Testing Overview

As you all know, is in the process of moving its data center to a new location. This move will involve the relocation and reconfiguration of nearly every application our business uses. Reducing the risks inherent to a project of this size will require significant time and attention to detail. To maximize the effectiveness of the time spent we have prepared guidelines to stream creation of test cases and a structured plan for their execution.

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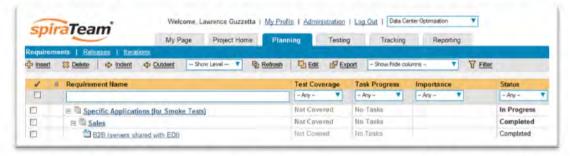
Testing Types

We will be utilizing multiple types of tests throughout the Data Center Optimization project.

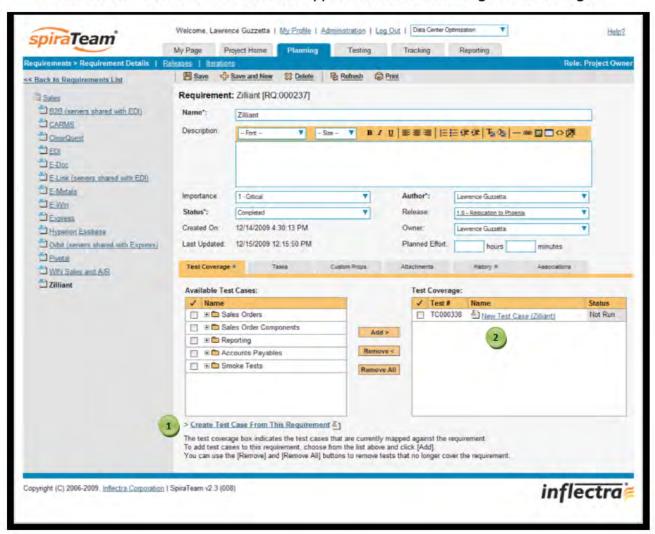
Test Type	Definition	
Smoke Test	This is first-blush, non-exhaustive software testing, confirming that the program doesn't go up in smoke when launched. It sets the foundation for, but doesn't bother with, testing the finer details.	
Functional Test	It ensures that the program physically works the way it was intended, screens are laid out as expected, and all required menu options are present.	
Integration Test	The idea is to test combinations of pieces and eventually expand the process to test modules with those of other groups. Eventually all the modules making up a process are tested together. Beyond that, if the program is composed of more than one process, they should be tested in pairs rather than all at once.	
Data Validation	Validating data is the process of confirming that the values being entered into data objects conform to the constraints within a dataset's schema, as well as the rules established for the application. In other words, make sure you can't order "-2" carbon bars and that when you order "2" and "2" you get "4". A critical Data Validation measure unique to this project will be to ensure the historical values in the new data center match those in the old data center. (e.g. GL & Month End comparisons)	
UAT	"User Acceptance Testing" is a loosely guided test performed by those who will be using the software once released to production. They will be engaged follow a successful testing effort by the development and analyst teams and asked to test application functions, but not given strict test cases to follow. This allows for a real-world test without artificial constraints.	

Smoke Test Composition Guidelines

The easiest way to create a Smoke Test is to click on the link in the SpiraTeam Requirement email that you received. You can also click on the "Planning" tab in SpiraTeam to display a list of all Requirements. After you click on the emailed link (or the name of a requirement from the list) and log in with your network ID, the Requirement page below will be displayed.



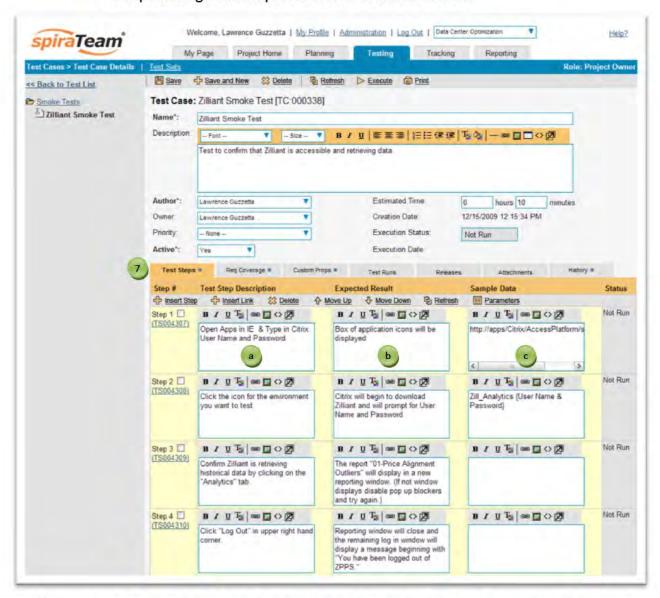
- 1. Click "Create Test Case From This Requirement" towards the bottom of the page.
- 2. Click on the "New Test Case" link that appears in the Test Coverage box to the right.



