Clicking the link for a defect opens the Defect Details dialog box from Application Lifecycle Management.<br>• **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.<br>• **Comments.** A list of all the comments you added to the action.<br>• **Differences.** A list of all the differences found for the action. Click **Show**, to open the Differences Viewer.<br>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:<br>• A defect was submitted for this action.<br>• A defect reminder was created for this action.<br>• A comment was added to this action.<br>• Differences were found for this action. |

| UI Elements | Description |
|---|---|
| **<Timeline filtering options>** | The Timeline contains the following filter buttons:<br>• **Filter Defects**<br>• **Filter Defect Reminders**<br>• **Filter Comments**<br>• **Filter Differences**<br>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:<br>• **Prev**. Returns the Timeline one defect back.<br>• **Next**. Advances the Timeline one defect forward.<br>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.<br>You can also filter just the **Prev** and **Next** behavior using the drop-down options under these buttons.<br>These drop-down options control the functionality of the Prev and Next buttons, but do not filter the Timeline.<br>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.<br>Drop-down options:<br>• **Previous/Next Defect**<br>• **Previous/Next Defect Reminders**<br>• **Previous/Next Comment**<br>• **Previous/Next Difference** |

# Chapter 7

# 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**

- "Power Mode Overview" on the next page
- "Applications" on page 220

**Tasks**

- "How to Prepare a Test to Run in Power Mode" on page 223

**Reference**

- "Power Mode Group" on page 225
- "Application Pane (Power Mode Group)" on page 227

"Troubleshooting and Limitations - Power Mode" on page 236

# 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. It also enables Sprinter to help you perform some of the user actions 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.
- Scan the application for potential defects.
- 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 the next page
- "How to Prepare a Test to Run in Power Mode" on page 223

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

- "How to Inject Data into your Application" on page 244
- "How to Record and Run Macros" on page 259
- "How to Run a Test with Mirroring" on page 301
- "How to Scan Your Application For Potential Defects" on page 271

For more details, see "Running Tests in Power Mode" on page 117.

# 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.

You can also define applications in **Plan** mode, when creating new tests or components. For details, see " Select Application Dialog Box" on page 106.

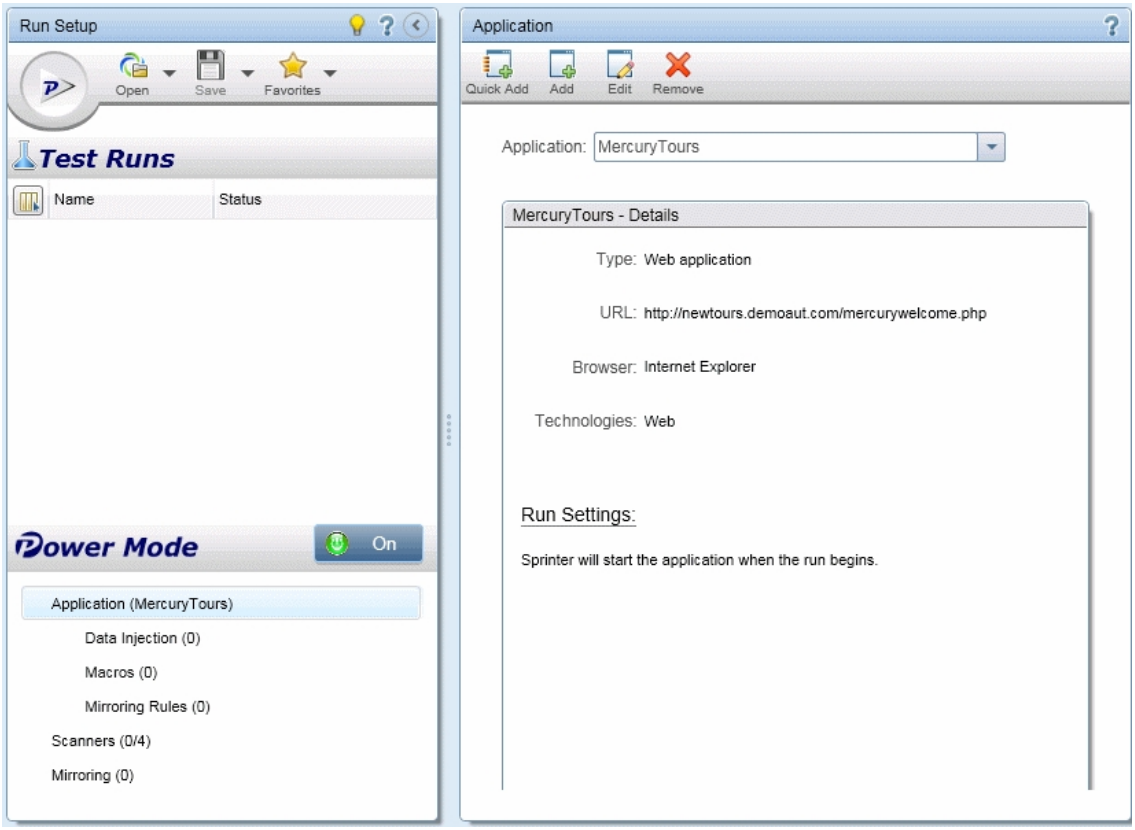
**Example:** Suppose you are testing a banking application. You create a test and define your application with the name `My_Banking_App`. During your test you then record a macro on the login page and save it with the name `Login_Macro`. Sprinter remembers that the `Login_Macro` macro was recorded for 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 225), and in the "Application Pane (Power Mode Group)" (described on page 227).




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 the next page.

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 44.

# 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 119.
- 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 298.
- This task does not include information about how to configure scanner settings. For details, see "How to Scan Your Application For Potential Defects" on page 271.

For details on Power Mode features, see "Running Tests in Power Mode" on page 117.

This task includes the following steps:

- Enable Power Mode for your test
- Configure the application for your test
- Configure data injection
- Review the macros for your application
- Results

## 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 227.

## 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 242.

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

**Note:** Sprinter stores the path to the data file in the DataSource.xml file in Sprinter's **Resources** folder. It is not recommended to modify this folder.

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 247.

Data can be automatically entered into forms only in the application that is defined in the "Application Pane (Power Mode Group)" on page 227. For details, see "Application Pane (Power Mode Group)" on page 227.

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 "Manage (& Map) Fields Dialog Box" on page 250.

## 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 261.

## 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 119.

# Power Mode Group

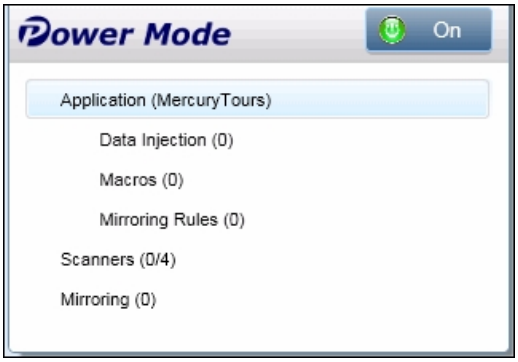
The Power Mode group enables you to turn Power Mode on and off. When you turn Power Mode on and select one of the nodes in the Power Mode group, the right pane displays the settings for that node.

For details on which features are available in Power Mode, see "Running Tests in Power Mode" on page 117.

Tasks you can accomplish with the Power Mode group:

- "How to Prepare a Test to Run in Power Mode" on page 223
- "How to Prepare a Test for Mirroring" on page 298

The following image shows the Power Mode group.




| | |
|---|---|
| **To access** | In the Power Mode group, click the **On** button. |
| **Important information** | You must define an application for your test in order 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.<br>The application currently defined for your test is displayed in parenthesis in the Application node.<br>For details, see "Application Pane (Power Mode Group)" on page 227. |

| UI Elements | Description |
|---|---|
| **Data Injection** | Defines the data sets you want to use with the data injection feature.<br><br>The number of data sets currently defined for use with your application is displayed in parenthesis in the Data Injection node.<br><br>For details, see "Data Injection Pane (Power Mode Group)" on page 247. |
| **Macros** | Displays the macros that are associated with the currently defined application.<br><br>The number of macros currently defined for use with your application is displayed in parenthesis in the Macros node.<br><br>For details, see "Macros Pane (Power Mode Group)" on page 261. |
| **Mirroring Rules** | Displays the rules that are associated with the currently defined application.<br><br>The number of rules currently defined for use with your application is displayed in parenthesis in the Rules node.<br><br>For details, see "Mirroring Rules Pane (Power Mode Group)" on page 320. |
| **Scanners** | Defines the settings for each scanner that you want to use during your run.<br><br>You can scan your application for spelling errors, Web Standards errors (Web applications only), broken links, and localization errors. For details, see "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276. |
| **Mirroring** | Defines the secondary machines on which you want to replicate the actions you perform during your run.<br><br>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 309. |

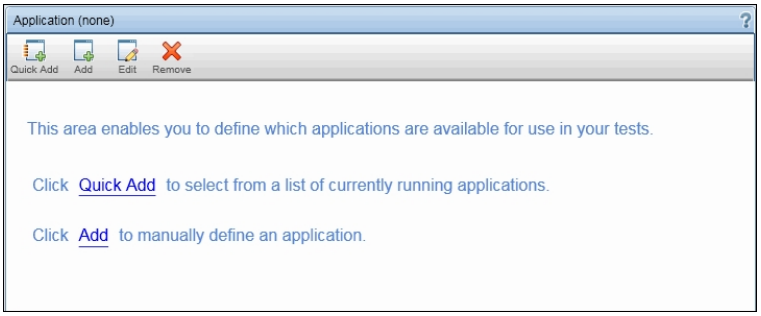
# Application Pane (Power Mode Group)

This pane enables you to define or select the application that your test will use. You can also add, edit, or delete existing applications.

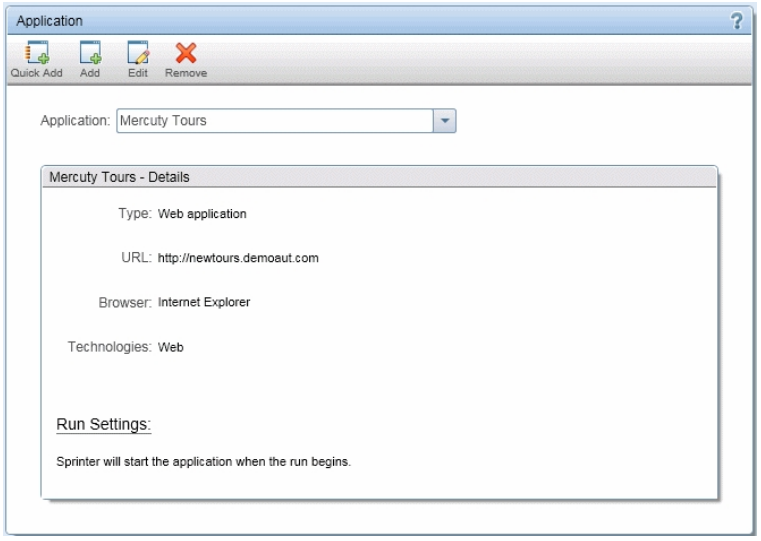
Tasks you can accomplish with the Application pane:

- "How to Prepare a Test to Run in Power Mode" on page 223

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 44. |
| **See also** | "Applications" on page 220 |

The Application pane contains the following user interface elements:

| UI Elements | Description |
|---|---|
| | Opens the "Quick Add Application Dialog Box" (described on page 234), enabling you to add an application to your application list from a list of currently running applications. |
| | Opens the "Add/Edit Application Dialog Box" (described on page 229), enabling you to manually define a new application to add to your application list. |
| | Opens the "Add/Edit Application Dialog Box" (described on page 229), enabling you to edit the application details for the selected application in the application list. |
| | Removes the selected application from the application list. |
| **Application** | The list of available applications (when applications are defined). Use the **QuickAdd**, **Add**, **Edit**, and **Remove** buttons to manage your list of applications.<br><br>To use a previously defined application, enter the first few characters of the name and then select it from the displayed list.<br><br>For details on how Sprinter maintains the list of applications, see "How User Information is Maintained" on page 44. |
| **Application details area** | Displays information about the application you selected in the Application list (when applications are defined). Click the **Edit** button to open the "Add/Edit Application Dialog Box" (described on page 229) and edit these details. |

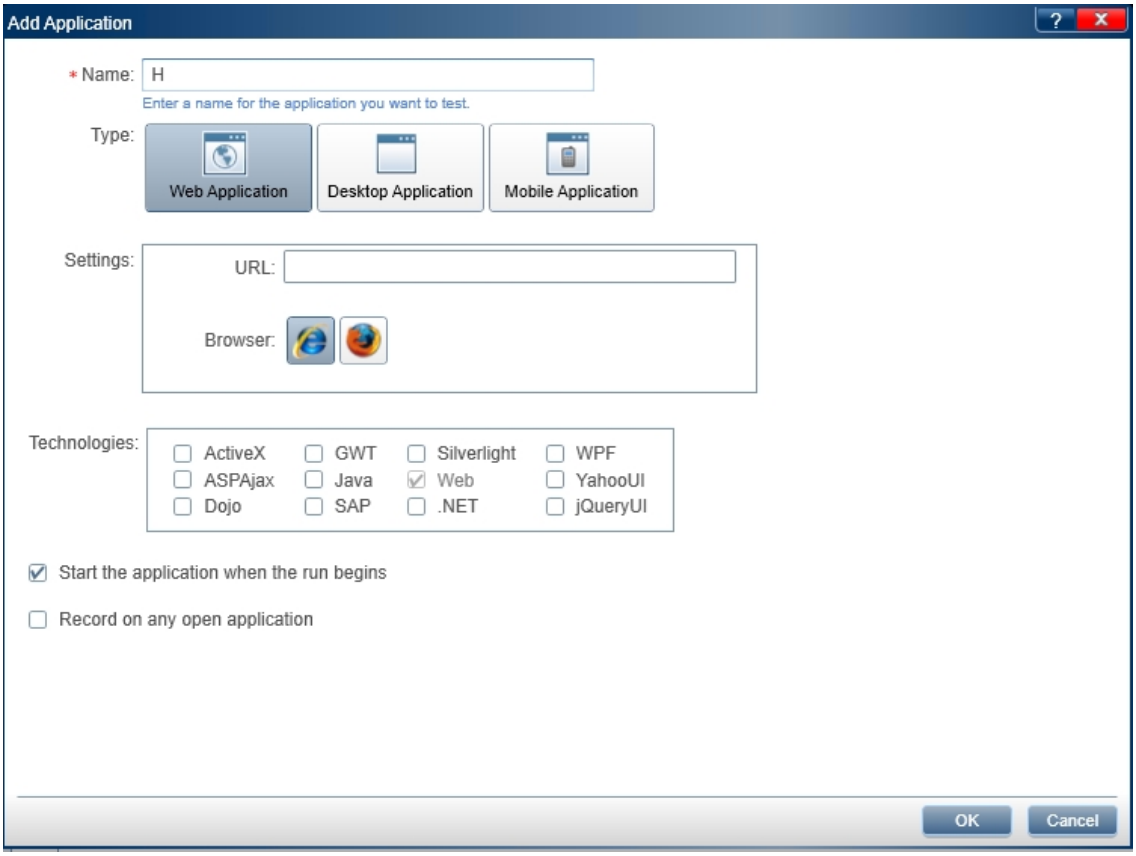
# Add/Edit Application Dialog Box

This dialog box enables you to define or modify the settings for your application.

