

# HP Business Process Testing

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## Tutorial

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# Welcome to the Business Process Testing Tutorial

Welcome to the HP Business Process Testing tutorial.

Business Process Testing with HP Quality Center enables non-technical Subject Matter Experts to build and work with business components in a script-free environment. A **business process test** is a scenario comprising a sequence of business components or flows of components, designed to test a specific business process of an application.

This tutorial is a self-paced guide that teaches you the basics of Business Process Testing. You access Business Process Testing from Quality Center. The tutorial will familiarize you with the process of creating, implementing, and running keyword-driven business components in business process tests and flows.

This tutorial focuses on creating manual component steps, and then using them as a basis for creating automated steps in keyword-driven components. Manual steps can also be used to run both manual and automated business components manually, using the Manual Runner. For more information, see the *HP Business Process Testing User Guide*.

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**Note:** This tutorial does not describe working with WinRunner components. For more information on WinRunner components, see the *HP Business Process Testing User Guide* and the *HP WinRunner User's Guide*.

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**This chapter includes:**

- Before You Begin on page 8
- Using This Tutorial on page 9

## Before You Begin

This tutorial teaches you how to create business process tests using keyword-driven components.

To perform this tutorial, you must have access to:

**Quality Center 10.00.** The HP Web-based solution for application life cycle management. You must have licenses available for Quality Center and Business Process Testing, and be able to access these modules: **Business Components, Test Plan, and Test Lab.**

**QuickTest Professional 10.00.** The testing tool used to run the automated business process tests used in this tutorial. You must:

- Have the proper version of QuickTest Professional installed on your computer.
- Enable the **Allow other HP products to run tests and components** option in QuickTest (**Tools > Options > Run** pane). For more information, see the *HP QuickTest Professional User Guide*.
- Install the QuickTest Professional Add-in and the Quality Center Connectivity Add-in from the Quality Center Add-ins page. For more information, see the *HP Quality Center Installation Guide*.

**QualityCenter\_Demo.** A demonstration project that helps introduce you to Quality Center.

- The lessons in this tutorial are based on the QualityCenter\_Demo project. Verify with your administrator that you are working with the correct version of the QualityCenter\_Demo project. This version is available with Quality Center Patch 2 (or above) and is obtained by importing the **QualityCenter\_Demo.qcp** file using Site Administration. For more information, refer to the *HP Quality Center Installation Guide*.



- If the Quality Center demo project is not installed on your server, or if the project has been modified by other users, contact your Quality Center administrator to get a new (clean) copy of the demo project installed on your server.

**Mercury Flight Reservations.** A sample application that simulates an application for reserving flights. This application is installed by default with QuickTest Professional. If it is not currently installed, you must modify the QuickTest installation by selecting the **QuickTest Professional > Samples** option in Custom Setup.

## Using This Tutorial

The tutorial is divided into lessons, in which you will create and run business components on the sample Mercury Flight Reservations application. After completing the tutorial, you can apply the skills you have learned to your own application.

**Lesson 1, “Introducing Business Process Testing,”** introduces you to Business Process Testing, provides an overview of the Business Process Testing user interface, and familiarizes you with the sample Mercury Flight Reservations application.

**Lesson 2, “Creating Business Components,”** teaches you how to create non-automated components and define component details.

**Lesson 3, “Creating Business Process Tests,”** teaches you how to build business process tests.

**Lesson 4, “Automating Components,”** teaches you how to convert your non-automated components to keyword-driven components and to associate each of your business components with an application area.

**Lesson 5, “Adding Keyword-Driven Component Steps,”** teaches you how to add keyword-driven steps to your business components.

**Lesson 6, “Debugging Business Process Tests,”** teaches you how to run a business process test and identify problems.

**Lesson 7, “Working with Parameters,”** teaches you how to define input and output component parameters, and how to create flows and groups.

**Lesson 8, “Running Business Process Tests,”** teaches you how to run business process tests and view the results.

**Lesson 9, “Where Do You Go from Here?,”** explains how to start testing your own applications and where to find more information on Business Process Testing.

# 1

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## Introducing Business Process Testing

This tutorial provides a step-by-step guide introducing you—the Subject Matter Expert—to the process of creating and running keyword-driven business components, flows, and business process tests, using the Business Components, Test Plan, and Test Lab modules in Quality Center.

This tutorial assumes that you are familiar with Quality Center procedures or have at least completed the Quality Center tutorial. For more information, see the *HP Quality Center User Guide* and the *HP Quality Center Tutorial*.

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**Note:** When working in a version control enabled project in Quality Center, you can create and manage Quality Center entities while maintaining previous versions of those entities. When version control is enabled, toolbars and menus may contain additional buttons and commands not shown in this tutorial. For more information about version control, see the *HP Quality Center User Guide*.

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### **In this lesson, you will learn about:**

- About Business Process Testing on page 12
- Understanding Business Process Testing Roles and Workflow on page 16
- Starting Business Process Testing on page 19
- Exploring the Business Components Module Window on page 21
- Exploring the Test Plan Module Window on page 24
- Exploring the Mercury Flight Reservations Application on page 27

## About Business Process Testing

Business Process Testing enables Subject Matter Experts to design quality assurance tests early in the development cycle and in a script-free environment.

Business Process Testing is based on the creation, implementation, and running of business components and flows in business process tests using the Quality Center **Business Components**, **Test Plan**, and **Test Lab** modules.

- The Business Components module enables you to create, manage, and automate reusable business components, comprising steps that perform specific tasks in a business process.
- The Test Plan module enables you to add components to flows and business process tests, add flows to business process tests, and then to debug the components.
- The Test Lab module enables you to run flows and business process tests in test sets and then view detailed results.

As part of the Business Process Testing process, Automation Engineers create application areas that contain the resources and settings required for the business components of a particular application or part of an application. Subject Matter Experts then associate keyword-driven components with these application areas to enable the components to access all of the required resources and settings. An Automation Engineer can create multiple application areas for different purposes, as needed.

A sample application area is provided for the purposes of this tutorial, enabling you, the Subject Matter Expert, to focus on learning how to create components and business process tests.

## Introducing Business Process Testing Terminology

The following terminology, specific to Business Process Testing, is used in this tutorial:

**Application Area.** Application areas contain all of the settings and resources required to create the content of keyword-driven business components for a particular application or part of an application. These include representations of the objects from your application contained in the shared object repository, user-defined operations contained in function libraries, recovery scenarios, and so on.

**Automation Engineer.** An expert in an automated testing product, such as QuickTest Professional or WinRunner. Using such a testing tool, the Automation Engineer creates application areas and the object repository, library files, and recovery scenarios associated with these application areas. The Automation Engineer can also assist with the debugging process after the Subject Matter Expert creates automated business process tests.

**Business Component (or Component).** An easily-maintained, reusable unit comprising one or more steps that perform a specific task. You can use business components in multiple tests and flows. A business component can be defined as a manual or automated component. Business components may require input values from an external source or from other components, and they can return output values to other components.

**Business Process Test.** A scenario comprising a sequence of business components or flows, designed to test a specific business process of an application.

**Business Process Test Status (or Flow Status).** A status value that is automatically generated based on the status values of all the business components in a business process test or flow.

**Business Process Test Run-Time Parameters.** Variable values that a business process test or flow can receive and then pass to business components or flows for use as input values.

**Component Input Parameters.** Variable values that a business component can receive and use as the values for specific, parameterized steps in the component.

**Component Output Parameters.** Values that a business component can return. These values can be viewed in the business process test results and can also be used as input for a component or flow that is used later in the test.

**Component Request.** A request for the creation of a new business component, when no existing component answers the needs of a business process test or flow.

**Component Status.** See Status (Component).

**Flow.** A reusable collection of business components in a fixed sequence that performs a specific task. You can use flows in multiple business process tests. Flows may require input values from an external source or from other components or flows, and they can return output values to other components or flows.

**Flow input parameters.** Variable values that enable you to define data used by a flow that is provided to the flow from an external source.

**Flow output parameters.** Values that enable you to define data that is retrieved and stored by a flow and can be used in subsequent components in a flow.

**Implementation requirements.** Details and information, written by the Subject Matter Expert that creates a business component, describing a general overview of the business component's purpose or goals, and the condition of the application before and after a component is run (the pre-conditions and post-conditions).

**Iterations.** The number of times that an individual business component, group of components, or flow, runs within a single test run, or the number of times that an entire business process test runs within a test set.

**Pre-Condition and Post-Condition.** The state of the application before the first step in a business component, and the state of the application after the last step in a business component. For example, the pre-condition for a component may state that all applications should be closed, or a specific application should be open to a specific screen or with a specific dialog box displayed. A post-condition may state that an application should be open to a particular screen, or be closed.

If you want the business component to allow iterations, the post-conditions should specify that the application's end state must match its state at the beginning of the component. The pre-conditions and post-conditions provide a guide when implementing the steps for the business component.

**Roles.** The various types of users who are involved in Business Process Testing.

**Run condition.** A conditional statement you can insert into a flow to check the current value of a given parameter before running a component in a flow. The run condition determines whether to run the component, skip the component run, or skip and set the component status to fail.

**Status (Component).** A status value that indicates whether a business component is fully implemented, debugged, and ready to be run in a business process test or flow. The component with the most severe status determines the status of the entire test or flow. The status can be modified by the Subject Matter Expert in Quality Center and the Automation Engineer in QuickTest or WinRunner.

**Status (Business Process Test, or Flow).** A status value that is automatically generated based on the status values of all the business components in the business process test or flow.

**Steps.** Individual operations in a component. These can be manual steps or detailed automated testing steps and are designed and implemented in a business component to test the workings of a specific task in an application.

**Subject Matter Expert.** The expert who uses Quality Center to create business components, flows, and business process tests. The Subject Matter Expert knows the application being developed and tested. The Subject Matter Expert creates business components and then combines the business components into business process tests and flows, using the resources defined by the Automation Engineer to add object and function steps using the Keyword View. The Subject Matter Expert can check the components within business process tests by running and debugging them and can then include them in test set runs to test the application.

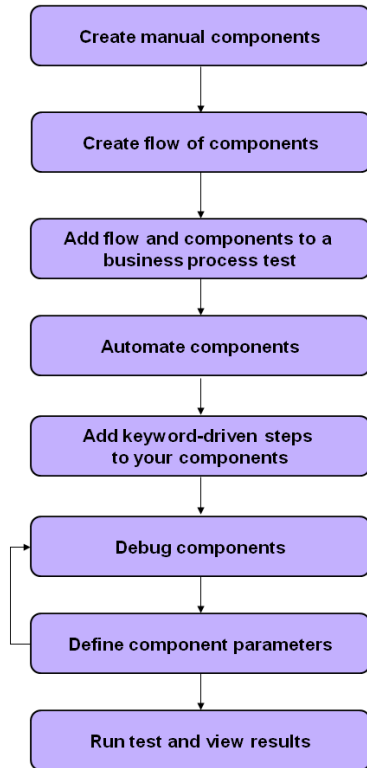
## **Understanding Business Process Testing Roles and Workflow**

The Business Process Testing model is role-based, allowing non-technical Subject Matter Experts to work on tests with Automation Engineers, both together and in parallel. These roles are flexible, and depend on the abilities and time resources of the personnel using Business Process Testing. There are no limitations or product-specific rules controlling which roles must be defined in a particular organization, or which types of users can do which Business Process Testing tasks (provided that the users have the correct permissions).

The Business Process Testing model also follows a workflow that is supported by the user interface design. By following the roles and workflow that Business Process Testing offers, you can maximize the quality and efficiency of the testing process in your organization.



The Business Process Testing workflow consists of the following main phases:



### **1 Create manual business components**

Create manual business components in the Business Components module by defining details and manual steps.

### **2 Create flows of components**

Drag and drop your business components into flows in the Test Plan module.

### **3 Add flows and components to a business process test**

Drag and drop your flows and business components into a business process test in the Test Plan module.

#### **4 Automate components**

Convert each business component to an automated keyword-driven component and select an application area to use with each component.

#### **5 Add keyword-driven steps to your components**

Define the automated steps that perform specific tasks in each business component.

#### **6 Debug components**

Run your business components in the test to ensure that they perform successfully and without interruption. This phase should be repeated after each significant enhancement to the test.

#### **7 Define component parameters**

Expand the scope of your business components, flows, and business process tests by replacing fixed values with component parameters.

#### **8 Run test and view results**

Run your business process test and view the results to pinpoint defects in your application.

Before you begin creating business components, you should familiarize yourself with the module windows used in Business Process Testing, and the Mercury Flight Reservations sample application. These topics are described in the next sections.

## Starting Business Process Testing

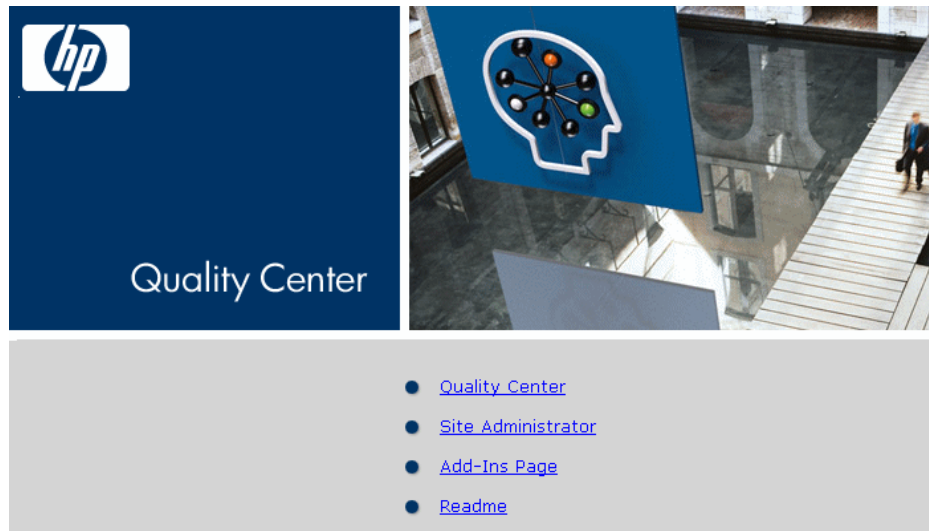
You start working with Business Process Testing by logging in to Quality Center and opening the Business Components module.

**To start working with Business Process Testing:**

### 1 Open the Quality Center Options window.

In your Web browser, enter your Quality Center URL:  
`http://<Quality Center server name>[:<port number>]/qcbn`. Contact your system administrator if you do not have the correct path.

The Quality Center options window opens.

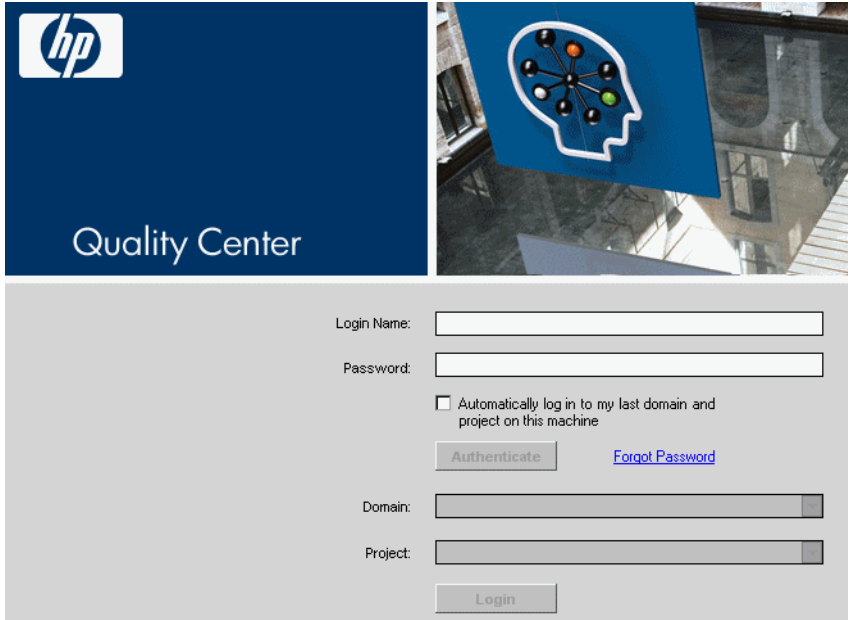


### 2 Open Quality Center.

Click the **Quality Center** link.

The first time you run Quality Center, the application is downloaded to your computer. Then, each time you open Quality Center, it automatically carries out a version check. If Quality Center detects a newer version, it downloads the latest version to your computer.

The Quality Center login window opens.



hp

Quality Center

Login Name:

Password:

☐ Automatically log in to my last domain and project on this machine

[Forgot Password](#)

Domain:

Project:

### 3 Log in to your Business Process Testing tutorial project.

In the **Login Name** box, enter the following user name: **alex\_qc**.

Leave the **Password** box blank. The above user name does not have a password assigned to it.

Click the **Authenticate** button. The **Domain** and **Project** boxes are enabled.

In the **Domain** list, select the **DEFAULT** domain.

In the **Project** list, select the **QualityCenter\_Demo** project.

Click the **Login** button.

The Welcome to Quality Center window may open. You can access Quality Center documentation from this window, or you can select **Help > Documentation Library** from the main Quality Center window. Select **Don't show this again** and click **Close**.

The Quality Center main window opens. The domain name, project name and user name you entered are displayed in the title bar.

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**Note:** After login, Quality Center displays the module in which you (the user name you entered) last worked.

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## Exploring the Business Components Module Window

Business components are created in the Quality Center Business Components module. In this section, you will explore the main elements of this module.

### 1 Open the Business Components module.



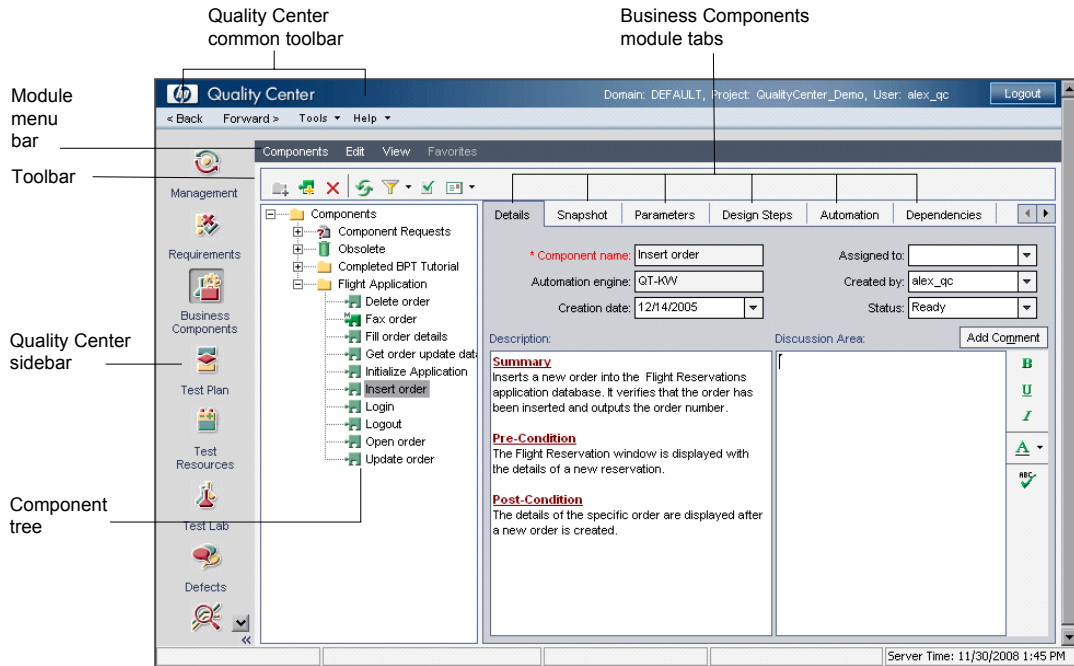
If the Business Components module is not currently displayed in Quality Center, click the **Business Components** module button in the sidebar. The Business Components module opens.

The Quality Center demo project includes the folder **Completed BPT Tutorial**, which contains all the components created in this tutorial. It also contains the **Flight Application** folder, which includes additional sample components.

Select any component in the components tree.

## 2 Explore the elements of the Business Components module.

The Business Components module window is shown below, displaying the Details tab for a keyword-driven component.

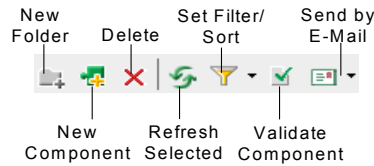


The Business Components module window contains the following key elements used in this tutorial:

- **Business Components module menu bar.** Contains menus with Business Components module commands, from which you can perform module commands, such as those for creating new components and folders in the component tree, copying and pasting, and changing the displayed view.

(The Analysis menu is available with Patch 2 of Quality Center version 10.00.)

- **Components toolbar.** Contains buttons for frequently-used commands in the Business Components module.



These commands enable you to create and delete folders and business components, filter and sort the components displayed in the tree, validate components, and send component information to other users by e-mail.

---

**Tip:** You can access many of the menu and toolbar commands by right-clicking in panes or on items in the component tree to access context menus. You can also perform some menu commands using shortcut keys. For more information, see the *HP Business Process Testing User Guide*.

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- **Component tree.** Enables you to construct and organize the hierarchy of your business component folders and individual components.
- **Component tabs.** Selecting a business component in the component tree displays a set of tabs that provide a complete overview of the component's content, detail its input and output component parameters, describe the component steps, and list the business process tests or flows in which it is used.
- **Sidebar.** Enables you to select the required Quality Center module.

# Exploring the Test Plan Module Window

Business components are combined into business process tests and flows in the Quality Center Test Plan module. In this section, you will explore the Business Process Testing elements of the Test Plan module.

**1 Open the Test Plan module.**



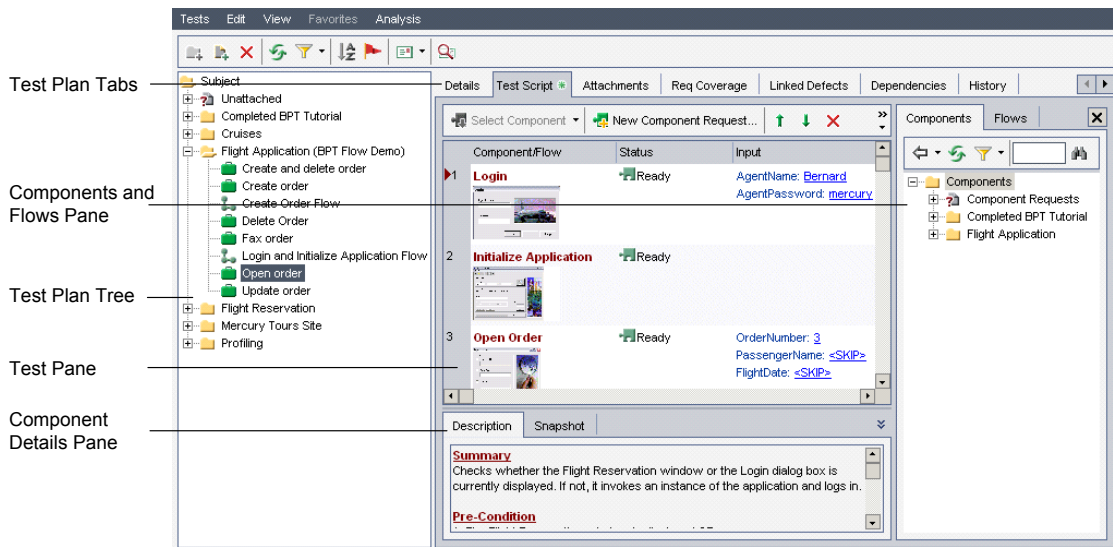
Click the **Test Plan** module button in the sidebar. The Test Plan module opens.

