
HP Business Process Testing 11.00

Lab Exercises

Overview

HP Business Process Testing (BPT) provides a framework that lets test design begin much earlier in the application development cycle. BPT's framework lets testers easily design reusable business components that can be assembled into multiple test flows. The use of components dramatically reduces test creation and maintenance effort. Once the test is designed, it can be run manually, even before the application's user interface is complete. As the application becomes available, test automation engineers can automate the business components, effectively turning the business process tests into an automated tests.

As customers have come to expect, BPT 11 leverages the new capabilities in ALM 11 such as the new user interface and the new data awareness features that utilize test configurations. One capability unique to BPT 11 is establishing test coverage of requirements by selected component criteria.

In this exercise, you will explore the updated BPT 11 interface and practice using the key new features of the product. You will:

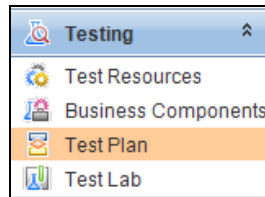
- Set up test parameters for a business process test
- Create a dynamic and a static test configuration
- Create a test set to run a specific test configurations
- Establish test coverage for a requirement using your business process test based on component criteria

Set up test parameters for a business process test

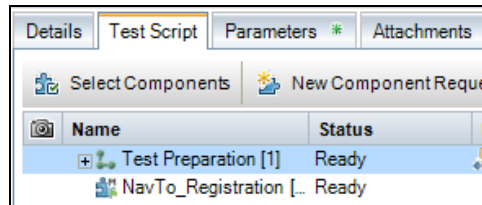
It is important to understand the roles of component parameters and test parameters in your business process test so that you can properly drive data through it at execution time.

1. To access BPT 11, you must first log into ALM.
 - a. Open a browser and navigate to `http://localhost:8088/qcbin`.
 - b. Click the **Application Lifecycle Management** link. The ALM login page displays.
 - c. Enter the following login information:
 - Username: `asi_qa`
 - Password: `<blank>`

- d. Click the **Authenticate** button.
 - e. Enter the following project information:
 - Domain: **DEFAULT**
 - Project: **BPT_11_Delta_Exercise**
 - f. Click the **Login** button.
2. A test has been provided for you to use in this exercise. Review the “Register with credit card – Part 1” test which is stored in the ALM Test Plan module.
- a. Navigate to the **Test Plan** module in the ALM sidebar.




- b. In the Test Plan tree, select the **Subject → University of HP Online → End-2-end → Register with credit card – Part 1** test.
- c. View the flow of components within this test by selecting the **Test Script** tab. Notice the **Iterations** link for each component.

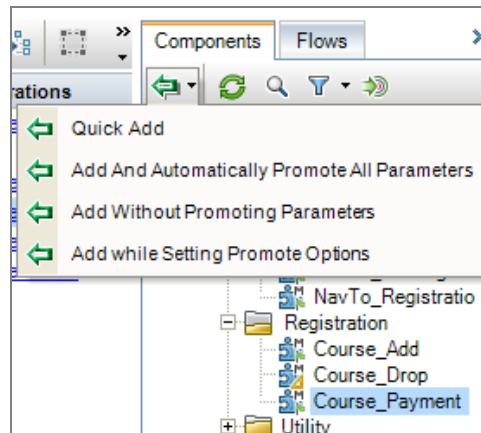


How many courses does this test register the student for? How did you determine this?

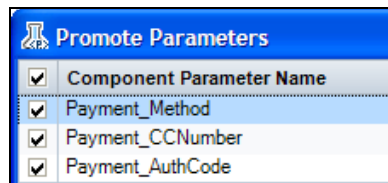
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3. This test is not yet complete. It needs one additional component added to it. Finish constructing the test as follows:
 - a. In the Test Script view, select the **Course_Add** component.
 - b. Next, click the **Select Components** button  **Select Components**. The Components tree opens at right.
 - c. In the Components tree, navigate the **Components → University of HP Online → Registration → Course_Payment** component, and click it ****once****, but do not add it yet.

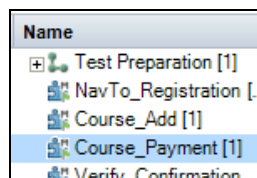
- d. You have four options for handling component parameters when you add a component to a test. Click the small **black arrow on the Quick Add** button. The four options display as shown below:



- e. Select **Add while Setting Promote Options**. This option gives you maximum control for specifying which component parameters you want to promote to the test level.
- f. In the Promote Parameters dialog, place a check in the box next to the **Component Parameter Name** column header. This causes all of the parameters for this component to be promoted to test parameters.