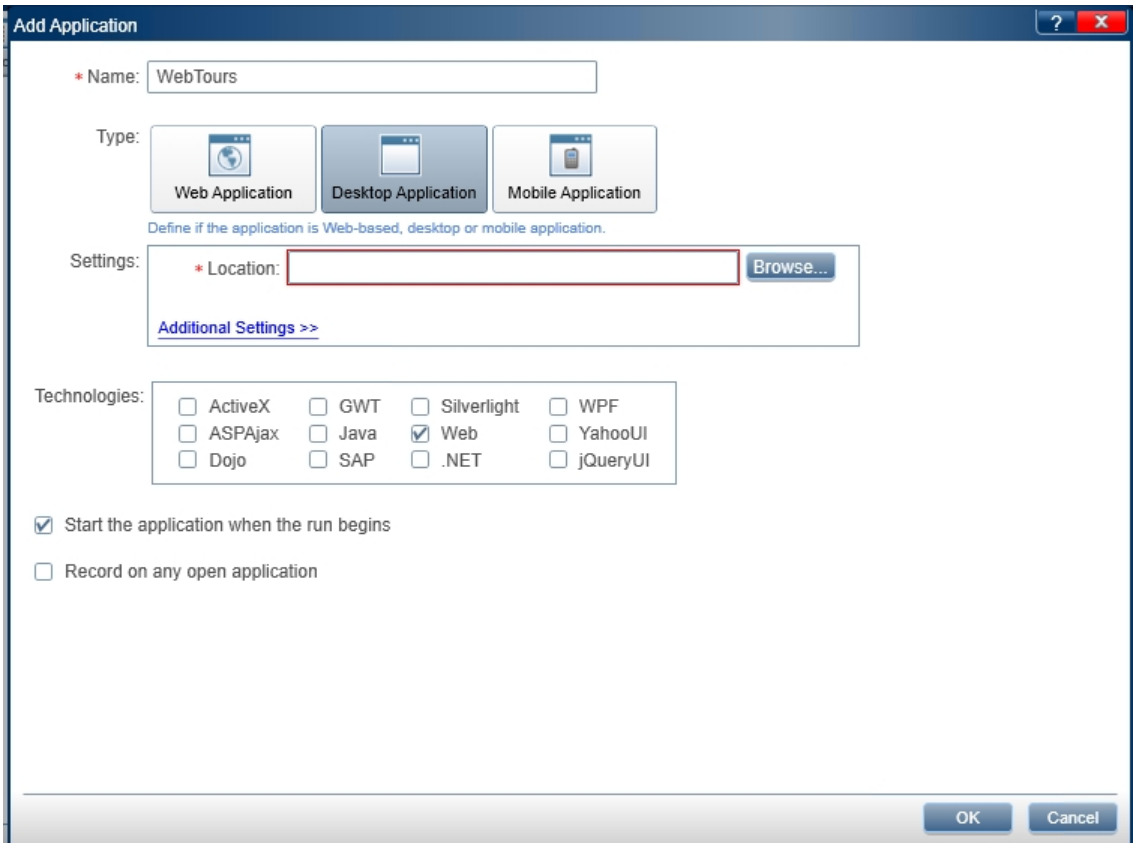
Tasks you can accomplish with the Add/Edit Application dialog box:

- "How to Author a Test or Component" on page 72
- "How to Prepare a Test to Run in Power Mode" on page 223

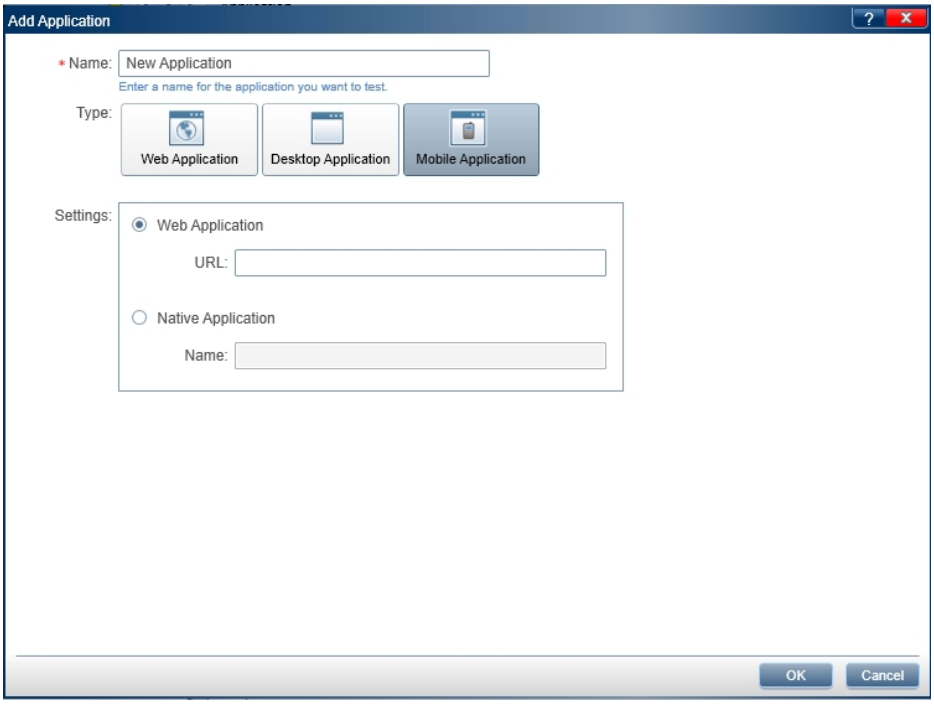
When you select the **Web Application** button, the **Settings** area enables you to set options specific to Web applications.




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




When you select the **Mobile Applications** button, the **Settings** area enables you to set options specific to mobile applications.



| | |
|---|---|
| **To access** | In Plan mode:<br>• Create or open a test or component.<br>• In the right pane, click the **Steps** tab.<br>• Expand the **Steps Capture** button and choose **SelectApplication**.<br>• Click the **Add** or **Edit** button.<br>In Run mode:<br>• Select Power Mode group **> Application** node > **Add** or **Edit** button. |
| **See also** | "Applications" on page 220 |

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.<br>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`. |
| **Type** | **Web Application.** Select this button if you want to define a web application.<br>**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.<br>**Browser.** The browser in which you want to run the Web application. For a list of supported browser versions, see the *HP Sprinter Readme*. |
| **Settings (when defining a Mobile application**) | The type of application that you want to test on your mobile device. Select either **Web Application** or **Native Application**.<br>• **Web application URL.** Specify the Web URL of the application. For example, `www.hp.com`.<br>• **Native Application Name.** Specify the name of the native application. For example, you can specify `Camera` as the name of the native application to test on an Android phone. |

| UI Elements | Description |
|---|---|
| **Additonal Settings** | **Close the browser when the test closes.** Automatically close the browser at the end of the test.<br><br>**Location.** The path to the desktop application (if relevant).<br><br>**Parameters.** Any parameters you want Sprinter to use when it starts the application.<br><br>**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.<br><br>• 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.<br><br>Some technologies depend on other technologies to run. Some of these dependencies are automatically selected and disabled in the Technologies list.<br><br>• For best performance it is recommended to avoid selecting unnecessary technologies.<br><br>• Web is selected by default for Web applications.<br><br>• You can make use of Web Extensibility packages developed for QuickTest /Unified Functional Testing to enable Power Mode to support objects that are not supported out-of-the-box. Extensibility packages can be developed for Web, Java, .NET Windows Forms, WPF, and Silverlight. For details, see "Using Web Extensibility Packages" on page 350.<br><br>• For SAP GUI for Windows troubleshooting and limitations, see "Troubleshooting and Limitations - Power Mode" on page 236. |

| UI Elements | Description |
|---|---|
| **Start the application when the run begins** | Instructs Sprinter to automatically start the application when you start your run.<br><br>It is recommended that you configure Sprinter to start your application when the run begins or manually start your test application after you begin your run.<br><br>For desktop applications that use Java, ActiveX, and Web applications:<br><br>• Sprinter can only work with these applications if they start when the runs begins.<br><br>• 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.<br><br>• Sprinter will work with any Java application that is started when the run begins or after the run begins.<br><br>For desktop applications that do not use ActiveX:<br><br>• 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.<br><br>Selecting this option may affect performance. |

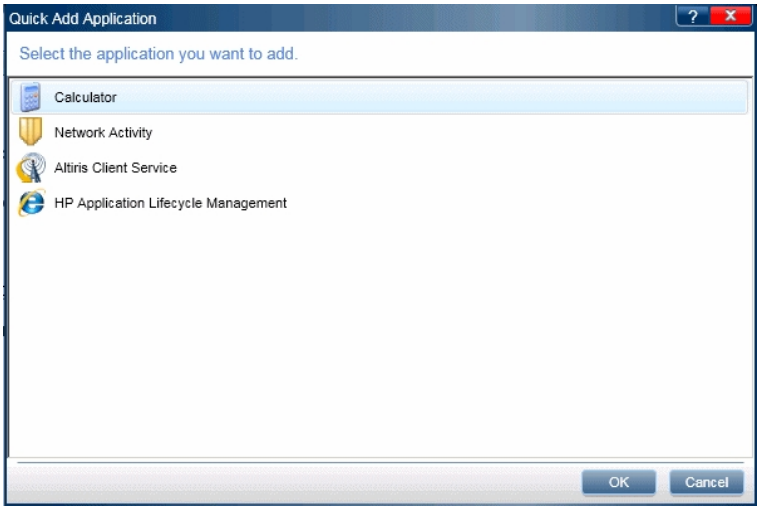
# Quick Add Application Dialog Box

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 Author a Test or Component" on page 72
- "How to Prepare a Test to Run in Power Mode" on page 223

The following image shows the Quick Add Application dialog box.




| | |
|---|---|
| **To access** | In Plan mode:<br>• Create or open a test or component.<br>• In the right pane, click the **Steps** tab.<br>• Expand the **Steps Capture** button and choose **SelectApplication**.<br>• Click the **Quick Add** button.<br>In Run mode:<br>• Select Power Mode group **>** **Application** node > **Quick Add** button. |

| | |
|---|---|
| **Important information** | **Application details are entered automatically.**<br>• To change the application details, open the "Add/Edit Application Dialog Box" on page 229 (Power Mode group **> Application** node. Select the application from the application list and click the **Edit** button.)<br>• 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" on page 229.<br>**Quick Add automatically selects the technologies used in developing the application being tested.**<br>• You need to ensure that all the technologies that were used to develop your application are selected.<br>• Some technologies depend on other technologies to run. Some of these dependencies are automatically selected and disabled in the Technologies list.<br>• Web is selected by default for Web applications.<br>**For desktop applications that use ActiveX and Web applications:**<br>• 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.<br>**For desktop applications that do not use ActiveX:**<br>• 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. |

# Troubleshooting and Limitations - Power Mode

This section describes troubleshooting and limitations for Power Mode.

General Limitations

- When working with Power Mode, you should not have more than one instance of the application you are testing open on any machine in your run.
- 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.
- In 64-bit operating systems, if you are logged in as an ordinary (non-administrator) user, but run an application as administrator, it will not be listed in the **Quick Add Application** dialog box. **Workaround:** Close the application and restart it without administrator privileges or add the application manually.
- 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 at http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=23734.
- Application names cannot contain the following characters:
  `\ / : * ? " < > | ' % ! { }`

**Workaround:** Remove the characters from the name of the application in Sprinter to enable the test to run.

- It is recommended that when you work with Power Mode you configure Sprinter to start your application when the run begins or manually start your application after the run begins. If your application was started before the start of the run, Sprinter may be unable to recognize it.
- When you record an HTML5 number or range control as part of a macro or mirroring scenario in HTML supported browser, you can only replay it in an HTML5 supported browser. For example, if you record a user action on one of these controls in IE10, it will not replay in IE9. Conversely, if you record an HTML5 number or range control in a non-HTML supported browser, you can only replay it in an non-HTML supported browser.

## Web Browsers

- Sprinter does not recognize dialog boxes opened by **Mozilla Firefox**.
- To test your Web application on Firefox 8 or higher, you need to enable **QuickTest Professional or Unified Functional Testing Plugin** support, in any of the following ways:

- If the **Select Your Add-ons** screen is displayed when opening Firefox, select to keep the **QuickTest Professional** or **Unified Functional Testing** Plugin.
- If the **Install Add-on** tab opens and displays **QuickTest Professional or Unified Functional Testing Plugin** when opening Firefox, select the **Allow this installation** check box and click **Continue**.

- If neither of these are available, enable the add-on manually:

a. In Firefox, select **Tools > Add-ons**.

b. In the **General** tab, click **Manage Add-ons** (not relevant in some versions).

c. In the **Add-ons Manager** tab, select the **Extensions** node.

d. Click the **Enable** button in the **QuickTest Professional or Unified Functional Testing Plugin** row.

### Java Applications

- Before Sprinter can work with **Java** objects, you need to run the Sprinter **JRE Support Tool** (`JavaEnabler.jar`).
  - You only need to run this tool the first time you want to work with a Java object, on machines that have a JRE version of 1.6 or lower.
  - 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.

### Google Web Toolkit (GWT)

- In user action descriptions, Sprinter does not properly identify **GWT Richtext edit boxes** by their name.

### Silverlight

- Sprinter does not support windowless **Silverlight** applications hosted in **Mozilla Firefox**.
- To work with Silverlight, your Silverlight application must be initialized with the **EnableHtmlAccess** property value set to `'True'`. For details, see http://msdn.microsoft.com/en-us/library/cc838264(VS.95).aspx

SAP GUI for Windows Applications

General Limitations

- Sprinter does not support capturing and replicating user actions performed on HTML elements embedded in SAP GUI for Windows applications.
- Microsoft Office controls within an SAP window are not supported.
- The SAP Editor control is not supported.
- The **OK** button in SAP messages for connecting to the SAP Scripting API is not captured.
- When the **Compare All** option is selected in the **Machines** sidebar during a mirroring session, Sprinter does not compare cell content in SAP Table controls.
- Sprinter captures user actions only when the SAP GUI for Windows client sends information to the SAP back-end server. When this occurs, all of the user actions that were performed between the previous communication and the current one are captured. Therefore, Sprinter captures an image of each screen that is sent to the server only after all of the user actions have been performed during that communication.
- For security reasons, the SAP scripting API prevents capturing user actions that contain passwords. When you insert a password in a password box, Sprinter captures a **Set** statement using asterisks (****) as the method argument value. For this reason, **Login** cannot be recorded as a macro and cannot be replicated when using mirroring.
- Sprinter does not capture user actions performed in standard Windows dialog boxes that are used by your SAP GUI for Windows application (such as the **Open File** and **Save As** dialog boxes). This is because the SAP scripting API does not support these dialog boxes. This may also occur when using SAP GUI for Windows with GuiXT. Therefore, you must manually perform these user actions on all machines while running macros or using mirroring.

Installation Prerequisites

When you install your SAP GUI for Windows application, you must select the **SAP GUI Scripting** installation option. If you did not select this option when you installed the SAP GUI for Windows application, it is essential that you reinstall it and select this option before running steps on that application.

**Note:** SAP provides a range of security mechanisms that allow the administrator to limit the use of SAP GUI Scripting by system, by group, by user, and by scripting functionality. To test SAP GUI for Windows applications, you must ensure that these security mechanisms are not activated for the application you are testing. For details on the various security options, see the online SAP GUI Scripting Security Guide at the SAP Service Marketplace.

Enabling Scripting on the SAP Application (Server-Side)

After you confirm that you have the proper support package and kernel patch levels installed, you must enable scripting on your SAP application. By default, scripting is disabled.

You enable scripting by entering the Maintain Profile Parameters window with administrative permissions and setting the *sapgui/user_scripting* profile parameter to `TRUE` on the application server.

To enable scripting for all users, set this parameter on all application servers. To enable scripting for a specific group of users, set the parameter only on application servers with the appropriate access restriction settings.

**Note:** If you connect to a server on which scripting is disabled, an error message displays when you try to record on your SAP GUI for Windows application.

Enabling Scripting on the SAP Application (Client-Side)

To test SAP GUI for Windows applications with Sprinter, you must confirm that scripting is enabled on the SAP GUI for Windows client.

It is recommended to disable warning messages in the SAP GUI for Windows environment when working with Sprinter. When using mirroring, it is recommended to also disable warning messages on all secondary machines.

Eliminating Warning Messages

By default, you may receive warning messages when using Sprinter with an SAP GUI for Windows application: When Sprinter connects to the Scripting API, the following warning message is displayed: `A script is trying to attach to the gui`.

It is recommended to disable the warning messages in the SAP GUI for Windows application when working with Sprinter.

Checking the Connection Speed on the SAP Server

When you log on to SAP using the **Low speed connection** option to communicate with the server, the SAP server does not send sufficient information for Sprinter to properly run steps. (Sprinter displays an error message if the **Low speed connection** option is selected.) Therefore, confirm that this option is not selected for the server to which you are connecting before running Sprinter tests.

For details, see SAP OSS note #587202.

Perfecto Mobile

Launching of native applications is only supported on Android devices and Apple devices with iOS7

# Chapter 8

# 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 the next page
- "Guidelines for Creating Data Injection Data Sets" on page 242


**Tasks**


- "How to Inject Data into your Application" on page 244


**Reference**


- "Data Injection Pane (Power Mode Group)" on page 247
- "Data Set Details Dialog Box" on page 249
- "Manage (& Map) Fields Dialog Box" on page 250
- "Data Injection Sidebar" on page 253

"Troubleshooting and Limitations - Data Injection" on page 255

# Data Injection Overview

**Relevant for Power Mode only**

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. For details on creating a data set, see "Guidelines for Creating Data Injection Data Sets" on the next page.

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

**Note:** Sprinter stores the path to the data file in the DataSource.xml file in Sprinter's **Resources** folder. It is recommended that you not modify this folder.

After you create a 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.

Using Sprinter, you can map the column headings of your data set with the field names in your application.

Sprinter also allows you map fields automatically or manually. In automatic mapping, Sprinter scans the application for field names that match the data set's column names.

If, however, the names of the columns in your data set do not match those in the application or if there are multiple fields with the same name, you can manually map the fields. All mappings are saved with your test.

You can also define which fields in your data set you want to enter in your application and in what order. For details, see "Manage (& Map) Fields Dialog Box" on page 250.

For details on preparing a test to run with data injection, see "How to Prepare a Test to Run in Power Mode" on page 223.

For details on associating a data set with your application, see "Data Injection Pane (Power Mode Group)" on page 247.

For details on using data injection during a test run, see "How to Inject Data into your Application" on page 244.