The Quality Center demo project includes the folder **Completed BPT Tutorial**, which contains all the business process tests created in this tutorial. It also contains the **Flight Application (BPT Demo)** folder, which includes more sample business process tests.

Select any test in the test plan tree.

**2 Explore the Business Process Testing elements of the Test Plan module.**

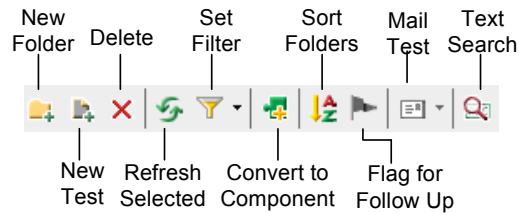
The Test Plan module window is shown below, with the Test Script tab of a business process test selected.





When the Test Plan Tree view is displayed, the Test Plan module window contains the following key elements:

- **Test Plan Menu Bar.** Contains the Tests, Edit, View, and Analysis menus, from which you can perform Test Plan module commands, such as those for creating new business process tests, changing the displayed view, and generating reports.
- **Test Plan Toolbar.** Contains buttons for the commands that are commonly used when creating and modifying the test plan tree, such as creating or deleting business process tests, refreshing the data, and filtering the tree. For more information about these commands, see the *HP Quality Center User Guide*.




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**Tip:** You can also access many of the menu and toolbar commands by right-clicking in panes or on items in the test plan tree to access context menus. You can also execute some menu commands using shortcut keys. For more information, see the *HP Business Process Testing User Guide*.

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- **Test Plan Tree.** The Test Plan Tree is a graphical representation of your test plan, displaying subject folders, business process tests, and flows according to the hierarchical relationship of their purpose within the business process.

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**Note:** You can also view business process tests, flows, and other test types in the Test Grid view. In that view, you can see all tests at once, sort and filter them according to your needs, and take advantage of other test management options. For the purposes of this tutorial, you will be working only in the Test Plan Tree view. For more information on the Test Grid view, see the *HP Quality Center User Guide*.

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- **Test Plan Tabs.** Selecting a business process test or flow in the test plan tree displays a set of tabs that provide a complete overview of the test or flow and its status.

### 3 Click the Test Script tab.

- **Test Pane.** For each business component in the business process test or flow, the Test pane in the Test Script tab displays the name, status, input and output component parameters, and indicates whether the test or flow will continue if that component fails during the run.
- **Components and Flows Pane.** The Components and Flows pane can optionally be displayed on the right side of the Test Script tab by clicking the **Select Component** button in the toolbar. The Components tab and the Flows tab in the Components and Flows pane contain the business components and flows that are available to be included in business process tests.

Now that you are familiar with the main Quality Center modules used for Business Process Testing, take a few minutes to explore their key elements.

In the next section, you will familiarize yourself with the Mercury Flight Reservations sample application.

## Exploring the Mercury Flight Reservations Application

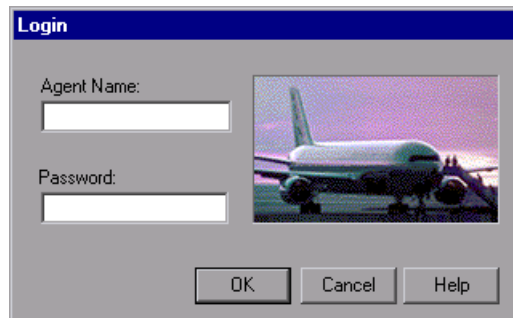
Mercury Flight Reservations is the sample application used throughout this tutorial. It simulates a Windows-based flight reservation service. This section enables you to familiarize yourself with this application before starting the tutorial.

### Logging into the Mercury Flight Reservations Application

Before you simulate booking, updating, or deleting a flight in the Mercury Flight Reservations application, you must log in as a user.

**To log in to Mercury Flight Reservations:**

- 1 From the **Start** menu, select **Programs > QuickTest Professional > Sample Applications > Flight**. The Login dialog box opens.



- 2 Enter a name with at least four characters in the **Agent Name** box. The agent name mercury is used in this tutorial.
- 3 Enter mercury in the **Password** box. The password is not case-sensitive.

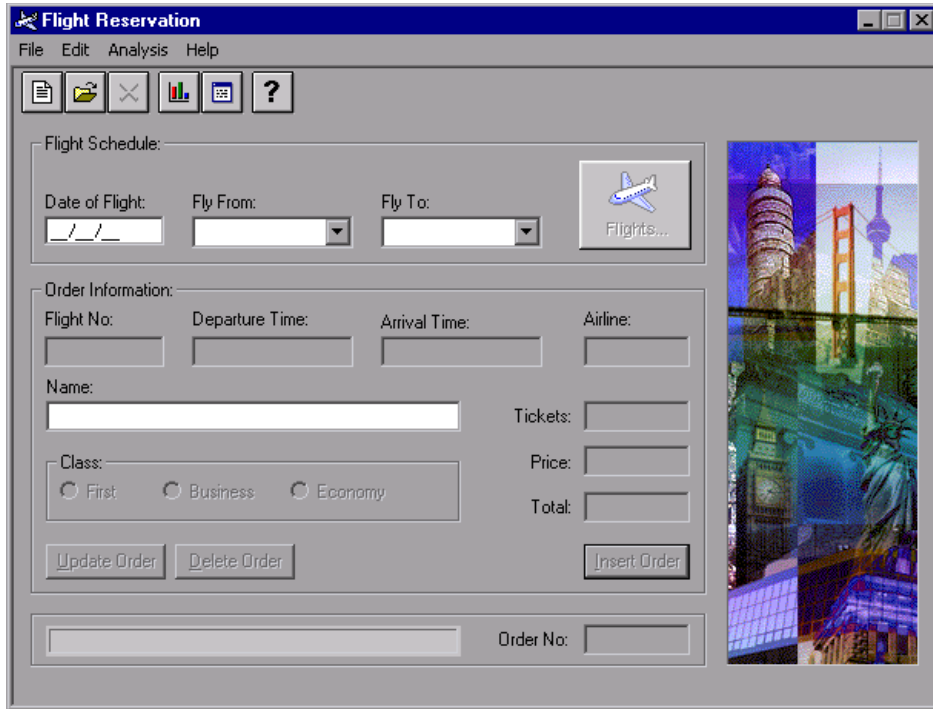
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**Note:** The characters you enter for the password are displayed as asterisks.

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- 4 Click **OK**. While the Mercury Flight Reservations application loads, the Mercury Flight Reservations splash screen is displayed. Loading the application may take a few seconds.

5 The Flight Reservation window opens.



The screenshot shows a Windows-style application window titled "Flight Reservation". The menu bar includes "File", "Edit", "Analysis", and "Help". Below the menu is a toolbar with icons for a document, a folder, a close button, a bar chart, a calendar, and a help icon. The main area is divided into two sections. The "Flight Schedule:" section contains a "Date of Flight:" text box with a date picker, a "Fly From:" dropdown menu, a "Fly To:" dropdown menu, and a "Flights..." button with an airplane icon. The "Order Information:" section contains fields for "Flight No:", "Departure Time:", "Arrival Time:", and "Airline:". Below these are a "Name:" text box, "Tickets:" text box, "Price:" text box, and "Total:" text box. The "Class:" section has three radio buttons: "First", "Business", and "Economy". At the bottom of this section are "Update Order" and "Delete Order" buttons. To the right of the "Order Information:" section is a vertical strip of images showing various landmarks like the CN Tower, the Golden Gate Bridge, and the Statue of Liberty. At the very bottom of the window is an "Order No:" text box.

Explore and experiment with the options and menu commands in this application, including inserting an order, opening an existing order, and updating an existing order. These are the business processes that you will be testing while working in this tutorial.

6 Configure default Settings for order number 3 used in the tutorial.

This tutorial uses the default settings for order number 3 provided in the sample Flight Reservations database. Before you proceed with the other lessons in this tutorial:

- Select **File > Open Order** in the Flight Reservation window to open the Open Order dialog box, select **Order No.** and enter 3 in the text box.
- Click **OK** to open order number 3 and make sure **Economy** is selected in the **Class** area of the Flight Reservation dialog box. If **Economy** is not selected, select it and click **Update Order**.

When you have finished exploring the application, select **File > Exit** to close the application.

Now that you are familiar with the concepts of Business Process Testing, the Business Components and Test Plan modules, and the Mercury Flight Reservations application, you can proceed to Lesson 2, “Creating Business Components.” In this lesson, you will learn how to create business components in the Quality Center Business Components module.



# 2

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## Creating Business Components

Business components are reusable units that perform a specific task in a business process. Components can be manual components or automated components. Automated components can be keyword-driven or scripted components.

There are several stages involved in creating a keyword-driven automated component. You begin by creating a manual business component in the Quality Center Business Components module, define the details that make up each component's shell in the Details tab of the component, and add manual steps. At this point, you can add components to business process tests and flows, even if the application is not yet ready to be tested.

As soon as the application is ready to be tested, you can convert your component to an automated component, associate it with an application area, and add keyword-driven steps to it.

### **In this lesson, you will learn about:**

- Creating Components on page 32
- Defining Component Details on page 34
- Adding Manual Steps on page 36

In later lessons, you will complete the component design process by converting your components to automated components, associating them with application areas, and adding keyword-driven steps.

## Creating Components

In this section, you create business components for testing the Mercury Flight Reservations application.

### 1 Open the Business Components module.

If Quality Center is not currently open, open it and log into the Quality Center Demo project, as described in “Starting Business Process Testing” on page 19.



Click the **Business Components** module button in the sidebar. The Business Components module opens.

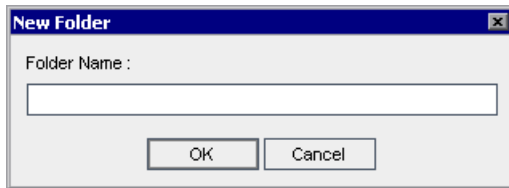
### 2 Create a folder in which your business components will be stored.

In the component tree, select the **Components** root folder.



Click the **New Folder** button in the tree toolbar.

The New Folder dialog box opens.

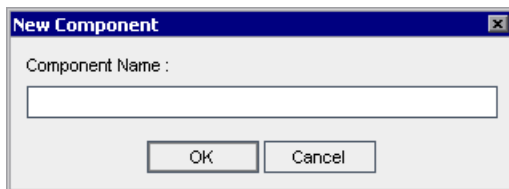


Enter BPT\_Tutorial in the **Folder Name** box, and click **OK**. The new folder is added to the component tree.

### 3 Add the first business component to the folder.



Ensure that the **BPT\_Tutorial** folder is selected in the component tree and click the **New Component** button in the tree toolbar. The New Component dialog box opens.





Enter **Login** in the **Component Name** box and click **OK**. The new business component is displayed under the **BPT\_Tutorial** folder in the component tree.

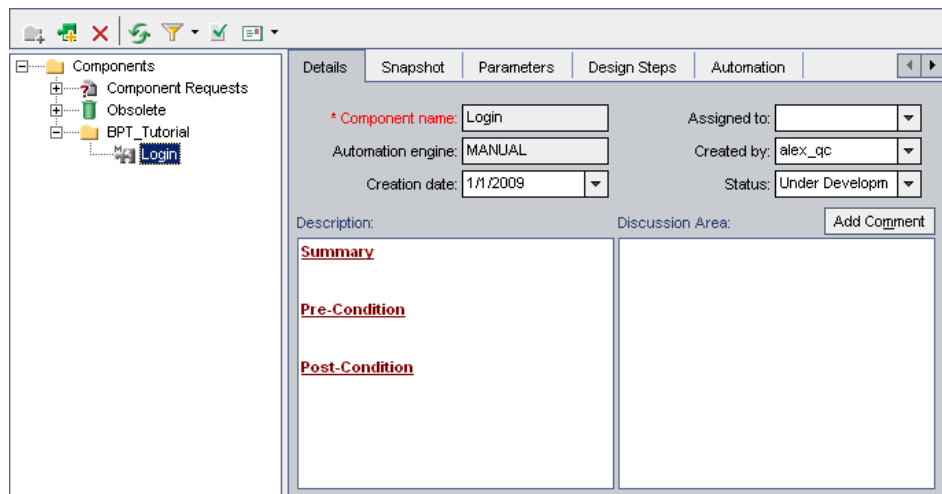
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**Note:** If the project administrator defined required fields in Project Customization in Quality Center, the Required Component Fields dialog box opens. Select any value for each of the displayed fields.

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Note that the component icon displays an **M** in the top-left corner, which indicates that it is currently a **manual** component that can only be run manually.

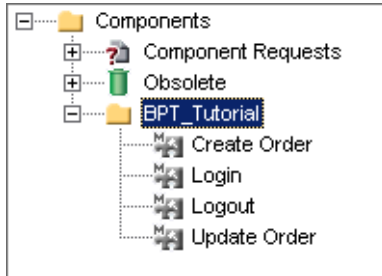
The component tabs for the new **Login** component are displayed on the right of the Quality Center window.



**4 Repeat step 3 to create the following business components in the BPT\_Tutorial folder:**

- Create Order
- Update Order
- Logout

The components are displayed in the component tree in alphabetical order, as follows:



## Defining Component Details

In this section, you define specific details for each business component that you created.

### 1 Display the Details tab for the component.

Select the **Login** component in the component tree and click the **Details** tab if it is not currently displayed.

### 2 Provide the component's general details.

In the **Description** area, use the default section headings to enter a textual description of the **Login** component's purpose, and the pre-condition and post-condition of the application before and after running the component.

- **Summary.** Enter an overall description of the component's purpose or contents. For example:  
Access the Mercury Flight Reservations application, enter name and password, and open the Flight Reservation dialog box.
- **Pre-Condition.** Describe the point in the flow of the application at which the current component starts. For example:  
The Flight Reservations application must be closed.
- **Post-Condition.** Describe the point in the flow of the application at which the current component ends. For example:  
The Flight Reservation dialog box is displayed.

---

**Tip:** The Details tab provides a comprehensive selection of text editing and formatting commands to assist you in entering the component description. Right-click in the **Description** area to access the commands from the context menu. Select **Toolbar Visible** from the context menu to display (or hide) commonly used commands in the toolbar.

---

**3 Repeat steps 1 and 2 to define appropriate details for the other business components.**

Set the details of the components according to the table below.

Component	Summary	Pre-condition	Post-condition
<b>Create Order</b>	Enter flight details and insert an order.	The Flight Reservation window is active.	The Flight Reservation window is active.
<b>Update Order</b>	Open an existing order, modify flight details, and update the order.	The Flight Reservation window is active.	The Flight Reservation window is active.
<b>Logout</b>	Exit the Mercury Flight Reservations application.	The Flight Reservation window is active.	The application is closed.

## Adding Manual Steps

Now that you have created business components, you can add manual steps to them. Manual steps can be used as instructions for testing the application manually, or they can be used as guidelines for creating automated steps at a later time.

For the purposes of this tutorial, you can be as detailed as desired when entering the manual steps. In a real testing environment, manual steps should include each individual operation that should be performed on the application during the component run as well as additional testing operations such as checking that a button is enabled, making sure an image appears in a particular location, checking how the application responds to invalid data, and so on.

---

**Note:** Even if you choose not to add all of the manual steps described in this section, or if you decide not to enter all of the details, it is recommended that you include at least a few manual steps in each component, because some instructions in future sections of the tutorial assume that manual steps exist.

---

You add manual steps in the Design Steps tab of the Business Components module.

### 1 Display the Design Steps tab for the component.

Select the **Login** component in the component tree and click the **Design Steps** tab.

## 2 Perform the first manual step in the Flight Reservations application so that you know how to describe it.

The first step in your **Login** component is to open the Flight Reservations application directly from the file system. Perform this step yourself by double-clicking the executable file:

<QuickTest Professional installation folder>\samples\flight\app\flight4a.exe  
(By default, this path is: C:\Program Files\HP\QuickTest Professional\samples\flight\app\flight4a.exe.) The Login dialog box opens.

## 3 Enter the first manual step.



In the Design Steps tab, click the **New step** toolbar button. The Component Step Editor opens.

In the **Step Name** box, enter a descriptive name, for example, Launch Flight Application.

In the **Description** pane, enter a description of the first step of the component. For example:

Open the Mercury Flight Reservation application from C:\Program Files\HP\QuickTest Professional\samples\flight\app\flight4a.exe

In the **Expected Result** pane, enter the expected result of performing the described step. For example: The Login dialog box opens.

If the step does not produce the expected result when the component is run, the component will fail.



Click the **New Step** button within the Component Step Editor to open a blank second step.

#### 4 Add the remaining manual steps for the Login Component.

Physically perform each of the next steps in the Flight Reservations application, as described in “Exploring the Mercury Flight Reservations Application” on page 27 (entering a user name, entering a password, clicking **OK** to close the Login dialog box), so that you will know how to describe them.

Then enter a description of the operations you performed in the Component Step Editor by adding a name, description and expected result of each step and clicking the **New Step** button.

#### 5 Close and Save the Login Component.

When you complete the last step in the component, click **OK** in the Component Step Editor. If you are prompted to save your changes, click **Yes**.



Click the **Save** button in the toolbar to save your steps.



**Tip:** Save any changes that you make in the Design Steps tab by clicking the **Save** toolbar button. Since changes you make in this tab are not saved automatically, it is also recommended that you save them periodically.

#### 6 Enter manual steps for the Create Order, Update Order, and Logout components.

Repeat steps 1 through 5 to enter manual steps for the remaining components.

- The **Create Order** manual steps should include displaying the Flight Reservation window, entering itinerary details, selecting a flight, entering order information, and inserting the order.

- The **Update Order** manual steps should include displaying the Flight Reservation window, opening an order (using the order number, not by searching for a name or date), modifying the seating class to first class, and updating the order.
- The **Logout** manual steps should include displaying the Flight Reservation window, and exiting the application.

When entering manual steps, keep in mind that your first and last steps should reflect the pre-conditions and post-conditions specified when you created the component.

Now that you are familiar with creating components and defining business component details, you can proceed to Lesson 3, “Creating Business Process Tests.” In this lesson, you will learn how to combine the components you have created into a business process test.





# 3

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## Creating Business Process Tests

Business process tests are testing scenarios comprised of a sequence of business components. In this lesson, you create a business process test in the Test Plan module of Quality Center, using the components you created in the Business Components module.

Business process tests can also contain reusable flows of components. For more information about flows, see “Working with Flows” on page 108.

---

**Note:** For more information about working with the Test Plan module of Quality Center, see the *HP Quality Center User Guide*.

---

### **In this lesson, you will learn about:**

- Creating a Business Process Test on page 41
- Adding Components to a Business Process Test on page 44

## Creating a Business Process Test

In this section, you create a new business process test in the test plan tree of the Test Plan module.

### **1 Open the Test Plan module.**



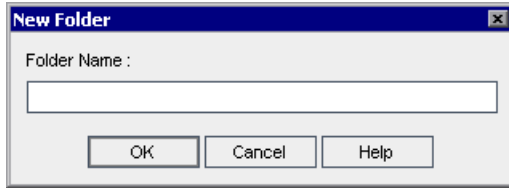
Click the **Test Plan** module button in the Quality Center sidebar. The Test Plan module opens.

## 2 Create a folder in which your business process tests will be stored.

In the test plan tree, select the **Subject** root folder.



Click the **New Folder** button in the toolbar above the test plan tree. The New Folder dialog box opens.



In the **Folder Name** box, enter BPT\_Tutorial, and click **OK**.

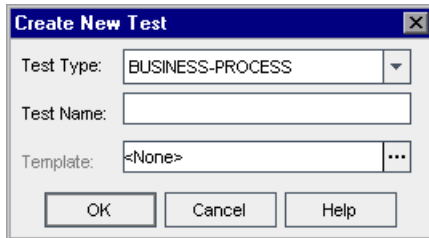
The new folder is displayed as a subfolder of the **Subject** root folder in the test plan tree.

## 3 Add a new business process test to the folder.



Ensure that the new folder is selected in the test plan tree. Click the **New Test** button in the toolbar above the tree. The Create New Test dialog box opens.

From the **Test Type** list, select **BUSINESS-PROCESS**.



In the **Test Name** box, enter Reservation\_Test.

Click **OK**.

**Note:** If the project administrator defined required fields in Project Customization in Quality Center, the Required Test Fields dialog box opens. Select any value for each of the displayed fields. For more information, see the *HP Quality Center Administrator Guide*.

The new business process test is added to the **BPT\_Tutorial** folder in the test plan tree. The business process test tabs are displayed on the right of the Quality Center window.

The screenshot shows the HP Quality Center interface. On the left is a tree view with the following structure:

- Subject
  - Unattached
    - BPT\_Tutorial
      - Reservation\_Test

The main area displays the 'Details' tab for the 'Reservation\_Test' test. The fields are as follows:

Field	Value
* Test Name	Reservation_Test
Creation Date	1/1/2009
Designer	alex_qc
Status	Design
Test ID	5

Below the details section are two tabs: 'Description' and 'Comments'. The 'Description' tab is currently selected and is empty.

#### 4 Add a test description.

The Details tab contains both required and optional fields, as well as the **Description** and **Comments** tabs.

In the **Description** tab, enter a description for the business process test. For example: This test verifies the functionality of the Flight Reservations application.

## Adding Components to a Business Process Test

In this section, you build the structure of your business process test by selecting the business components you created and adding them to the test. You then configure their run settings, and define what the test will do if one or more of the components fail.

### 1 Display the available components in the Test Script Tab.

The business components you created in the Business components module are available for use in the Test Plan module.

Select **Reservation\_Test** in the test plan tree. The test tabs are displayed.

Click the **Test Script** tab. Ensure that the Components and Flows pane is displayed. If it is not displayed, click the **Select Component** button in the Test pane toolbar.

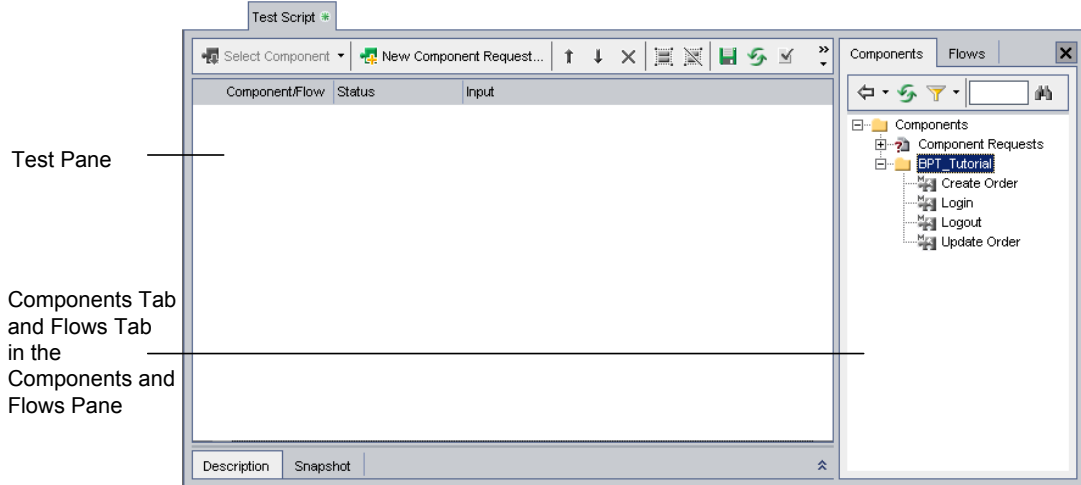
This tab comprises two panes: the Test pane on the left of the tab, and the Components and Flows pane on the right. (A business process test can also contain flows, as described later in this tutorial.) The Components tab in the Components and Flows pane contains the available components in a tree hierarchy.