- 3. In the Test Case page that opens, change the "Name" so that it is simply the name of the requirement followed by "Smoke Test" (e.g. If the requirement is named "Zilliant" then the Smoke Test should be named "Zilliant Smoke Test".
- 4. Enter a "Description" of the test case.
- 5. Select your name from the "Owner" drop down.
- 6. Enter the amount of time you estimate it will take to execute this test.

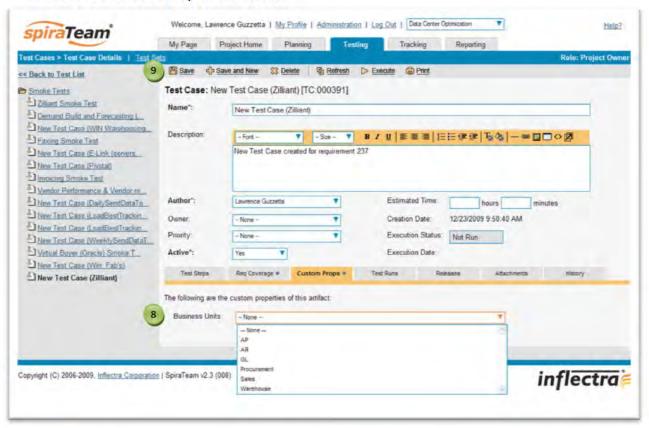


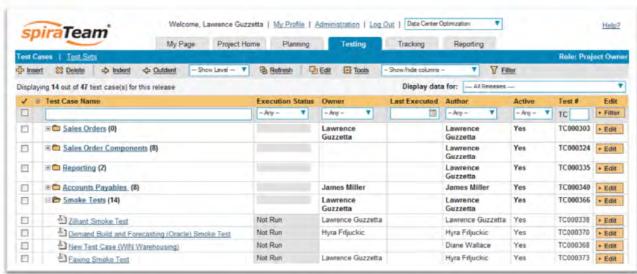
- 7. Click on the "Test Steps" tab and enter as many steps as needed to clearly describe the test case.
 - Include a "Test Step Description";
 - b. an "Expected Result"; and
 - the "Sample Data" required to get that Expected Result. Use the Test Step composition guidelines provided later in this document.



Note: Initially there will not be a Step number next to each Test Step Description. Every Test Step that has some data entered will be given a number as soon as you click Save or Update.

- 8. Click on the "Custom Props" tab and select the business function that this test applies to (e.g. Sales, GL, or Warehouse).
- 9. Click "Save" at the top of the screen.





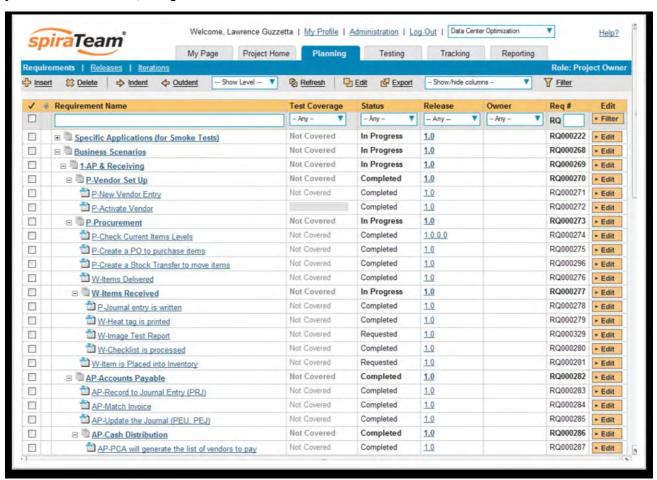
Note: Smoke Tests will simply be grouped in the Smoke Test folder because they'll be executed one by one as applications become available. If your test does not appear to be saved in the Smoke Tests folder please let us know so we can relocate it.

Functional Test Composition Guidelines

Functional Test Cases are created in a similar way to Smoke Test Cases.