# Guidelines for Creating Data Injection Data Sets

Follow these guidelines when creating data injection 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.
  - Data injection uses **Smart Matching** to map between the field names and column headings. Therefore, the two do not need to exactly match for data injection to map the correct field to its column.
  - 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 there is too great a difference between the field name in your application and the column headings in your data set, **Smart Matching** may not correctly match the field to its heading. In this case, modify the column heading in the data set to more closely match the field name in the application.
  - 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.
- To use Data Injection to select a radio button in your application, specify the field name of the radio button as the column header. To set the radio button as selected/deselected, enter a data value as either "On/Off" or "True/False" .
- 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.
- When Smart Matching succeeds, Sprinter saves the mappings for all future runs.
- Data Injection ignores empty lines in your data set, and instead skips to the nearest row containing data.

  If **Smart Matching** is not effective for your application, or if the field and column names do not match, you can manually map the fields.

For task information, see "How to Inject Data into your Application" on the next page.

# 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
- Determine whether you need to do manual mapping
- Begin the run
- Open the Manage & Map Fields dialog box
- Map the fields - Automatic Mapping
- Map the fields - Manual Mapping
- Define which fields you want to inject, and in what order - Optional
- Inject the data into your application during your run

1. **Prerequisites**
   - To use data injection, you must add data sets 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 223.
   - To use data injection, you can only have one instance of your application open.
2. **Determine whether you need to do automatic or manual mapping**

   When performing data injection, you can do automatic or manual mapping. In automatic mapping, Sprinter attempts to map the headers in your data set to fields in your application. If the column and field names are identical, you can use automatic mapping.

   If, however, the field names are different or duplicated, you cannot rely on automatic mapping. In these cases, use manual mapping to select the fields in which to inject data.
3. **Begin the test run**
   a. Begin the run and make sure your application opens.

   b. Expand the **Data Injection** sidebar.

c. If you have more than one data set, select the data set you want to use from the drop-down list. For details, see "Data Injection Sidebar" on page 253.

4. **Open the Manage & Map Fields dialog box**

On the **Data Injection** sidebar, click the **Manage Fields** button . The Manage & Map Fields dialog box opens.

5. **Map the fields - Automatic Mapping**

In the Manage & Map Fields dialog box, click the **Map Automatically** button. Sprinter scans the application for matching fields and maps them to the columns of the data set.

6. **Map the fields - Manual Mapping**

If you determined that you need to use manual mapping, or if the automatic mapping did not succeed, continue with the following steps:

a. In the Manage & Map Fields dialog box, select the data set row you want to map.

b. In the Manage & Map Fields dialog box, click the **Map Manually** button.

At this stage, your mouse pointer becomes a pointing hand. You use the pointing hand to select an object in your application.

**Tip.** To enable your mouse during the selection mode, for example to scroll or view a right-click menu in your application, hold down the left **Ctrl** button on the keyboard. You can then change the window focus or perform operations in Sprinter or your application.

c. In your application, click the field you want to map with the selected data set row.

d. Repeat the above step for each field that you want to map and then click **OK** to close the dialog box.

7. **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 by which they appear, you can skip this step.

To define which fields to fill in your application and the order by which they should be entered, click the **Manage Fields** button in the "Data Injection Sidebar" on page 253. Clear the check box adjacent to the fields that you do not want to inject. Use the Move Up and Move Down buttons to set the order.

For details, see "Manage (& Map) Fields Dialog Box" on page 250.

8. **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. Click the **Display Field Mapping** button to verify the field mapping between your data set and the fields in your application . Click it again to hide the highlighting.

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

d. The **Data Injection** sidebar displays an icon in its tab indicating the success or failure of the injection. If you did not previously map any of the fields, Sprinter offers to perform automatic mapping. If the data injection fails, a popup box opens with additional details.

For more details, see "Data Injection Sidebar" on page 253.

# Data Injection Pane (Power Mode Group)

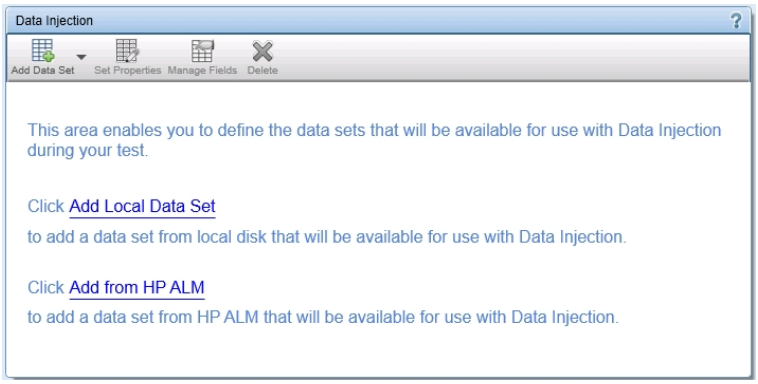
This tab enables you to define which data sets will to be available to use with the Data Injection feature during a test run.

You can also delete data sets, define which fields from your data set will be injected, and in which order.

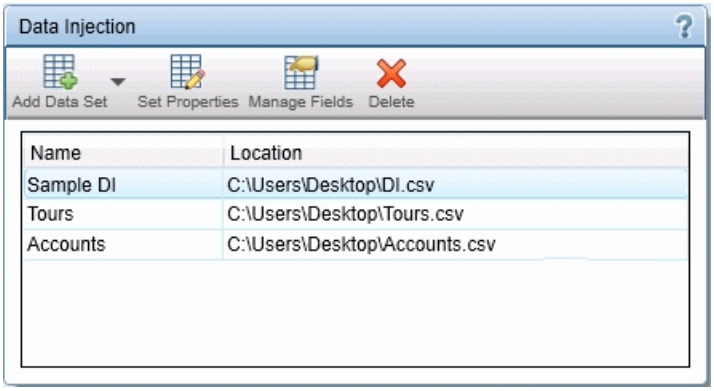
Tasks you can accomplish with the Data Injection pane:

- "How to Prepare a Test to Run in Power Mode" on page 223

The following image shows the Data Injection pane when there are no defined 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.<br>• For details on how Sprinter maintains the list of data sets, see "How User Information is Maintained" on page 44. |
| **See also** | "Data Injection Overview" on page 241 |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | Drop-down options:<br>• **Add Local Data Set.** Opens the "Data Set Details Dialog Box" (described on page 249), enabling you to define a new data set for your application from your file system.<br>• **Add from HP** Application Lifecycle Management**.** Opens the "Data Set Details Dialog Box" (described on page 249), enabling you to define a new data set for your application from your Application Lifecycle Management**Resources** folder. |
| | Opens the "Data Set Details Dialog Box" (described on page 249), enabling you set the name and location of the data set. |
| | Opens the "Manage (& Map) Fields Dialog Box" (described on page 250), enabling you to define which fields from your data will be injected, and in which order. |
| | Removes the selected data set from your application. |

# Data Set Details Dialog Box

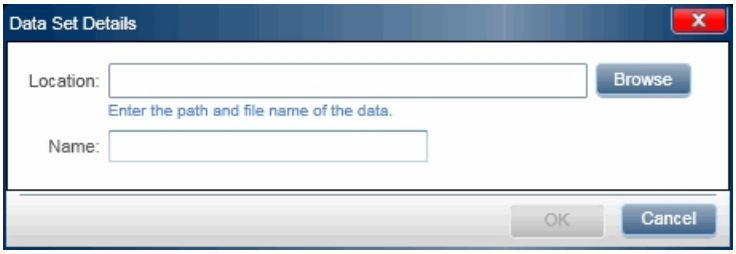
**Relevant for Power Mode only**

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 223

The following image shows the Data Details dialog box.




| | |
|---|---|
| **To access** | Do one of the following:<br>• Select Power Mode group **> Data Injection** node > **Add** button.<br>• 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.<br>• Data sets cannot be edited from within Sprinter. |
| **See also** | "Data Injection Overview" on page 241 |

# Manage (& Map) Fields Dialog Box

**Relevant for Power Mode only**

This dialog box enables you to manage the data set fields.

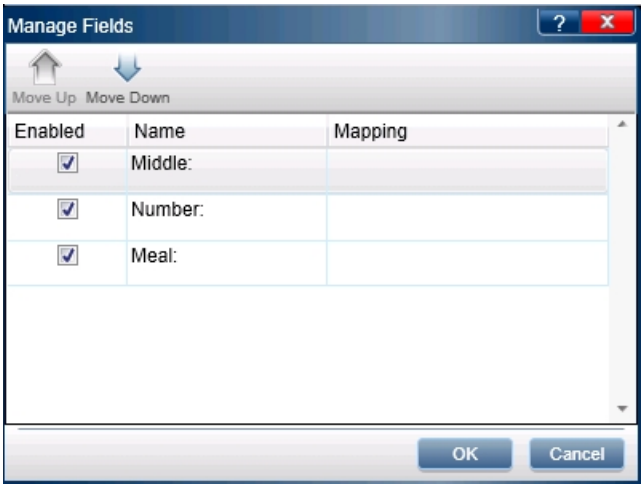
When you access this dialog box from the Power Mode pane, you can indicate which fields to inject from your data set, and in which order.

When you access this dialog box from the Power Mode pane, you can also manage the mappings between your application and the data set columns.

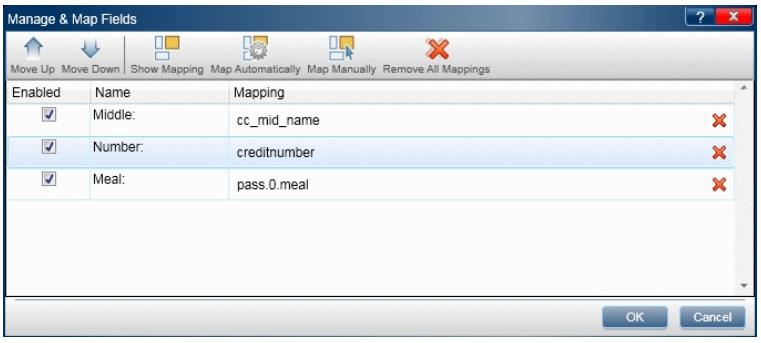
Tasks you can accomplish with the Manage (& Map) Fields dialog box:

- "How to Prepare a Test to Run in Power Mode" on page 223
- "How to Inject Data into your Application" on page 244

The following image shows the Manage Fields dialog box accessed from the Power Mode pane before the test run.

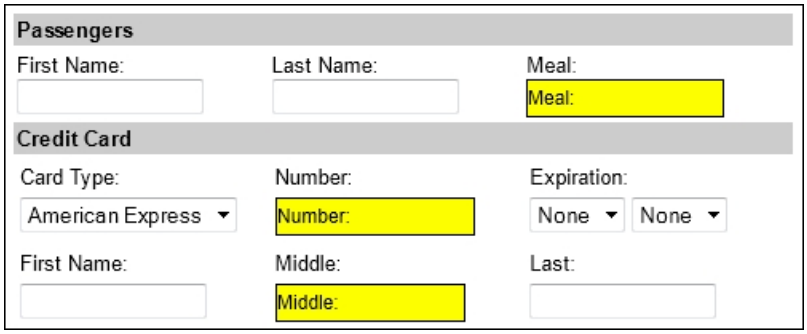



The following image shows the Manage & Map Fields dialog box accessed from the Data Injection sidebar during the test run.



| | |
|---|---|
| **To access** | Do one of the following:<br>• In the Power Mode group, select the **Data Injection** node > **Manage Fields** button.<br>• During a run in the **Data Injection** sidebar, click the **Manage Fields** button . |
| **See also** | • "Data Injection Overview" on page 241<br>• "Data Injection Sidebar" on page 253 |

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. |
| | 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.<br>  |
| Map Automatically | Scans the application for matching fields and maps them to the columns of the data set (only available when dialog box is opened from sidebar). |
| Map Manually | Enables a pointer allowing you to manually choose the field to map to the selected data set column (only available when dialog box is opened from sidebar). |
| Remove All Mappings | Deletes all of the listed mappings (only available when dialog box is opened from sidebar). |
| **Enabled column** | Enables or disables data injection for the field. |

| UI Elements | Description |
|---|---|
| **Name column** | The name of the field as it appears in the column header of the data set. |
| **Mapping column** | The field to which the data is mapped. |

# Data Injection Sidebar

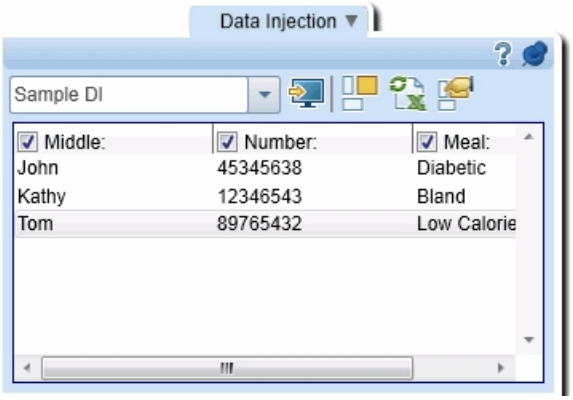
**Relevant for Power Mode only**

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:

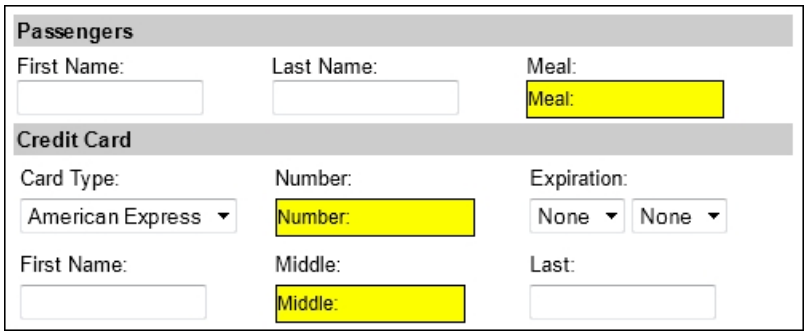
- "How to Inject Data into your Application" on page 244
- "How to Run a Manual Test in Sprinter" on page 119

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




| | |
|---|---|
| **To access** | Do the following:<br>1. Enter Run mode and open a test or component.<br>2. Turn on Power mode.<br>3. In the Power Mode group, click the **Data Injection** node.<br>4. In the Data Injection pane, add at least one data set.<br>5. Click the Power Mode Run button.<br>**Tip:** 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 241 |

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. |
| **<Data set columns>** | The column names in your data set. To exclude a specific column from data injection, clear its check box. |
| | **Inject Data.** 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.<br>  |
| | **Refresh Data.** Reloads the data from the data set source into the **Data Injection** sidebar. |
| | **Manage Fields.** Opens the "Manage (& Map) Fields Dialog Box" on page 250, enabling you to define which fields will be injected, the fields to which they should be mapped, and the mapping order. For details, see "Manage (& Map) Fields Dialog Box" on page 250. |
| **<Data injection status>** | The **Data Injection** sidebar displays an icon in its tab indicating the success , partial success , or failure  of data that was most recently injected. For details, click the icon to open the Data Injection Status window. |
| **<Mapping status>** | A status message in the lower section of the sidebar, indicating that some or all headers of the data set were not mapped. |

# Troubleshooting and Limitations - Data Injection

This section describes troubleshooting and limitations for data injection.

- Data injection may not work with all technologies.
- Data injection files do not support Unicode.
- If data injection cannot identify the matching field in the application, the data will not be injected.
- When loading data from a CSV file in a non-English operating system in which the separator is not a comma, all data appears in a single column. For example, in German Windows 7, the default separator, a semicolon, is ignored.
  **Workaround:** Change the default separator in your locale to a comma. Select Control Panel > Regional and Language > Additional Settings. Change the **List separator** value to a comma.
- In the grid within the Data Injection sidebar, 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.
- When working with data injection files, in HTML pages where the labels are simple text nodes and not Web elements, the data injection mechanism will not be able to identify the label text.
  **Workaround**: Use :TOName:<Editbox_name>
- When manually mapping fields in a SapGuiArea, you cannot highlight individual objects.
  **Workaround**: Click the desired object with left mouse button. Sprinter will map this object correctly.
- To use **Data Injection** to select a radio button in your application:

  a. Click the radio button you want to inject data into while running a test with Sprinter in Power Mode.

  b. Open the **User Actions** window and look at the user action that was recorded.

  c. If the user action describes the radio button as part of a radio group:
     - Manually map the header in the DI file to the radio button in the application.

     **Note:** Sometimes Manual Mappings will only highlight the selected radio button even if your mouse selected other radio buttons in the group.

- In the data injector file, set the value that appeared in the user action description as the value for the injection.

d. If the user action describes the radio button as a separate action and not part of a radio group:

- Specify the field name of the radio button as the column header.
- To define the radio button as selected, enter a data value as either "On" or "True".

- For best results while manual mapping (Web applications only), make sure you are viewing the page at 100% otherwise, Sprinter might not recognize your objects in the correct location. For example, if you view the page at 90% or 120%, you may be required to select an area to the left or the right of the actual object for Sprinter to recognize it.