---


**Note:** All business components in the Business Components module, created by you or by others, are available for use. This means that components can be used in multiple business process tests. For example, the **Login** component you created could be used in any test that opens the Mercury Flight Reservations application.

---

In the tree in the Components tab, expand the **BPT\_Tutorial** folder that contains the components you created.




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**Tip:** To expand a folder in the component tree, click the **Expand** symbol  to the left of the folder name or double-click the folder.

---

## 2 Add components to the test.

Add components to the business process test according to the following procedures:

Drag the **Login** component from the component tree and drop it in the Test pane.

Double-click the **Update Order** component in the component tree to add it to the end of the test.

Drag the **Create Order** component from the component tree and drop it on top of the **Login** component in the Test pane. This inserts the component directly below the **Login** component.



Ensure that the **Create Order** component is selected in the Test pane. Then select **Logout** in the component tree and click the **Add Component to Test** button in the toolbar. This adds the component directly below the **Create Order** component.

### 3 Close the Components and Flows pane.



You have added all the required components to your test.

Click the **Close** button in the Components and Flows pane toolbar.

### 4 Arrange the selected components into a logical testing sequence.

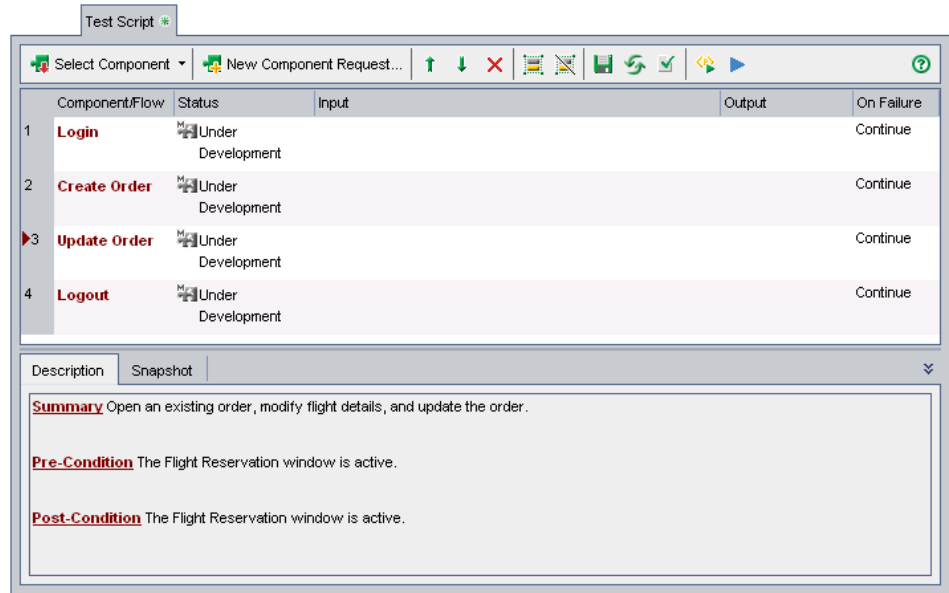


To assist you in arranging your components, you can review the implementation instructions, and the pre- and post-conditions of each component directly from the bottom of the Test pane. Select a component in the Test pane and click the **Show** button at the bottom right of the pane. The Description tab displays the information you entered in the Details tab of the component in the Business Components module.

**Update Order** is currently positioned as the last component in the test. When you run the test, the **Logout** component must be the last component.



Select **Update Order** in the Test pane and click the **Up** button in the toolbar once. This moves **Update Order** above the **Logout** component.



## 5 Save the Business Process Test.



Click the **Save** button in the tab toolbar to save your new business process test.

## Defining Failure Conditions






If the failure of a particular component means that later components in the test cannot possibly run successfully, or that there is simply no point in continuing the test run after a failure, you can instruct the business process test to end at that point.

In this section, you define the condition that instructs your test to stop running if the **Login** component fails to open the Flight Reservations application.



- 1 In the Test pane of the Test Script tab, click in the **On Failure** column for the **Login** component. A down arrow is displayed. (You may have to scroll to the right or resize your columns to view this column.)

- 2 Click the down arrow and select **Exit** from the list. This defines that your business process test will end if the **Login** component fails.

	Component	Status	Input	Output	On Failure
1	Login	 Under Development			Exit 
2	Create Order	 Under Development			Continue
3	Update Order	 Under Development			Continue
4	Logout	 Under Development			Continue

---

**Note:** By default, **Continue** is defined for each business component when it is added to a business process test. This means that the test will run the next component even if the specific component fails.

---

3 Save the Business Process Test.



Click the **Save** button in the tab toolbar to save your new business process test.

You have now finished the first phase of business process testing. You created business components with manual steps, and combined those components into a business process test. At this point, you can already perform manual tests on your application.

You are also ready to begin the next phase of business process testing: automating your components. The next two lessons will teach you how to convert your manual components to automated components and add keyword-driven steps to them.

This tutorial does not describe manual business process test runs. For more information, see the *HP Business Process Testing User Guide*.








# 4

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## Automating Components

Before you can add automated steps to a keyword-driven business component, you must convert the component to an automated component. You then associate it with an application area that contains all of the relevant objects contained in the application as well as any special functions or recovery scenarios that you may need to access.

When you create the steps of a business component, the objects stored with the application area are displayed for selection in an object repository tree, which provides a view of all the available objects in the application. For example, an object repository tree in a Flight Reservation business component could contain:

- Dialog boxes 
- Text boxes 
- Buttons 
- List Boxes 
- Radio buttons 

It is important to note that when the business component runs, the context of each step in the component must be set by an earlier step or steps. This means that for an operation on an object to be performed successfully, the object must be currently displayed in the application you are testing.

### **In this lesson, you will learn about:**

- Converting Components to Automated Components on page 50
- Selecting Application Areas on page 52

# Converting Components to Automated Components

In this section, you access the Design Steps in the Business Components module and convert each of the manual business components you created in Lesson 2, “Creating Business Components,” to automated components.

**Note:** You cannot modify the manual steps in your components after they are automated.

## 1 Display the Design Steps tab for the Login component.

In the Business Components module, select the **Login** component in the component tree and click the **Design Steps** tab. The Design Steps tab opens.

Design Steps		
Step Name	Description	Expected Result
1 Launch Flight Application	Open the Mercury Flight Reservation application from C:\Program Files\Mercury Interactive\QuickTest Professional\samples\flight\app\flight4a.exe	The Login dialog box opens
2 Enter User Name	Enter mercury in the Agent Name box.	
3 Enter Password	Enter mercury in the Password box.	
4 Close Login	Click the OK button .	The Login dialog box closes. The Flight Reservation page opens.

## 2 Automate the component.



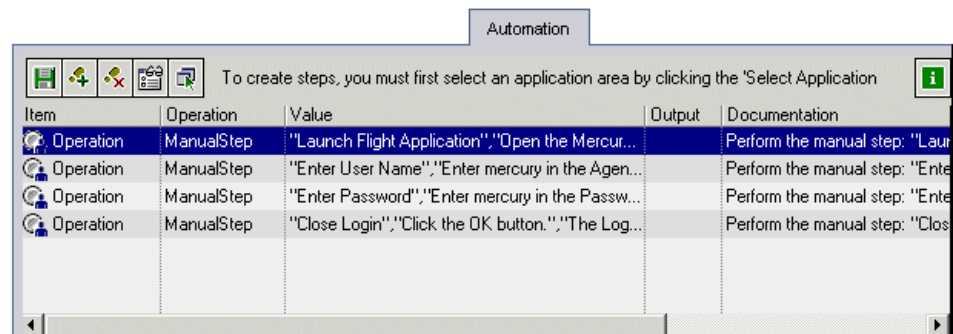
Click the **Automate component** toolbar button.

Select **QuickTest Keyword-Driven** from the list and click **Yes** in the warning message. The component is converted to an automated QuickTest component.

Click **OK** in the information message and then click the **Automation** tab.

**Note:** The first time you click the Automation tab in a new project, and the QuickTest Professional for Business Process Testing Add-in is installed, predefined project resources are created. These resources are displayed in the **BPT Resources** folder in the Test Resources module. During the creation process, the Creating Predefined Business Process Testing Resources progress bar is displayed. This may take a few seconds to complete.

In the Automation tab, the steps appear as manual step operations. (These are useful for providing implementation instructions and summary information. In Lesson 5, “Adding Keyword-Driven Component Steps,” you will learn how to replace these manual operation steps with automated keyword-driven steps.)



**Tip:** You can select the columns to display in the Automation tab, specify their order, and set the number of columns that remain stationary when you scroll horizontally. For more information about setting keyword view options, see the *HP Business Process Testing User Guide*.

### 3 Automate the remaining components.

Repeat steps 1 and 2 to automate the **Create Order**, **Update Order**, and **Logout** components.

## Selecting Application Areas

Each keyword-driven component must be associated with an application area. The application area determines the objects and operations that are available for your component as well as other default settings, such as associated add-ins, recovery scenarios, the Windows-based applications on which your component can run, and more.

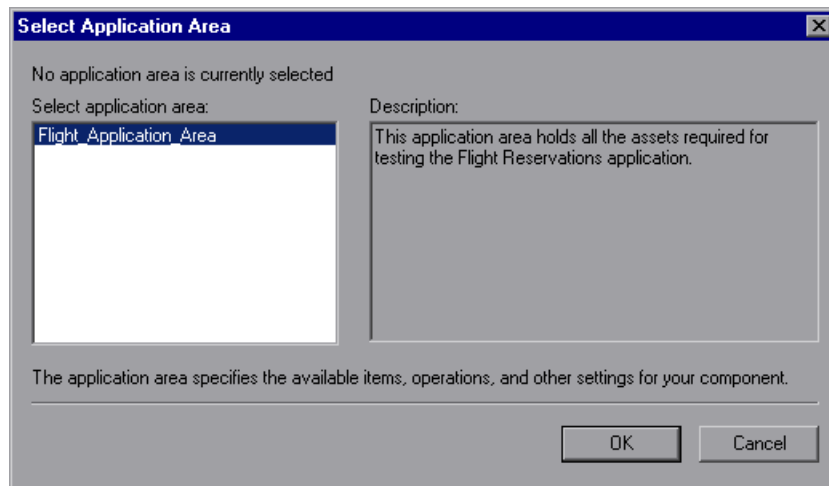
The application area is usually created by the Automation Engineer in consultation with the Subject Matter Experts who will be using it. In this tutorial, you use a ready-made application area that was created for you.

### 1 Select the application area for the Login component.

In the Business Components module, select the **Login** component and click the **Automation** tab, if it is not already displayed.



Click the **Select Application Area** button in the Automation tab toolbar. The Select Application Area dialog box opens.



Ensure that **Flight\_Application\_Area** is the currently selected application area for the business component.

Click **OK**. The Select Application Area dialog box closes. The name of the associated application area (**Flight\_Application\_Area**) is displayed in the Automation tab toolbar.



## 2 Save the component.



Click the **Save** button in the Automation tab toolbar to save the **Login** component.

---

**Tip:** Changes that you make in this tab are saved automatically only when you select another tab in the component, another location in the component tree, or another module. It is recommended that you save your changes by clicking the **Save** button periodically while you work.

---

## 3 Select the Flight\_Application\_Area application area for the other components.

Different components can be associated with different application areas even if they are part of the same business process test. However, in this tutorial, the **Create Order**, **Update Order** and **Logout** components all use **Flight\_Application\_Area**.

Repeat steps 1 and 2 to select the **Flight\_Application\_Area** application area for the **Create Order**, **Update Order**, and **Logout** components.

Now that you are familiar with automating components and associating business components with application areas, you can proceed to Lesson 5, “Adding Keyword-Driven Component Steps.” In this lesson, you will learn how to create the sequential keyword-driven steps that comprise your business components.



# 5

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## Adding Keyword-Driven Component Steps

In Lesson 2, “Creating Business Components,” you created manual steps that described the operations that each component should perform. In Lesson 4, “Automating Components,” you converted these manual steps to manual step operations. In this lesson, you can use your manual step operations as a guide for adding automated keyword-driven steps to your business components.

Each step you create in a business component is displayed as a row in the Automation tab of the Business Components module. You add automated keyword-driven steps by selecting specific objects from the object repository, which is part of the application area. You then select the object (if applicable) and operation to be performed and define any required operation values.

Quality Center automatically documents the steps in the Automation tab, providing a plain-language textual description of what the step does.

For sequential business components to run successfully in a business process test, the state of the application at the end of one component (its post-conditions) must always match the required state of the application at the beginning of the next component (the subsequent component’s pre-conditions).

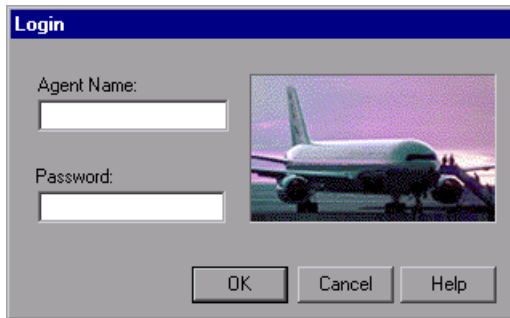
Similarly, if you want a business component to run multiple iterations during the test, the application’s end state must match its state at the beginning of the component. This means that the first step of the component can be repeated immediately after the last step of the previous component iteration.

**In this lesson, you will learn about:**

- Creating Automated Steps for the Login Component on page 56
- Creating Automated Steps for the Create Order Component on page 64
- Creating Automated Steps for the Update Order Component on page 71
- Creating Automated Steps for the Logout Component on page 75

## Creating Automated Steps for the Login Component

In this section, you identify and create automated keyword-driven steps in the **Login** business component. This component logs the user into the Flight Reservations application.



As you can see from the information you entered previously in the Details and Design Steps tabs, logging in to the application requires the following individual actions:

- Opening the Flight Reservations application
- Entering the agent's name and password in the Login dialog box
- Closing the dialog box

The pre-condition for this business component is that the application is not currently running on your computer.



**1 Open the Login component in the Business Components module.**

Select the **Login** component in the component tree and click the **Automation** tab if it is not currently displayed.

**2 Add the step to launch the Flight Reservations application and open the Login dialog box.**

This step in the component provides the path to the Flight Reservations application and activates the Login dialog box.

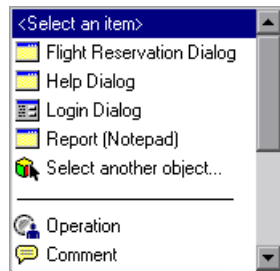
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**Note:** You may have chosen not to add all the manual steps when creating your components. If so, remember that any automated step you add is inserted into the test after the selected step.

---



Highlight the manual operation for opening the Mercury Flight Reservations application and click the **Add Step** button in the Automation tab toolbar. A new step is added below the manual operation step, and the **Select an item** menu opens.



Select **Operation** from the list. The **Operation** item is inserted in the step.



Click in the **Operation** column of the new **Operation** step. A down arrow is displayed.

Click the arrow, and select **OpenApp** from the list.

Click in the **Value** column, and then enter the location of the Flight Reservations application:  
<QuickTest Professional installation folder>\samples\flight\app\flight4a.exe  
(By default, this path is: C:\Program Files\HP\QuickTest Professional\samples\flight\app\flight4a.exe)

### 3 Display the Login dialog box objects.



In the Automation tab, select the step containing the manual operation for entering a user name and click the **Add Step** button in the Automation tab toolbar. A new step is added below the manual operation and the **Select an item** menu opens.



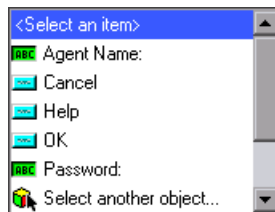
Select **Login Dialog**. The **Login Dialog** object is inserted as the item in the step, and the default operation for the item, **Activate**, is automatically inserted in the **Operation** cell for the step. This step ensures that the parent Login dialog box object is active, and that the child objects within the dialog box are displayed for selection in the **Select an item** menu. Subsequent steps can then be created to perform operations on the child objects.

### 4 Add the other login steps to the component.

You can now add the **Agent Name** and **Password** text box objects as steps in the component.



Select the **Login Dialog** step in the Automation tab and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.



---

**Note:** The **Select an item** menu displays objects in the object repository that are siblings (at the same level), or children (at levels below), of the object in the selected step.

---



Select **Agent Name**. The **Agent Name** text box object is inserted as the item for the step. The default operation for the item, in this case, **Set**, is automatically inserted in the **Operation** column.

In the **Value** column, enter mercury.



Select the step containing the manual operation for entering a password and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Password**. The **Password** text box object is inserted as the item in the step. The default operation for the item, **Set**, is automatically inserted in the **Operation** cell.

In the **Value** cell, enter mercury.

---

**Note:** The **Operation** list also offers a **SetSecure** operation. This operation enables you to enter password values in an encrypted format. You can generate the encrypted value using the Password Encoder tool supplied with QuickTest. However, for the purposes of this tutorial, you are leaving the password unencrypted by using the **Set** operation.

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Select the step containing the manual operation for clicking the **OK** button, and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



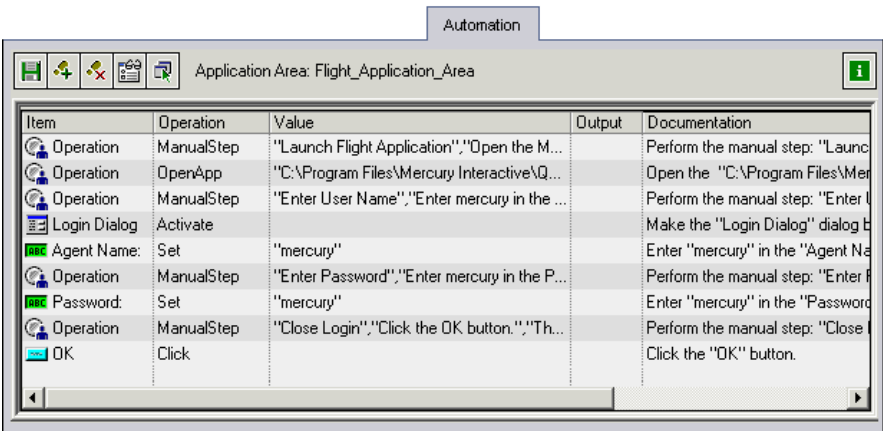
Select **OK**. The **OK** button object is added to the step in the Automation tab. The default operation for the item, **Click**, is automatically inserted in the **Operation** column.

This final step opens the Flight Reservation dialog box. This is the pre-condition for running the next component, **Create Order**.

5 Review your component.

Look at the **Documentation** column in the Automation tab. (You may need to scroll to the right to see the entire column). Review the documentation that was automatically generated for each step you entered to ensure that the steps make sense and follow a logical order.

The Automation tab for the **Login** component should appear similar to the following.



Item	Operation	Value	Output	Documentation
Operation	ManualStep	"Launch Flight Application","Open the M...		Perform the manual step: "Launch
Operation	OpenApp	"C:\Program Files\Mercury Interactive\Q...		Open the "C:\Program Files\Mer
Operation	ManualStep	"Enter User Name","Enter mercury in the ...		Perform the manual step: "Enter t
Login Dialog	Activate			Make the "Login Dialog" dialog b
Agent Name:	Set	"mercury"		Enter "mercury" in the "Agent Na
Operation	ManualStep	"Enter Password","Enter mercury in the P...		Perform the manual step: "Enter f
Password:	Set	"mercury"		Enter "mercury" in the "Passwor
Operation	ManualStep	"Close Login","Click the OK button.,""Th...		Perform the manual step: "Close
OK	Click			Click the "OK" button.

Click the **Design Steps** tab.

Each of your original manual steps is followed by the equivalent automated step.

Design Steps		
Step Name	Description	Expected Result
1 Launch Flight Application	Open the Mercury Flight Application from C:\Program Files\Mercury Interactive\QuickTest Professional\samples\flight\app\flight4a.exe	The Login dialog box opens.
2 Step2 (automated)	Open the "C:\Program Files\Mercury Interactive\QuickTest Professional\samples\flight\app\flight4a.exe" application.	
3 Enter User Name	Enter mercury in the Agent Name box.	
4 Step4 (automated)	Make the "Login" dialog box active.	
5 Step5 (automated)	Enter "mercury" in the "Agent Name:" edit box.	
6 Enter Password	Enter mercury in the Password box.	
7 Step7 (automated)	Enter "mercury" in the "Password:" edit box.	
8 Close Login	Click the OK button .	The Login dialog box closes. The Flight Reservation page opens.
9 Step9 (automated)	Click the "OK" button.	

## 6 Save the component.



Reopen the **Automation** tab and click the **Save** button in the toolbar to save the **Login** component.

## Deleting Manual Step Operations

The manual steps that you originally created in the Design Steps tab provided summary information or implementation instructions about the component and have no actual effect on the automated test run. Since your manual steps were mainly guides to what needed to be implemented in the automated steps, they are no longer necessary.

Therefore, after you implement the automated steps in your component, you may want to delete some or all of the manual step descriptions (now manual step operations) from the component to make it easier to read.

### 1 Delete the manual steps.



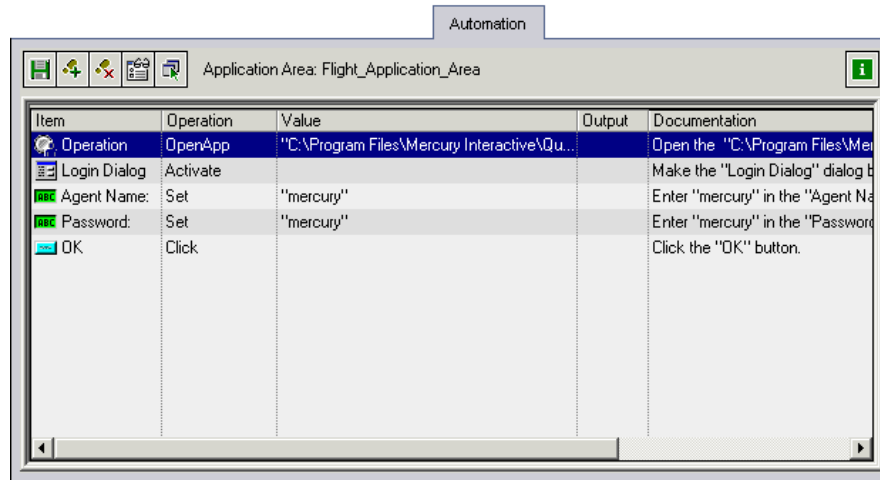
In the Automation tab, highlight the first manual step operation in the **Login** component and click the **Delete Step** button. Click **Yes** on the warning message. Repeat for each manual operation in your component that you want to delete.