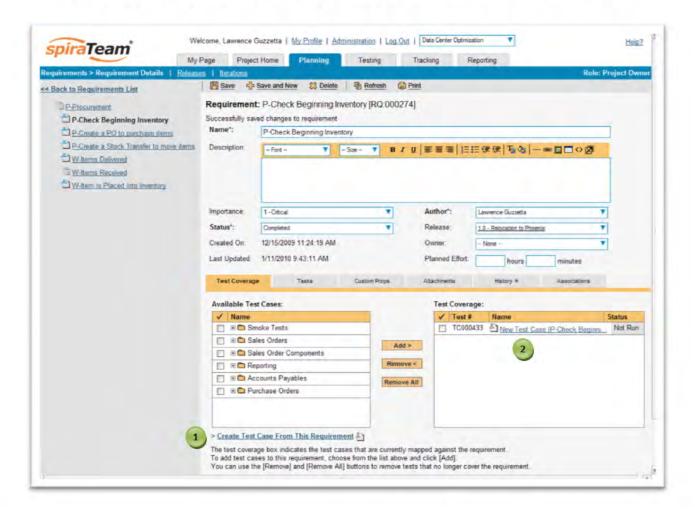
The easiest way to create a Functional Test is to click on the link in the SpiraTeam Requirement email that you may have received. You can also click on the "Planning" tab in SpiraTeam to display a list of all Requirements.

Clicking on the "plus" and "minus" signs will display and hide the contents of the folders. Notice the screen shot is hiding the contents of the "Specific Applications" folder while displaying the contents of the "Business Scenarios" folder and its nested folders. These are the requirements for which Functional/Integration Test Cases must be created.

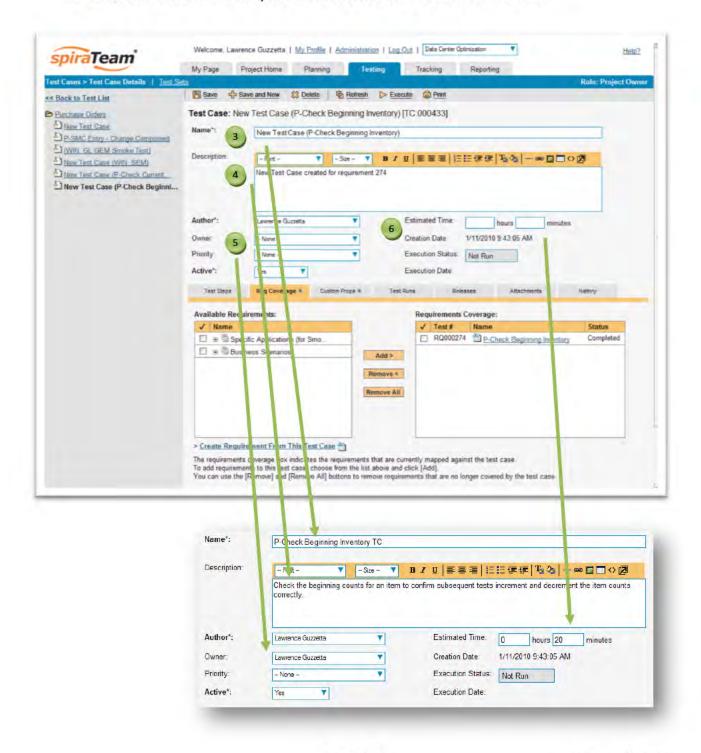


After you click on the emailed link (or the name of a requirement from the list) and log in with your network ID, the Requirement page below will be displayed.

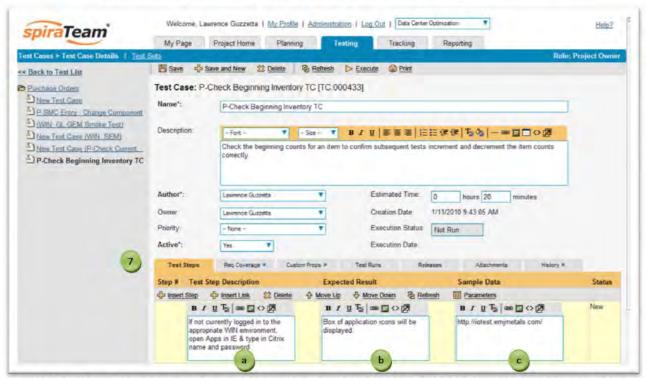
- 1. Click "Create Test Case From This Requirement" towards the bottom of the page.
- 2. Click on the "New Test Case" link that appears in the Test Coverage box to the right.