# Chapter 9

# 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 the next page


**Tasks**


- "How to Record and Run Macros" on page 259


**Reference**


- "Macros Pane (Power Mode Group)" on page 261
- "Macros Sidebar" on page 262
- "Macro Details Dialog Box" on page 264
- "Manage Macros Dialog Box" on page 266

"Troubleshooting and Limitations - Macros" on page 267

# Chapter 9

# 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 recorded after they are completed. For edit boxes and combo boxes, the action is not complete, and will not be recorded until you move the focus off the box.

# Chapter 9

# 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.

Macros can be used only in tests run in Power Mode.

This task includes the following steps:

- Activate Power Mode
- Record a macro
- Run a macro

1. **Activate Power Mode**

   In Run mode, make sure you have a test open and that Power Mode is active. Click the Power Mode Run button. For details, see the relevant steps in "How to Prepare a Test to Run in Power Mode" on page 223.

2. **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 264.

   For more details about the sidebar, see "Macros Sidebar" on page 262.

3. **Run a macro**

   a. Close the instance of the application upon which the macro was recorded. Allow Power mode to reopen the application.

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

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

d. 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 about the sidebar, see "Macros Sidebar" on page 262.

For more details on using macros in your test, see "Macros Overview" on page 258.

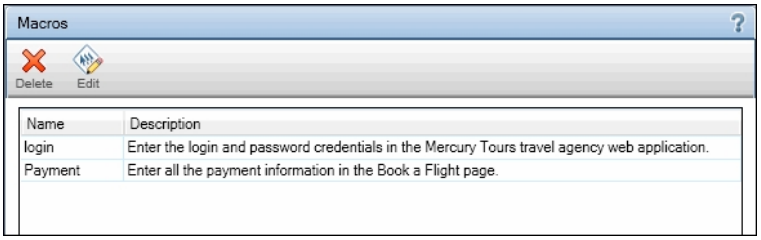
# Macros Pane (Power Mode Group)

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 223

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 258 |

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

# Macros Sidebar

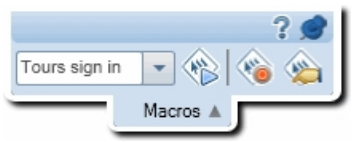
**Relevant for Power Mode only**

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 259
- "How to Run a Manual Test in Sprinter" on page 119

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




| | |
|---|---|
| **To access** | During a test run, click the **Macros** sidebar tab.<br>• Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.<br>• To lock the sidebar in the open position, click the thumbtack icon.<br>• To reposition the sidebar, click and drag on the sidebar header. |
| **See also** | "Macros Overview" on page 258 |

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, the Macro Details Dialog Box opens, enabling you to name and save your macro. For details, see "Macro Details Dialog Box" on page 264. |
| | **Run.** Runs the selected macro from the macros drop-down list. |
| | **Manage.** Opens the Manage Macros Dialog Box. For details, see the "Manage Macros Dialog Box" on page 266. |

| UI Elements | Description |
|---|---|
| **<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. |
| **<Macros 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

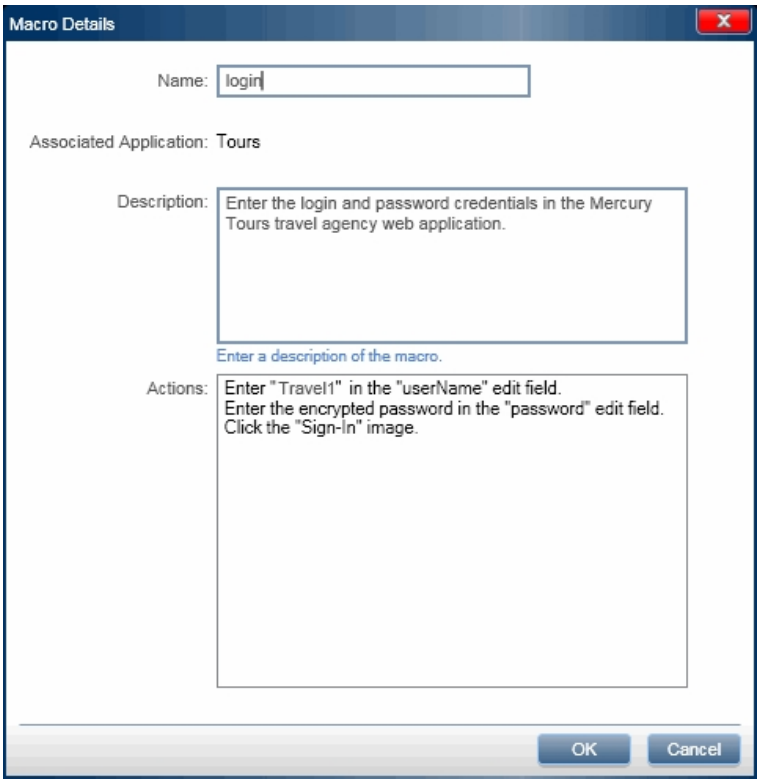
**Relevant for Power Mode only**

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 259
- "How to Run a Manual Test in Sprinter" on page 119

The following image shows the Macro Details dialog box.




| | |
|---|---|
| **To access** | Do one of the following:<br>• After recording a new macro click the **Macros** sidebar **> Stop** button **.**<br>• In the **Macros** sidebar click the **Manage Macros** button . Select a macro in the **Macros** pane and click the **Edit** button.<br>• In the "Power Mode Group" on page 225 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 258 |

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

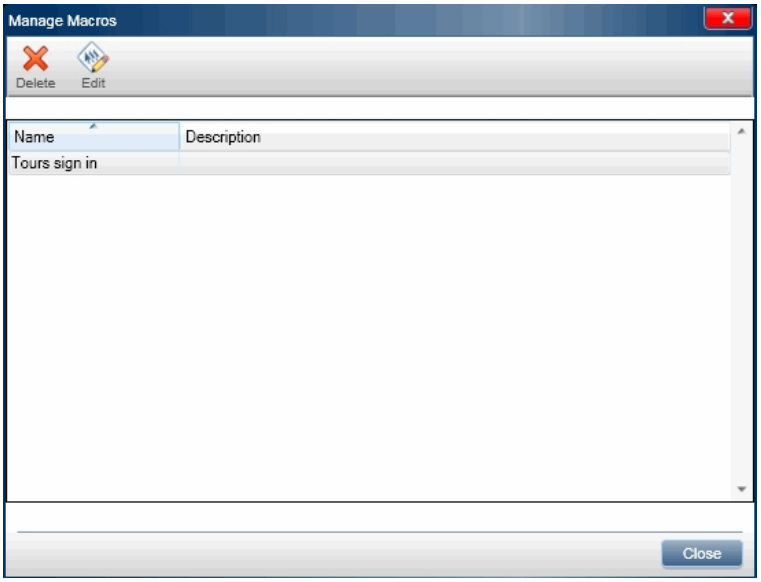
| UI Elements | Description |
|---|---|
| **Associated application** | The application for which this macro is available.<br>The associated application is the application that was defined for the test in which the macro was recorded. |
| **Steps** | A list of the steps that were recorded in the macro. Each user action in the application is recorded as a step in the macro. |

# Manage Macros Dialog Box

**Relevant for Power Mode only**

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

The following image shows the Manage Macros dialog box.




| | |
|---|---|
| **To access** | Click the **Macros** sidebar **>** **Manage Macros** button . |
| **See also** | "Macros Overview" on page 258 |

Descriptions of the user interface elements are available in the dialog box when you hover 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.<br>• To edit a macro, select it from this list and click the **Edit** button. The "Macro Details Dialog Box" on page 264 opens enabling you to edit the macro.<br>• To delete a macro, select it from this list and click the **Delete** button. |

# Troubleshooting and Limitations - Macros

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.

# Chapter 10

# Scanners

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

This chapter includes:

**Concepts**


- "Scanners Overview" on the next page


**Tasks**


- "How to Scan Your Application For Potential Defects" on page 271
- "How to Add or Remove Words From a Dictionary" on page 273
- "How to Create a Custom Scanner" on page 275


**Reference**


- "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276
- "Scanners Sidebar" on page 280
- "Scan Progress Window" on page 282
- "Scan Results Viewer" on page 284
- " Sprinter Scanner API" on page 286

"Troubleshooting and Limitations - Scanners" on page 287

# Scanners Overview

**Relevant for Power Mode only**

During the testing process, you may want to check that different aspects of your application behave or display correctly. Sprinter's scanners enable you to check whether strings in your application are spelled correctly, whether the application conforms to Web Standards (Web applications only), if there are broken links, or whether the user interface of your application is translated correctly.

You can select which scanners to use both prior to the run session and during the run session. After each scan is completed, the scan results are displayed in the Scan Results Viewer. In the Scan Results Viewer you can perform several actions, such as creating smart defects and defect reminders.

For task details, see "How to Scan Your Application For Potential Defects" on page 271.

For user interface details, see "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276.

Sprinter includes the following scanners:

## Broken Links Scanner

This scanner, relevant only for Web applications, checks your application for broken hyperlinks and missing referenced content. You can set the threshold time—the time in seconds after which the link will be considered broken.

## Localization Scanner

This scanner checks your application for errors resulting from translating the application's user interface into different languages. You can scan for the following issues:

- **Incomplete strings.** Suppose that after translating the user interface strings in your application, the main title of the page is too long to be displayed within the title bar. When this option is selected, the Localization scanner identifies the string as incomplete. Make sure to set the **target** language, as the scanner performs a check against this language during the scan.

- **Untranslated strings.** Suppose that after translating the user interface strings of your application you want to verify that all of the strings were translated from the source language to the target language. When this option is selected, the Localization scanner compares any string that is not spelled correctly with both the target dictionary and the source dictionary. If the string is found in the source dictionary, the scanner identifies the string as untranslated.

## Spellcheck Scanner

This scanner checks your application for spelling errors. You can define up to two dictionaries for the scanner to use. This enable you to check spelling for applications that contain strings in more

than one language.

### Web Standards Scanner

This scanner checks that the Web page complies with Web standards for HTML validity, as defined by the World Wide Web Consortium (W3C). The scanner detects and reports any Web standards errors that are found in the Web page during the run session.

The Web Standards scanner is available only if you select a Web application in the "Application Pane (Power Mode Group)" ( described on page 227).

### Custom Scanner

Sprinter allows you to extend the scanner's capabilities by defining custom scanners. This allows you to design a scanner that will detect the desired items in your application.

You can use a sample scanner provided with Sprinter as a starting point for designing your own custom scanner.

For details, see "How to Create a Custom Scanner" on page 275.

# How to Scan Your Application For Potential Defects

This task describes how to configure, run, and analyze scans for your application during a run session.

Scanners can be used only in tests run in Power Mode.

This task includes the following steps:

- Prerequisites
- Configure scanner settings
- Scan your application during a run session
- Analyze scan results

## Prerequisites

To use scanners, you must first enable Power Mode and configure an application for your test. For details, see the relevant steps in "How to Prepare a Test to Run in Power Mode" on page 223.

## Configure scanner settings

- **Before the run session begins.** Use the **Scanners** pane (Power Mode group) to turn on the relevant scanners. For details, see "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276.
- **During the run session.** In the Scanners sidebar, click the **Scanner Settings** button . The Scanner Settings dialog opens. This dialog box contains all of the available settings that the **Scanners** pane (Power Mode group) contains. For details, see "Scanners Sidebar" on page 280 and "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276.

## Scan your application during a run session

In the Scanners sidebar, click the **Start Scan** button . The progress window opens, displaying the status of each scanner. For details, see "Scanners Sidebar" on page 280 and "Scan Progress Window" on page 282.

## Analyze scan results

After the scan ends, click **Continue** in the Scan Progress window, to open the Scan Results Viewer. Handle the results for each scanner by creating a defect or a defect reminder, or performing a custom action. For example, for Spellcheck scan results, add the word to a dictionary. For details, see "Scan Results Viewer" on page 284.

**Tip:** If you closed the Scan Results Viewer, click the **Last Scan Results** button in the **Scanners** sidebar to display the results of the last scan.

# How to Add or Remove Words From a Dictionary

This section explains how to modify a dictionary for the Spellcheck scanner. For details, see "Scanners Overview" on page 269.

In normal use, if your scanner detects a spelling error, you can choose to add the word to the scanner directly from the Scan Results user interface using the **Add to** button. For details, see "Scan Results Viewer" on page 284.

When modifying a dictionary, you need to modify it on ALM and on the local copy stored on the file system.

This section describes how to manually add entries to the dictionary, and how to remove exiting entries.

The dictionaries used are based on the OpenOffice **Hunspell** dictionaries. For details, see `http://wiki.services.openoffice.org/wiki/Dictionaries`.

This task includes the following steps:

- Download the dictionary file from ALM
- Edit the file
- Upload the dictionary file to ALM
- Modify the local copy

1. **Download the dictionary file from ALM**
   a. Log into Application Lifecycle Management with administrator privileges.
   b. Open the **Test Resources** module.
   c. Select **Resources > Sprinter > <your_user_name>/SpellChecker**.
   d. Click the **Resource Viewer** tab.
   e. Click **Download** to download the dictionary file in XML format and save it on the file system.
2. **Edit the file**
   a. Open the saved file in a text or XML editor.
   b. Locate the `Elements` list for your language.

```
 <Key>English</Key>
        <Value objectID="5" type="System.Collections.Generic.List`1[[Syste
m.String, mscorlib, Version=4.0.0.0, Culture=neutral, PublicKeyToken=b77a5
c561934e089]], mscorlib">
          <Elements isCollection="True">
            <String>Sprinter</String>
            <String>Facebook</String>
            <String>NewWord</String>
          </Elements>
        </Value>
```

c. To add a word, add an entry for each word in the following format: `<String>New_ Word</String>`.

d. To remove a word, delete the entire line with the word.

e. Save the file.

3. **Upload the dictionary file to ALM**

   In Application Lifecycle Management's **Test Resources** module, in the **Resource View** tab, click **Upload File** to upload the file to Application Lifecycle Management.

4. **Modify the local copy**

   In the file system, open **%appdata%\HP\Sprinter\SpellChecker.xml** in a text editor and add or remove the same word from the XML file.

# How to Create a Custom Scanner

This task describes how to create a custom scanner for your application.

Scanners can be used only in tests run in Power Mode.

This task includes the following steps:

- Open the sample scanner
- Implement the interface
- Save the custom scanner
- Configure scanner settings

1. ## Open the sample scanner

   Select **Start > All Programs > HP Sprinter > Extensibility > Broken Links Scanner Code Sample** to open the sample in Visual Studio 2010. Alternatively, open the sample scanner project located in **<Installation_Directory>\Sample\Scanners\BrokenLinks\HP.Sprinter.DemoScanners.BrokenLinks.csproj**.

2. ## Implement the interface

   Make sure to implement the **IScanner** interface located in the **<Installation_Directory>\bin\HP.Sprinter.Scanners.API.dll**.

   If you are using additional external dependencies, note that the custom scanner's working folder during run time is **<Installation_Directory>\bin**

3. ## Save the custom scanner

   Save custom scanner assemblies in the **<Installation_Directory>\bin\CustomScanners** folder in order to allow it to load when you invoke Sprinter.

4. ## Configure scanner settings

   Restart Sprinter and activate Power Mode. Activate and define the custom scanner settings as necessary.

   For complete information about the Scanners API provided with Sprinter, click here or select **Programs > HP Sprinter > Extensibility > Sprinter Scanners API Reference** to open the online reference or click on the link in the **Welcome to HP Sprinter** Help page, accessible from any Help screen.

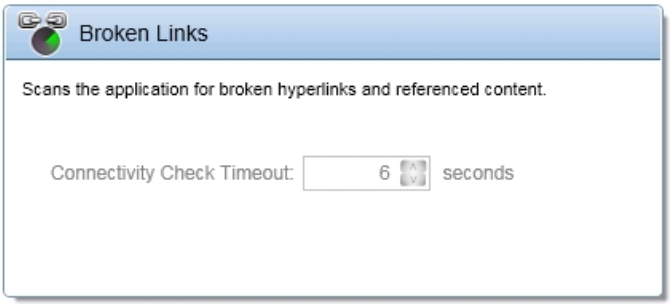
# Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box

The Scanners pane and the Scanner Settings dialog box enable you to select which scanners to use during a run session. You can also configure settings for each scanner.