### 2 Save the component.



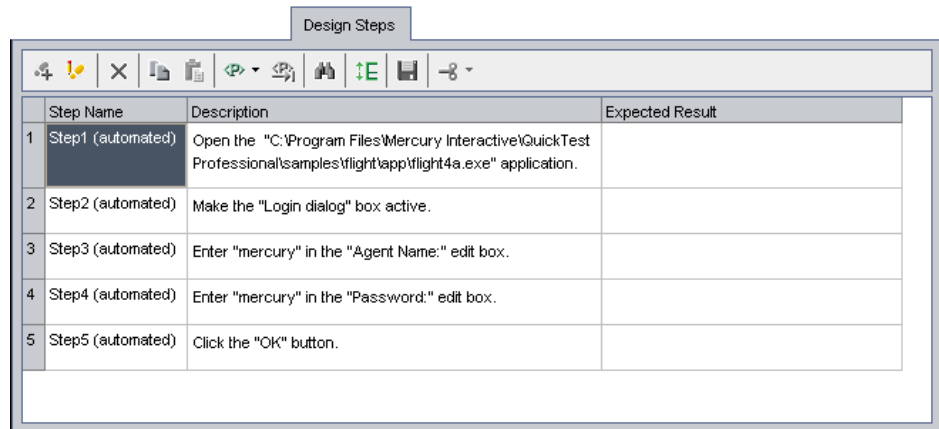
Click the **Save** button in the Automation tab toolbar to save the **Login** component.

### 3 Review the automated keyword-driven steps in the Automation tab.



### 4 Review the automated steps in the Design Steps tab.

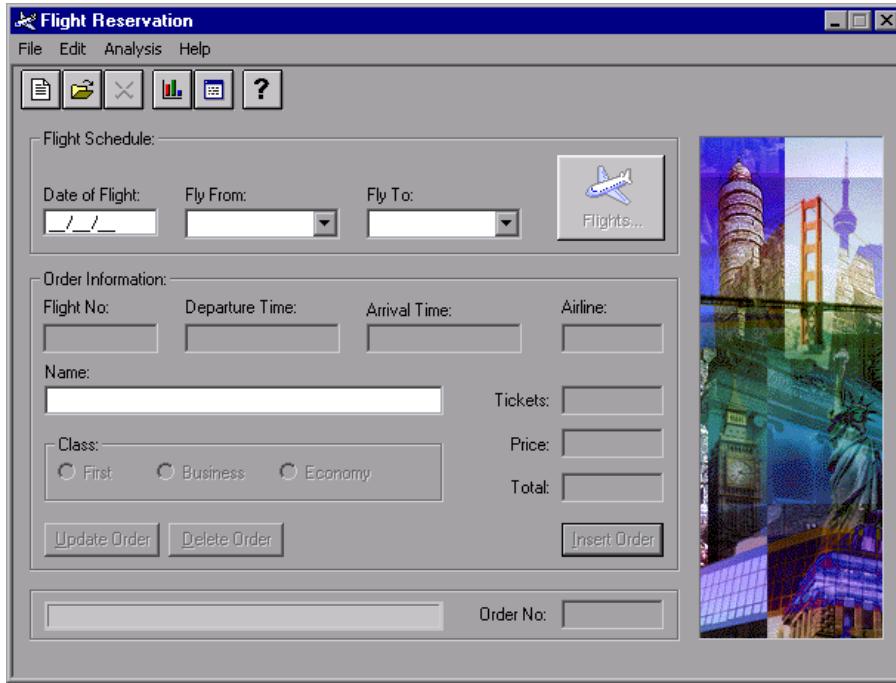
The steps in this tab are now read-only and can be changed only by modifying (or adding to) the steps in the Automation tab.



## Creating Automated Steps for the Create Order Component

In this section, you identify and create automated keyword-driven steps in the **Create Order** business component. This component reserves a specific flight for a passenger and creates an order number in the system.

The steps in this component use the Flight Reservation dialog box:



Creating the order requires the following individual actions:

- Displaying the Flight Reservation objects
- Entering flight schedule requirements
- Selecting an available flight
- Entering order information
- Creating the order in the system
- Retrieving the generated order number and storing it for later use



The pre-condition for this business component is that the Flight Reservation window is currently displayed. This condition is answered by the **Login** component that runs before the **Create Order** component in the test and opens the application.

## 1 Open the Create Order component in the Business Components module.

Select the **Create Order** component in the component tree and click the **Automation** tab if it is not currently displayed.

## 2 Add the steps to display the Flight Reservation objects and clear any dialog box values.

The first step in the component ensures that the Flight Reservation dialog box is active. The next step clears any data that may have been entered by a previous iteration of this component or another component that may perform operations on this dialog box earlier in a test.



Select the first manual operation in the component and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Flight Reservation Dialog** from the list. The **Flight Reservation Dialog** object is inserted as an item in the step, and the default operation for the item, **Activate**, is automatically inserted in the **Operation** cell.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.



Scroll down to **Toolbar.New Order Button** in the list (the list is in alphabetical order) and select it. Accept the default **Click** operation. This step clicks the **New Order** button and clears any data in the Flight Reservations window, making it ready to accept new order details. This is particularly important as it enables this component to be iterated.

**3 Add the steps to enter flight schedule requirements.**

Now you create the component steps that enter the information required to select a specific flight: the required flight date, the starting point, and the destination.





Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **OrderInformation.Date of Flight**. This item enables the required departure date to be inserted in the **Date of Flight** text box. Accept the default **Set** operation. In the **Value** column, enter a date later than the current date in the format mm/dd/yy.

Repeat the steps in this procedure to add the following steps after the step you just inserted:

Item	Operation	Value
 Flight Schedule.Fly From	Select	San Francisco
 Flight Schedule.Fly To	Select	Zurich

**4 Add the step to display the Flights table.**

Now you add the component step that opens the **Flights** table containing the available flights according to the flight schedule requirements.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Flight Schedule.Flights**. Accept the default **Click** operation.

**5 Add the steps to select an available flight.**

The next steps open the Flights Table dialog box and select an available flight.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Flights Table Dialog** from the list. Accept the default **Activate** operation.



Click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **OK Button**. Accept the default **Click** operation. This step clicks the **OK** button to accept the first available flight listed in the **Flights Table** dialog box.

## 6 Add the steps to display the Flight Reservation dialog box.

The objects required for the following steps are located in the Flight Reservation dialog box. This step reactivates the Flight Reservation dialog box.

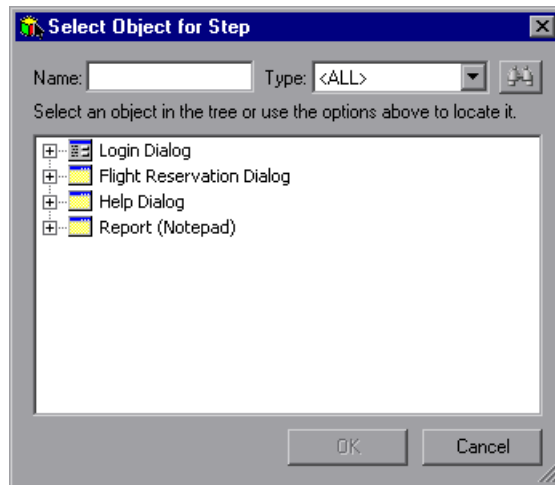


Select the next manual operation or the last step you added and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.

**Flight Reservation Dialog** is not a sibling or child object of the **OK Button** object, and is therefore not displayed in the **Select an item** list.



Select **Select another object** from the list. The Select Object for Step dialog box opens.





Select **Flight Reservation Dialog** in the Object repository tree and click **OK**. The Select Object for Step dialog box closes and the Flight Reservation dialog box step is added with the default **Activate** operation.

## 7 Add the step to enter order information.

This step enables the passenger name and class details to be defined for the selected flight.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Order Information.Name**. This item enables the passenger name to be inserted into the **Name** text box. Accept the default **Set** operation and enter J. Jones in the **Value** column.

## 8 Add the step to create the order in the system.

This step reserves the flight according to the specified details and creates an order number in the system.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Order Information.Insert Order Button**. Accept the default **Click** operation.

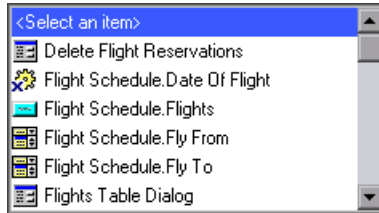
## 9 Add the step to retrieve the generated order number and store it for later use.

When a new order is inserted in the Flight Reservation dialog box, it generates an order number. This order number can potentially be useful for other testing tasks in other components. Therefore, it makes sense to retrieve this value and store it.

In this step, you store the retrieved value in a local variable. In Lesson 7, “Working with Parameters,” you will learn how to store this value in a component parameter so that other components can use the retrieved value.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select the **Order No** text box. The default operation for the item, **Set**, is automatically inserted in the **Operation** column. Change the operation to **GetValue** by selecting it from the **Operation** list.



Click in the **Output** cell in this step, and then click the **Specify parameter for output** button.

In the Output Options dialog box, accept the **Local Parameter** output type. Enter the parameter name, `Temp_OrderNo_Out`, and for the description, enter Temporary output parameter for storing the retrieved order number.

Click **OK** to close the Output Options dialog box.

## 10 Delete any unnecessary manual steps.

If desired, you can delete the manual steps as described in “Deleting Manual Step Operations” on page 62.

## 11 Review the auto-documentation for the component.













Read through the statements in the **Documentation** column to ensure that the steps make sense and follow a logical order.

## 12 Save the component.



Click the **Save** button in the Automation tab toolbar to save the **Create Order** component.

The steps in the Automation tab for the **Create Order** component should appear similar to the following:

Item	Operation	Value	Output	Documentation
 Flight Reservation Dialog	Activate			Make the "Flight Reservation Dialog" window active.
 Toolbar.New Order Button	Click			Click the "Toolbar.New Order Button" button.
 Order Information.Date of Flight	Set	"01/20/10"		Type "012010" in the "Flight Schedule.Date of Flight" text box.
 Flight Schedule.Fly From	Select	"San Francisco"		Select the "San Francisco" item from the "Flight Schedule.Fly From" list box.
 Flight Schedule.Fly To	Select	"Zurich"		Select the "Zurich" item from the "Flight Schedule.Fly To" list box.
 Flight Schedule.Flights	Click			Click the "Flight Schedule.Flights" button.
 Flights Table Dialog	Activate			Make the "Flights Table Dialog" dialog box active.
 OK Button	Click			Click the "OK Button" button.
 Flight Reservation Dialog	Activate			Make the "Flight Reservation Dialog" window active.
 Order Information.Name	Set	"J. Jones"		Enter "J. Jones" in the "Order Information.Name" text box.
 Order Information.Insert Order Button	Click			Click the "Order Information.Insert Order Button" button.
 Order No	GetValue		LocalParameter["Temp..."]	Return the "Order No" edit box value. Store it in the "Temp..." local parameter.

**Note:** The above **Create Order** business component will not run successfully as shown because it contains an intentional error. Specifically, QuickTest will be unable to retrieve a number for the **Temp\_OrderNo\_Out** parameter (the last step in the component). This is because QuickTest will try to perform the **GetValue** step immediately after it clicks the Insert Order button in the previous step, and before the Mercury Flight Reservations application has had sufficient time to insert the order. How this issue is detected and resolved is described in “Debugging the Parameterized Test” on page 102.

## Creating Automated Steps for the Update Order Component

The order you created in the **Create Order** business component reserved an Economy Class seat for passenger J. Jones. In this section, you identify and create the automated keyword-driven steps in the **Update Order** component. This component reopens this order and upgrades the reservation to First Class.

Updating the order requires the following individual actions:

- Locating the order to be updated
- Opening the order
- Making the required changes
- Updating the order

The pre-condition for this business component is that the Flight Reservation window is currently displayed.

### 1 Open the Update Order component in the Business Components module.

Select the **Update Order** component in the component tree and click the **Automation** tab if it is not currently displayed.

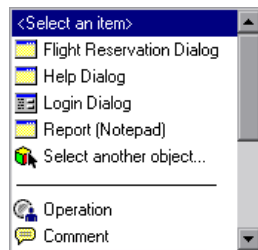
### 2 Add the steps to access the Open Order dialog box.

These steps capture the order number of the order you created in the **Create Order** component.



Select the first manual operation in the component and click the **Add Step** button in the Automation tab toolbar.

A new step is added to the tab and the **Select an item** menu opens.





Select **Flight Reservation Dialog** from the list and accept the default **Activate** operation. Adding this step ensures that the Flight Reservation dialog box is active.

The following step selects the **File** menu in the Flight Reservation dialog box and chooses the **Open Order** command.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.

Select **Menu**. Accept the default **Select** operation. In the **Value** column, enter the following exactly as shown: File;Open Order...

This data is case-sensitive.

### 3 Add the steps to open the order to be updated.

To enhance the reusability of your **Update Order** component, you can designate the order number as a parameter. This enables each test that uses the component to assign a different value to use.

In these steps, you use a local parameter (variable) value. In Lesson 7, “Working with Parameters,” you will change the local parameter to a component parameter so that you can retrieve the order number value from another component.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.



Select **Open Order Dialog**. Accept the default **Activate** operation. Adding this step ensures that the Open Order dialog box is active.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select the **Order No** check box. Accept the default **Set** operation. In the **Value** column, enter ON. This step places a check mark in the **Order No** check box in the Open Order dialog box, which enables the number of the required order to be inserted.





Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.



Select **Order Number Edit**. Accept the default **Set** operation.



Click in the **Value** cell for this step and click the **Configure the value** button. In the Value Configuration Options dialog box, select the **Parameter** radio button. **Local Parameter** is displayed in the corresponding text box. In the **Name** box, enter Temp\_OrderNo\_In. In the **Value** box, enter 3. In the **Description** box, enter Temporary input parameter representing the retrieved order number.

In Lesson 7, “Working with Parameters,” you will change this local parameter to a component input parameter that is defined to retrieve the value from output value step of the **Create Order** component.

Click **OK** to close the Value Configuration Options dialog box.

#### 4 Add the step to close the Open Order dialog box.

This step closes the Open Order dialog box and displays the order details in the Flight Reservation dialog box.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **OK Button**. Accept the default **Click** operation.

In the following steps, you make a change to the original reservation you created.

#### 5 Add the step to display the Flight Reservation dialog box.

The objects required for the following steps are located in the Flight Reservation dialog box. This step ensures that the Flight Reservation dialog box is active.

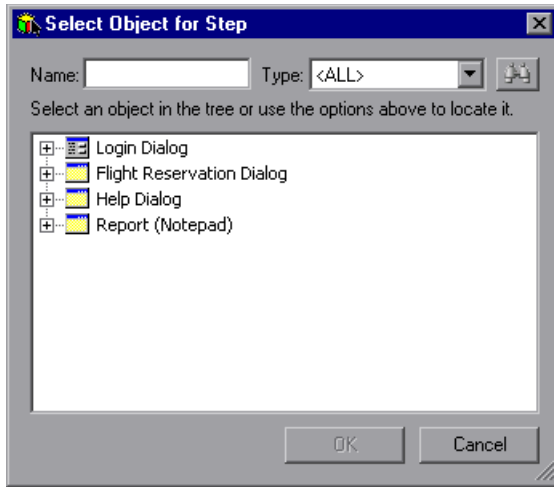


Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.

**Flight Reservation Dialog** is not a sibling or child object of the **Open Order Dialog** object, and is therefore not displayed in the **Select an item** list.



Select **Select another object** from the list. The Select Object for Step dialog box opens.



Select **Flight Reservation Dialog** in the Object repository tree and click **OK**. The Select Object for Step dialog box closes.

Accept the default **Activate** operation.

## 6 Add the steps to update the order.

These steps update the order by changing the passenger class.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Order Information.Class.First**. Accept the default **Set** operation. This step selects the **First Class** radio button.



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab and the **Select an item** menu opens.



Select **Order Information.Update Order Button**. Accept the default **Click** operation. This step clicks the **Update Order** button, which updates the order with the changed data.

## 7 Delete any unnecessary manual operations.

If desired, you can delete the manual operations, as described in “Deleting Manual Step Operations” on page 62.

## 8 Save the component.



Click the **Save** button on the Automation tab toolbar to save the **Update Order** component.

The steps in the Automation tab for the **Update Order** component should appear similar to the following:

Item	Operation	Value	Documentation
Flight Reservation Dialog	Activate		Make the "Flight Reservation Dialog" window active.
Menu	Select	"File;Open Order..."	Select item "File;Open Order..." from the "Menu".
Open Order Dialog	Activate		Make the "Open Order Dialog" dialog box active.
Order No.	Set	"DN"	Set the state of the "Order No." check box to "On".
Order Number Edit	Set	LocalParameter("Temp_OrderNo_In")	Enter <the value of the 'Temp_OrderNo_In' local parameter>.
OK Button	Click		Click the "OK Button" button.
Flight Reservation Dialog	Activate		Make the "Flight Reservation Dialog" window active.
Order Information.Class.First	Set		Select the "Order Information.Class.First" radio button.
Order Information.Update ...	Click		Click the "Order Information.Update Order Button".

## Creating Automated Steps for the Logout Component

In this section, you identify and create the automated keyword-driven steps in the **Logout** business component. This component exits the Flight Reservations application.

You exit the application using the **File** menu in the Flight Reservation dialog box. Exiting the Flight Reservations application requires the following individual actions:

- Displaying the Flight Reservation dialog box
- Selecting the Exit option

The pre-condition for this business component is that the Flight Reservation window is currently displayed.

**1 Open the Logout component in the Business Components module.**

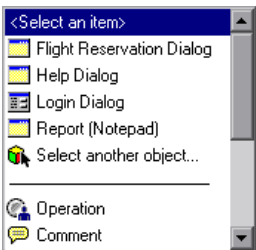
Select the **Logout** component in the component tree and click the **Automation** tab if it is not currently displayed.

**2 Add the step to display the Flight Reservation dialog box.**

Adding this step ensures that the objects in the Flight Reservation dialog box are displayed in the **Select an item** menu.



Select the first manual operation and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.

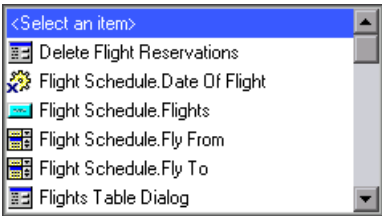


Select **Flight Reservation Dialog** from the list. Accept the default **Activate** operation.

**3 Add the step to select the Exit command from the File menu.**



Select the next manual operation or the step you just inserted and click the **Add Step** button in the Automation tab toolbar. A new step is added to the tab, and the **Select an item** menu opens.



Select **Menu**. Accept the default **Select** operation. Click in the **Value** cell for this step and enter the following, exactly as shown: `File;Exit`  
This data is case-sensitive.

#### 4 Delete any unnecessary manual steps.



If desired, you can delete the manual operations as described in “Deleting Manual Step Operations” on page 62.

#### 5 Save the component.



Click the **Save** button on the Automation tab toolbar to save the **Logout** component.

The steps in the Automation tab for the completed **Logout** component should appear similar to the following:

Item	Operation	Value	Documentation
 Flight Reservation Dialog	Activate		Make the "Flight Reservation Dialog" window active.
 Menu	Select	"File;Exit"	Select item "File;Exit" from the "Menu" menu.

Your business components are now ready to run. In the next lesson, you will perform a debug run on your business process test to ensure that all of your components run successfully.



# 6

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## Debugging Business Process Tests

You check for any problems arising from the content of automated business components, and their combination in a business process test, by running the test in debug mode. Debugging helps you to check whether your business process test runs properly, and locates any possible errors that may have occurred during the building of the test. For example, you may want to check that the business components are in a logical order in the test, and that the pre-conditions and post-conditions required by each component are applied correctly.

When the debug run begins, Quality Center opens QuickTest Professional directly from the Test Plan module. If the first component in the test has any add-ins associated with it, those add-ins are loaded when QuickTest opens. However, for the components in this tutorial, no add-ins are necessary.

During the debug run, QuickTest performs each of the automated steps that you created in your business components. Then, when the test is complete, you can view a summarized report that shows which of the business components passed or failed the test.

In “Debugging Your Business Process Test” on page 81, you check that the individual business components you created run together successfully in the business process test.

**Important:**

- You must have QuickTest Professional version 10.00 installed on your computer to run a business process test in the Test Plan module. In addition, before you run a business process test on a host computer, you must ensure that QuickTest Professional on the host allows Quality Center to run tests. Open QuickTest on the host computer, select **Tools > Options**, click the **Run** node, and select **Allow other HP products to run tests and components**.
  - Before you run a business process test, you must ensure that all the necessary applications for the test are set up to meet the pre-conditions required by the first business component. In this case, the **Login** component opens the Flight Reservations application, so you must close any instance of the application that may be open. You must also ensure that QuickTest is not open on your computer with any unsaved test or component.
-



## Debugging Your Business Process Test

Now that you created a business process test (Lesson 3, “Creating Business Process Tests”), automated your components by converting your manual steps to manual step operations (Lesson 4, “Automating Components”), and added automated keyword-driven steps to your components (Lesson 5, “Adding Keyword-Driven Component Steps”), you are ready to debug your test.

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**Note:** The debug run described here updates the passenger class of order number 3 in the Mercury Flight Reservations sample database. If this test has been run before, ensure that the details of order number 3 have been reset. Open the Mercury Flight Reservations application and select **File > Open Order** to open the Open Order dialog box. Select **Order No** and enter 3 in the text box. Click **OK** to open order number 3, select **Economy** in the Class area of the Flight Reservation dialog box and click **Update Order**.

---

### 1 Open the Test Plan module.



Click the **Test Plan** module button in the Quality Center sidebar. The Test Plan module opens.

### 2 Display the components in the test.

Ensure that the **Reservation\_Test** business process test is selected in the test plan tree, and that the **Test Script** tab is displayed.

### 3 Set all components to exit on failure.

While editing and debugging your test, it is a good idea to set all components to exit the test run if one of the components fail. That way, if a component fails, you do not have to wait for all other components to run before trying to solve the problem. After your test is finalized and ready to be run in a test set, you can return the exit conditions to their previous settings.

In the **On Failure** column, select **Exit** for each of the components.

#### 4 Save the component.



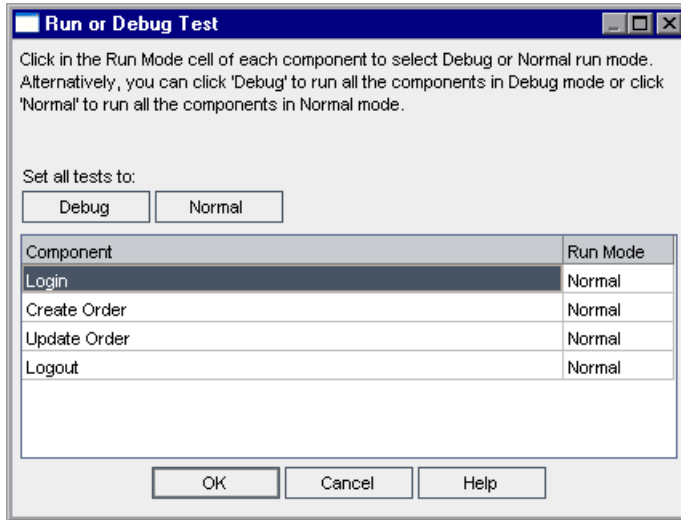
Click the **Save** button in the toolbar to save your changes.