- 3. In the Test Case page that opens, change the "Name" so that it is simply the name of the requirement followed by "TC" (e.g. If the requirement is named "P-Check Beginning Inventory" then the Functional Test should be named "P-Check Beginning Inventory TC".
- 4. Enter a "Description" of the test case.
- 5. Select your name from the "Owner" drop down.
- 6. Enter the amount of time you estimate it will take to execute this test.

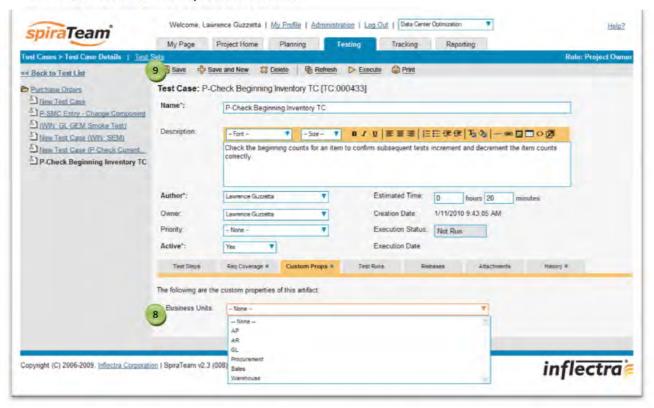


- 7. Click on the "Test Steps" tab and enter as many steps as needed to clearly describe the test case.
 - a. Include a "Test Step Description";
 - b. an "Expected Result"; and
 - the "Sample Data" required to get that Expected Result. Use the Test Step composition guidelines provided later in this document.

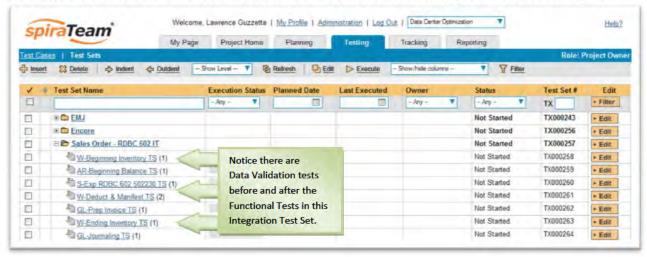


Note: Initially there will not be a Step number next to each Test Step Description. Every Test Step that has some data entered will be given a number as soon as you click Save or Update.

- 8. Click on the "Custom Props" tab and select the business function that this test applies to (e.g. Sales, GL, or Warehouse).
- 9. Click "Save" at the top of the screen.



In addition to including more details than Smoke Tests include, Functional Test Cases may be arranged in Test Sets that represent related application features as well as business scenarios. (e.g. A sales order including fulfillment and invoicing.) Doing it this way we can reuse many Functional Test Cases for Integration Tests like the one below. We will work together to create the Test Sets as the Test Cases are created. See the screen shot below for a Test Set example.



Sample Functional Test Case

Test #246 - S-Exp RDBC 602 502230

Test Steps:

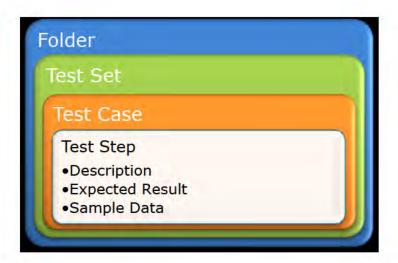
Step	Description	Expected Result	Sample Data	
1	Open Apps in IE & Type in Citrix User Name and Password	A box of application icons will be displayed	http://apps/Citrix/AccessPlatform/site/default.aspx	
2	Click the icon for the environment you want to test	Citrix will begin to download Express and will prompt for User Name and Password	Express - Training	
3	Open Express Application & Type in Express User Name and Password	Express will launch and display its home screen (a gray window with a toolbar)	602express:encoretest	
4	Press the (New Quote) Icon	Blank Summary Page will appear	Quotes indicate a literal	
5	Click Summary Tab and then Type in Name	Customer Inquiry box will be displayed	"K"[Enter] text string. Straight brackets indicate a keyboard key.	
6 Select Customer Example of a field label		Customer information will be entered into the Summary Page	Double Click on K T Machine	
7	(PO) Field Type	Type PO Number into Actual Results field	Test_Date_Serial e.g. "Test_MMDDYYYY_01" "rdbc"[Enter]	
8	Select Item Inquiry Tab & Enter the type of metal you are looking for in the (Keyword) Field	Item list will display		
9	Press Search & Locate and search the Item you want to use	Item details will populate	Select item number 502230	
10	Type in the item details and click (Add) (NOTE: make sure the Available is more than what you are ordering) (Click (OK or Yes) if prompted for Drops, Tolerance or Delivery Options)	Item details will populate the screen	Enter quantity of "1", "EA" as UOM, "6" as Length/Cut Group multiple actions in a single Test Step when together they reach one Expected Result	