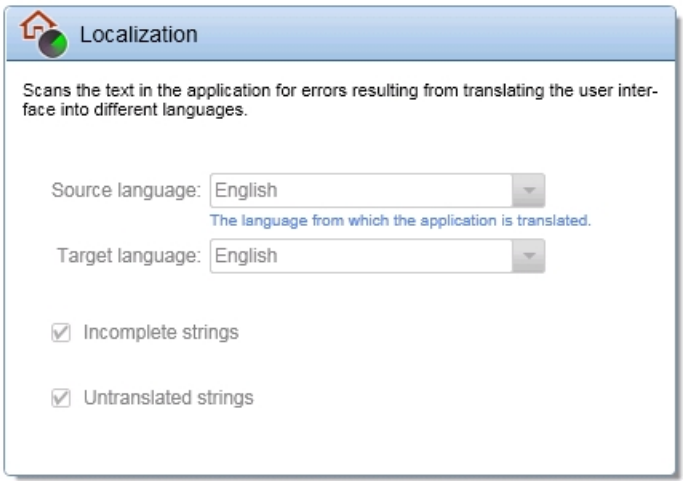
Tasks you can accomplish with the Scanners pane:

- "How to Scan Your Application For Potential Defects" on page 271

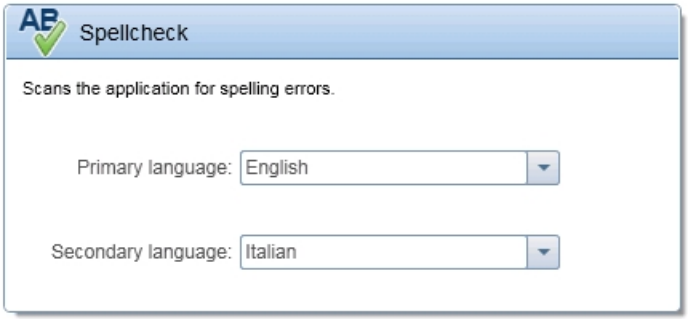
The following image shows the Broken Links scanner.



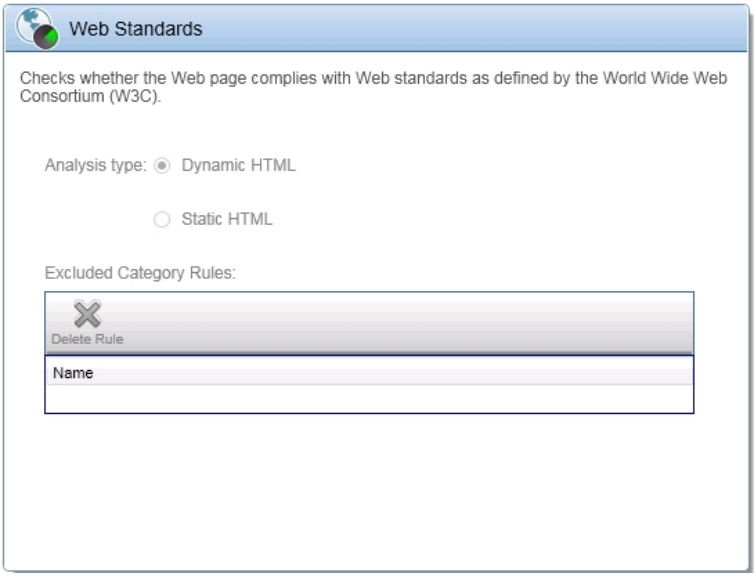

The following image shows the Localization scanner.




The following image shows the Spellcheck scanner.




The following image shows the Web Standards scanner.




| | |
|---|---|
| **To access** | • **Scanners pane.** In the **Power Mode** group, select **Scanners**.<br>• **Scanner Settings dialog box.** During a run session, click the **Scanners** sidebar tab and click the **Scanner Settings** button. |
| **Important information** | • The options in the Scanners pane and the Scanner Settings dialog box are identical.<br>• The Broken Links and Web Standards scanners are only available if you select a Web application in the "Application Pane (Power Mode Group)" (described on page 227).<br>• You must be connected to the Internet before performing a Web Standards scan.<br>• For the Localization scanner: Set the **Target language** to match the currently visible user interface. Set the **Source language** to the original user interface language. If you select other languages, the scanner may provide false results. |

User interface elements for all scanners are described below:

### Broken Links Scanner

| UI Elements | Description |
|---|---|
| **Connectivity Check Timeout** | The threshold in seconds after which a link will be considered broken. |

### Localization Scanner

| UI Elements | Description |
|---|---|
| **Source Language** | The language from which the application is translated. |
| **Target Language** | The language to which the application is translated. |
| **Incomplete strings** | Scans for strings that do not fit within a specific area in the application. |
| **Untranslated string** | Scans for string that are not translated from the source language to the target language. |

### Spellcheck Scanner

| UI Elements | Description |
|---|---|
| **Main language** | The main language in which the user interface strings of the application are displayed. This determines which dictionary to use when scanning the application for spelling errors.<br><br>**Default:** `English` |
| **Additional language** | (Optional) An Additional language or locale used in the application. |

To add words to the main and additional dictionaries use the Scan Results Viewer. For details see "Scan Results Viewer" on page 284.

For details about custom dictionaries, see "How to Add or Remove Words From a Dictionary" on page 273

### Web Standards Scanner

| UI Elements | Description |
|---|---|
| **Analysis type** | The type of analysis to perform on the Web page:<br>• **Dynamic HTML.** Scan the document's dynamic HTML content.<br>• **Static HTML.** Scan the document's static HTML content. |
| **Excluded Category Rules** | The list of rules that instruct the **Web Standards** scanner to ignore specific result categories. You can delete rules from this list, but you can add rules only from the "Scan Results Viewer" on page 284. |
| **Delete Rule** | Deletes the selected results category rule from the list. |

# Scanners Sidebar

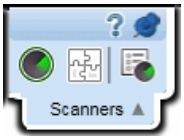
**Relevant for Power Mode only**

This sidebar enables you to scan your application, configure scanner settings, and view scan results.

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

- "How to Scan Your Application For Potential Defects" on page 271
- "How to Run a Manual Test in Sprinter" on page 119

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




| | |
|---|---|
| **To access** | Do the following:<br>1. Enter Run mode and open a test or component.<br>2. Turn on Power mode.<br>3. In the Power Mode group, click the **Scanners** node.<br>4. In the Scanners pane, turn on at least one scanner.<br>5. Click the Power Mode Run button.<br>**Tip:** 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 you do not turn on any scanners prior to the run session, the **Scanners** sidebar is not displayed. To display the sidebar, stop the run and turn on at least one scanner. |
| **See also** | "Scanners Overview" on page 269 |

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

| UI Elements | Description |
|---|---|
| | **Start Scan.** Instructs all enabled scanners to scan the currently active screen/page/area of the application. You can monitor the scan progress in the "Scan Progress Window" (described on page 282). |
| | **Last Scan Results.** Opens the Scan Results Viewer, which enables you to view the results from the last performed scan. If no scan was performed during the run session, this option is disabled. For details, see "Scan Results Viewer" on page 284.<br><br>**Note:** The Scan Results Viewer displays results only for the last performed scan. |
| | **Scanner Settings.** Opens the Scanner Settings dialog box, which enables you to turn individual scanners on or off. It also enables you to define settings for each scanner. The options in this dialog box are identical to the options in the Scanners pane. For details, see "Scanners Pane (Power Mode Group) / Scanner Settings Dialog Box" on page 276. |

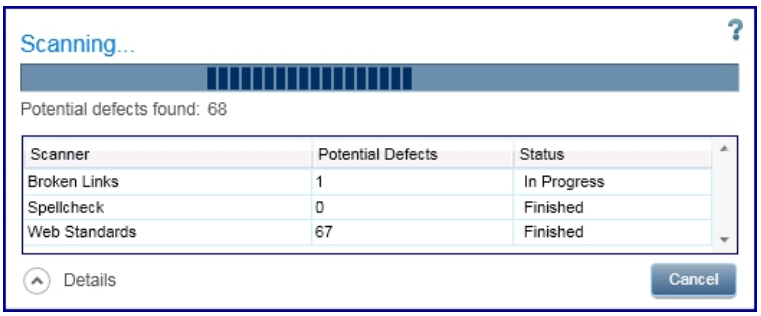
# Scan Progress Window

This window enables you to monitor the status of each selected scanner during the scan. It also displays the number of potential defects found by each scanner.

Tasks you can accomplish with the **Scan Progress** window:

- "How to Scan Your Application For Potential Defects" on page 271
- "How to Run a Manual Test in Sprinter" on page 119

The following image shows the **Scan Progress** window.




| | |
|---|---|
| **To access** | During a run session, click the Start Scan button on the "Scanners Sidebar" tab ( described on page 280). |
| **Important information** | • By default, only summary information is displayed. You can expand the window to view detailed information about each scanner.<br>• If all scans run successfully and results are found, this window closes after the scan is completed, and the Scan Results Viewer opens. For details, see "Scan Results Viewer" on page 284.<br>• If one or more scans fail, the failure reason is displayed in a tooltip when you hover over the scanner name. |
| **See also** | • "Scanners Sidebar" on page 280<br>• "Scanners Overview" on page 269 |

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

| UI Element | Description |
|---|---|
| **<Scan status>** | The overall progress of the scan. |

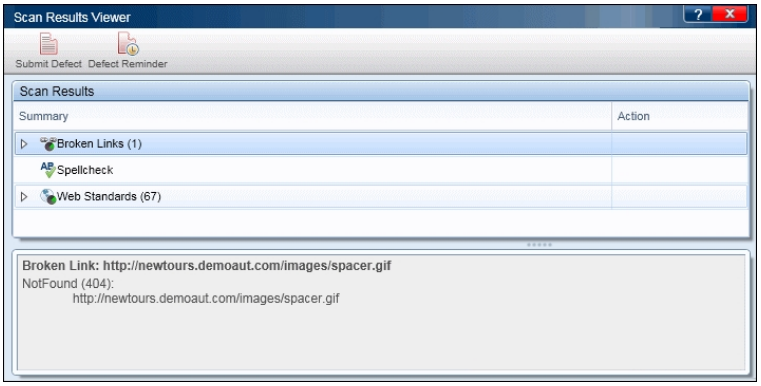
| UI Element | Description |
|---|---|
| **Potential defects found** | The total number of scan results, which may indicate defects in the application. |
| **<Scan status details>** | The scanner name, potential defects, and status for each scanner that you selected to use. |
| **Details** | Shows or hides the scan status details. |

# Scan Results Viewer

This viewer displays the results of the last scan that you performed during the run session.

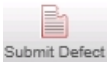
The Scan Results Viewer also enables you to address the results by submitting defects to Application Lifecycle Management based on the results. You can also create defect reminders to be submitted after the run session ends.

The following image shows the Scan Results Viewer.




| | |
|---|---|
| **To access** | Do the following:<br>1. During a run session, click the "Scanners Sidebar" tab ( described on page 269).<br>2. Click the **Start Scan** button.<br>3. After the scan, click **Continue** in the Scan Progress dialog box. |
| **Important information** | • The Scan Results Viewer displays results only from the last scan that you performed.<br>• The Scan Results Viewer is available only during the run session. |
| **See also** | • "Scanners Sidebar" on page 280<br>• "Scan Progress Window" on page 282<br>• "Scanners Overview" on page 269 |

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

| UI Element | Description |
|---|---|
|   | Opens the "Smart Defect Settings Dialog Box" (described on page 188), enabling you to automatically include defect scenario information in your defect. The defect summary includes a description of the selected results. |
| | Opens the "Defect Reminder Dialog Box" (described on page 193), enabling you to add a reminder to open a defect for the selected results at a later time. |
| **Add to Target Dictionary** | Adds the selected results to the target dictionary.<br>Available only when **Localization** results are selected.<br>**Note:** To remove words that you added to the dictionary, follow the steps in "How to Add or Remove Words From a Dictionary" on page 273. |
| **Add to Dictionary (<language>)** | Adds the selected results to the primary dictionary.<br>Available only when **Spellcheck** results are selected.<br>**Note:** To remove words that you added to the dictionary, follow the steps in "How to Add or Remove Words From a Dictionary" on page 273. |
| **Exclude Category** | Creates a rule that excludes the selected results category from future scans.<br>Available only when **Web Standards** results are selected. |
| **Scan Results** | The list of results for each scanner: **Summary** and **Action**.<br>• Click the arrow adjacent to each scanner to expand its results.<br>• Select one or more results in the list to perform actions on them using the right-click menu or toolbar buttons.<br>• To perform an action on all results for a specific scanner, select its parent node and expand the right-click menu. |
| **<Results display>** | The display of the results. The results are indicated in red boxes. This pane also contains a slider control, which allows you to zoom in or out.<br>**Note:**<br>• Not available when **Broken Links** or **Web Standards** results are selected.<br>• If the results are located outside of the captured area of the application, they are not shown in the display. |
| **<Results description>** | A textual description of the selected results. |

# Sprinter Scanner API

The Sprinter Scanners API Reference allows you to create custom scanners using the built-in API. To open the references guide, select **Programs > HP Sprinter > Extensibility > Sprinter Scanners API Reference** or click on the link in the **Welcome to HP Sprinter** Help page, accessible from any Help screen.

# Troubleshooting and Limitations - Scanners

This section describes troubleshooting and limitations for scanners.

## General

- Activating Sprinter scanners does not guarantee detecting all relevant results. In certain environments, the Sprinter scanners might also detect false positive results.
- A scan operation can fail for one of the following reasons:
  - The window of the AUT (application under test) was closed before the scan started.
  - The window of the AUT was minimized before the scan started.
  - The SprinterRTE process was terminated unexpectedly before the scan started.
  - A technical issue is preventing Sprinter from interacting with the AUT.
  - The AUT's add-in definitions are missing or not valid.

## Defects

Issues listed in scanner results for which you created defects, will continue to be listed in subsequent scan results.

## L10N

The following applies to Localization scanner:

- Scroll Bars: The scanner may display certain controls containing scroll bars (horizontal and\or vertical) as a string cut. As a result, it may report a false positive.
- Left Side Cut: The scanner cannot detect string cuts on the left side of the text. This is mostly relevant in right-to-left languages.
- Vertical Cut: If the control's text is not fully visible in the vertical axis, and does not contain scroll bars, the scanner will be unable to analyze the text in the hidden area. As a result, it may report a false positive.
- Language Support: East Asian Languages and non-default languages are not supported.
- Multiple Child Controls: The scanner cannot detect string cuts on very small controls (less than three characters in length) such as lists and tree view.

# Chapter 11

# Mirroring Tests

This chapter includes:

**Concepts**


- "Testing on Multiple Machines - Overview" on the next page
- "How Sprinter Replicates Your User Actions" on page 291
- "Comparing Machines" on page 292
- "Resolving Problems on and Unlocking Secondary Machines" on page 293
- "Rules Overview" on page 295


**Tasks**


- "How to Prepare a Test for Mirroring" on page 298
- "How to Run a Test with Mirroring" on page 301
- "How to Resolve Differences During a Run" on page 304
- "How to Handle Replication Errors During a Run" on page 307


**Reference**


- " Mirroring Pane (Power Mode Group)" on page 309
- " New Machine/Machine Details Dialog Box" on page 311
- "Mirroring Rules Pane (Power Mode Group)" on page 320
- "Health Console" on page 321
- "Sprinter Agent" on page 324
- "Machines Sidebar" on page 325
- "Rule Wizard - Rule Details Page" on page 338

"Troubleshooting and Limitations - Mirroring" on page 347

# Testing on Multiple Machines - Overview

**Relevant for Power Mode only**

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 machine 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 Application Lifecycle Management project.

To work with mirroring, you need to have a certain number of available Application Lifecycle Management 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 Licenses Required |
|---|---|
| 1 | 1 |
| 2-3 | 2 |
| 4-5 | 3 |

This section also includes:

- "How Sprinter Replicates Your User Actions" on the next page
- "Comparing Machines" on page 292
- "Resolving Problems on and Unlocking Secondary Machines" on page 293

# How Sprinter Replicates Your User Actions

**Relevant for Power Mode only**

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 293.

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.

For details on comparing the displays of the primary and secondary machines, see "Comparing Machines" on the next page.

# Comparing Machines

**Relevant for Power Mode only**

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. For example, Sprinter can learn that your display contains a check box, as well as whether the checkbox is enabled or disabled, even if there is no indication in the display as to its state.

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. For details, see "Resolving Problems on and Unlocking Secondary Machines" on the next page.

# Resolving Problems on and Unlocking Secondary Machines

**Relevant for Power Mode only**

When a secondary machine is locked, you need to solve the problem and unlock the machine so that Sprinter can 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" on page 331 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 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.

# Rules Overview

**Relevant for Power Mode only**

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" below
- "Pre-Defined Rules" below
- "Custom Rules" on the next page
- "Rules for Nested Objects" on page 297

## 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 "Mirroring Settings Pane (Settings Dialog Box)" on page 62.

## 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 gives you the option to select from a set of pre-defined rules or to create a custom rule.

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 334.

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" on page 331, 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.

# How to Prepare a Test for Mirroring

**Relevant for Power Mode only**

This task describes how to prepare your test to run with mirroring.

**Note:** This task is part of a higher-level task. For details, see "How to Run a Manual Test in Sprinter" on page 119.

This task includes the following steps:

- Prerequisites
- Configure your comparison settings - Optional
- Review the rules for your application
- Configure the secondary machines for your run

1. **Prerequisites**
   a. Install Sprinter on the computers or virtual machines you want to use as 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. Disable screen savers for the secondary machines in your run.

   c. Ensure that your application is not running on the secondary machines.

   d. Make sure that the secondary machines in your run are not 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 **Sprinter Agent** process.

   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. You can work with a maximum of five secondary machines in a run with mirroring.

Working with mirroring requires that you have the required number of Application Lifecycle Management licenses. The number of licenses you need depends on the number of secondary machines you want to use in your test.