#### 5 Run the test.



Click the **Run or Debug Test** button in the Test Script toolbar.

The Run or Debug Test dialog box opens, listing all of the components that comprise the selected business process test.



When you set a component to **Normal** mode, the component runs from start to finish without pausing and continues immediately to the next component in the test. When you run a component in **Debug** mode, a breakpoint is added that causes the business process test to pause before running the first step in the selected component. For more information about selecting **Debug** mode or **Normal** mode in the Run or Debug Test dialog box, see the *HP Business Process Testing User Guide*.

For the purposes of this lesson, you are checking that the test as a whole runs smoothly. Therefore, leave all components set to **Normal** mode.

Click **OK** to close the Run or Debug Test dialog box. QuickTest Professional opens on your computer and runs the first component in the business process test.

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**Note:** If QuickTest displays a permissions error when you begin the run, ensure that QuickTest Professional allows Quality Center to run tests, as described in the note on page 80.

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## 6 View the progress of the test.

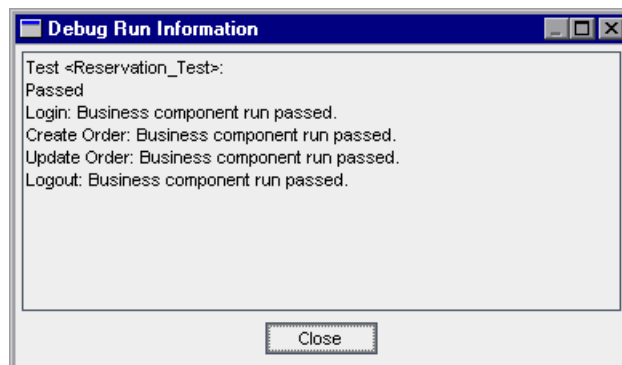
Toggle between the Test Plan module, QuickTest, and the Flight Reservations application by clicking the relevant buttons on the task bar.

- In the Test Plan module, the status of the business process test and the name of the component currently being run are shown below the toolbar in the Test Script tab, for example, Running (Login).
- In QuickTest Professional, the status of the business process test being run, for example Running, or Ready, is shown in the status bar at the bottom-right of the QuickTest window.

When one component finishes running, it closes, and the next component in the business process test opens in QuickTest.

## 7 Complete the run.

When the debug run is complete, Quality Center imports the results from QuickTest and displays summary information in the Debug Run Information dialog box in the Test Plan module.



You can see that all of your components ran successfully. Click **Close** to complete the test run.

---

**Note:** The debug run updated the passenger class of order number **3** in the Mercury Flight Reservations sample database. To run this test again, or to prepare the data for the next user, open the Mercury Flight Reservations application and select **File > Open Order** to open the Open Order dialog box. Select **Order No** and enter 3 in the text box. Click **OK** to open order number 3, select **Economy** in the Class area of the Flight Reservation dialog box and click **Update Order**.

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# 7

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## Working with Parameters

In this lesson, you will learn how to define and use input and output **component parameters**. Input component parameters enable you to retrieve data from a source outside the steps of a flow or component. The values may be supplied by the test containing the flow or component, the test set that runs a particular test, or data retrieved from another flow or component in the test. Output component parameters are data values that are retrieved from a component step in one business component (the **source**) and can be passed as input parameters to a subsequent flow or component (the **target**) in the business process test.

Parameterization greatly increases the power and flexibility of your component, flow or business process test by letting you check how your application performs the same operations with multiple sets of data.

This lesson also describes how to create flows and groups, and how to use parameters in iterated flows and groups to control the way your test runs.

### **In this lesson, you will learn about:**

- Defining an Output Component Parameter for the Create Order Component on page 86
- Defining Input Parameters for the Create Order and Update Order Components on page 88
- Creating the Delete Order Component and Adding It to Your Test on page 92
- Iterating Components on page 96
- Debugging the Parameterized Test on page 102
- Working with Flows on page 108
- Grouping Components on page 120

# Defining an Output Component Parameter for the Create Order Component

In this section, you define the name, value type, and description of a new output parameter for the **Create Order** business component. You then modify the **GetValue** step in the component to return and store the current order number in the new parameter. The value of this parameter will be the number of the order that is updated by the **Update Order** component in the test run.

**1 Open the Create Order component in the Business Components module.**



Click the **Business Components** module button in the sidebar. The Business Components module opens.

Select the **Create Order** component in the component tree and click the **Parameters** tab.

**2 Create a new output parameter for the Create Order component.**

In the **Output** pane toolbar, click the **New Output Parameter** button. The New Parameter dialog box opens:

The dialog box titled "New Parameter" has a text input field labeled "Parameter Name :". Below the field are two buttons: "OK" and "Cancel".

Enter `Order_No_Out` in the **Parameter Name** box and click **OK**.

A line for the new output component parameter is added in the Output parameter list.

Output		
<div>New Delete ↑ ↓</div>		
Parameter Name	Value Type	Description
Order_No_Out	String	

**String** is entered automatically in the **Value Type** cell.

### 3 Define the parameter details.

Select the **Value Type** cell for the component parameter and select **Number** from the list.

In the **Description** cell, enter the following description for the component parameter: The retrieved reservation order number.

### 4 Store the reservation order number in the Order\_No\_Out component parameter.

Click the **Automation** tab.

Click in the **Output** column of the **Order No/GetValue** step. Two buttons are displayed to the right of the parameter name.



Click the **Specify parameter for output** button to open the Output Options dialog box.

Select **Component parameter** in the **Output Types** box. Because only one component parameter has been defined, Order\_No\_Out is automatically displayed in the **Parameter** box.



Click the down arrow to display the description you entered in step 3, in read-only format.

Click **OK**. The Output Options dialog box closes.

**5 Save the changes to your component.**



Click the **Save** button on the Automation tab toolbar.

## Defining Input Parameters for the Create Order and Update Order Components

In this section, you insert two input component parameters. The first accepts data provided at the test level so that each test using the component can provide different data. The second parameter retrieves its data from the output value of a previous component.

### Using Test Data as Input

In this section, you create a new input parameter in which you can define various destination cities in the **Create Order** component. This component parameter replaces the fixed value, Zurich, that you defined previously.

**1 Display the component Parameter tab.**



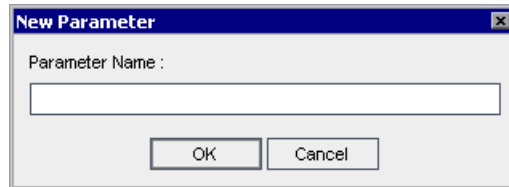
Click the **Business Components** module button in the sidebar. The Business Components module opens.

Select the **Create Order** component in the component tree, and click the **Parameters** tab.



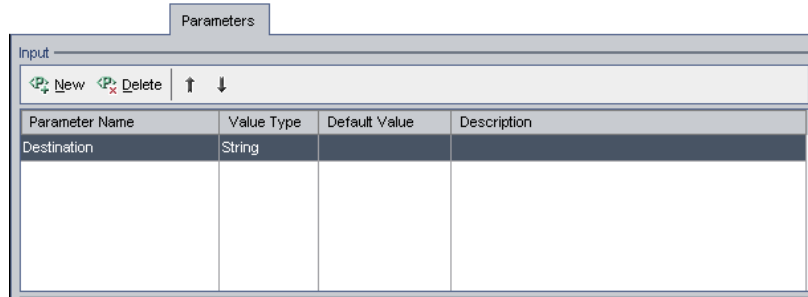
## 2 Create a new input parameter for the Create Order component.

In the **Input** pane toolbar, click the **New Input Parameter button**. The New Parameter dialog box opens:



The dialog box titled "New Parameter" has a label "Parameter Name :" followed by a text input field. At the bottom are "OK" and "Cancel" buttons.

Enter **Destination** in the **Parameter Name** box and click **OK**. A line for the new input component parameter is added in the **Input** parameter list. **String** is entered automatically in the **Value Type** cell.



The "Input" pane shows a table with the following structure:

Parameter Name	Value Type	Default Value	Description
Destination	String		

In the **Default Value** cell, enter **Zurich**. This is the value that will be used if no value is provided by the test using the component.

In the **Description** cell, enter a description of the component parameter's purpose, or other descriptive text, such as the valid values for the parameter. For example, **Destination cities. Possible values: Denver, Frankfurt, London, Los Angeles, Paris, Portland, San Francisco, Seattle, Sydney, Zurich.**

## 3 Change the destination city from a fixed value to a component parameter.

Click the **Automation** tab.




In the **Flight Schedule.Fly To** step, click in the **Value** cell. The **Configure the value** button is displayed. Click the button. The Value Configuration Options dialog box opens.



Click the **Parameter** radio button and ensure that **Component parameter** is selected. Click the down arrow next to the **Destination** parameter name to display the description of the parameter you created in step 2.

Click **OK**. The Value Configuration Options dialog box closes.

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**Note:** If you click in the **Value** cell of a component parameter in the Automation tab, the component parameter icon  is displayed.

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**4 Save the changes to your component.**







Click the **Save** button on the Automation tab toolbar.



Click the **Test Plan** module button in the sidebar to open the Test Plan module. Select **Reservation\_Test** in the test plan tree, and click the **Test Script** tab if it is not currently displayed. The input parameter you created, and a link, are displayed in the **Input** column.



If you do not see the new parameter, click the **Refresh** button in the Test pane toolbar.

	Component	Status	Input	Output	On Failure
	1 <b>Login</b>	 Under Development			Exit
Input Parameter	2 <b>Create Order</b>	 Under Development	Destination: <a href="#">Zurich</a>	Order_No_Out	Exit
	3 <b>Update Order</b>	 Under Development			Exit
	4 <b>Logout</b>	 Under Development			Exit

When you move the cursor over the link, the cursor changes to a pointing hand. Later in this lesson, you will click this link to configure other parameter values.

## Using Output Parameters as Input

Earlier in this lesson, you created a step that stores the generated order number from the **Create Order** component in an output component parameter. Now you will modify the step in the **Update Order** component that opens an order so that it can retrieve the order number from the **Create Order** output parameter.

### 1 Open the Update Order component in the Business Components module.



Click the **Business Components** module button in the sidebar. The Business Components module opens.

Select the **Update Order** component in the component tree and click the **Parameters** tab.

### 2 Create a new input parameter for the Update Order component.

In the **Input** pane toolbar, click the **New Input Parameter** button. The New Parameter dialog box opens. Enter `Order_Number_In` in the **Parameter Name** box and click **OK**. A line for the new input component parameter is added in the **Input** parameter list.

**String** is entered automatically in the **Value Type** cell. Change the value type to **Number** by selecting it from the list.

In the **Default Value** cell, enter 3. This is the value that will be used if no value is provided by the test using the component. In the **Description** cell, enter: The flight reservation order to open.

### 3 Parameterize the Order Number Edit Step.

Click the **Automation** tab and locate the **Order Number Edit** step.



Click in the **Value** cell, and then click the **Configure the value** button. The Value Configuration Options dialog box opens and shows the local parameter that you defined in Lesson 5, “Adding Keyword-Driven Component Steps.”



From the **Parameter** list, select **Component parameter**. Click the down arrow next to the parameter name to display the description of the parameter you created in step 2.



Click **OK**. The Value Configuration Options dialog box closes and the value cell displays a component parameter icon.

Later, you will configure this parameter to use the output value generated by the **Create Order** component.

#### 4 Save the changes to your component.



Click the **Save** button on the Automation tab toolbar.

## Creating the Delete Order Component and Adding It to Your Test

In this section, you create a new business component whose properties and steps are based on an existing component. This component deletes the order created and updated during the run of your business process test.

Deleting an order requires the following individual actions:

- Locating the order to be deleted
- Opening the order
- Deleting the order

These steps are similar to the steps that you used in the **Update Order** business component. Quality Center enables you to quickly create a new component by copying an existing component. You can then use the settings and steps of the original component as the basis for the new component.

You create the new **Delete Order** component based on the existing **Update Order** component, and then change the steps of the new component as required.

**1 Make a copy of the Update Order component.**

Select **Update Order** in the component tree, right-click, and select **Copy**.

Right-click the **BPT\_Tutorial** folder in the component tree and select **Paste**. A duplicate component name warning is displayed. Click **OK**. A copy of the **Update Order** component, named **Update Order\_Copy\_1**, is pasted in the component tree.

Right-click the new component and select **Rename**. Enter **Delete Order** as the name of the component and click on another location to save the new name.

Click the **Automation** tab for the **Delete Order** component if it is not already displayed. Note that this component uses the same input parameter as the **Update Order** component to open the order number that was originally generated in the **Create Order** component. Only the steps specific to updating the order itself need to be changed.

**2 Delete the step not required by Delete Order.**

The **Order Information.Class.First** radio button step is not required in the **Delete Order** component.



Select the **Order Information.Class.First** step and click the **Delete Step** button in the toolbar. A warning message is displayed. Click **Yes**.

**3 Change the Update Order Number step to a Delete Order step.**

In this component, the **Delete Order** button must be clicked instead of the **Update Order** button. Select **Order Information.Update Order Button** in the **Item** column. A down arrow is displayed. Click the arrow and select **Order Information.Delete Order Button** from the list to change the button item that will be clicked in the step. Keep the default **Click** operation.

**4 Add additional steps.**

Deleting an order in the Flight Reservations application opens a confirmation message box. You must add the following additional steps to the **Delete Order** component to respond to the message and close the message box.

Select the empty row after the last step. The **Select an item** menu opens.



Select **Delete Flight Reservations** from the list. This step ensures that the Flight Reservations warning dialog box is active. The **Delete Flight Reservations** object is added to the step in the Automation tab, and the default operation for the item, **Activate**, is automatically inserted in the **Operation** cell for the step.



Click the **Add Step** button in the toolbar. A new step is added to the tab and the **Select an item** menu opens.












Select **Yes Button**. Accept the default **Click** operation. This step clicks the **Yes** button to confirm the deleted reservation.

**5 Save the Delete Order business component.**



Click the **Save** button on the Automation tab toolbar to save the **Delete Order** component.

The Automation tab for the completed **Delete Order** component should appear similar to the following:

Item	Operation	Value	Documentation
 Flight Reservation Dialog	Activate		Make the "Flight Reservation Dialog" window active.
 Menu	Select	"File;Open Order..."	Select item "File;Open Order..." from the "Menu".
 Open Order Dialog	Activate		Make the "Open Order Dialog" dialog box active.
<input checked="" type="checkbox"/> Order No.	Set	"ON"	Set the state of the "Order No." check box to "On".
 Order Number Edit	Set	Parameter("Order_Number_In")	Enter the value of the "Order_Number_In" component.
 OK Button	Click		Click the "OK Button" button.
 Flight Reservation Dialog	Activate		Make the "Flight Reservation Dialog" window active.
 Order Information.Delete Order Button	Click		Click the "Order Information.Delete Order Button" button.
 Delete Flight Reservations	Activate		Make the "Delete Flight Reservations" dialog box active.
 Yes Button	Click		Click the "Yes Button" button.

**6 Open the test in Test Plan.**



Click the **Test Plan** module button in the sidebar to open the Test Plan module.

If the **Reservation\_Test** business process test is not currently displayed, select **Reservation\_Test** in the test plan tree, and click the **Test Script** tab.

**7 Display the Components tab in the Test Script tab.**

Click the **Select Component** button in the Test pane toolbar. The Components tab opens in the Components and Flows pane.

In the Component Tree, expand the **BPT\_Tutorial** folder that contains your components.

**8 Add the Delete Order component to the test.**

Select the **Update Order** component in the Test pane. Double-click or drag the **Delete Order** component in the Component Tree to add it to the test below the **Update Order** component and above the **Logout** component.

The Promote Parameters dialog box opens. This dialog opens because the test already has at least one parameter defined.

Select the **Promote all parameters to the test level** radio button and click **OK**.

In the **On Failure** column in the Test pane, change the failure condition for the **Delete Order** component to **Exit**.

**9 Save the component.**

Click the **Save** button in the toolbar to save your changes.

**10 Close the Components and Flows pane.**

Click the **Close** button in the Components and Flows pane toolbar.

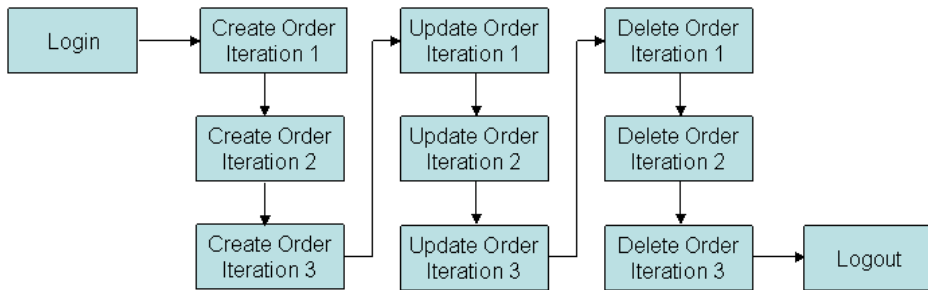
Now that you have parameterized steps in your test, you are ready to configure the values of these parameters and define the iterations for your test.

## Iterating Components

Iterations are the number of times that an individual business component, a flow of components, or a group of components runs within a single test run, or the number of times that an entire business process test runs within a test set.

In this section, you configure the **Create Order**, **Update Order**, and **Delete Order** business components to each run three iterations.

The flow of business components and iterations is illustrated as follows:



After opening the Flight Reservations application and logging in, the business process test runs the **Create Order** component three times consecutively, each time creating an order with a different destination. The **Update Order** component then runs three times, and updates each of the created orders. Then the **Delete Order** iteration deletes each of the orders. The test then exits the Mercury Flight Reservations application.

## Iterating Using Test Data

Earlier in this lesson, you parameterized the **Fly To** step of the **Create Order** component. Now you will configure your test so that the step will use data defined by the test for each iteration.

### 1 Display the Test in the Test Plan module.

Ensure that the **Reservation\_Test** business process test is selected in the test plan tree of the **Test Plan** module, and click the **Test Script** tab.



## 2 Configure various destination cities.

Click the **Destination** input parameter link in the **Input** column of the **Create Order** component.

The Component Iterations dialog box opens.

Component <Create Order> Iterations

Specify the parameter values that the business component will use for each iteration during a business process test run. Alternatively, select the Output parameter check box to use an output parameter value from a previous business component as input for this component.

Add Iteration
 Delete Iteration
 Select Iterations
 Import...
 Export...

Parameter Value	Destination (string)
Zurich	<input type="checkbox"/> Output of previous component

Parameter <Destination> description:  
 Destination cities. Possible values: Denver, Frankfurt, London, Los Angeles, Paris, Portland, San Francisco, Seattle, Sydney, Zurich.

OK Cancel Help

Select the **Destination** parameter column. Zurich is displayed in the Parameter Value cell.

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**Note:** The value type defined for the component parameter, for example, **String** or **Number**, is displayed at the top of the column. You can only configure a value that matches the value type for the component parameter.

---

Click the **Add Iteration** button in the toolbar twice. Two additional iteration rows are added to the Component Iterations dialog box. The parameter value Zurich from the previous row is automatically duplicated in the new rows.

In the **Iteration #1** and **Iteration #2** cells, overwrite the value Zurich with the values Paris and Seattle respectively.

**Tip:** You can press the TAB or Up and Down arrow keys on your keyboard to move from one iteration row to another.

Click **OK**. The number of defined iterations for the **Create Order** component is displayed in the **Input** column of the Test Script tab.

Select Component

New Component Request...

↑

↓

✖

	Component	Status	Input	Output	On Failure
1	Login	Under Development			Exit
2	Create Order	Under Development	<a href="#">3 Component iterations Destination</a>	Order_No_Out	Exit
3	Update Order	Under Development	Order_No_In: 3		Exit
4	Delete Order	Under Development	Order_No_In: 3		Exit
5	Logout	Under Development			Exit

**Iterating Using Output Values from Previous Components**

Earlier in this lesson, you parameterized the **Order Number Edit** step of the **Update Order** component. Now you will configure your test so that the step will use data generated from a previous component.

**1 Display the Test in the Test Plan module.**

Ensure that the **Reservation\_Test** business process test is selected in the test plan tree of the **Test Plan** module, and click the **Test Script** tab.

**2 Configure the Order Number input value.**

Click the **Order\_Number\_In** input parameter link in the **Input** column of the **Update Order** component.

The Component Iterations dialog box opens.

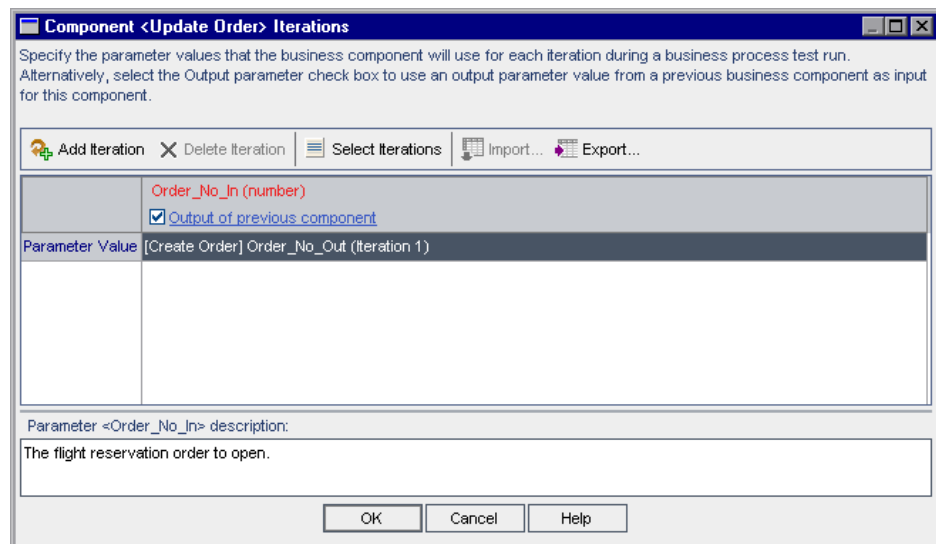
### 3 Use data from a previous component as the input for this parameter.

Select the **Output of previous component** check box. The Select Output Parameter dialog box opens. Only one output parameter has been defined in previous components in the test so it is automatically selected.

Click **OK**. An iterations mismatch confirmation message is displayed. This indicates that the number of iterations currently defined for your **Update Order** component (1 iteration) does not match the number of iterations currently defined for the **Create Order** component from which you are retrieving the data (3 iterations).

Click **Yes** to close the confirmation message.

The Component Iterations dialog box indicates that the parameter will use the value generated from the first iteration of the **Order\_No\_Out** parameter in the **Create Order** component. The input parameter is shown in red to indicate an iterations error.



Click **OK** in the dialog box to close it. The iterations error is shown in red in the Test Script tab.

2	Create Order	 Under Development	<a href="#">3 Component Iterations Destination</a>	Order_No_Out	Exit
3	Update Order	 Under Development Iterations error	Order_No_In: <a href="#">Create Order</a> <a href="#">Order</a> Order_No_Out		Exit

4 Add iterations to your Update Order component.

To make the number of iterations in the **Update Order** component match those of the **Create Order** component, you must add two more iterations.