- g. Click **OK**. Test Script updates as show below:



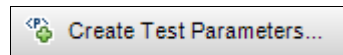
- h. Select the **Parameters** tab and verify that your three new parameters are now listed among the test parameters. You may need to click the **Refresh** button to see them: Payment_method, Payment_CCNumber, and Payment_AuthCode.

Parameters		
<div> New Parameter Data Resource: </div>		
Sort By: Order[Ascending]		
Parameter Name	Default Value	Description
App_IP	132.44.1.204	
Logs_Location	/var/log/uhp	
App_Port	8189	
Auth_UserID	TestUser	
Auth_Password	TestPass	
Course_ID		
Course_Section		
Registration_Confirmatio...		
Student_ID		
Payment_Method	CC	
Payment_CCNumber	123234345677	
Payment_AuthCode	5678	

4. Imagine you want this test to register the student for three courses. One way to do this is by iterating the Course_Add component 3 times.
 - a. Return to the Test Script view.
 - b. Select the **Course_Add** component, and click in the blue **1 iterations** link in the Iterations column.

Course_Add [1]	Ready	2 In	1 iterations
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- c. The Iterations dialog opens. Add three iterations by clicking the **Add Iterations** button two times.
 - d. Next, set up parameters for each of the three iterations. Click the **Create Test Parameters** button on the right.



You may need to resize the dialog in order to see the button.

- e. In the Create Test Parameters dialog, select **Use a different parameter for each iteration**, and click **Create**.

When you run this test, you supply it three different parameter values, one for each of the three Course_ID parameters.

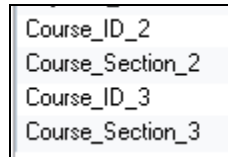
Parameter		Iteration #1	Iteration #2	Iteration #3
Course_Add [1]				
Course_ID	<input type="checkbox"/>	{Course_ID}	{Course_ID_2}	{Course_ID_3}
Course_Section	<input type="checkbox"/>	{Course_Section}	{Course_Section_2}	{Course_Section_3}

- f. Click **OK** to close the Iterations dialog.

- g. Observe in the Test Script, there are now three iterations for the **Course_Add** component.



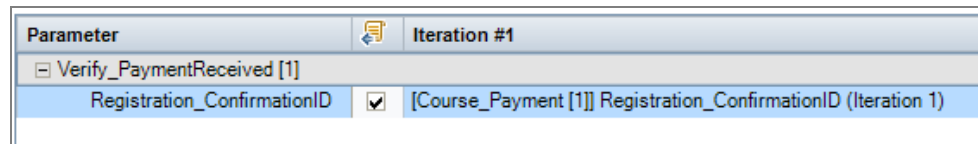
- h. Select the **Parameters** tab and verify that your four new parameters are listed there. You may need to click the **Refresh** button to see them.



5. Link component output and input parameters.

When a student makes payment, they receive a confirmation number. In your test, this confirmation number is saved as an output parameter in the Course_Payment component. It can be used later in the test by the Verify_PaymentReceived component.

- Return to the Test Script view. Select the **Verify_PaymentReceived** component, and click in the **Iterations** column. The Iterations dialog opens.
- For the **Registration_ConfirmationID** parameter, click the check box to its right. The Select Output Parameter dialog opens.
- Click the **Registration_ConfirmationID** row, and click **OK**. The Iterations dialog now looks like this:




- Click **OK** to close the Iterations dialog.

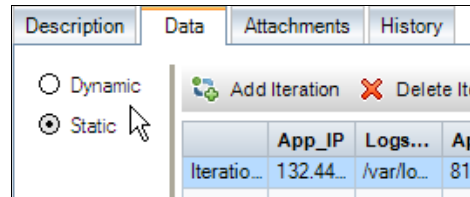
Create a static and dynamic test configuration

Test configurations provide data values to business process test parameters when the test is executed. In static configurations, the test data is stored with the test. With dynamic configurations, the data is not stored with the test, but rather supplied from some changeable data resource.

- Add a static test configuration.
 - In the Test Plan, navigate to the test named "Register with credit card – Part 2". It is located in the Subject → **University of HP Online** → **End-2-end** folder.
 - Click the Test Configurations tab.



- c. Click the **New Test Configuration** button , and name the configuration Default.
- d. Click **OK** to close the New Test Configuration dialog.
- e. In the Data tab at the bottom of the screen, verify that **Static** is selected.