For details on the number of licenses required, see "Testing on Multiple Machines - Overview" on page 289.

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** in "Troubleshooting and Limitations - Mirroring" on page 347.

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

- "Mirroring Settings Pane (Settings Dialog Box)" on page 62
- The section on **Built-in Rules** in "Rules Overview" on page 295

3. ## Review the rules for your application

Click the **Rules** node in the "Power Mode Group" on page 225 to view or delete any rules you may have already created for your application.

For details on rules, see "Rules Overview" on page 295.

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 also be provided during the run.)

**Note:** Make sure the product version on the secondary machine is the same as that on the primary machine.

For details on configuring secondary machines, see " Mirroring Pane (Power Mode Group)" on page 309.

# How to Run a Test with Mirroring

**Relevant for Power Mode only**

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 as described in "How to Run a Manual Test in Sprinter" on page 119, and includes the following steps:

- Prerequisites
- Start the run
- Perform the user actions in your test
- View the status of your secondary machines in the Machines sidebar
- View a current screen capture of all the machines in your run - Optional
- Compare the displays of your primary and secondary machines - Optional
- Resolve replication or comparison problems on a secondary machine - Optional
- Continue with your test as usual

1. ## Prerequisites

   To run a test with mirroring, you need to configure the secondary machines in your run. You may also want to review any rules you already have for your application and your comparison settings.

   For details, see "How to Prepare a Test for Mirroring" on page 298

2. ## Start the run

   When you start a run with mirroring, the "Health Console" (described on page 321) 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" on page 322
   - **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 as a tool tip, when you hover 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 325.

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 330).

6. **Compare the displays of your primary and secondary machines - Optional**

   When you compare machines, Sprinter compares the display of your primary machine with those of all the secondary machines in your run and detects any differences between the displays.

   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.

   For more details on comparing the machines in your run, see "Comparing Machines" on page 292.

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 the next page
- "How to Handle Replication Errors During a Run" on page 307

For more details, see:

- "Resolving Problems on and Unlocking Secondary Machines" on page 293
- The section on **Secondary Machines Display** in "Machines Sidebar" on page 325
- The section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 325
- "How Sprinter Replicates Your User Actions" on page 291
- "Comparing Machines" on page 292

8. ### Continue with your test as usual

   Continue performing the user actions in your test as usual.

# How to Resolve Differences During a Run

**Relevant for Power Mode only**

If you run your test on multiple machines (as described in "How to Run a Test with Mirroring" on page 301), 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 184.

The following steps describe how to resolve differences detected between displays.

- Determine the type of difference
- Resolve the difference
- Unlock the secondary machine

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 331.
   - 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 by for each of the secondary machines in the **Machines** sidebar, by right-clicking the secondary machine display. For more details on these options, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 325.

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 Detect and Submit a Defect" on page 181.
- **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" on page 331, click the **Submit Defect** button to submit the defect to Application Lifecycle Management. For more details, see "Differences Viewer" on page 331.

    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" on page 331, click the **New Rule** button to open the "New Rule Dialog Box" on page 334 (described on page 334), 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.
- **Right-click > Sync** ignores the problem that Sprinter found with the secondary machine, deletes all pending actions, and synchronizes the actions number with the primary machine.

For more details, see the section on **Secondary Machine Right-click Options** in "Machines Sidebar" on page 325.

# How to Handle Replication Errors During a Run

**Relevant for Power Mode only**

If you run your test on multiple machines (as described in "How to Run a Test with Mirroring" on page 301), 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 184.

For details on how Sprinter replicates user actions, see "How Sprinter Replicates Your User Actions" on page 291.

This task includes the following steps:

- Determine the type of replication error
- Handle the error
- Unlock the secondary machine

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 hover 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 325.

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. For details, see "How to Detect and Submit a Defect" on page 181.
- **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 321.

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 325.

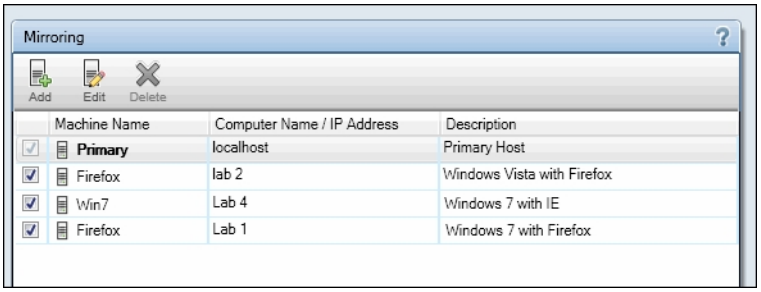
# Mirroring Pane (Power Mode Group)

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 223
- "How to Prepare a Test for Mirroring" on page 298

The following image shows the Mirroring pane.




| | |
|---|---|
| **To access** | SelectPower Mode group **>** **Mirroring** node. |
| **Important information** | • By default, your local computer is defined as the **Primary** machine.<br>• For details on how Sprinter maintains the list of secondary computers, see "How User Information is Maintained" on page 44. |
| **See also** | "Testing on Multiple Machines - Overview" on page 289 |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | Opens the New Machine dialog box, enabling you to define the configuration of a secondary machine.<br>The New Machine dialog box contains the following tabs:<br>• "General Tab (New Machine/Machine Details Dialog Box)" on page 312<br>• "User Credentials Tab (New Machine/Machine Details Dialog Box)" on page 318<br>• "Run Configuration Tab (New Machine/Machine Details Dialog Box)" on page 315 |

| UI Elements | Description |
|---|---|
| | Opens the Machine Details dialog box, enabling you to edit the configuration of a secondary machine.<br><br>The Machine Details dialog box contains the following tabs:<br><br>• "General Tab (New Machine/Machine Details Dialog Box)" on page 312<br><br>• "User Credentials Tab (New Machine/Machine Details Dialog Box)" on page 318<br><br>• "Run Configuration Tab (New Machine/Machine Details Dialog Box)" on page 315 |
| | Deletes the selected machine from the list of secondary machines.<br><br>**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. |

# New Machine/Machine Details Dialog Box

**Relevant for Power Mode only**

This dialog box enables you to define edit the configuration of a secondary machine, and includes the following tabs:

- "General Tab (New Machine/Machine Details Dialog Box)" on the next page
- "Run Configuration Tab (New Machine/Machine Details Dialog Box)" on page 315
- "User Credentials Tab (New Machine/Machine Details Dialog Box)" on page 318

# General Tab (New Machine/Machine Details Dialog Box)

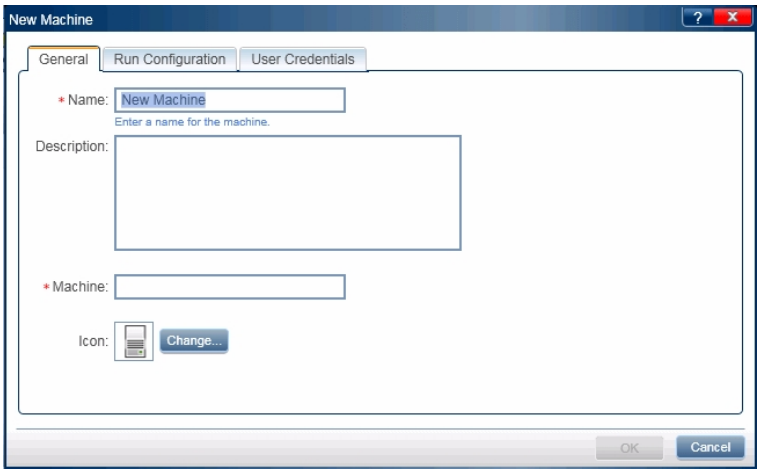
**Relevant for Power Mode only**

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 223
- "How to Prepare a Test for Mirroring" on page 298

The following image shows the General tab.




| | |
|---|---|
| **To access** | 1. Select Power Mode group > **Mirroring** node.<br>2. In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.<br>3. Select **New Machine** dialog box > **General** tab. |
| **See also** | "Testing on Multiple Machines - Overview" on page 289 |

Descriptions of the user interface elements are available in the dialog box when you hover over them. The table below describes the user interface elements:

| UI Elements | Description |
|---|---|
| **Name** | A logical name for the secondary machine. |

| UI Elements | Description |
|---|---|
| **Description** | A description of the secondary machine's environment, for example, a browser or operating system name. |
| **Machine** | The computer or virtual machine you want to use as a secondary machine.<br><br>The following are valid entries:<br><br>• The IP address of the computer or virtual machine<br><br>• The machine name of the computer or virtual machine in one of the following formats:<br><br>▪ `MachineName.DomainName`<br><br>▪ `DomainName\MachineName` |
| **Icon** | The icon that will be displayed in the **Machines** sidebar, to represent the secondary machine.<br><br>Click the **Change Icon** button to open the "Change Icon Dialog Box" on the next page and select a different icon for the secondary machine.<br><br>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

**Relevant for Power Mode only**

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

The following image shows the Change Icon dialog box.

| | |
|---|---|
| **To access** | 1. Select Power Mode group > **Mirroring** node.<br>2. In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.<br>3. Select **New Machine** dialog box > **General** tab > **Change** button. |
| **See also** | "Testing on Multiple Machines - Overview" on page 289 |

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

| 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)

**Relevant for Power Mode only**

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

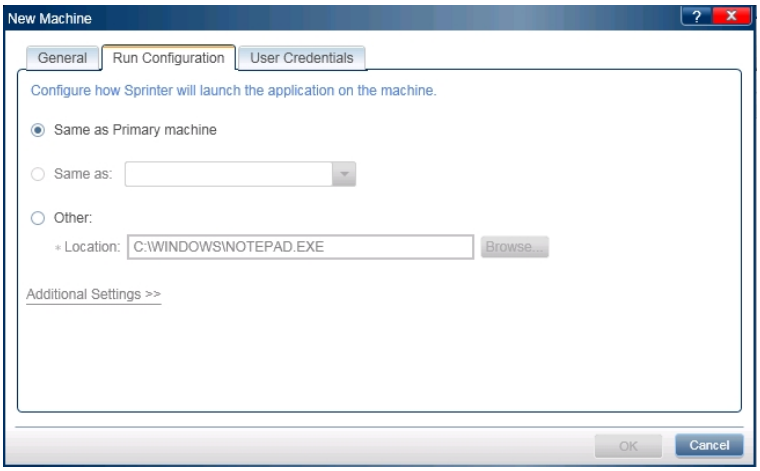
When you have a desktop application selected in the "Application Pane (Power Mode Group)" on page 227, this tab displays options for desktop applications.

When you have a Web application selected in the "Application Pane (Power Mode Group)" on page 227, this tab displays options for Web applications.

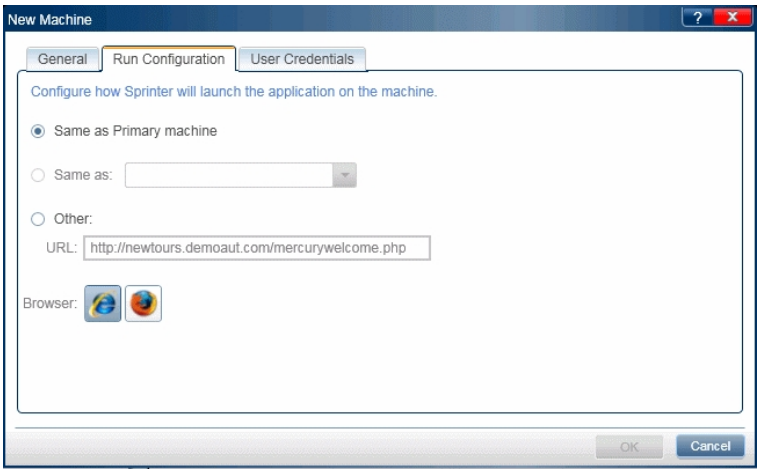
Tasks you can accomplish with the **Run Configuration** tab:

- "How to Prepare a Test to Run in Power Mode" on page 223
- "How to Prepare a Test for Mirroring" on page 298

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.<br>2. In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.<br>3. Select **New Machine** dialog box > **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 - Overview" on page 289 |

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 227. (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. |

| UI Elements | Description |
|---|---|
| **Other (for desktop applications)** | Defines new run settings for the application, for this machine.<br>**Path.** The path to the desktop application. The **Browse** option displays the file system for your local computer and not the secondary machine.<br>**Additional Settings:**<br>• **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.<br>• **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.<br>**Browser.** The browser in which you want to run the Web application.<br>**Additional Settings**<br>• **Close the browser when the test closes.** Automatically close the browser at the end of the test. |

# User Credentials Tab (New Machine/Machine Details Dialog Box)

**Relevant for Power Mode only**

This tab enables you to provide login information for your secondary machine. This information is used for the following:

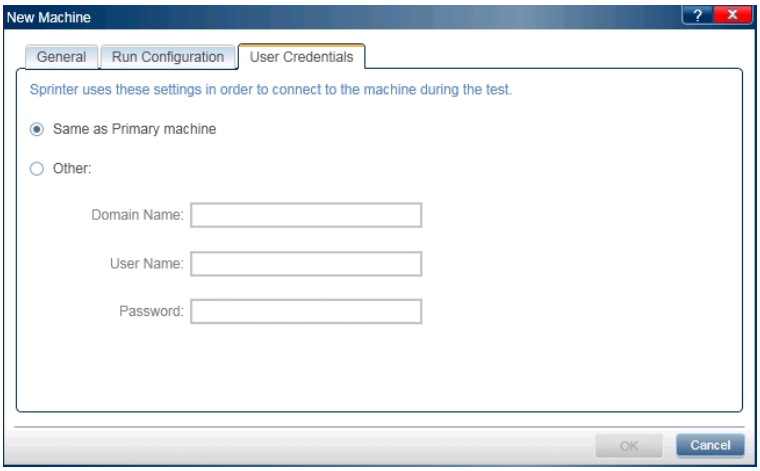
- Opening a remote desktop connection to the secondary machine, when running the test.
- Interacting with the Sprinter Agent on the secondary machine. In this case Sprinter will only use a Sprinter Agent that is launched by the specified user, with the correct credentials.

To allow Sprinter to use any Sprinter Agent running on the secondary machine, set the **ProtectSessions** flag in the **Sprinter.exe.config** file (in the product's **bin** folder) to `False` on the secondary machine.

Tasks you can accomplish with the User Credentials tab:

- "How to Prepare a Test to Run in Power Mode" on page 223
- "How to Prepare a Test for Mirroring" on page 298

The following image shows the **User Credentials** tab.




| | |
|---|---|
| **To access** | 1. Select Power Mode group > **Mirroring** node.<br>2. In the **Mirroring** pane, click the **Add** button. The **New Machine** dialog box opens.<br>3. Select **New Machine** dialog box > **User Credentials** 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.<br>• 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 - Overview" on page 289 |

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

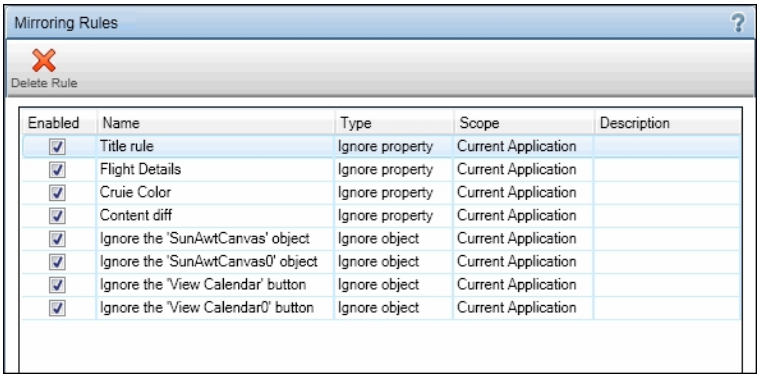
# Mirroring Rules Pane (Power Mode Group)

This pane enables you to view and delete the rules that are associated with the mirroring for the currently defined application.

Tasks you can accomplish with the Rules pane:

- "How to Prepare a Test to Run in Power Mode" on page 223

The following image shows the Mirroring 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 295. |

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

# Health Console

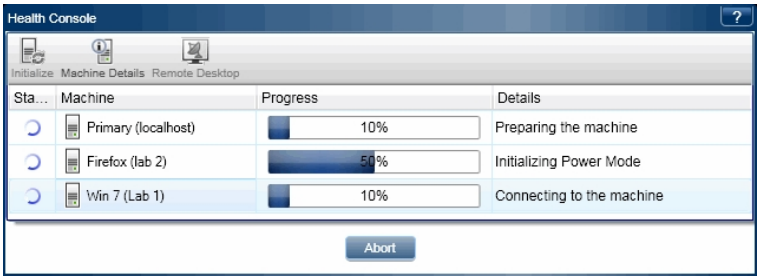
**Relevant for Power Mode only**

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 119

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.<br>• During a run you can also access the health console by clicking the **Health Console** button **Machines** sidebar. |

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

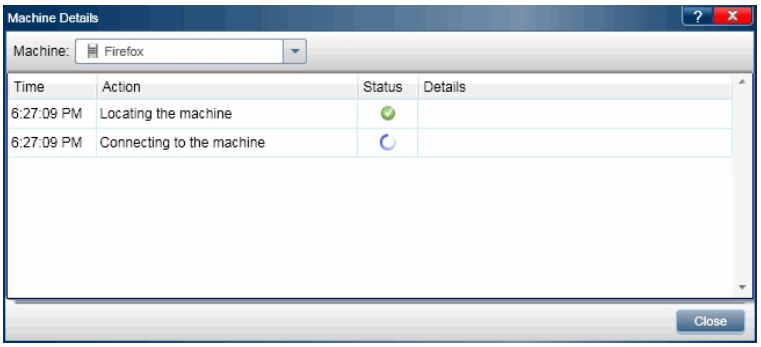
| UI Elements | Description |
|---|---|
| | Instructs Sprinter to attempt to initialize the Sprinter Agent on the selected machine if it failed to connect. |
| | Opens the " Machine Details Dialog Box" (described on page 322) for the selected machine. |
| | Opens a remote desktop connection to the selected 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

**Relevant for Power Mode only**

This dialog box displays the details of the connection process for machines during a mirror test.

