## RAPTOR Automated Testing for OSEHRA Certification

**Note: The RAPTOR Automated Testing uses an executable which will only function in a Microsoft Windows environment.**

The RAPTOR tool has a series of [SAHI](http://sahipro.com/) tests which are used to interact with the hosted web pages of the submission. These tests are run through the Twist program. This submission does contain an executable to install in order to execute the tests which will need to be installed before the tests can be run.

The entirety of the necessary tools and files can be found in the accompanying RAPTORAutomatedTesting.zip file. It contains two folders and one executable file. The executable file will install the Twist program to run the tests. The two folders contain the necessary information for Twist to open and execute the RAPTOR tests. Once the .zip file is unzipped, the folder will look like below:

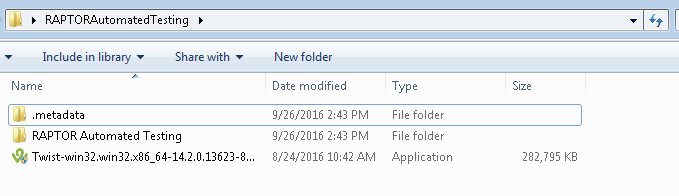


Figure 1: Unzipped RAPTORAutomatedTesting.zip

## Installing tools

### Install Firefox

The tests expect that an installation of Mozilla Firefox is found on the system. Download and install the Firefox web browser from [here](https://www.mozilla.org/en-US/firefox/new/).

### Install Twist

To install Twist, start the Twist installer: *Twist-win32.win32.x86\_64-14.2.0.13623-84f691fb3b69c9.exe* found in the directory that was unzipped earlier*.* A splash screen will show to start the installation:



Figure 2: First Twist install window

It will ask for a series of questions and then will begin the installation of the program. It is acceptable to take the defaults for all values.

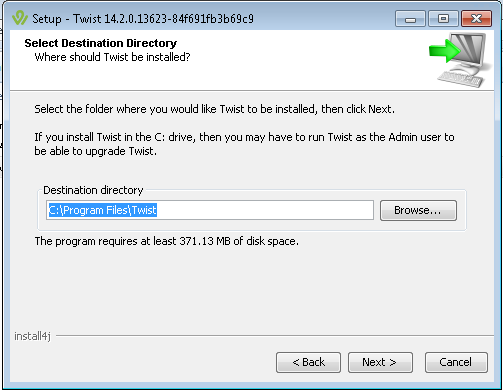


Figure 3: Select Twist install directory

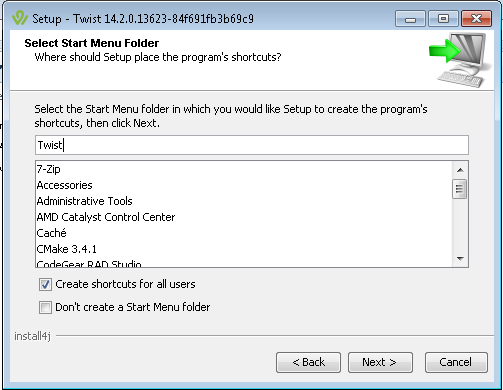


Figure 4: Set Twist Start Menu folder

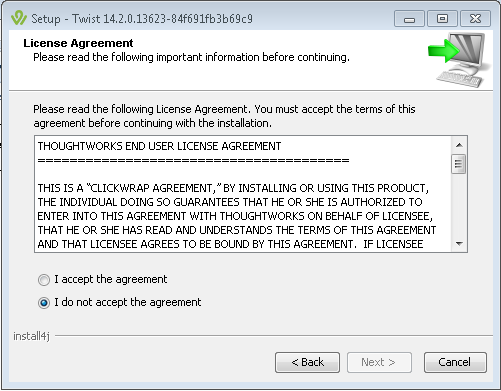


Figure 5: Twist License Agreement

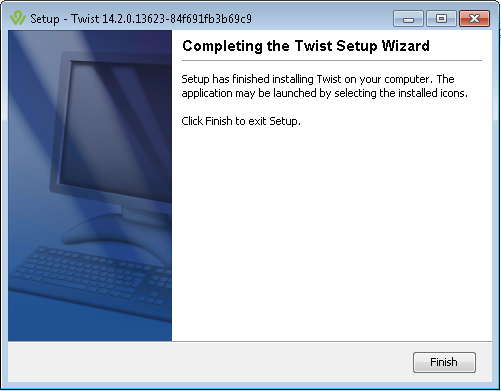


Figure 6: Twist install completion

Additionally, the first time that Twist is opened it will ask for a license file to utilize the Twist program. The two pieces of information that you need to enter can be found below:

Licensed To: "Pallavi Rao"