11	Select the red (\$) button and then press (OK) when the window appears to Price the Quote	Pricing window will appear then prices will be displayed in the quote	
12	Press (Processing) Button - the rotary saw blade - and Scroll down to locate and select an item, then press the (OK) button	Processing window appears	(Heat Treating HTRI) and (Packaging Misc+PKGI) Example of buttons identified by their names
13	Select the red (\$) button - Add pricing for the processing and press the (OK) button.	Price window will close and processing prices will be added to the quote.	"20.00" for each service
14	Press (Promise Date) Button - Get Promise Dates - the calendar button on the left side of the red \$ - then press the (Sourcing) button and then the (OK) button	Pricing Summary window will appear, then sourcing, then you'll return to the Summary tab	Populate the promise date column with a date later than the Start Date Example of a button description for someone unfamiliar with the app
15	Press the (Transmit) button	Fax settings dialog box will open	The button that looks like the database icon with a lightning bolt.
16	Press the (Cancel) Button	Fax settings dialog box closes. (Status) field should read (Xmit (Full)). Type Customer Number Quote Number into Actual Results field.	
17	Log in to WIN and launch SEM	SEM mask 1 will display	Click on the WIN icon and log in. Type "go encus 602"[Enter] "z SEM"[Enter] "tulip"[Enter]
18	Inquire on the order by Express Quote Number	Display quote details in SEM	"IE"[Enter] {quote number} [Enter]
19	Confirm order has been verified. Status will be "OI R". If not, release hold before continuing.	Type in the Branch and Order Number into Actual Results field. Confirm order is in "OI R" status. If not, release order and note reason in Actual Results as well.	The curly brackets indicate a dynamic value that will change each time the test is executed Example of an instruction to the tester to record results in Actual Results

A Little More About Test Organization

1. Test Hierarchy

- a. Each major effort is its own *Project* (e.g. Encore, CARMS, Data Center Optimization)
- b. Each project will contain Tests specific to that effort.
- Tests are arranged in a hierarchy of Test Folders containing Test Sets made up of Test Cases composed of Test Steps. (i.e. Folder:Set:Case:Step)
- d. An example of a folder under the Data Center Optimization project is "Sales Order – RDBC 602 IT". The folder name describes the type of test including the material and branch information. This folder contains multiple Test Sets and its name ends with "IT" to indicate that it contains an Integration Test.



2. Test Sets

a. The name of each Test Set begins with a code denoting the responsible testing area (e.g. AP=Accounts Payable, AR=Accounts Receivable, GL=General Ledger, S=Sales, W=Warehouse) and contains either a description of a generic activity (W-Beginning Inventory TS) or a specific program and test detail (S-Exp RDBC 602 502230 TS), if applicable. Each Test Set will contain one or many Test Cases.

3. Test Cases

a. The name of Test Case is similar to the enclosing Test Set and is also either generic or specific (e.g. W-Check Beginning Inventory or S-Exp RDBC 602 502230, respectively). Each Test Case contains multiple Test Steps.

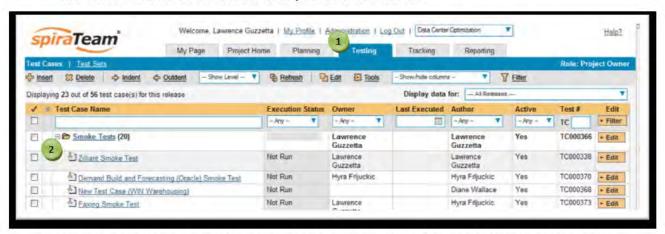
4. Test Steps

- Each Test Step is composed of three components; "Test Step Description",
 "Expected Result", and "Sample Data".
- b. The *Test Step Description* should be written as a narrative that guides a tester through exactly what steps to take, regardless of their familiarity with the system they are testing.
 - i. For example, "Press the (Promise Date) button the calendar button to the left side the red \$ - then press the (Sourcing) button and then the (OK) button" will be much more effective than simply stating "Set a promise date".
 - ii. Multiple actions should be included in one Test Step to avoid too much granularity as long as the test steps logically fit together; especially if the steps lead to one expected result.
- c. The *Expected Result* is most often a statement describing what the tester should see after entering the Sample Data.
 - In some cases, the Expected Result also includes a direction to the tester to save relevant information such as order details in the Actual Results field.
- d. *Sample Data* is just that. It's the data that should be entered by the tester to obtain the Expected Result.
 - i. It is described as either a literal text string ("602"), a variable whose value is specified in another test step or case ({branch defined in test case name}), or an actual key stroke ([Enter], [F12]).
 - ii. Like the Descriptions, there may be more than one data element specified to reach a desired result (e.g. "go ENCUS 602"[Enter] "z SEM"[Enter] "tulip"[Enter]).