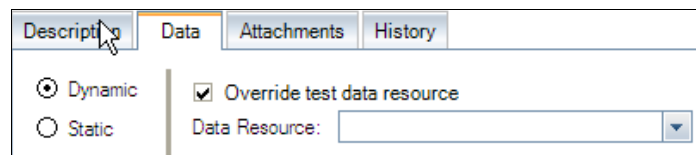


- f. In the row for **Iteration #1**, locate the following parameters and enter the corresponding data:

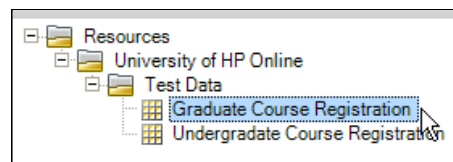
Course_ID = 12345
Course_Section = A
Course_ID_2 = 12346
Course_Section_2 = B
Course_ID_3 = 12347
Course_Section_3 = C

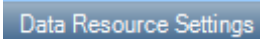
2. Configure the dynamic test configuration.

- a. In the Test Configurations tab, select the **Graduate Student Registration** test configuration.
- b. In the **Data** tab in the lower right pane, select the **Dynamic** radio button. Check **Override test data resource**.



- c. In the **Data Resource** drop-down list, navigate to the **Graduate Course Registration** data file, and click **OK**.



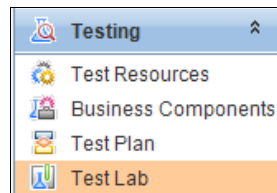
- d. Click the **Data Resource Settings** button . This is where you map test parameters to corresponding columns in the data file. You must type the column header name next to the corresponding test parameter. Do this for the first three parameters as show below:


Test Parameter Name	Resource Parameter Name
App_IP	App_IP
Logs_Location	Logs_Location
App_Port	App_Port
Auth_UserID	

You now have two test configurations, one static and one dynamic. The dynamic test configuration relies upon a data supplied from an external data file. For convenience, the file is being managed in ALM 11's Test Resources module.

Create a test set to run a specific test configuration

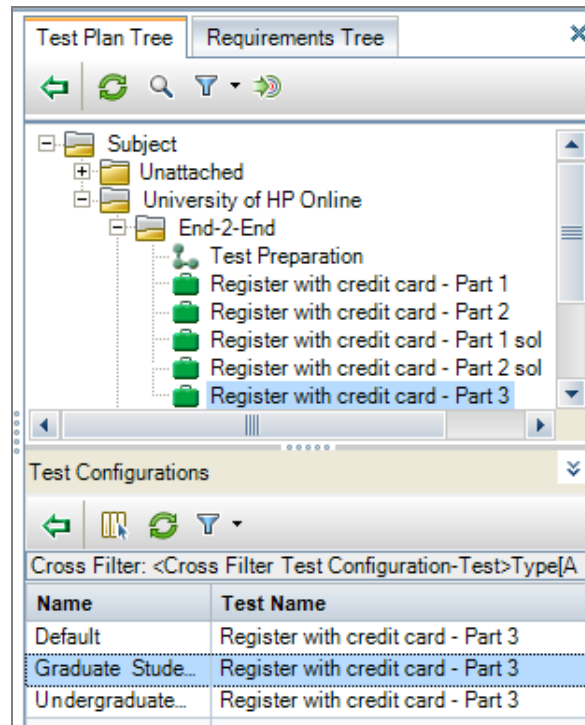
1. Add a test configuration to a test set.
 - a. Navigate to the **Test Lab** module in the ALM side bar.




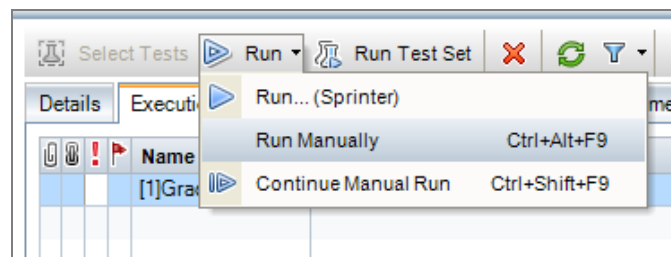
- b. In the **Root** → **University of HP Online** folder, select the **End-2-End** test set.
 - c. In the **Execution Grid** tab at right, click the **Select Tests** button . The Test Plan Tree opens at right.
 - d. Navigate to **Subject** → **University of HP Online** → **End-2-End**, and highlight (single click) **Register with credit card – Part 3**.
 - e. At the bottom of the Test Plan tree, restore the **Test Configurations** pane by clicking the arrow button.