The following image shows the Machine Details dialog box.




| | |
|---|---|
| **To access** | In the "Health Console" on the previous page, click the **Machine Details** button. |

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

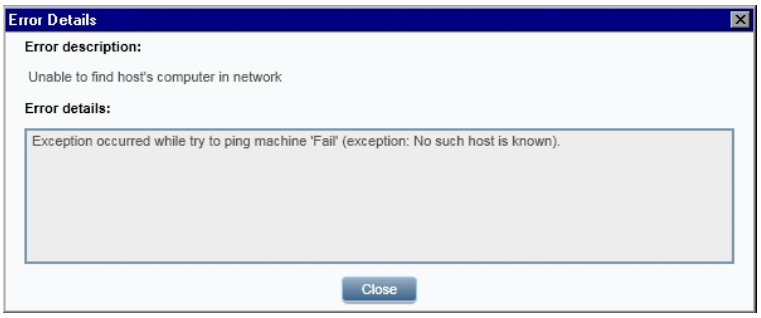
| UI Elements | Description |
|---|---|
| **Machines** | A drop-down list of the machines for this run. |
| **<Action list>** | The list of actions for the selected machine. The action list displays the **Time**, **Action**, **Status**, and **Details** for each action.<br>• If an action completes successfully, no details are displayed.<br>• 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 323). |

# Error Details Dialog Box

**Relevant for Power Mode only**

This dialog box displays error information when Sprinter fails to connect to a machine.

The following image shows the Error Details dialog box.




| | |
|---|---|
| **To access** | Do the following:<br>1. In the **Health Console** for a failed connection, click the " Machine Details Dialog Box" on the previous page button.<br>2. The details column displays the specific problem. Click on the error message and select **More Details**. |
| **See also** | "Testing on Multiple Machines - Overview" on page 289 |

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

# Sprinter Agent

**Relevant for Power Mode only**

The Sprinter Agent enables Sprinter to run tests in Power Mode and with mirroring.

| | |
|---|---|
| **To access** | In the task bar, right-click the Sprinter **Agent icon** to display the Sprinter Agent options. |
| **Important information** | When you hover 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. |

Right-click shortcuts are described below:

| UI Elements | Description |
|---|---|
| **Reset** | Stops and restarts the Sprinter Agent. |
| **Exit** | Stops the Sprinter Agent. |
| **Run When Computer Starts** | Instructs the machine to invoke the Sprinter Agent automatically on startup. |

If

# Machines Sidebar

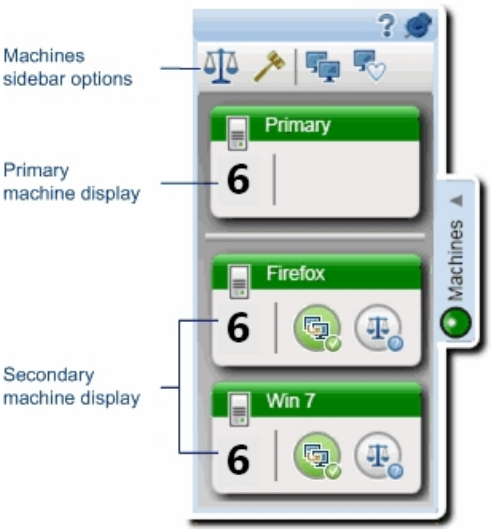
**Relevant for Power Mode only**

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 301
- "How to Resolve Differences During a Run" on page 304
- "How to Handle Replication Errors During a Run" on page 307

The following image shows the **Machines** sidebar with two secondary machines.




| | |
|---|---|
| **To access** | During a test run, click the **Machines** sidebartab.<br>• Click the sidebar tab again, or click off the sidebar tab, to close the sidebar.<br>• To lock the sidebar in the open position, click the thumbtack icon.<br>• To reposition the sidebar, click and drag on the sidebar header. |

| See also | • "Testing on Multiple Machines - Overview" on page 289<br>• "How Sprinter Replicates Your User Actions" on page 291<br>• "Comparing Machines" on page 292<br>• "Resolving Problems on and Unlocking Secondary Machines" on page 293<br>• "Rules Overview" on page 295 |
|---|---|

## 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.<br><br>**Note:** If you edit an edit box or combo box, the **Compare All** option is disabled until you move the focus off the box.<br><br>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 336) enabling you to create, view, edit, and delete the rules in your test. |
| | **View Machines.** Opens the "Machines Viewer" (described on page 330), 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 321. |

## 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.<br>• 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.<br>• 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.<br>• For details on how to handle replication problems and unlock the secondary machine, see "How to Handle Replication Errors During a Run" on page 307. |
| | **Comparison status.** Indicates the status of the comparison of the secondary machine with the primary machine.<br>• Secondary machines are compared with the primary machine when you click the **Compare All** button , or when you select **Recompare** from the "Machines Sidebar" on page 325.<br>• 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.<br>• For details on how to handle differences and unlock the secondary machine, see "How to Resolve Differences During a Run" on page 304. |
| **<tooltip>** | When you hover over the Secondary Machine Display a tooltip is displayed, providing you with information about the machine.<br>• **Action.** Lists the number of the action performed on the machine and provides a description of the action.<br>• **Status.** Indicates the status of the machine. If the machine is locked, provides a description of the problem. Indicates connections status with primary machine.<br>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 "Machines Sidebar" on page 325. |

## 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.<br><br>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.<br><br>Any pending actions that have not yet been replicated are performed on the secondary machine. |
| **Sync** | Synchronizes the secondary machine with the primary machine.<br><br>• Ignores the replication error and unlocks the machine, enabling replication of user actions to continue.<br><br>• The user action and any pending actions that failed to replicate are not performed on the secondary machine.<br><br>• 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. |

| UI Elements | Description |
|---|---|
| **Recompare** | Compares the secondary machine with primary machine .<br><br>Comparing an individual secondary machine can be performed only after performing a **Compare All** operation from the "Machines Sidebar" on page 325.<br><br>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.<br><br>**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.<br><br>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. |
| **Differences Viewer** | Opens the "Differences Viewer"(described on page 331), enabling you to view and resolve differences that were detected between machines. |
| **Remote Desktop** | Opens a remote desktop connection with the secondary machine.<br><br>You should not have an external remote desktop connection (not via Sprinter) open, when you open a remote desktop connection via Sprinter. |

# Machines Viewer

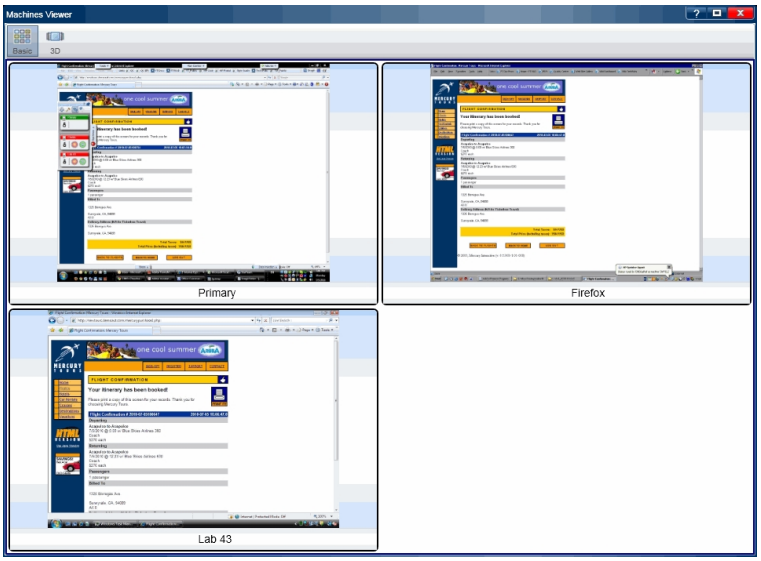
**Relevant for Power Mode only**

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 301
- "How to Resolve Differences During a Run" on page 304
- "How to Handle Replication Errors During a Run" on page 307

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.<br><br>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.<br><br>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

**Relevant for Power Mode only**

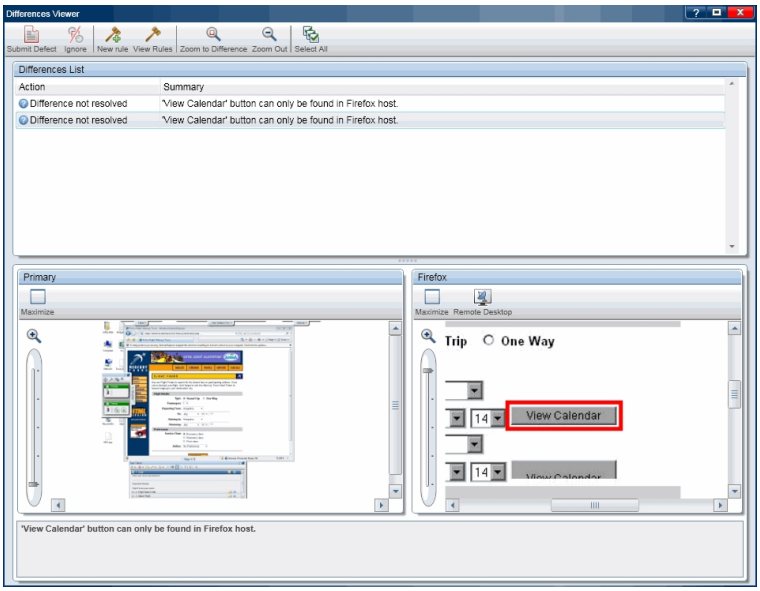
This viewer displays the differences detected between the displays of the primary machine and secondary machines in your test.

The Difference Viewer also enables you to address the differences by creating rules for them or ignoring them. You can also submit defects based on the detected differences.

Tasks you can accomplish with the Differences Viewer:

- "How to Run a Test with Mirroring" on page 301
- "How to Resolve Differences During a Run" on page 304

The following image shows the Differences Viewer.




| | |
|---|---|
| **To access** | Do one of the following:<br>• Right-click a secondary machine with **comparison errors** in the **Machines** sidebar and select **Differences Viewer**.<br>• 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 295 |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | • **Submit Defect.** (Default) Opens the "Smart Defect Settings Dialog Box" (described on page 188), enabling you to automatically include defect scenario information in your defect. The defect summary includes a description of the difference.<br>▪ If you choose to attach a screen capture to your defect, screen captures of both machines are attached to the defect.<br>▪ 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. |
| | Ignores the selected differences.<br>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.<br>Not available when you open the Differences Viewer from the **Storyboard**, **Results**, or the Sprinter **Standalone Results Viewer**. |
| | Opens the "New Rule Dialog Box" (described on page334).<br>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.<br>Not available when you open the Differences Viewer from the **Storyboard**, **Results**,or the Sprinter **Standalone Results Viewer**. |
| | Opens the "Rules Manager Dialog Box" (described on page 336). |
| | Zooms the display in to the selected difference. |
| | Zooms the display out to 100%. |
| | 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. |

| UI Elements | Description |
|---|---|
| **<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.<br><br>The difference display contains the following elements:<br><br>• **Maximize/Minimize.** Expands the machine's display to fill the entire Differences Viewer window. Minimize returns the display to normal.<br><br>• **Slider control.** Zooms in and out on the display.<br><br>• **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*

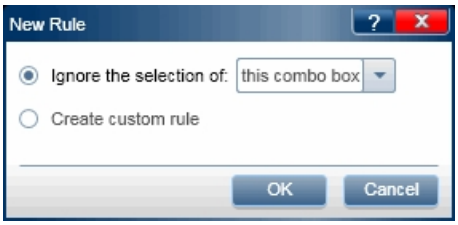
**Relevant for Power Mode only**

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 304

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 295 |

## 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. |
| **Create custom rule** | Opens the Rule Wizard (described on page 338). |
| **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.<br>**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.<br>• **this <object name>.** Ignore the property value for this specific object only. For example: `Ignore the color of the OK button`.<br>• **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`.<br>• **all objects.** Ignore the property value for all objects. For example: `Ignore the color of all objects`.<br>**Note:** This option is displayed only for the following properties that are common to all objects:<br>▪ **background color**<br>▪ **enabled state**<br>▪ **location**<br>▪ **size** |
| **Create custom rule** | Opens the Rule Wizard (described on page 338). |

# *Rules Manager Dialog Box*

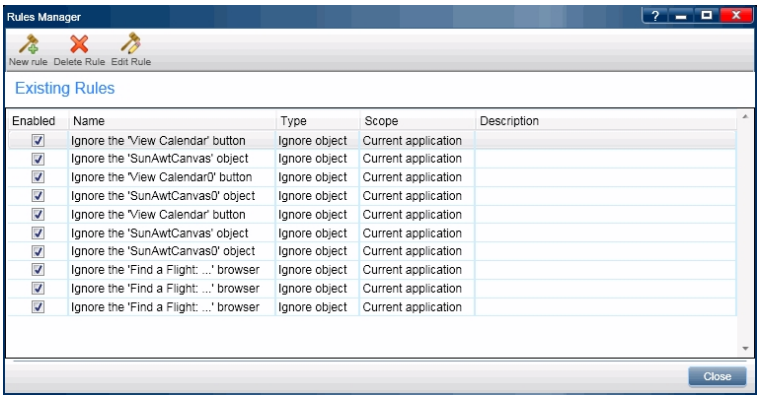
**Relevant for Power Mode only**

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 304

The following image shows the Rules Manager dialog box.




| | |
|---|---|
| **To access** | From the **Machines** sidebar or the **Differences Viewer**,click the **View Rules** button. |
| **See also** | "Rules Overview" on page 295 |

User interface elements are described below:

| UI Elements | Description |
|---|---|
| | Opens the Rule Wizard, enabling you to create a custom rule. For details, see "Rule Wizard - Rule Details Page" on page 338. |
| | 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 338). |
| | Opens the Rule Wizard for the selected rule, enabling you to edit the rule. For details, see "Rule Wizard - Rule Details Page" on page 338. |

| UI Elements | Description |
|---|---|
| **Existing Rules** | • **Enabled.** Select the check box next to the rule to enable it for your run.<br>• **Name.** The name of the rule as defined in the Rule Wizard.<br>• **Type.** The type of rule.<br>  • **Ignore Property.** Ignores a specific property of an object.<br>  • **Ignore Object.** Ignores all objects of a specific type.<br>• **Scope.** When the rule is applied.<br>  • **Current application**<br>  • **All applications**<br>• **Description.** The description of the rule as defined in the rule wizard.<br>For more details on rule definitions and settings, see "Rule Wizard - Rule Details Page" on the next page. |

# Rule Wizard - Rule Details Page

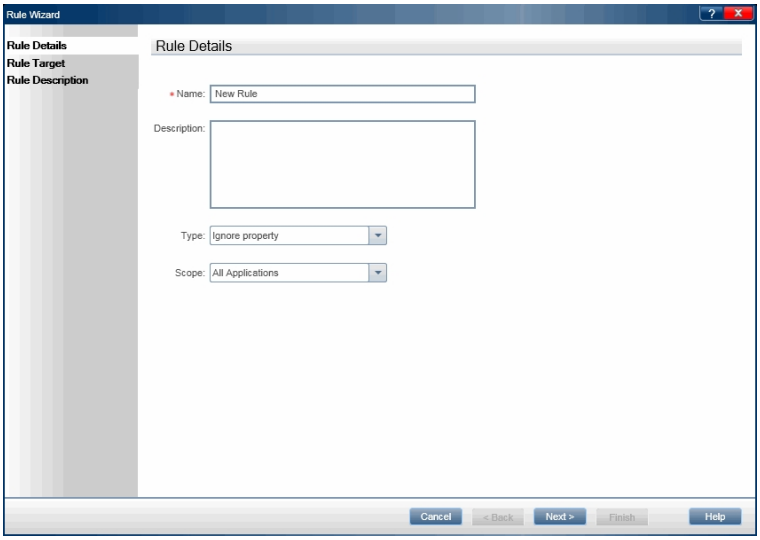
**Relevant for Power Mode only**

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 304

The following image shows the Rules Wizard.




| | |
|---|---|
| **To access** | Use one of the following:<br>• In the **Differences Viewer >New Rule** button **>Create custom rule** option.<br>• Start a run and click the **View Rules** button in the Machine sidebar. In the **Rules Manager** click the **New Rule** or **Edit Rule** buttons. |
| **Wizard map** | This wizard contains:<br>**Rule Details page** > "Rule Target Page" on page 340 > " Rule Description Page" on page 343 |
| **See also** | "Rules Overview" on page 295 |

Descriptions of the user interface elements are available on the wizard page when you hover over them.