--- License key starts below this line---

Lg3edDDbZUN6lm0nBlHyWfOhx0Gk6wXhmlG7gzkcTEwfsvfvu+OkH2/oAoBM

VdWGoNscfniligv/nfcEX8kqmi+ceRM1ZFf7012l5k1F9/zZ6aInREaP1cyV

Kr9dEe1fVOV6OQoKi57en0U2eDP9qzkwrBNkou0NyDaIVqyh/qJ3JwWL0YM9

z0piJhBkz+JHnG5+sUpCEMf44AyZW8e+KvEg1vZJNLIkzq2k+Km2ePOJWm7k

HWtdb3jkOVDKWhNPdtqzqi8xPI0/2hOSd30RSfye3gc7OTBRuBggMEbcp9de

E5U7+jq5SL7clXFHn+DoHtK1ZtrQYDHqfjHo7b7Bng==

-- License key ends above this line---

## Prepping RAPTOR information

The RAPTOR tests through the Twist program assumes that a certain set of information is available for the tests to act upon. Additionally, the tests will require some configuration to make the test connect to a RAPTOR instance.

### RAPTOR Instance configurations

There are two configuration changes to be made and both have to be made in the *LoginLogout.java* file. The *LoginLogout.java* file can be found in the *RAPTORAutomatedTesting\RAPTOR Automated Testing\src* directory. The first bit of information that needs to be configured is the log in information for the testing user. This user should be a full user and not a resident. This user’s username and password should be set in ***loginToRaptor*** function within the *LoginLogout.java* file.

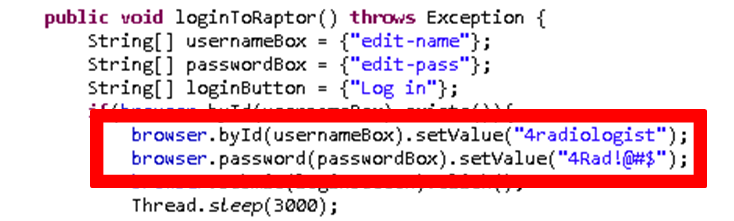


Figure 7: Highlighting location of login configuration

The second piece of information is the URL for the instance. The URL for the RAPTOR instance to test should be added to both the ***loginToRaptor*** and the ***goToRaptorWebsite*** functions. The IP and other parts of the address should be changed, but the target page, */worklist* or */user/login,* should be maintained.



Figure 8: Highlighting location of URL configuration

Once that is done, the Radiology order information can be set up.

### VistA Order set up

The automated tests also assume that a set of radiology orders have been generated for the test to act upon. These orders can be generated in VistA through the “RA ORDEREXAM” menu option and should, at a minimum, meet the following guidelines:

* At least one order available in the “Needs Protocol” status
  + Exam type must by CT Scan
  + Exam must not have been scheduled
    - “Pass Box” value must be “Unknown”
* Two orders in “Ready for Examination” status
  + One with the status of “Approved”
  + One with the status of “Protocol Acknowledged”
* At least one order in “Interpretation” status
* At least one order in “QA” status

Since all orders start in the “Needs Protocol” stage, the ones which need to be in a different state should be put in to that state by walking an order through the RAPTOR web interface.

Conditions for putting an order into

* “Ready for Examination” with an “Approved” status:
  + The entry must be assigned a protocol name on the entry page.
  + “Approved” button must be clicked from the entry page
* “Ready for Examination” with a “Protocol Acknowledged” status:
  + Protocol must be in “Ready for Examination” status
  + Answer the “Safety Checklist” questions on the entry page.
  + Click on the “Acknowledge Protocol” button on the entry page.
* Interpretation:
  + Protocol must be in “Protocol Acknowledged” status
  + Answer “Consent Received” question
  + Click on “Exam Completed” button
* QA:
  + Protocol must be in “Interpretation” status
  + (Optional) Fill in Interpretation notes
  + Click “Interpretation Complete” button

## Executing tests

The tests are executed from within the Twist interface. Start the Twist program and select a workspace directory.