Click the Iterations link of the **Update Order** component to open the Component Iterations dialog box.



Click the **Add Iteration** button in the toolbar twice. Two additional iteration rows are added to the Component Iterations dialog box.






The parameter values show that each iteration of the **Update Order** component will use the value of the **Order\_No\_Out** parameter from the corresponding **Create Order** component.

Click **OK** to close the dialog box.

Note that the iterations error is no longer shown in the Test Script tab.

5 Add iterations to your **Delete Order** component.

Your **Delete Order** component uses the same input parameter as the **Update Order** component. Repeat steps 2 through 4 to add three iterations to the **Delete Order** component, each using the **Order\_No\_Out** parameter from the corresponding **Create Order** component.

	Component	Status	Input	Output	On Failure
1	Login	 Under Development			Exit
2	Create Order	 Under Development	<a href="#">3 Component Iterations</a> Destination	Order_No_Out	Exit
3	Update Order	 Under Development	<a href="#">3 Component Iterations</a> Order_No_In		Exit
▶4	Delete Order	 Under Development	<a href="#">3 Component Iterations</a> Order_No_In		Exit
5	Logout	 Under Development			Exit

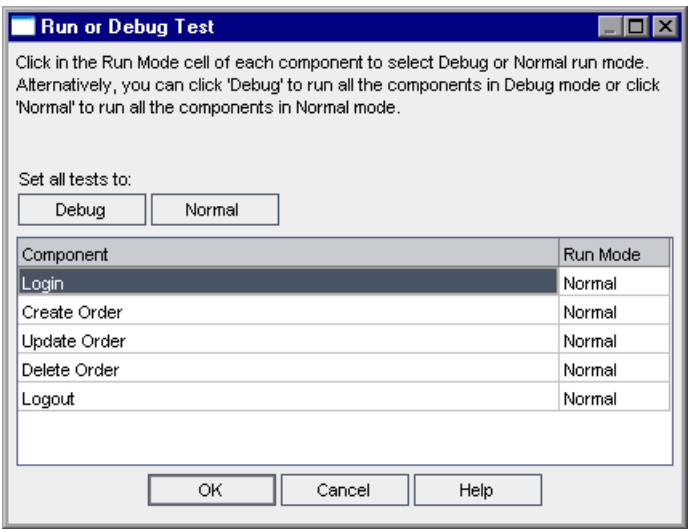
# Debugging the Parameterized Test

You made several modifications to your test. Before moving forward, it is a good idea to run your test again to confirm that it runs successfully.

## 1 Run the test.

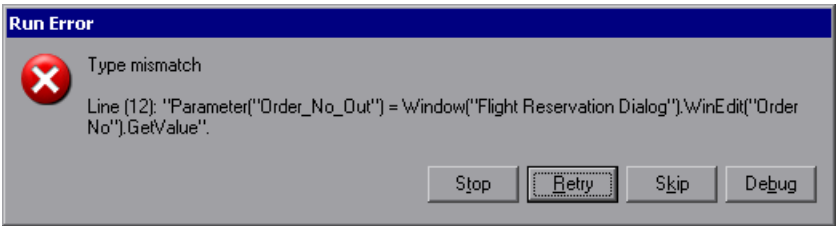


In the Test pane of the Test Script tab, click the **Run or Debug Test** button in the toolbar. The Run or Debug Test dialog box opens.



You are confirming that the test as a whole still runs smoothly after your changes. Therefore, leave all components set to **Normal** mode.

Click **OK** to close the Run or Debug Test dialog box. QuickTest Professional opens on your computer and begins to run the test. However, at the end of the **Create Order** component, a QuickTest error message is displayed.

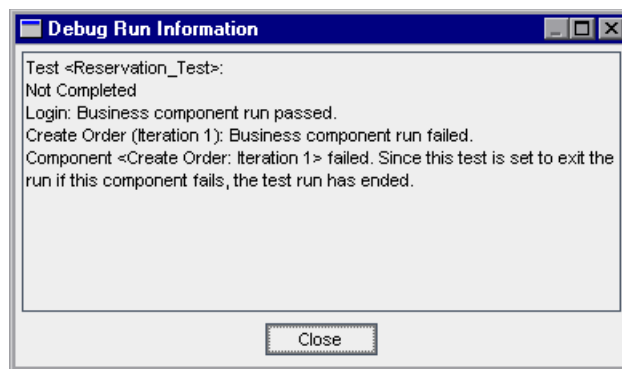


The QuickTest error message indicates that it was unable to retrieve a number for the `Order_No_Out` parameter.

## 2 Stop the component and test run.

Click **Stop** in the Run Error dialog box. QuickTest stops running the component and, because the test is set to exit if the component fails, the test run also ends.

When the run stops, the component remains open in QuickTest. Display Quality Center by clicking the Microsoft Internet Explorer icon in the task bar. The Debug Run Information dialog box indicates that the run failed.



Click **Close** in the Debug Run Information dialog box.

In the Flight Reservations dialog box, select **File > Exit**.

## 3 Analyze the problem.

The QuickTest error message indicated that it was unable to retrieve a number for the `Order_No_Out` parameter. The reason for this is that QuickTest tries to perform the `GetValue` step immediately after it clicks the **Insert Order** button in the previous step.

Therefore, it attempts to retrieve the value before the Mercury Flight Reservations application has finished inserting the order and at that time, the **Order No** text box is empty.

When the Mercury Flight Reservations application is inserting the order, the dialog box is not active. To ensure that the **Insert Order** operation is complete before the **GetValue** step is performed, you can add a step that activates the Flight Reservation dialog box. This will cause QuickTest to wait until it can identify the dialog box (it can identify only active dialog boxes) and will give the Mercury Flight Reservations application time to complete the order transaction.

#### 4 Modify the component to solve the problem.



Click the **Business Components** module button in the sidebar and select the **Create Order** component. Click the **Automation** tab if it is not already displayed.



Select the **Order Information.Insert Order Button** step and click the **Add Step** button in the toolbar. A new step is added, and the **Select an item** menu opens.

The **Flight Reservation Dialog** is not a sibling or child of the **Order Information.Insert Order Button** item, and is therefore not displayed in the **Select an item** list.



Select **Select another object** from the list. The Select Object for Step dialog box opens. Select **Flight Reservation Dialog** in the Object repository tree and click **OK**. The Select Object for Step dialog box closes.

Accept the default **Activate** operation for the step.

#### 5 Save the component.



Click the **Save** button in the Automation tab toolbar to save the **Update Order** component.

#### 6 Set the test to run in debug mode.



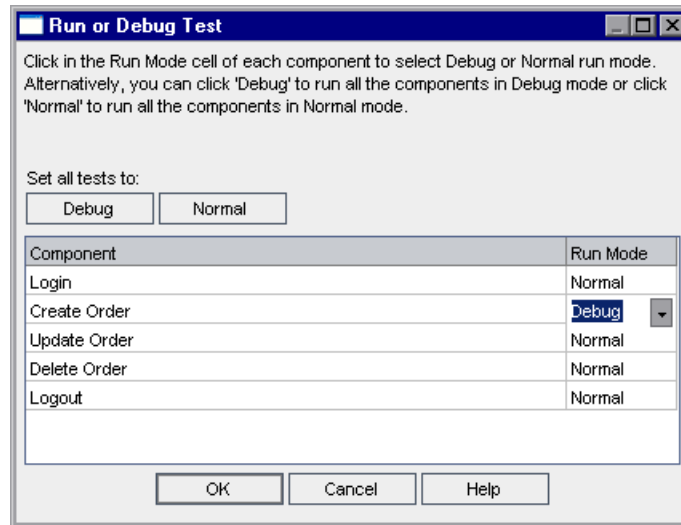
Click the **Test Plan** module button in the sidebar. Ensure that the **Reservation\_Test** business process test is selected in the test plan tree, and click the **Test Script** tab.




Click the **Run or Debug Test** button in the toolbar. The Run or Debug Test dialog box opens.



The test run failed between the **Create Order** and **Update Order** components. In the **Run Mode** column of the **Create Order** and **Update Order** components, select **Debug**.



## 7 Begin the debug run.

Click **OK** in the Run or Debug Test dialog box to begin the debug run. QuickTest performs the **Login** component steps and opens the **Create Order** component. Then it pauses at the first step in the component. A breakpoint icon  appears to the left of the first step.

Ensure that QuickTest and the Mercury Flight Reservations application are positioned so that you can see both applications simultaneously.

In the QuickTest Test toolbar, click the **Run** button. QuickTest runs the steps in the component.

Note that the arrow in the QuickTest margin now pauses for several seconds next to the **Flight Reservation Dialog.Activate** step while QuickTest waits for the dialog box to become available. This enables QuickTest to perform the **Activate** operation and proceed to the **Order No.GetValue** step only after the **Insert Order** operation is complete.

Because you are running several iterations of the components, the **Create Order** component opens twice more, each time stopping at the breakpoint at the beginning of the component. Click **Run** twice more to complete the **Create Order** component iterations.

During each iteration of the **Create Order** component, note the order numbers that the Flight Reservation dialog box displays in the **Order No** box. These are the numbers that your component is retrieving for the **Order\_No\_Out** output parameter.

The **Update Order** component opens and pauses at the breakpoint at the first step. It seems that the problem was solved by the new step in the **Create Order** component, but to confirm, click in the margin next to the **OK** button step to add a breakpoint. This will pause the component run immediately after the component inserts the order number retrieved from the previous component.

Click the **Run** button in the QuickTest Test toolbar. When the component pauses, note that the number inserted in the Open Order number dialog box of the Flight Reservations application matches the number that you saw in the **Order No** text box at the end of the previous component.

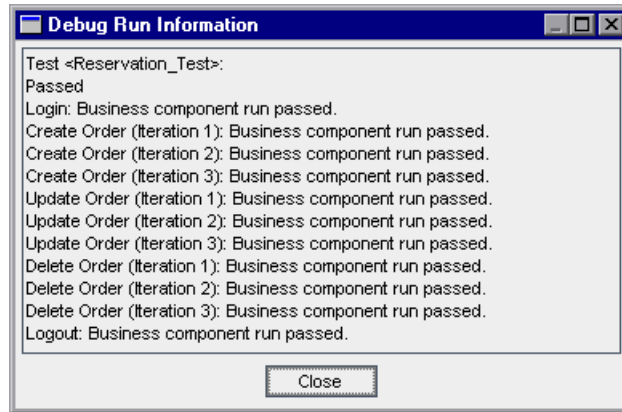
Click **Run** again to proceed. When the component ends, it again pauses at the breakpoint at the first step of the **Update Order** component. For the second and third iterations of this component, you can click **Run** to let the component complete its run.

The **Delete Order** and **Logout** components are set to run in **Normal** mode. After the three **Update Order** component runs, the **Delete Order** component runs three times. Then, the **Logout** component immediately runs once and closes the Flight Reservation dialog box.

## 8 View the test results.

When the run is complete, the last component in the test (**Logout**) remains open in QuickTest. Display Quality Center by clicking the Microsoft Internet Explorer icon in the task bar.

Review the summary information of the test and the component iterations in the Debug Run Information dialog box.



Note the order of the iteration runs for the **Create Order**, **Update Order** and **Delete Order** components: 1-2-3, 1-2-3, 1-2-3.

Click **Close** to complete the test run.

## 9 Save the Reservation\_Test.

You will create new tests using the saved **Reservation\_Test** in the following sections and lessons.

Now that you have successfully debugged your test, you are ready to add finishing touches to your test by adding components to a flow, including the flow in a test, and selecting iterations to run.

## Working with Flows

A **Flow** comprises a collection of business components in a fixed sequence. You can use a flow in multiple business process tests. When you modify a flow or any of its components, all business process tests containing that flow reflect that modification.

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**Note:** (Optional) Quality Center also enables you to combine two or more components in a test and then iterate them as a group. For a descriptive procedure, see “Grouping Components” on page 120.

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Much of the functionality available in Quality Center when working with flows is the same as the functionality when working with business process tests. However, working with flows provides some additional functionality, such as run conditions.

A run condition checks the current value of a given parameter before running a component in a flow. Based on the parameter value and the run condition definition, it then determines whether to run the component, skip to the next component, or end the component run and set the component status to fail. For more information on working with run conditions, see the *HP Business Process Testing User Guide*.

A useful flow in the Flight Application would be the opening and updating of a selected order. Similarly, you could create a flow that would open an order and delete it from the database. This would provide you with building blocks that you could use in multiple tests, but that have single points of maintenance.

In this section, you will create a flow that opens and updates a selected order. You then include the flow in a business process test. Separating the operations for opening an order from those of updating an order creates a reusable building block that can be used in other tests and flows.

This section comprises the following steps:

“Step 1: Create a new Business Process Test” on page 109, by copying the saved **Reservation\_Test** and renaming it.

“Step 2: Create Two New Components” on page 109, namely the **Open Order** and **Update Open Order** components.

“Step 3: Create a New Flow” on page 111, by adding the new components to the flow.

“Step 4: Build your Business Process Test” on page 114, using the new components and the new flow.

## Step 1: Create a new Business Process Test

In this step, you create a new business process test. You can use the saved **Reservation\_Test** to create the new test.

### 1 Copy **Reservation\_Test** and paste it into the test plan tree.



Click the **Test Plan** module button in the sidebar to open the Test Plan module. Right-click **Reservation\_Test** in the test plan tree, and select **Copy**.

Right-click the **BPT\_Tutorial** folder in the tree and select **Paste**. A duplicate test name warning is displayed. Click **OK**. A copy of **Reservation\_Test**, named **Reservation\_Test\_Copy\_1**, is pasted in the test plan tree.

### 2 Rename the new test.

Right-click the new test and select **Rename**. Enter **Reservation\_Test\_with\_Flow** as the name of the test and click on another location to save the new name.

## Step 2: Create Two New Components

In this step, you create two new components that open and update a selected order. The new components are both based on the existing **Update Order** business component.

### 1 Copy **Update Order** and paste it twice into the component tree.



Click the **Business Components** module button in the sidebar. The Business Components module opens.

Right-click the **Update Order** component in the component tree and select **Copy**.

Right-click the **BPT\_Tutorial** folder in the tree and select **Paste**. A duplicate name warning is displayed. Click **OK**. A copy of **Update Order**, named **Update Order\_Copy\_1**, is pasted in the component tree.

Right-click the **BPT\_Tutorial** folder and select **Paste** again. A duplicate name warning is displayed. Click **OK**. Another copy of **Update Order**, named **Update Order\_Copy\_2**, is pasted in the component tree.

## 2 Rename the new components.

Right-click the first new component and select **Rename**. Enter **Open Order** as the name of the component and click on another location to save the new name.

Right-click the second new component and select **Rename**. Enter **Update Open Order** as the name of the component and click on another location to save the new name.

## 3 Delete the steps not required by the Open Order component.

Open the Automation tab of the **Open Order** component. The last three steps are not required in this component.



Select the last three steps and click the **Delete Step** button in the toolbar. A warning message is displayed. Click **Yes**.



Click the **Save** button in the Automation tab toolbar to save the **Open Order** component.

## 4 Delete the steps not required by the Update Open Order component.

Open the Automation tab of the **Update Open Order** component. The last three steps are the only steps required in this component.



Select all the steps before the **Flight Reservation Dialog.Activate** step and click the **Delete Step** button in the toolbar. A warning message is displayed. Click **Yes**.



Click the **Save** button in the Automation tab toolbar to save the **Update Open Order** component.

### Step 3: Create a New Flow

You build the structure of your flow by selecting the business components you created and adding them to the flow. You then configure their run settings, and define what the flow will do if one or more of the components fail.

In this step, you create a new flow in the test plan tree of the Test Plan module.

#### 1 Open the Test Plan module.



Click the **Test Plan** module button in the Quality Center sidebar. The Test Plan module opens.

#### 2 Add a new flow to the BPT\_Tutorial folder.



Ensure that **BPT\_Tutorial** is selected in the test plan tree. Click the **New Test** button in the toolbar above the tree. The Create New Test dialog box opens.

From the **Test Type** list, select **FLOW**. (Quality Center treats a flow as a type of test.)

The screenshot shows a dialog box titled "Create New Test". It has three input fields: "Test Type" with a dropdown menu showing "FLOW", "Test Name" with an empty text box, and "Template" with a dropdown menu showing "<None>". At the bottom, there are three buttons: "OK", "Cancel", and "Help".

In the **Test Name** box, enter FLOW\_Update\_Order.

Click **OK**.

---

**Note:** If the project administrator defined required fields in Project Customization in Quality Center, the Required Test Fields dialog box opens. Select any value for each of the displayed fields.

---

The new flow is added to the **BPT\_Tutorial** folder in the test plan tree. In the same way as for tests, the flow tabs are displayed on the right of the Quality Center window.

### 3 Add a flow description.

The Details tab contains both required and optional fields, as well as the **Description** and **Comments** tabs.

In the **Description** tab, enter a description for the flow. For example: This flow opens an existing order in the Flight Reservations application and updates some of its details.

### 4 Display the available components in the Test Script Tab.

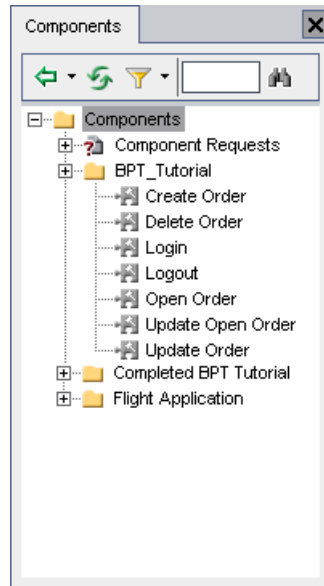
Select **FLOW\_Update\_Order** in the test plan tree. The flow tabs are displayed.

Click the **Test Script** tab. This tab comprises two panes: the Test pane on the left of the tab, and the Components tab on the right. The Components tab contains the available business components in a tree hierarchy.


Ensure that the Components tab is displayed. If it is not displayed, click the **Select Component** button in the Test pane toolbar.



In the tree in the Components tab, expand the **BPT\_Tutorial** folder that contains the components you created.




---

**Tip:** To expand a folder in the component tree, click the **Expand** symbol  to the left of the folder name or double-click the folder.

---

## 5 Add components to the flow.

Drag the **Open Order** component from the component tree and drop it in the Test pane. The Promote Parameters dialog box opens. Select the **Promote all parameters to the flow level** radio button and click **OK**.

Drag the **Update Open Order** component from the component tree and drop it below the **Open Order** component. The Promote Parameters dialog box opens. Ensure that the **Promote all parameters to the flow level** radio button is selected and click **OK**.

## 6 Close the Components and Flows pane.



You have added both the required components to your flow.

Click the **Close** button in the Components and Flows pane toolbar.

## 7 Define Failure Conditions.

For each component, define the condition that instructs your flow to stop running if the component fails.



In the Test pane of the Test Script tab, click in the **On Failure** column for each component. A down arrow is displayed. (You may have to scroll to the right or resize your columns to view this column.) Click the down arrow and select **Exit** from the list. This defines that your flow will end if the component fails.

---

**Note:** By default, **Continue** is defined for each business component when it is added to a flow. This means that the flow will run the next component even if the specific component fails.

---

## 8 Save the flow.



Click the **Save** button in the tab toolbar to save your new flow.

# Step 4: Build your Business Process Test

You build the structure of your business process test by selecting available flows and business components and adding them to the test.

## 1 Display the available flows and components in the Test Script Tab.

The flows and components you created are available for use in the Test Plan module.

All flows in the Test Plan module, and all business components in the Business Components module, created by you or by others, are available for use. This means that flows and components can be used in multiple tests. For example, the **Login** component you created could be used in any test or flow that opens the Mercury Flight Reservations application.

Select **Reservation\_Test\_with\_Flow** in the test plan tree. The test tabs are displayed.

Click the **Test Script** tab.



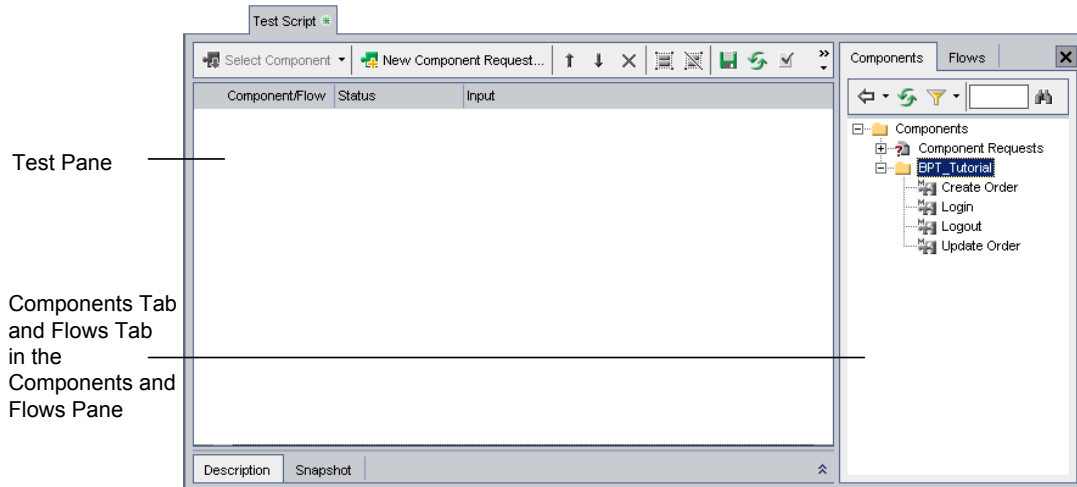
Ensure that the Components and Flows pane is displayed. If it is not displayed, click the **Select Component** button in the Test pane toolbar to open the pane with the Components tab displayed. You can also click the down arrow next to the **Select Component** button and select **Select Flow** to open the Flow tab.

The Components and Flows tab comprises two panes: the Test pane on the left of the tab, and the Components and Flows pane on the right.


- The Test pane currently shows the same components that were included in **Reservation\_Test**.
- The Components and Flows pane contains the available components and flows in separate tree hierarchies.

In this section, you will replace the **Update Order** component with the flow that contains the new **Open Order** and **Update Open Order** components.

In the tree in the Components tab, expand the **BPT\_Tutorial** folder that contains the components you created.



---

**Tip:** To expand a folder in the component tree, click the **Expand** symbol  to the left of the folder name or double-click the folder.

---

## 2 Delete the component not required by this test.

The **Update Order** component is not required in the **Reservation\_Test\_with\_Flow** test.

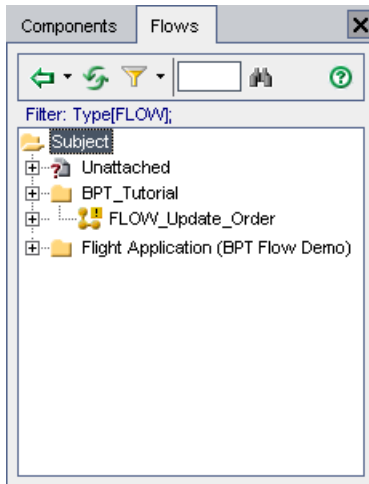


Select the **Update Order** component and click the **Remove Selected Components from Test** button in the toolbar. A warning message is displayed. Click **Yes**.

## 3 Add the new flow to the test.

Open the Flows tab.