Smoke Test Execution Guidelines

Performing a set of test steps is referred to as "Executing". The simplest way to execute your smoke test, since they're all located in one folder, is to open the test in the same view you composed it and then click Execute. Follow the steps below for specific details.

- 1. Click on the "Testing" tab. This will display the list of Test Cases by name.
- 2. Click on the "plus" sign to the left of the "Smoke Tests" folder to display its contents and click on the name of the smoke test you wish to execute.



Once the smoke test case loads, click on the Execute link towards the top of the page.



4. You will be asked to confirm that you want to proceed. (If you haven't made any changes, there are no changes to be lost but it will always ask you just in case.) Click OK.



When asked to choose a Release, select "1.0 – Relocation to Phoenix" and click "Next".



- 6. Follow the Directions in the Step as described utilizing the Sample Data when applicable.
- If the application performs as expected for this Step, click on the "Pass" button. The next Step will be displayed. Continue testing.
- 8. If the application does not perform as expected, enter a description of the issue in the "Actual Result" field and click on the "Fail" button. If the following step can be completed without this step passing then continue to the nest step; if not then exit the test leaving it incomplete.



Once all steps have passed, click on the "Finish" link. You can return to the "Test Cases" page to confirm your "Execution Status" appears green.

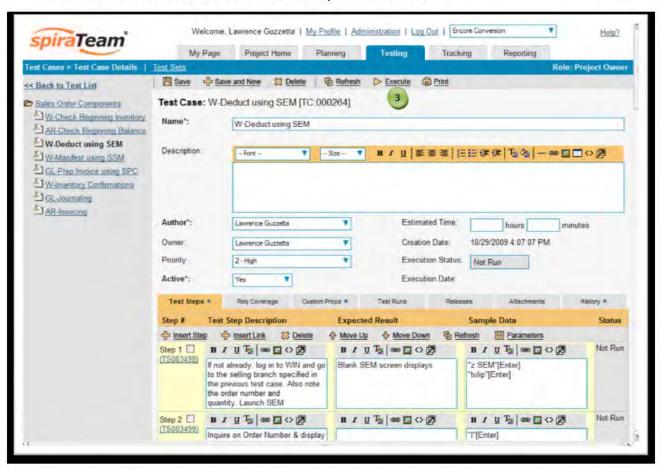
Functional Test Execution Guidelines

Like Smoke Tests, Functional Tests are executed directly from the Test Case. All that needs to be done is to open the test in the same view you composed it and then click Execute. Follow the steps below for specific details.

- 1. Click on the "Testing" tab and, using the "plus" signs, drill down until you see the test case you wish to execute.
- 2. Click directly on the name of the Test Case to view its details.



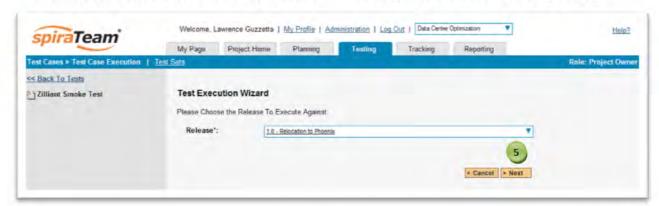
3. Click on the "Execute" link towards the top of the screen.



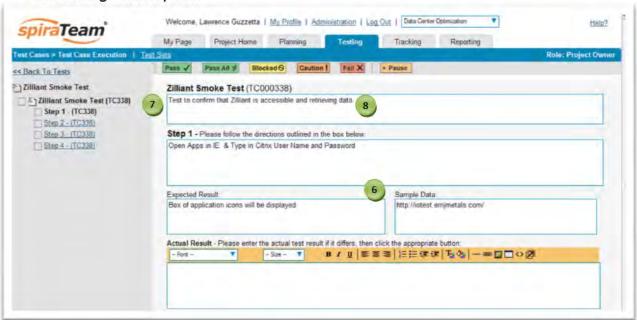
4. You will be asked to confirm that you want to proceed. (If you haven't made any changes, there are no changes to be lost but it will always ask you just in case.) Click OK.