- f. In the Test Configurations pane, highlight (single click) the **Graduate Student Registration** configuration.



- g. Click the **Add Configuration** button. 
- h. Close the **Test Plan Tree** pane.
2. Run the business process test manually.
 - a. In the Execution Grid tab, select the test you just added, the select **Run Manually** from the Run dropdown list as show below.



- b. The Manual Runner dialog opens. Click the **Begin Run** button.
- c. For **Step 1** of the **Clear logs** component, do not pass nor fail this step. Instead click the yellow **Next Step** button .
- d. For **Step 1** of the **Initialize application** component, do not pass nor fail this step. Instead, click the yellow **Next Step** button .
- e. As you run the remaining test steps, notice the input data that is being supplied from the test configuration to the test parameters.
- f. For the remainder of the steps in the test, click the green **Pass Selected** button .

- g. At the end of the test, click the red **End Run** button .

What is the final status of the test execution? Why does it have this status?

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Establish test coverage using component criteria

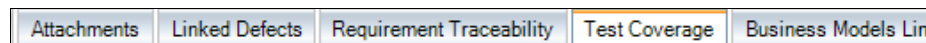
Next, you will establish test coverage for a requirement based on the outcome of just a few components in the business process test.


1. Add test coverage to a requirement.
 - a. Navigate to the **Requirements** module in the ALM side bar.



- b. In the Requirements Tree, navigate to the **Requirements → University of HP Online → Functional Requirements → Business Processes → Register with credit card** requirement.


- c. Select the **Test Coverage** tab at right.



- d. Click the **Select** button .
 - e. The Test Plan Tree will open at right. Navigate to **Subject → University of HP Online → End-2-End**, and highlight (single click) **Register with credit card – Part 3**.
 - f. At the bottom of the Test Plan tree, restore the **Test Configurations** pane by clicking the arrow button.

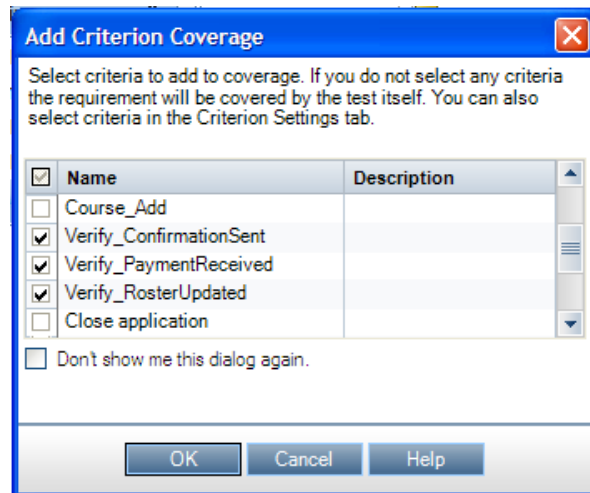


- g. In the Test Configurations pane, highlight (single click) the **Graduate Student Registration** configuration.

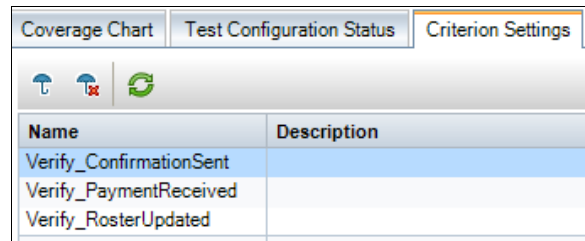
- h. Click the **Add Configuration** button.  The Add Criterion Coverage dialog opens.

2. Select component criteria for the test coverage.

- a. You are now presented with the option to add component criteria to the test coverage. In the Add Criterion Coverage dialog, check the three **Verify_*** components, and click **OK**.



- b. Close the Test Plan Tree pane at right.
- c. Select the **Criterion Settings** tab at the bottom of the window. Verify that the three **Verify_*** components are listed.






- d. In the bottom pane, select the **Coverage Chart** tab.


What is the coverage status for this requirement? Why does it have this status?

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- e. In the bottom pane, select the **Criterion Settings** tab, and add **Test Preparation** to the list of component criteria.

Coverage Chart		Test Configuration Status	Criterion Settings
  			
Name		Description	
Verify_ConfirmationSent			
Verify_PaymentReceived			
Verify_RosterUpdated			
Test Preparation			

In the Test Coverage tab in the upper pane, click the **Refresh** button . The Coverage Status for the “Register with credit card – Part 3” test changes.

What is the status of the test now? Why did it change?

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- f. Click the Logout button  to log out of **ALM**.