In the tree in the Flows tab, expand the **BPT\_Tutorial** folder that contains the flow you created.



Drag the **FLOW\_Update\_Order** flow from the tree and drop it in the Test pane below the **Logout** component. The Promote Parameters dialog box opens. Ensure that the **Promote all parameters to the test level** radio button is selected and click **OK**.



#### 4 Close the Components and Flows pane.

Click the **Close** button in the Components and Flows pane toolbar.

#### 5 Arrange the selected flow and components into a logical testing sequence.

Use the **Move Up** and **Move Down** buttons in the toolbar to arrange the flow and components in the test. The Test pane should look as follows:

	Component/Flow	Status	Input	Output
1	Login	Under Development		
2	Create Order	Under Development	3 Component Iterations Destination	Order_No_Out
3	FLOW_Update_Order	Maintenance	Open Order Iteration 1 Order_Number_In: {Order_Number_In} Update Open Order Iteration 1 Order_Number_In_1: {Order_Number_In_1}	
4	Delete Order	Under Development	3 Component Iterations Order_Number_In	
5	Logout	Under Development		

#### 6 Set the flow to iterate for each of the created components.

In the Test pane, right-click the flow and select **Iterations**. The Flow Iterations dialog box opens.

Click the **Add Iteration** button in the toolbar twice. Two additional iteration rows are added to the Flow Iterations dialog box. The parameter value from the previous row is automatically duplicated in the new rows.

#### 7 Use data from a previous component as the input for this parameter.

Select the **Output of previous component** check box. The Select Output Parameter dialog box opens. Only one output parameter has been defined in previous components in the test so it is automatically selected.

Click **OK** in the Select Output Parameter dialog box and in the Flow Iterations dialog box.

The Test pane should look as follows:

	Component/Flow	Status	Input	Output
1	Login	Under Development		
2	Create Order	Under Development	<a href="#">3 Component iterations</a> Destination	Order_No_Out
3	FLOW_Update_Order	Maintenance	<a href="#">3 Component iterations</a> Open Order Iteration 1 Order_Number_In Update Open Order Iteration 1 Order_Number_In_1	
4	Delete Order	Under Development	<a href="#">3 Component iterations</a> Order_Number_In	
5	Logout	Under Development		

8 Save the Business Process Test.



Click the **Save** button in the tab toolbar to save your new business process test.

9 Run the test to confirm that the components run successfully.



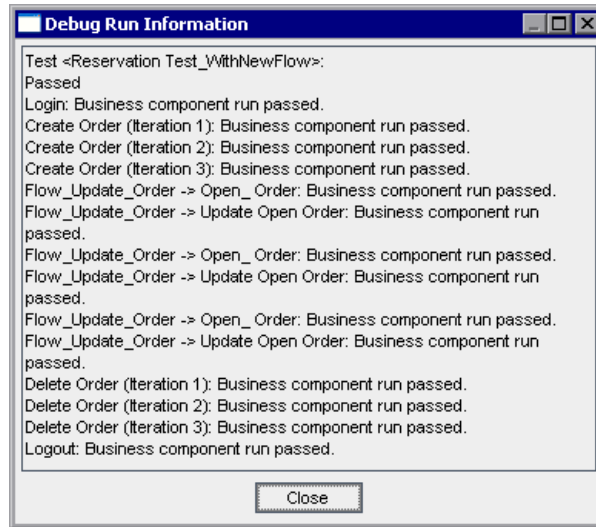
Click the **Run or Debug Test** button in the toolbar.

The Run or Debug Test dialog box opens. Click the **Normal** button under **Set all test to:** so that all components, including those in the flow, will run in **Normal** mode. Click **OK** to close the Run or Debug Test dialog box and run the business process test.

## 10 View the test results.

When the run is complete, the last component in the test (**Logout**) remains open in QuickTest. Display Quality Center by clicking the Microsoft Internet Explorer icon in the task bar.

Review the summary information of the test and the component iterations in the Debug Run Information dialog box.



Click **Close** to complete the test run.

Now that you created and debugged your business process test, you can proceed to Lesson 8, "Running Business Process Tests." In this lesson, you will learn how to select iterations to run and how to create run-time input parameter values, set test iterations, run business process tests in test sets, and view test results in the Test Lab module of Quality Center.

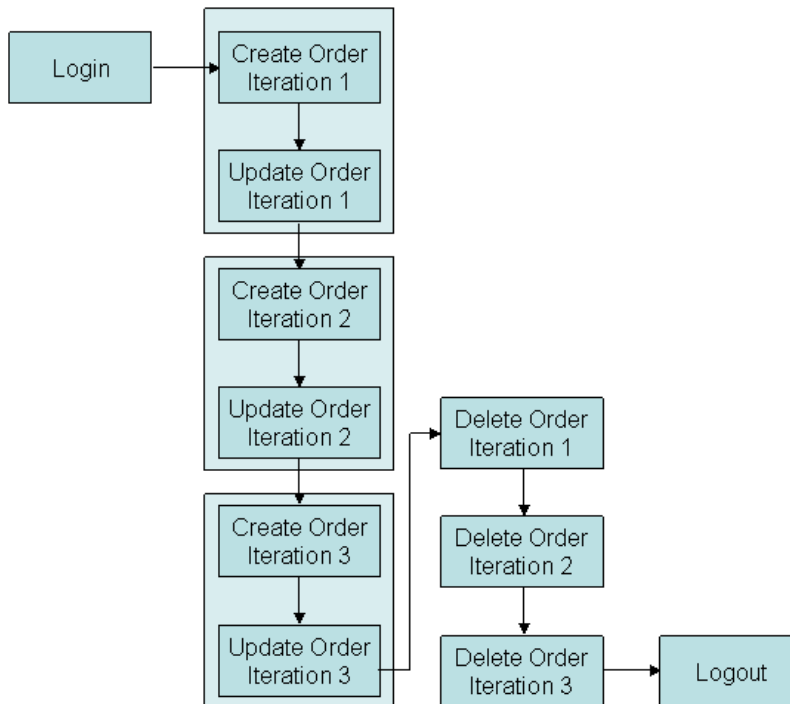
Alternatively, you can first proceed to the next section to learn about combining components into a group within a business process test. Groups provide another level of granularity in Business Process Testing and can also be iterated within a test. However, they are not reusable in other business process tests and are not shown in the test tree in the Test Plan module.

## Grouping Components

Quality Center also enables you to combine two or more business components in a test and then iterate them as a group.

In this section, you group the **Create Order** and **Update Order** components in a new test based on the saved **Reservation\_Test**. After opening the Flight Reservations application and logging in, the **Create Order** component creates an order to the first destination city, and the **Update Order** component updates the class. New orders are then created and updated for the second and third destinations. The business process test then deletes these orders (to return the flight reservation database to its previous status) and closes the application.

The process is illustrated as follows:



You can use the saved **Reservation\_Test** to create a new business process test.



**1 Copy Reservation\_Test and paste it into the test plan tree.**

Click the **Test Plan** module button in the sidebar to open the Test Plan module. Right-click **Reservation\_Test** in the test plan tree, and select **Copy**.

Right-click the **BPT\_Tutorial** folder in the tree and select **Paste**. A duplicate test name warning is displayed. Click **OK**. A copy of **Reservation\_Test**, named **Reservation\_Test\_Copy\_1**, is pasted in the test plan tree.

**2 Rename the new test.**

Right-click the new test and select **Rename**. Enter **Reservation\_Test\_with\_Group** as the name of the test and click on another location to save the new name.

**3 Display the components in the test.**

Ensure that the **Reservation\_Test\_with\_Group** business process test is selected in the test plan tree, and the **Test Script** tab is displayed.

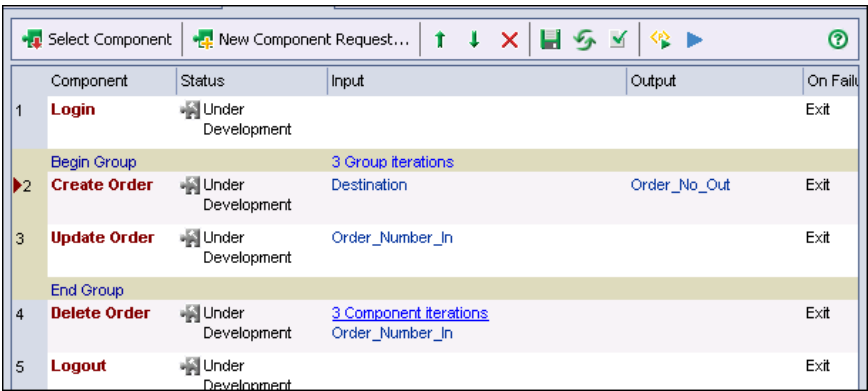
**4 Group selected components.**

In the Test Script tab, select both the **Create Order** and **Update Order** components.

You can select multiple components using standard Windows selection techniques (using the left mouse button and SHIFT key).

Click to the left of the **Create Order** component row. Ensure that the entire row is selected (the whole row should be highlighted). Hold down the SHIFT key and select the **Update Order** component. Both component rows are highlighted.

Right-click and select **Component Grouping > Group Components/Flows** from the context menu. The group is created as indicated by the border around the selected components.



The screenshot shows a dialog box titled "Component Grouping" with a toolbar at the top containing icons for "Select Component", "New Component Request...", and various navigation and action buttons. Below the toolbar is a table with the following columns: Component, Status, Input, Output, and On Fail.

Component	Status	Input	Output	On Fail
1 Login	Under Development			Exit
<b>Begin Group</b> 3 Group iterations				
2 Create Order	Under Development	Destination	Order_No_Out	Exit
3 Update Order	Under Development	Order_Number_In		Exit
<b>End Group</b>				
4 Delete Order	Under Development	3 Component iterations Order_Number_In		Exit
5 Logout	Under Development			Exit

**5 View the iteration settings.**

Click the group iterations link in the group border to open the Group Iterations dialog box and view the iteration settings. Note that both the **Destination** and **Order\_Number\_In** parameters are displayed in the same dialog box and they retain the configuration settings you assigned in the previous sections of this lesson. Click **OK** to close the dialog box.

**6 Save the changes.**



Click the **Save** button on the tab toolbar.

**7 Run the components to confirm that the test runs successfully.**



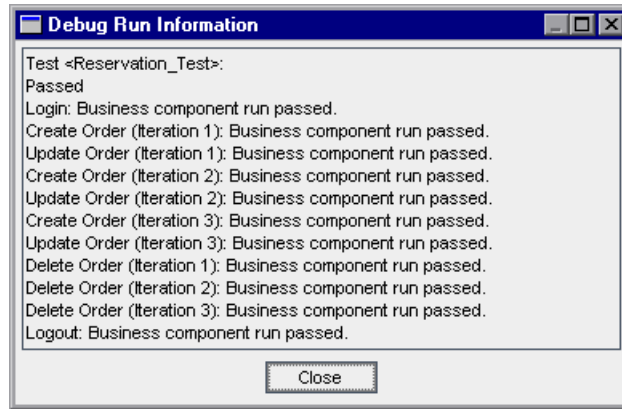
Click the **Run or Debug Test** button in the toolbar.

The Run or Debug Test dialog box opens. Click the **Normal** button under **Set all test to:** so that all components will run in **Normal** mode. Click **OK** to close the Run or Debug Test dialog box and run the business process test.

## 8 View the test results.

When the run is complete, the last component in the test (**Logout**) remains open in QuickTest. Display Quality Center by clicking the Microsoft Internet Explorer icon in the task bar.

Review the summary information of the test and the component iterations in the Debug Run Information dialog box.



Note that the order of the iteration runs for the **Create Order**, **Update Order** and **Delete Order** components differs from the previous run without the grouping: 1-1, 2-2, 3-3, 1-2-3.

Click **Close** to complete the test run.

You can now proceed to Lesson 8, "Running Business Process Tests." In this lesson, you will learn how to select iterations to run and how to create run-time input parameter values, set test iterations, run business process tests in test sets, and view test results in the Test Lab module of Quality Center.



# 8

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## Running Business Process Tests

This lesson teaches you how to select component iterations to run, how to create run-time input parameter values, and how to set test iterations.

You use run-time parameters to provide values for business components when your business process test runs. This enables you to iterate entire tests using variable input values that can provide differing test results.

This lesson also describes how to view detailed reports showing the results of the business process test when the run is complete. In contrast with the simple pass or fail-type results provided with debug runs, these results include details on the configuration of each business component, the actual value of each component parameter used in the test, and the results of individual steps. This enables you to identify failed steps, or determine whether the results of your test were as expected.

### **In this lesson, you will learn about:**

- Selecting Iterations to Run on page 126
- Creating a Run-Time Parameter on page 129
- Setting Up a Business Process Test in the Test Lab Module on page 133
- Running the Business Process Test in the Test Lab Module on page 136
- Viewing Run Results on page 139

This lesson focuses specifically on setting up and running business process tests in test sets in the Test Lab module. For general information about working with the Test Lab module, see the *HP Quality Center User Guide*.

## Selecting Iterations to Run

After you configure parameter values for a component, a flow of components, or a group of components, you can select to run only one iteration or a specific range of iterations. In this section, you define that only two of the three destination parameters you defined are input during the run (and as a result, only two order numbers are retrieved in the subsequent components).

### 1 Open the Test Plan module, if it is not already open.

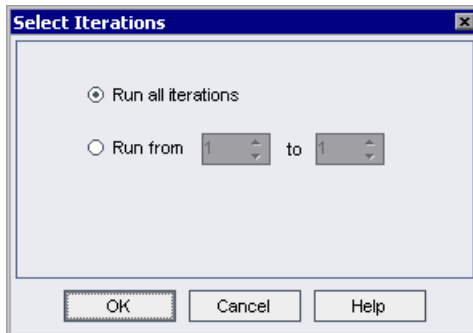


Click the **Test Plan** module button in the Quality Center sidebar. The Test Plan module opens.

### 2 Select iterations to run.

Select **Reservation\_Test\_with\_Flow** in the test plan tree. The test tabs are displayed.

In the Test Script tab, click the Iterations link for the **FLOW\_Update\_Order** flow in the **Input** column. The Flow Iterations dialog box opens. Click the **Select Iterations** button in the toolbar. The Select Iterations dialog box opens.



Select the **Run from** radio button. The **from** and **to** spin boxes are enabled.

Click the up arrow in the **to** box to change the iteration number to **2**. This specifies that only iterations 1 and 2 will run in the business process test.

Click **OK**.

The iteration that is not included in the range (Iteration #3) is grayed in the iteration list.

Flow <Flow\_Update\_Order> Iterations

Specify the parameter values that the business flow will use for each iteration during a business process test run. Alternatively, select the Output parameter check box to use an output parameter value from a previous business component or flow as input for this flow.

Add Iteration

Delete Iteration

Select Iterations

Import...

Export...

Selected for run	Order_Number_In (number)	Order_Number_In_1 (number)
	<input checked="" type="checkbox"/> Output of previous component	<input checked="" type="checkbox"/> Output of previous component
Iteration #1	[Create Order] Order_No_Out (Iteration 1)	[Create Order] Order_No_Out (Iteration 1)
Iteration #2	[Create Order] Order_No_Out (Iteration 2)	[Create Order] Order_No_Out (Iteration 2)
Iteration #3	[Create Order] Order_No_Out	[Create Order] Order_No_Out

Parameter description:

OK

Cancel

Help

Click **OK** in the Flow Iterations dialog box. The selected range is displayed in the Test Script tab together with the Iterations link for the flow.

	Component/Flow	Status	Input	Output	On Failure
▶1	Login	Ready			Exit
2	Create Order	Ready	<a href="#">3 Component iterations</a> Destination	Order_No_Out	Exit
3	Flow_Update_Order	Maintenance Iterations error	<a href="#">3 Component iterations (Selected for running 1 - 2)</a> Open_Order Iteration 1 Order_Number_In Update Open Order Iteration 1 Order_Number_In_1		Exit
4	Delete Order	Maintenance	<a href="#">3 Component iterations</a> Order_Number_In		Exit
5	Logout	Ready			Exit

### 3 Fix the iterations error.

When you selected the iterations to run for the flow, you instructed the test to update only two orders. However, the test is currently set to create and later delete three orders. You must change the **Create Order** and **Delete Order** iteration settings to match the flow iteration settings.

- Click the **Delete Order** iterations link. The Component Iterations dialog box opens.

Click the **Select Iterations** button in the toolbar. The Select Iterations dialog box opens.

Change the iteration settings. The total number of iterations must match for components whose parameters refer to previous components, but the specific iteration numbers you choose can be different. Select the **Run from** radio button. Click the up arrow in the **from** box to change the iteration number to **2**. Click the up arrow in the **to** box to change the iteration number to **3**. This specifies that only iterations 2 and 3 will run in the business process test.

Click **OK** to close the Select Iterations dialog box. Click **OK** to close the Component Iterations dialog box.

- Change the **Create Order** iteration settings in the same way as you changed the **Delete Order** settings. The selected ranges are displayed in the Test Script tab together with the Iterations links.

### 4 Save the changes.



Click the **Save** button on the Test Script tab toolbar.

### 5 Run the components.



Click the **Run or Debug Test** button in the toolbar.

The Run or Debug Test dialog box opens.

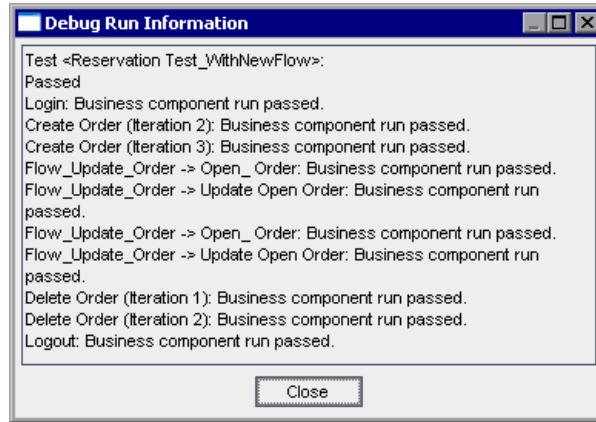
Click **OK** to close the Run or Debug Test dialog box and run the business process test.

### 6 View the results.

When the run is complete, display Quality Center.



Review the summary information of the test and the component iterations in the Debug Run Information dialog box.



Click **Close** to complete the test run.

## Creating a Run-Time Parameter

In this section, you define a run-time parameter for the **Agent Name** step in the **Login** component. Later, you will provide two input values for this run-time parameter to run two consecutive iterations of your business process test, each with a different agent name.

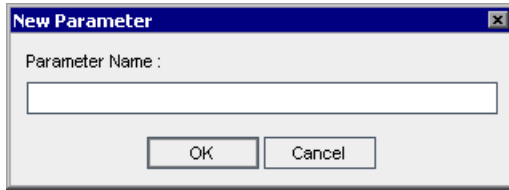
### 1 Create a new parameter for the Login component.



Click the **Business Components** module button in the sidebar. The Business Components module opens.

Select the **Login** component in the component tree, and click the **Parameters** tab.

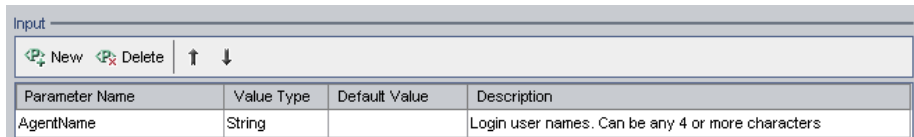
In the Input pane toolbar, click the **New Input Parameter** button. The New Parameter dialog box opens:



Enter **AgentName** in the **Parameter Name** box and click **OK**.

A line for the new input component parameter is added in the Input parameter list in the Parameters tab. **String** is entered automatically in the **Value Type** cell.

Leave the **Default Value** cell blank. In the **Description** cell, enter a description of the component parameter's purpose, or other descriptive text. For example: Login user names. Can be any 4 or more characters.


 A screenshot of the 'Input' pane. At the top, there is a toolbar with 'New' (green plus icon), 'Delete' (red minus icon), and up/down arrow icons. Below the toolbar is a table with four columns: 'Parameter Name', 'Value Type', 'Default Value', and 'Description'. The table contains one row with the following data:
 

Parameter Name	Value Type	Default Value	Description
AgentName	String		Login user names. Can be any 4 or more characters

## 2 Change the Agent name step from a fixed value to a component parameter.

Click the **Automation** tab.



In the **Agent Name** step, click in the **Value** cell. The **Configure the value** button is displayed. Click the button. The Value Configuration Options dialog box opens.



Click the **Parameter** radio button and ensure that **Component parameter** is selected. Click the down arrow next to the parameter name to display the description of the parameter you created in the previous step.

Click **OK**. The Value Configuration Options dialog box closes.

## 3 Save the changes to your component.



Click the **Save** button in the Automation tab toolbar.

#### 4 Define the parameter as a run-time parameter.



Click the **Test Plan** module button in the sidebar to open the Test Plan module.



Click the **Test Script** tab for the **Reservation\_Test\_with\_Flow** business process test. The new input parameter you created, and a link, are displayed in the **Input** column of the **Login** component. (If the link is not visible, click the **Refresh** button.)

	Component/Flow	Status	Input	Output	On Failure
1	Login	Ready	AgentName: <a href="#">__</a>		Exit

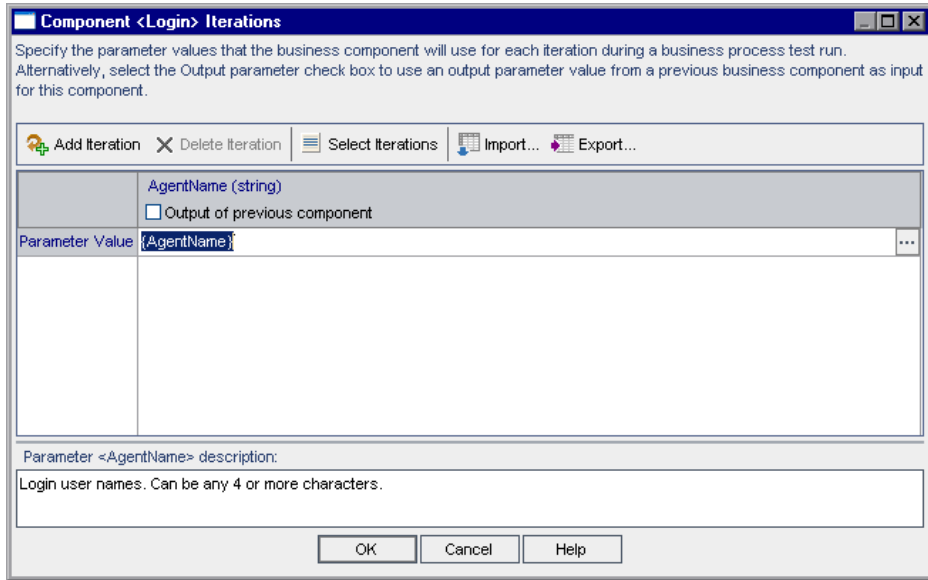
The input parameter link is blank because no value is defined for it yet. Click the input parameter link in the **Input** column. The Component Iterations dialog box opens.

Click in the cell to the right of the **Parameter Value** cell and then click . The Set String Value dialog box opens.

Select the **Run-time parameter** radio button. Then click the **Add Run-Time Parameter** button. The New Run-Time Parameter dialog box opens.