5. When asked to choose a Release, select "1.0 - Relocation to Phoenix" and click "Next".



- 6. Follow the Directions in the Step as described utilizing the Sample Data when applicable.
- If the application performs as expected for this Step, click on the "Pass" button. The next Step will be displayed. Continue testing.
- 8. If the application does not perform as expected, enter a description of the issue in the "Actual Result" field and click on the "Fail" button. If the following step can be completed without this step passing then continue to the nest step; if not then exit the test leaving it incomplete.

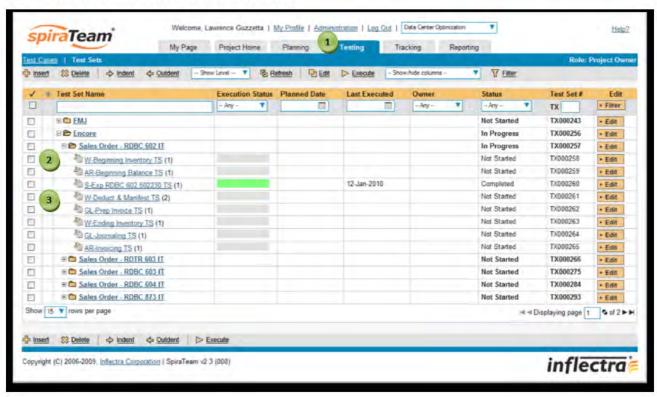


Once all steps have passed, click on the "Finish" link. You can return to the "Test Cases" page to confirm your "Execution Status" appears green.

Integration Test Execution Guidelines

Unlike simpler, standalone Smoke & Functional tests, Integration Tests emulate business scenarios. In SpiraTeam, these business scenarios are represented by grouping Test Cases into Test Sets, stringing together those Test Sets, and then storing them in folders with the "IT" (Integration Test) suffix. The name of each Test Set includes a standard prefix to identify the team responsible for executing it

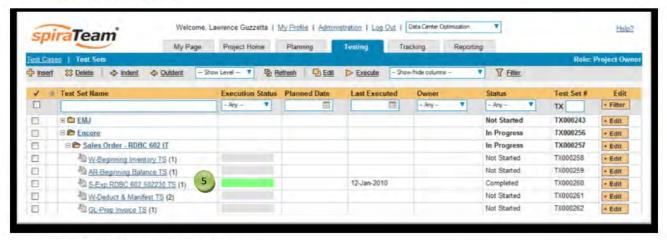
- Hover over the "Testing" tab and click on the "Test Sets" link.
- If you don't see the test set you want to execute, click on the folders "plus" sign to display its contents.
- 3. Click on the name of the test set you want to execute to display its details. Note: You can tell that the tests before your test have been executed successfully by the green bar in the "Execution Status" column. A gray bar indicates a test has not been run. A red bar indicates a test has failed.



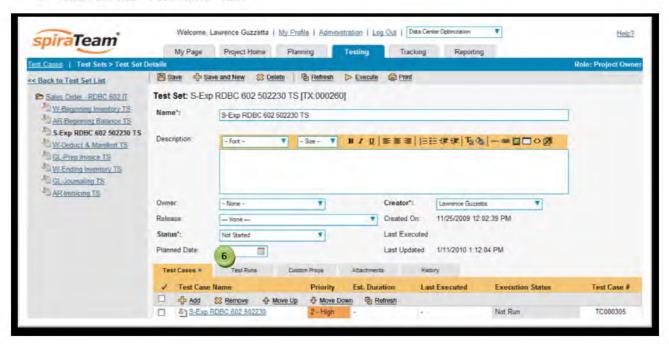
4. Mouse over the "Testing" tab and then the "Test Sets" link. Right-click and open the link in a new window.