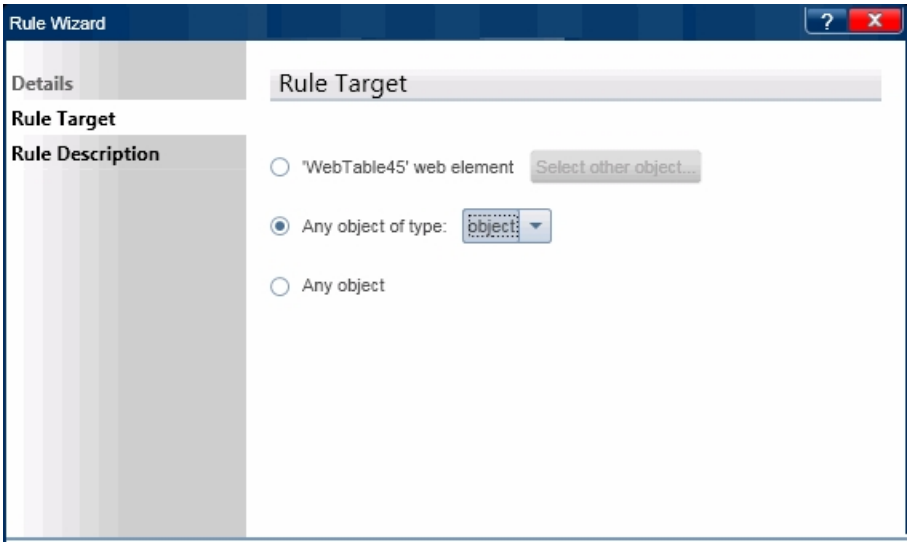
The table below provides additional information for some of these elements:

| UI Elements | Description |
|---|---|
| **Type** | Determines what the rule will ignore.<br>• **Ignore property.** Only differences in the specific property of the object will be ignored.<br>• **Ignore object.** All differences in the object will be ignored. |
| **Scope** | Determines when the rule will apply.<br>• **All Applications.** The rule will apply to all test runs.<br>• **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

**Relevant for Power Mode only**

This wizard page enables you to define the object to which your rule will apply.




| | |
|---|---|
| **Wizard map** | This wizard contains:<br>"Rule Wizard - Rule Details Page" on page 338> **Rule Target Page** > " Rule Description Page" on page 343 |

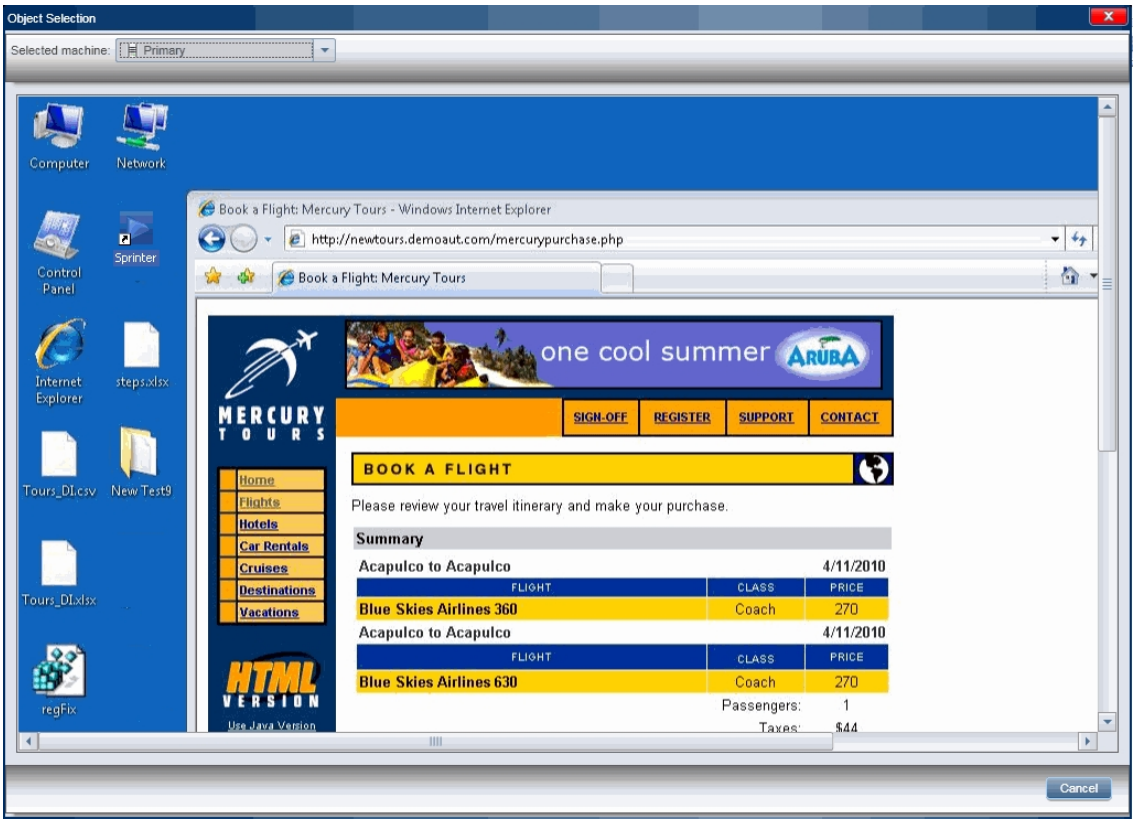
User interface elements are described below (variable text and unlabeled elements are shown in angle brackets):

| UI Elements | Description |
|---|---|
| **<object name> <object type> / Specific object** | Define a specific object for which the rule will apply.<br>• When you access the wizard from the Differences Viewer, the object on which the difference was found is automatically selected.<br>Click the **Select other object** button to open the " Object Selection Window " (described on page 342), and select a different object for the rule.<br>• 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 342), and select an object for the rule. |

| UI Elements | Description |
|---|---|
| **Any object of type <object drop-down box>** | Apply the rule to all objects of a specific type. |
| **Any object** | Apply the rule to all objects. |

# Object Selection Window

This window enables you to define an object for your rule.



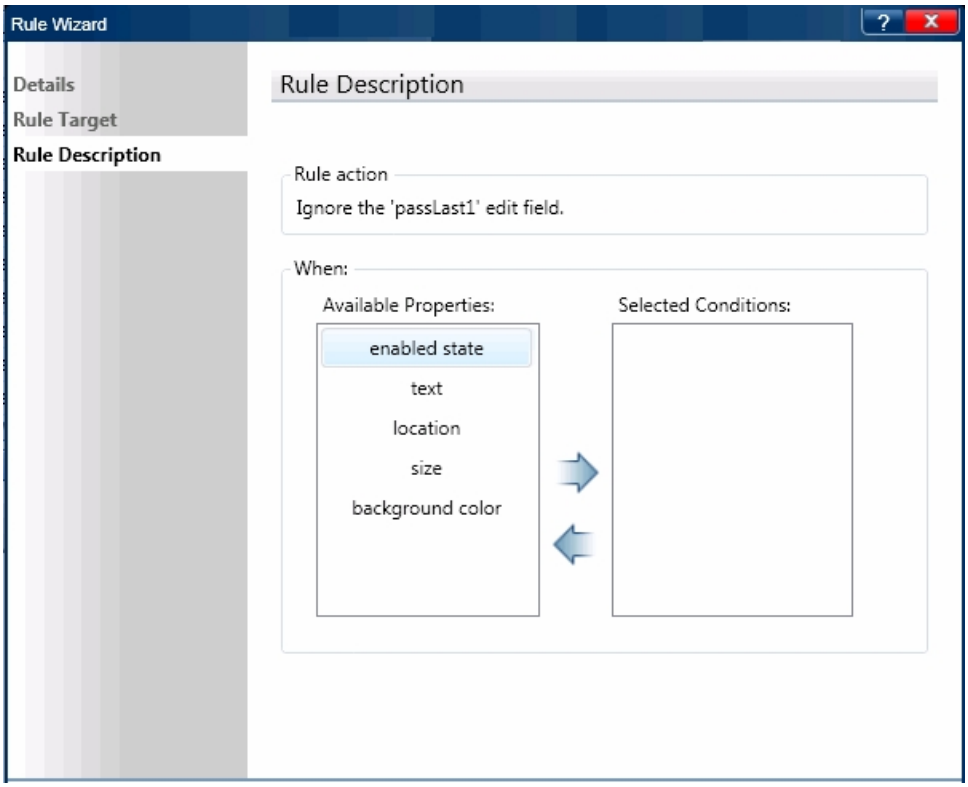

| | |
|---|---|
| **To access** | In the **Rules Wizard** > "Rule Target Page" on page 340, click the **Select other object** button. |
| **Relevant tasks** | "Resolving Problems on and Unlocking Secondary Machines" on page 293 |
| **See also** | "Rules Overview" on page 295 |

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 hover over the display, each object in the display is highlighted in red.<br><br>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:<br>"Rule Wizard - Rule Details Page" on page 338 > "Rule Target Page" on page 340 > **Rule Description Page** |

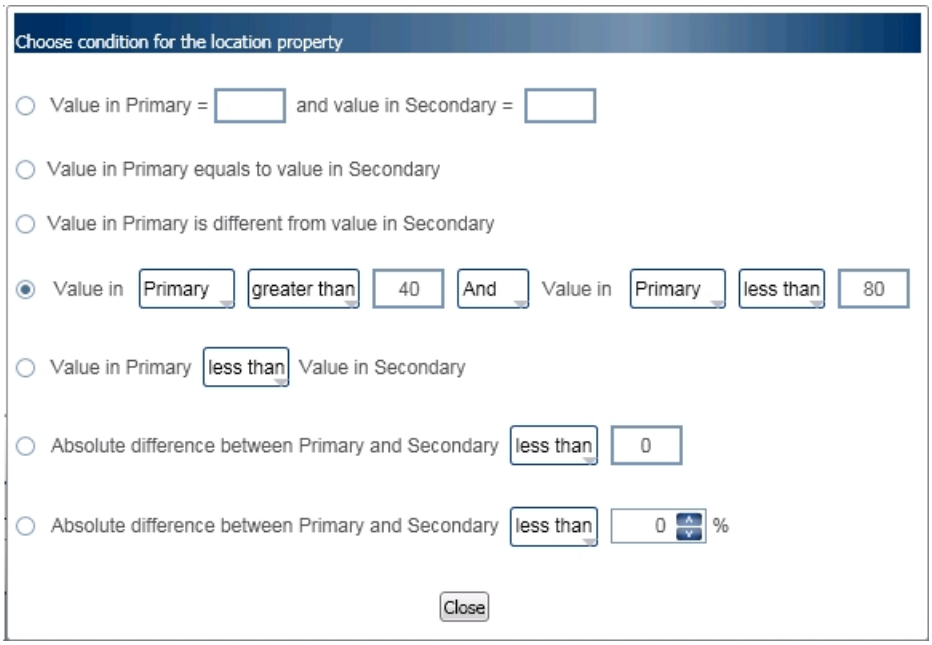
User interface elements are described below:

| 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.<br>• **Ignore the <object name> <object type>.**<br>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.<br>• **Select Properties to ignore.**<br>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.<br><br>Select properties and conditions to limit when the rule will be applied.<br><br>• **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.<br><br>• **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.<br><br>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" below, below.<br><br>**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.<br><br>**For example:** Suppose these are your selections in the previous wizard pages:<br><br>• In the Rule Details page - you selected **Ignore Property**.<br><br>• In the Rule Target page - you selected the **Any object of type radio button** and selected **image**.<br><br>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.

For integers, you can specify an absolute difference between the primary and secondary machine values. You can specify an actual value or a percentage. These options are useful when you only want to know the magnitude of the differences between the machines—you don't care if the value on one machine was greater than another.

# Troubleshooting and Limitations - Mirroring

This section contains troubleshooting tips 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.
- Sprinter prevents mirroring when the process user on the primary machine and the logged in user on the secondary machine are not the same. To allow mirroring without authentication, set the **ProtectSessions** flag in **Sprinter.exe.config**, located in the product's **bin** folder, to `false` on the secondary machine.
- See the list of **Prerequisites** in "How to Prepare a Test for Mirroring" on page 298.

## Mirroring While Connected to Application Lifecycle Management

- If you run Sprinter tests with mirroring while connected to an Application Lifecycle Management server that runs on WebLogic or WebSphere, you must disable the default Basic Authentication filter to enable the test to run.Ver11.00
- Running Sprinter tests with mirroring while connected to an Application Lifecycle Management server that uses a proxy is not supported.Ver11.00

## General Limitations

- Mirroring may not work with all technologies.
- Secondary machines must have at least one address in ipv4 format. It may also include address in ipv6 format.
- The following actions performed on your application window are not replicated in secondary machines for Web applications: Autocomplete of user credentials, Maximize, Minimize, Restore from task bar, Restore size, Move, and Resize.
- If a browser automatically enters a password, that user action is not learned by Sprinter.
  **Workarounds**:
  * Delete the automatically entered password, place the pointer focus on a different object, and

re-enter the password manually.
* Disable automatic password completion in the browser.

- 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 the Machines Viewer 3-D mode.

- User actions that are replicated on a secondary machine may not be displayed on an active remote desktop connection.
  **Workaround:** Perform an action on the secondary machine via the remote desktop connection to refresh the display.

- When working with **Mozilla Firefox**, user actions are replicated only if you are logged in to the secondary machine with Administrator permissions.

- Creating a rule in the **Differences Viewer** will not mark a difference as **Resolved**, in the following situation:
  Open the **Differences Viewer** for a secondary machine in your run that is not synchronized with your primary machine (their action numbers do not match) and create a rule for the difference. In this situation, the rule will apply only to any future actions in your run, but the current difference will not be marked as **Resolved**.
  **Workarounds:**
  * Click **Ignore** in the **Differences Viewer** to ignore the current difference.
  * Exit the **Differences Viewer** and select the **Skip** or **Sync** options in the **Machines** sidebar for the secondary machine.

- When running Sprinter with mirroring, using the **Color Picker** tool on machines with different screen resolutions or aspect ratios may not detect identical RGB for all machines.

- Actions may not replay properly if the primary and secondary machines have different screen resolutions. To ensure proper replay, make sure the resolutions on the machines are identical.

- When using Citrix, you can run Sprinter with mirroring on up to five secondary machines per session but not on more than 10 secondary machines on the server.

- Sprinter may fail to communicate with a secondary machine which uses an empty password. The Health Console will show "Invalid username or password" and the details will indicate a user account restriction.
  **Workarounds:**
  * Define a user account with a non-empty password on the secondary machine, and configure

Sprinter to communicate with this account.

* On the secondary machine, type `regedit` in the **Run** box to open the Registry Editor. Change the value of the following key: **HKLM\System\CurrentControlSet\Control\Lsa\limitblankpassworduse** from 1 to 0.

- By default Sprinter uses port 8085 for mirroring scenarios. If this port is busy, change the port in the configuration files or contact support for help.

# Chapter 12

# Using Web Extensibility Packages

You can make use of Web Extensibility packages developed for QuickTest Professional or Unified Functional Testing (UFT) to enable Power Mode to learn Web objects that are not supported out-of-the-box. Extensibility packages can be developed for Web, Java, .NET Windows Forms, WPF, and Silverlight.

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 the next page
- "Installing a Web Extensibility Package" on page 352

# 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**, and **.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**<br>**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>** |
| **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.<br>Do the following:<br>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**.<br>2. Place the files referenced in those lines in the specified locations.<br>**Note:**<br>• You can place the files in another location, and adjust the location specified in the XML file accordingly.<br>• 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.<br>• 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.<br><br>Search the XML file for lines that contain **IconFile**, and then place the files referenced in those lines in the specified locations.<br><br>**Note:**<br><br>• You can place the files in another location, and adjust the location specified in the XML file accordingly.<br><br>• 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.<br><br>Search the XML file for lines that contain **HelpFile**, and then place the files referenced in those lines in the specified locations.<br><br>**Note:**<br><br>• You can place the files in another location, and adjust the location specified in the XML file accordingly.<br><br>• If the specified file location begins with `INSTALLDIR`, this refers to the Sprinter installation path. |

# *Sprinter Integration*

To complete the integration, you must add the your package name to Sprinter's central addin list.

1. Locate the **StationsManagerData.xml** file in the Sprinter installation's **bin** folder.

2. In the **Addin** section, add an entry for your package.

For example:

```
<Addins>
  …
   <Addin>
     <Name>MyPackageName</Name>
   <Addin>
   …
 </Project>
```