Enter a descriptive name for the run-time parameter, for example, **AgentName**, and click **OK**. The run-time parameter name you entered is displayed in the Set String Value dialog box between **{ }** brackets. Click **OK**.

The run-time parameter name you entered is displayed in the Component Iterations dialog box between { } brackets.



Make sure that the { } brackets are not deleted, as they instruct Quality Center to treat the component parameter as a run-time parameter and not as a fixed value.

##### 5 Close the Component Iterations dialog box.

Click **OK**. The new run-time parameter name for the **Login** component is displayed in the Test Script tab between { } brackets.

## Setting Up a Business Process Test in the Test Lab Module

In the Test Lab module, you create test sets and choose which business process tests to include in each set. In this lesson, you create the test set that contains the single business process test you created in Test Plan. You then define iterations for the test.

Setting up a business process test requires the following steps:

- Creating a Test Set in a Folder
- Adding a Test to your Test Set
- Defining Iterations for the Business Process Test

### Creating a Test Set in a Folder

In this section, you create a new folder containing a test set.

#### 1 Open Test Lab and display the test sets tree.



Click the **Test Lab** module button in the sidebar to open the Test Lab module.

If the Test Lab tree view is not already displayed, select **View > Test Sets Tree**.

#### 2 Define a new test folder.

In the test sets tree, select the **Root** folder.



Click the **New Folder** button in the toolbar. The New Folder dialog box opens.

Enter **BPT\_Tutorial** and click **OK**. The new folder appears under **Root** in the test sets tree.

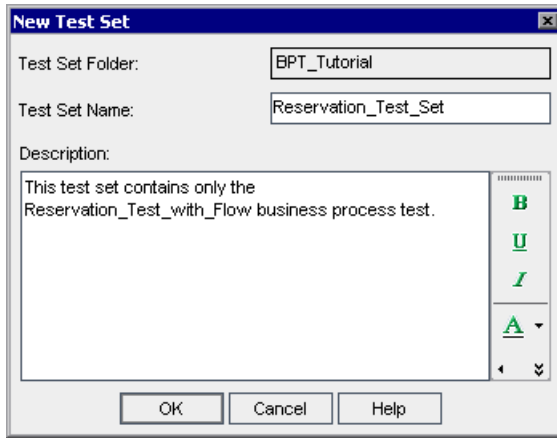
### 3 Add a test set to your folder.



Ensure that the new folder is selected in the test sets tree, and click the **New Test Set** button in the toolbar. The New Test Set dialog box opens.

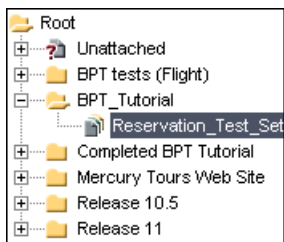
In the **Test Set Name** box, enter Reservation\_Test\_Set.

In the **Description** box, enter a description of the test set, for example, This test set contains only the Reservation\_Test business process test.



Click **OK**.

**Reservation\_Test\_Set** is added to the **BPT\_Tutorial** test set folder in the test sets tree.



## Adding a Test to your Test Set

After you define a test set, you can add your business process test to it.

### 1 Display the test plan tree.

Select **Reservation\_Test\_Set** in the test sets tree.

If the Test Plan tab is not currently displayed on the right side of the screen, click the **Select Tests** button in the Execution Grid tab toolbar. The Test Plan Tree tab in the right pane displays the tree from the Test Plan module.

### 2 Add your test to the test set.

In the test plan tree, expand the **BPT\_Tutorial** folder and select **Reservation\_Test\_with\_Flow**.

Double-click or drag to add the test to the Execution Grid.



Click the **Close** button to close the Test Plan Tree pane.

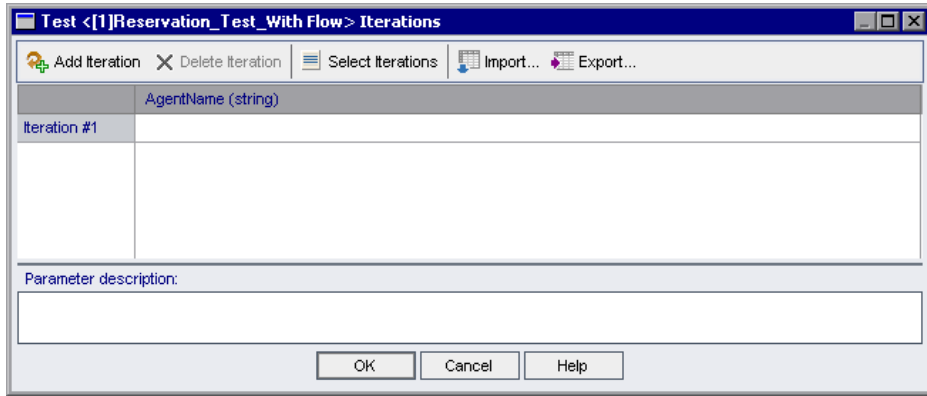
## Defining Iterations for the Business Process Test

In this section, you configure the business process test to run iterations according to the run-time parameter values that you define.

### 1 Select the **Reservation\_Test** test set in the test sets tree. The business process test that comprises the test set is displayed in the Execution Grid tab.

Execution Grid   Execution Flow   Test Set Properties   Linked Defects						
	Plan: Test Name	Plan: Type	Status	Iterations	Responsible Tester	Exec Date
	[1]Reservation_Test_With Flow	BUSINESS-PROCESS	No Run	Undefined		

- 2 Right-click **Reservation\_Test\_with\_Flow** in the tab and select **Iterations**. The Test Iterations dialog box opens.



In the Test Iterations dialog box, click the **Add Iteration** button. An additional iteration row is added.

In the AgentName Iteration cells, enter a name for each agent, for example **AgentOne**, and **AgentTwo**. This instructs the business process test to log into the Flight Reservations application twice, using a different login name in each iteration of the test.

Click **OK** to close the Test Iterations dialog box.

## Running the Business Process Test in the Test Lab Module

You can now run the business process test.

### 1 Reset the Exit conditions for all components.

In Lesson 7, "Working with Parameters," you temporarily set all components to exit on failure while you debugged your test. Now that your test runs smoothly, you are ready to run your test to test new builds of your application. You can reset the exit conditions so that they exit the test run only if it does not make sense to continue the run after such a failure.





Click the **Test Plan** module button in the sidebar to open the Test Plan module, and click the **Test Script** tab, if it is not currently displayed. Select **Continue** for the **Update Order** flow and for the **Delete Order** and **Logout** components. Since the **Update Order** flow, **Delete Order**, and **Logout** components are dependent on the success of the **Login** and **Create Order** components, keep the **Exit** condition for these components.

## 2 Save the changes.



Click the **Save** button on the tab toolbar.

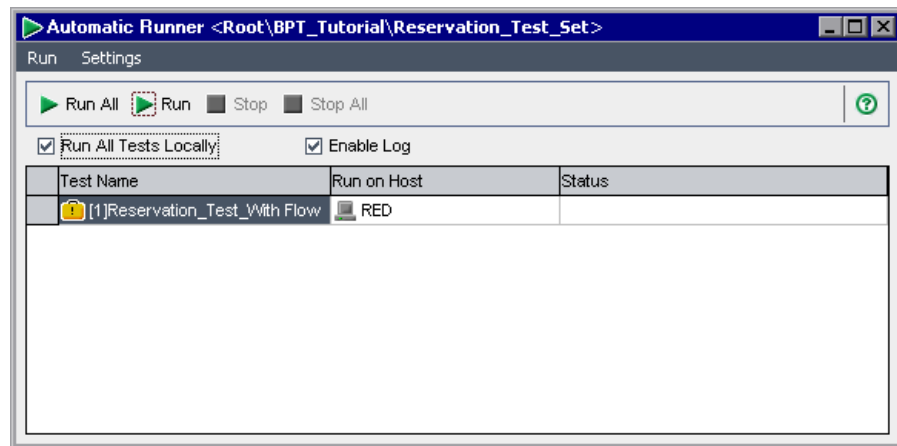
## 3 Define the test execution details.



Click the **Test Lab** module button in the sidebar to open the Test Lab module.

Select the business process test in the Execution Grid and click the **Run** button in the tab toolbar.

The Automatic Runner dialog box opens.



Ensure that the **Run All Tests Locally** check box is selected. This runs the business process test using QuickTest Professional on your local computer. (If you want to run the test on a different host computer, clear the **Run All Tests Locally** check box and, in the **Run on Host** cell, enter a valid host name that has QuickTest Professional 10.00 installed.)

Ensure that the **Enable Log** check box is selected. This enables QuickTest to record an execution log of the test run.

**4 Run the test.**

Select the **Reservation\_Test\_with\_Flow** business process test in the dialog box and click the **Run** button in the toolbar.

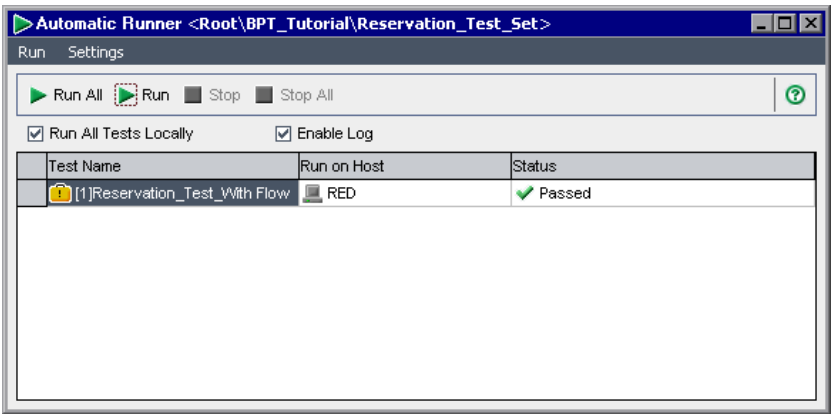
QuickTest Professional opens and runs the business process test in the test set.

From your task bar, you can toggle between the Test Lab module, QuickTest, and the Flight Reservations application.

- The status of the test run, for example, **Connecting**, or **Running**, is shown in the **Status** column of the Automatic Runner dialog box.
- The status of the test run is shown in QuickTest Professional in the status bar at the bottom of the QuickTest window.

After the **Logout** component closes the Mercury Flight Reservations application and the test run ends, display the Test Lab module in Quality Center.

The overall result of the run is shown in the **Status** column of the Automatic Runner dialog box.



After you run a business process test from the Test Lab module, you can view detailed results, as described in the next section.

## Viewing Run Results

You can view the results of your business process test in various formats. This section describes the following:

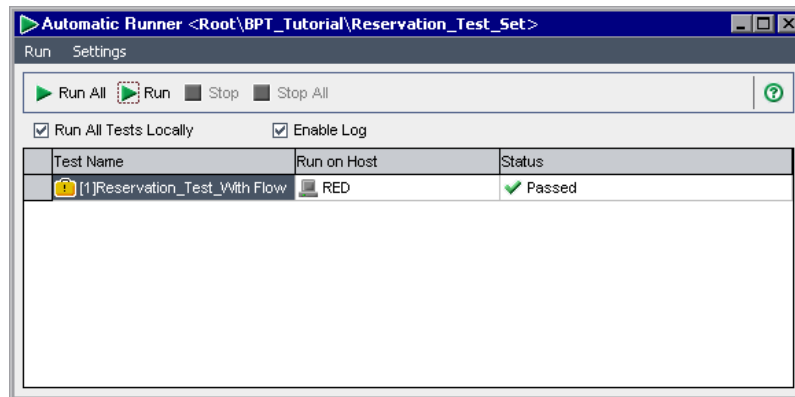
- Viewing the Execution Log
- Viewing Last Run Results in the Test Lab Module
- Viewing the QuickTest Report

### Viewing the Execution Log

The Execution Log provides a log of the business process test (or tests) run in a test set. The log includes the date and time that each test was run, the host on which it was run, and the results of the tests.

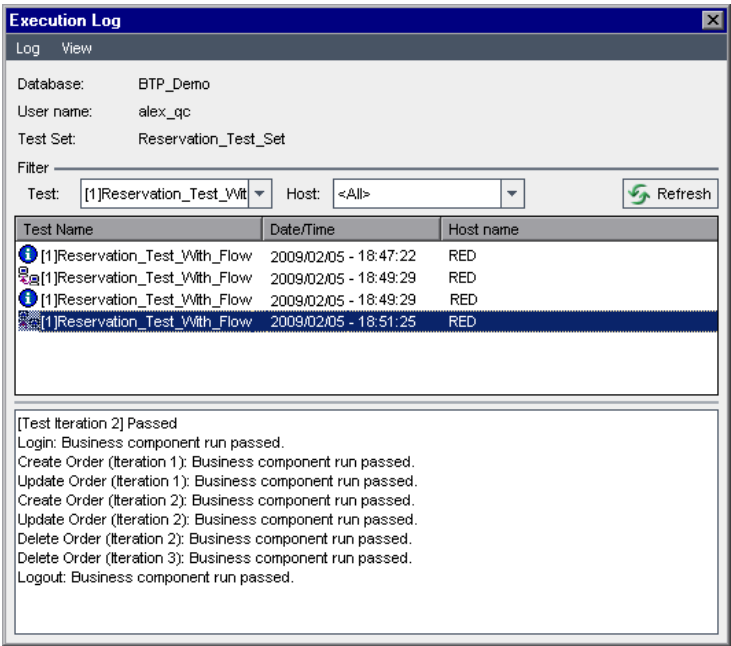
#### 1 Open the Execution Log.

After the test run is complete, the Automatic Runner dialog box displays the Pass or Fail status of the test run.



Double-click in the dialog box.

The Execution Log window opens and displays the results of the test run.



The box in the middle of the window lists the different operations in the business process test, such as the connection to the host, or the results of each test iteration.

Select each line in turn. The results are displayed in the box at the bottom of the Execution Log window.

**2 Close the Automatic Runner dialog box.**



In the Execution Log dialog box, select **Log > Exit** or click the **Close** button to return to the Automatic Runner dialog box.



In the Automatic Runner dialog box, select **Run > Exit** or click the **Close** button to return to the Test Lab window.

## Viewing Last Run Results in the Test Lab Module

You view the results of the latest business process test run in the Test Lab module in the Last Run Result pane at the bottom of the Execution Grid. The pane displays a hierarchical tree of each business component and step contained in the business process test, and the result obtained when the step ran, that is, **Passed**, or **Failed**. The run date and time are also shown.

If one or more steps within a component receive a **Failed** result, the component itself displays a **Failed** status.

### 1 Display the results of the last test run.



Ensure that the Last Run Result pane is displayed at the bottom of the Execution Grid tab. If the Last Run Result pane is not visible, click the **Show** button at the bottom-right of the Execution Grid tab.

When the Last Run Result pane is first accessed, the tree displays only the iterations in the business process test.

### 2 View the run results.

Click the **Expand** symbol to the left of each iteration to view the result of each component.

Last Run Result			
Name	Status	Exec Date	Description:
Test Iteration 1	Passed	12/25/2005	Expected:
Test Iteration 2	Passed	12/25/2005	Actual:
Login	Passed	12/25/2005	Parameters:
Create Order (iteration 1)	Passed	12/25/2005	Input
Update Order (iteration 1)	Passed	12/25/2005	Destination = Seattle
Create Order (iteration 2)	Passed	12/25/2005	Output
Update Order (iteration 2)	Passed	12/25/2005	Order_No_Out = 42
Delete Order (iteration 2)	Passed	12/25/2005	
Delete Order (iteration 3)	Passed	12/25/2005	
Logout	Passed	12/25/2005	

Then expand each component to view the main events in that component. Select each of the items in the pane in turn to view a description of relevant information in the **Description** area.

## Viewing the QuickTest Report

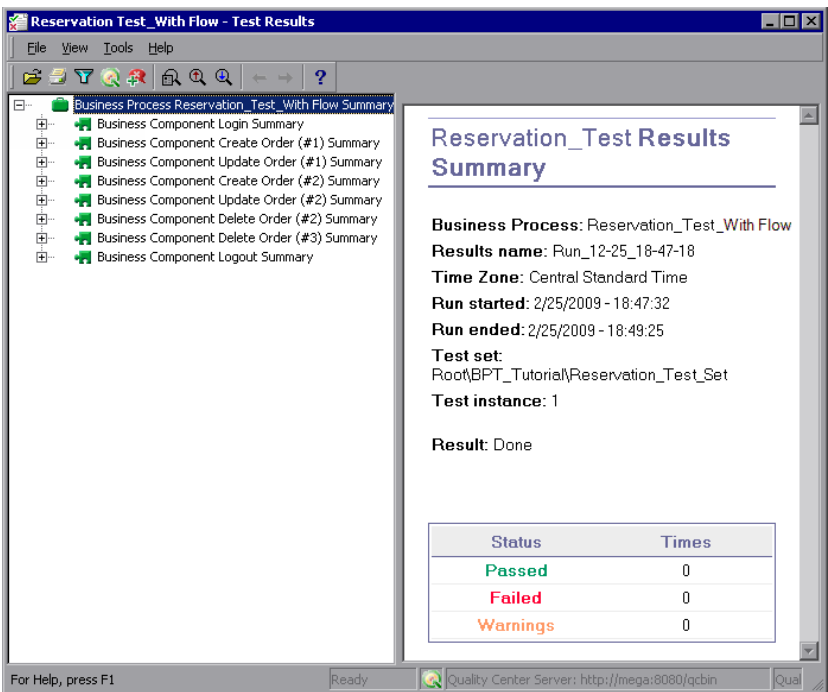
You can view a full QuickTest report of a business process test run from the Test Lab module. This hierarchical report contains details on all the steps for all the different iterations and business components within the test run.

### 1 Open the Test Results window.

Open the **Last Run Result** pane at the bottom of the Execution Grid tab, as described in “Viewing Last Run Results in the Test Lab Module” on page 141.

Click the **Passed** link in the **Status** column next to **Test Iteration 1**.

The QuickTest Test Results window opens.



The Test Results window displays a graphical representation of the result of each step in the business process test.

**2 View detailed results for selected steps.**

In the Test Results window, select **View > Expand All** and then select nodes in the tree to view the details of how the steps performed in the test.

**3 View the results for Test Iteration 2.**

Close the QuickTest Test Results window for Test Iteration 1. In the **Last Run Result** pane, click the **Passed** link in the **Status** column next to **Test Iteration 2**. The QuickTest Test Results window for Test Iteration 2 opens.

Expand the nodes in the tree to view the details of how the steps performed in the test.

For more information about viewing and analyzing test results, select **Help** in the Test Results window, or see the *HP QuickTest Professional User Guide*.





# 9

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## Where Do You Go from Here?

Now that you completed the lessons in this tutorial, you are ready to apply the Business Process Testing concepts and skills you have learned to your applications.

### **In this lesson, you will learn about:**

- Getting Started on page 145
- Documentation Library on page 146
- Additional Online Resources on page 149

## **Getting Started**

In this tutorial, you learned the basic workflow for creating automated keyword-driven components and business process tests in Quality Center as a Subject Matter Expert.

### **Setting up Application Areas**

This tutorial provided you with a ready-to-use application area containing an object repository and other required resources.

Good application areas are one of the main keys to successful keyword-driven business process testing. To test your own applications, you should work closely with an Automation Engineer to set up one or more application areas that fit the needs of your applications and testing requirements. You can coordinate with the Automation Engineer to ensure that the object names in the object repository and the function names in the library files are names that will be easy for you to identify when you select items and operations from the Quality Center keyword view.

## Learning About Other Features

This tutorial touched on many of the mainstream Business Process Testing features, but before you go forward with creating tests on your own applications, you may want to familiarize yourself with additional features, including:

- Running business process tests manually
- Adding snapshots to components
- Viewing component Used-by lists
- Understanding component and test statuses
- Validating business process tests
- Using the Document Generator to generate information about your components and business process tests
- Working with WinRunner components
- And more....

HP provides many resources to help you learn about these and other Quality Center and Business Process Testing features, as described in the next sections.

## Documentation Library

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

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

## Documentation Library Guides

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

**Getting Started** explains how to use the Documentation Library and how it is organized. (Available online.)

**What's New?** describes the newest features in the latest version of Quality Center. (Available online and in PDF format.)

You can also access **What's New?** from the Quality Center **Help** menu. In addition, you can select **Help > Product Feature Movies** to view short movies that demonstrate the main product features.

**Readme** provides last-minute news and information about Quality Center.

## Quality Center Guides

**HP Quality Center User Guide** explains how to use Quality Center to organize and execute all phases of the application life cycle management process. It describes how to specify releases, define requirements, plan tests, run tests, and track defects. (Available online and in PDF format.)

**HP Quality Center Administrator Guide** explains how to create and maintain projects using Site Administration, and how to customize projects using Project Customization. (Available online and in PDF format.)

**HP Quality Center Tutorial** is a self-paced guide teaching you how to use Quality Center to manage the application life cycle management process. (Available in PDF format.)

**HP Quality Center Installation Guide** explains how to install Quality Center on a server machine in a cluster environment or as a standalone application. (Available in PDF format.)

**HP Quality Center Upgrade Preparation Guide** explains how to detect and repair problems before beginning a project upgrade. (Available in PDF format.)

**HP Quality Center Database Best Practices Guide** provides best practices for deploying Quality Center on database servers. (Available in PDF format.)

## **Business Process Testing Guides**

**HP Business Process Testing User Guide** explains how to use Business Process Testing to create business process tests. (Available online and in PDF format.)

**HP Business Process Testing Tutorial** provides a self-paced guide that teaches you the basics of Business Process Testing in the Quality Center application. (Available in PDF format.)

## **API References**

**HP Quality Center Database Reference** provides a complete online reference for the project database tables and fields. (Available online.)

**HP Quality Center Open Test Architecture API Reference** provides a complete online reference for the Quality Center COM-based API. You can use the Quality Center open test architecture to integrate your own configuration management, defect tracking, and home-grown testing tools with a Quality Center project. (Available online.)

**HP Quality Center Site Administration API Reference** provides a complete online reference for the Site Administration COM-based API. You can use the Site Administration API to enable your application to organize, manage, and maintain Quality Center users, projects, domains, connections, and site configuration parameters. (Available online.)

**HP Quality Center Entity Dependencies API Reference** provides an online reference for managing relations between Quality Center entities. The reference covers a subset of the Quality Center COM-based API and a subset of the data tables used when managing relations. You can use this reference to integrate testing tools with Quality Center. (Available online.)

**HP Quality Center Custom Test Type Guide** provides a complete online guide for creating your own testing tool and integrating it into the Quality Center environment. (Available online.)

## Additional Online Resources

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

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

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

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

To find more information about access levels, go to:  
[http://h20230.www2.hp.com/new\\_access\\_levels.jsp](http://h20230.www2.hp.com/new_access_levels.jsp)

To register for an HP Passport user ID, go to:  
<http://h20229.www2.hp.com/passport-registration.html>

**HP Software Web site** accesses the HP Software Web site. This site provides you with the most up-to-date information on HP Software products. This includes new software releases, seminars and trade shows, customer support, and more. Choose **Help > HP Software Web site**. The URL for this Web site is [www.hp.com/go/software](http://www.hp.com/go/software).

**Add-ins Page** opens the HP Quality Center Add-ins Page, which offers integration and synchronization solutions with HP and third-party tools. For more information, refer to the *HP Quality Center Installation Guide*.