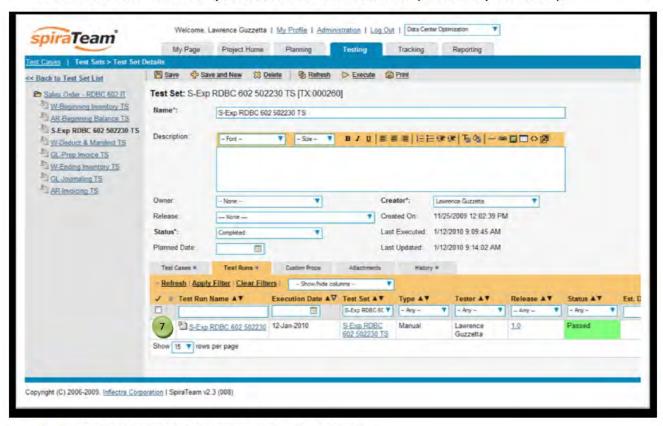
In the new window, click on the name of the test cases preceding yours that relates to the values you need to execute your test. (e.g. Click on the Sales Test Set if you require the Order number



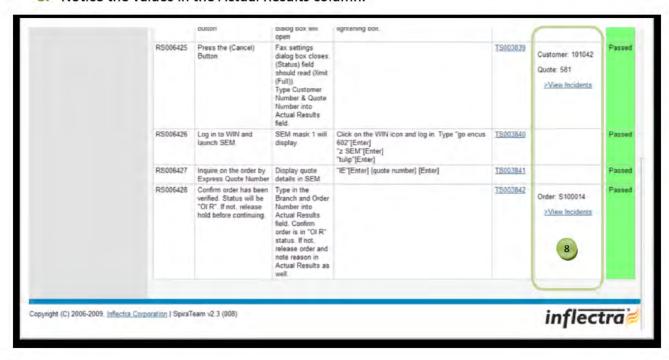
6. Click on the "Test Runs" tab.



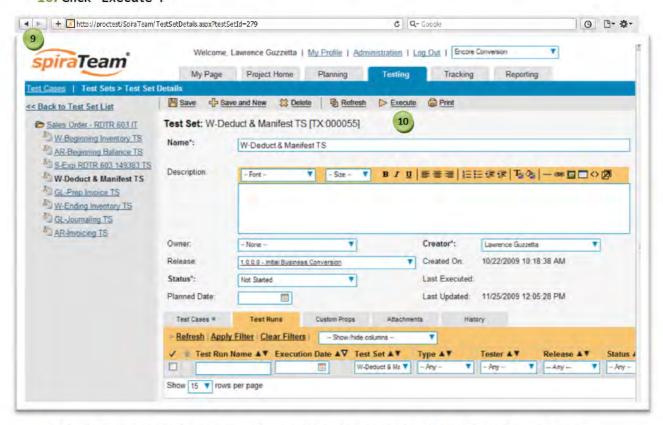
7. Click on the "Test Run" you want to see the results for (most likely the latest).



Notice the values in the Actual Results column.



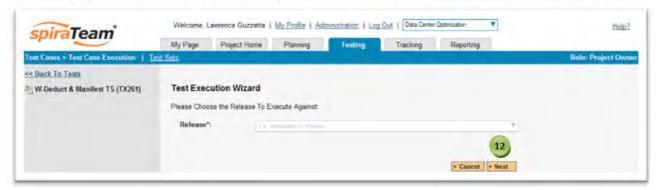
- 9. Leaving the new window open for reference, go back to your test set.
- 10. Click "Execute".



11. You will be asked to confirm that you want to proceed. (If you haven't made any changes, there are no changes to be lost but it will always ask you just in case.) Click OK.

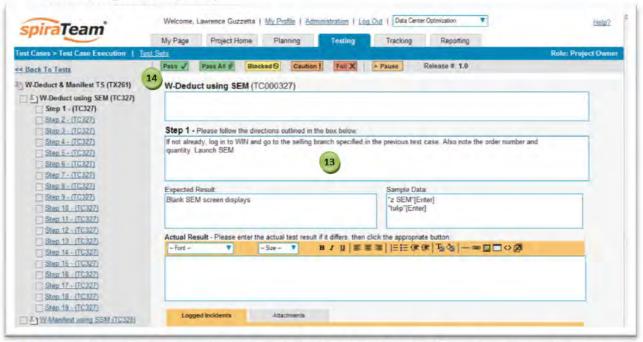


12. When asked to choose a Release, select "1.0 - Relocation to Phoenix" and click "Next".



- 13. Follow the Directions in the Step as described utilizing the Sample Data when applicable.
- 14. If the application performs as expected for this Step, click on the "Pass" button. The next Step will be displayed. Continue testing.

If the application does not perform as expected, enter a description of the issue in the "Actual Result" field and click on the "Fail" button. (If the following step can be completed without this step passing then continue to the nest step; if not then exit the test leaving it incomplete.)



15. Once all steps have passed, click on the "Next Test" button if you have more than one set, otherwise click on "Finish" and you're done!