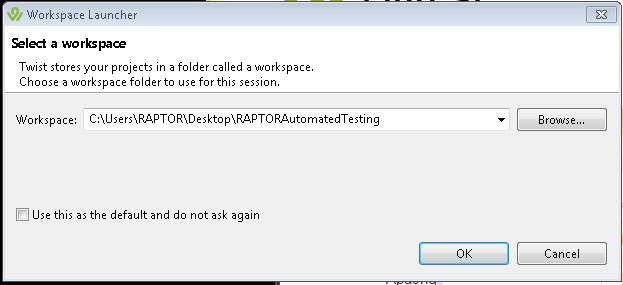


Figure 9: Twist workspace selection

Once the main window is open, the RAPTOR Automated Testing project can be imported into the local workspace. To open the import wizard, click on “File” and then “Import”. This opens a new window. In this window, click to open the “General” folder and select “Existing Projects into Workspace”

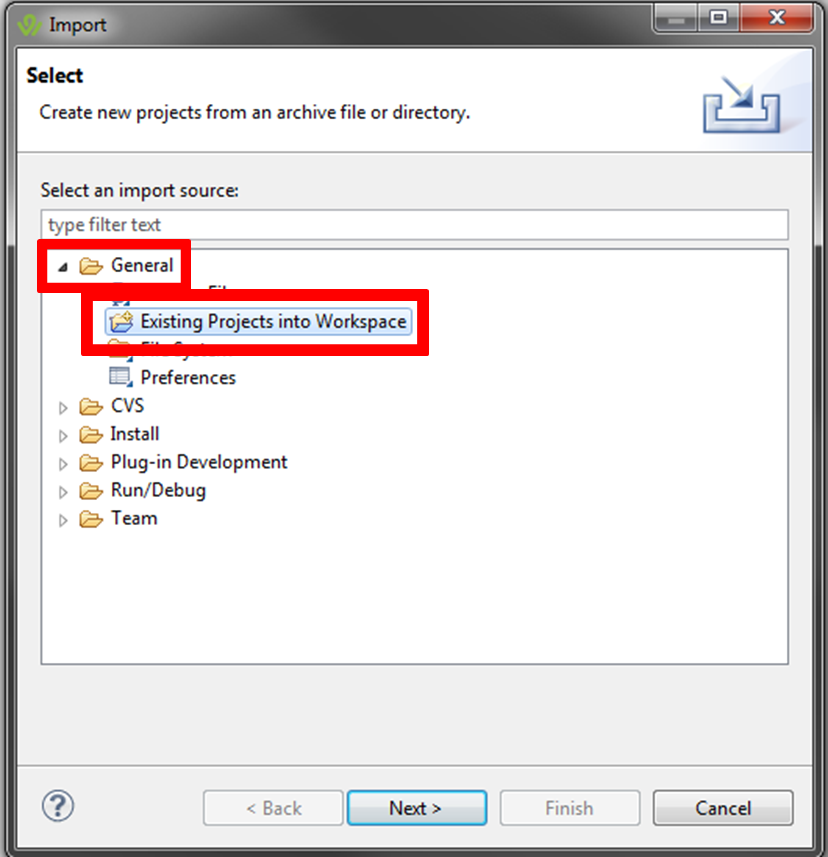
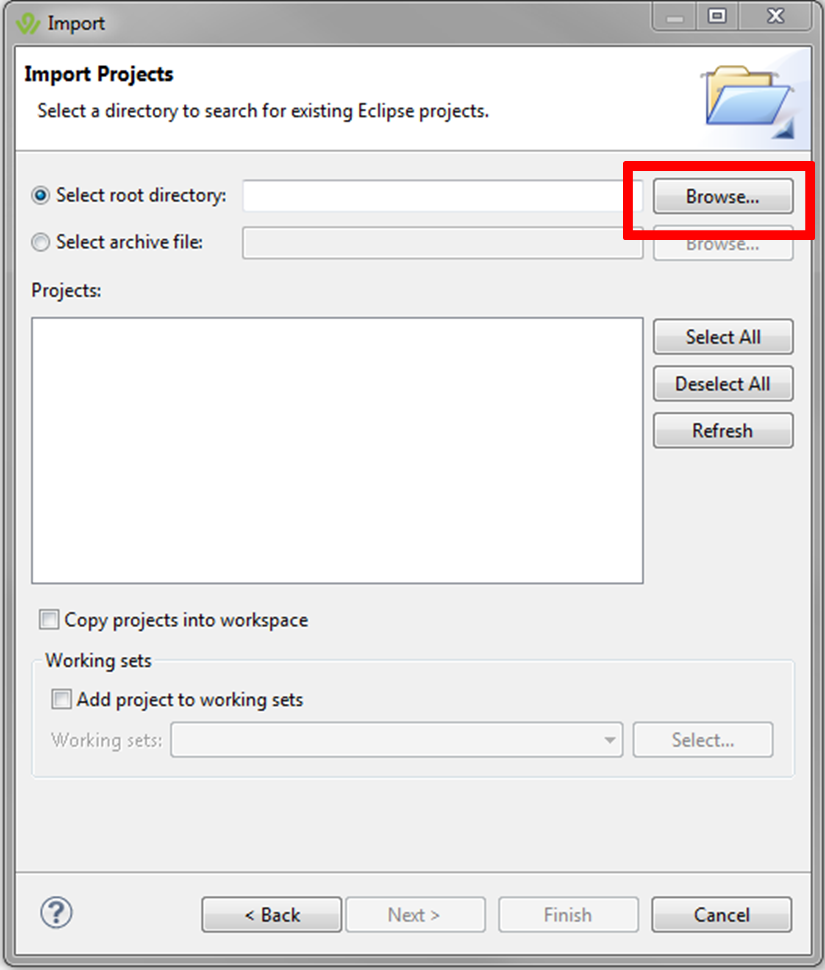
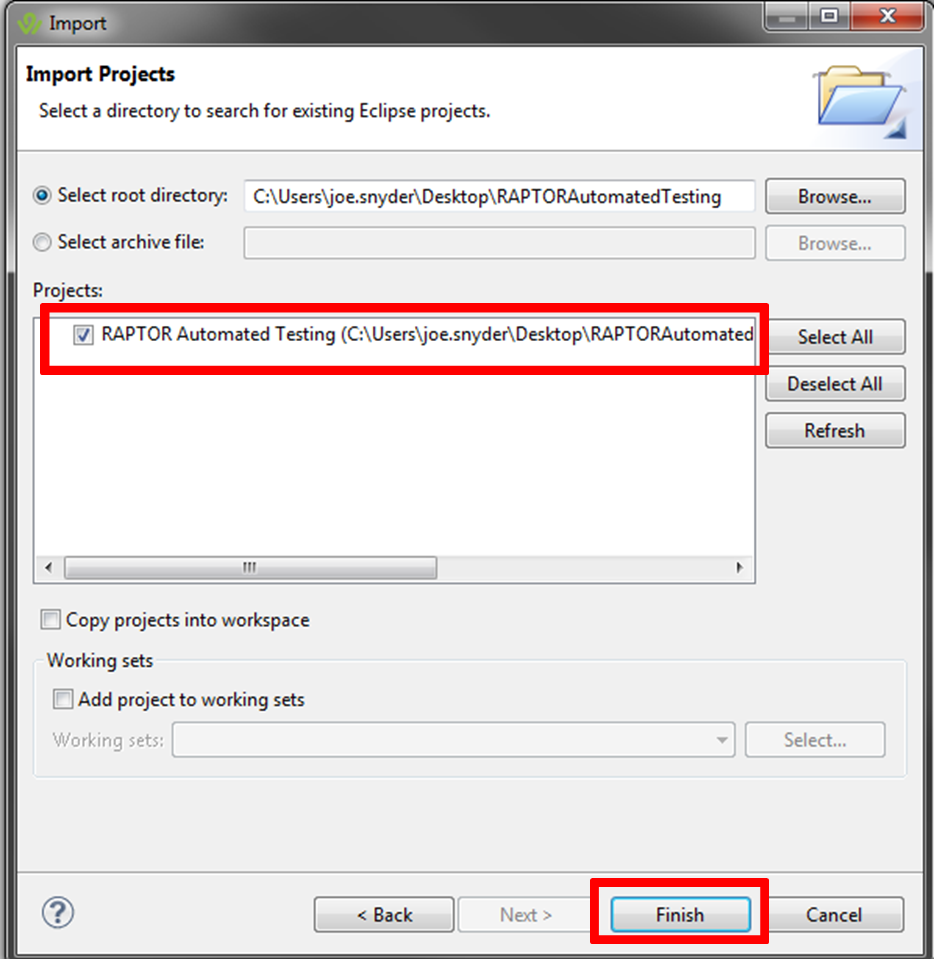


Figure 10: Importing an existing project

Once the “Import” window opens, we select the root directory of the project by clicking on the “Browse” button.



Select the “RAPTOR Automated Testing” directory and a project should appear in the middle text box. Ensure that it is selected and then click “Finish”



Once the project is loaded, the Scenario list should display on the left side of the Twist window. You may need to select the “Twist Perspective” to show the scenarios on the side. The perspective can be changed through the “Window” menu option of “Change Perspective”

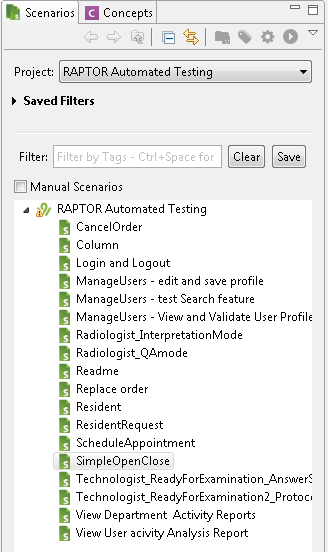


Figure 11: Twist Scenario listing

To execute all of the tests, right click on the “RAPTOR Automated Testing” and select “Execute All Scenarios In View”

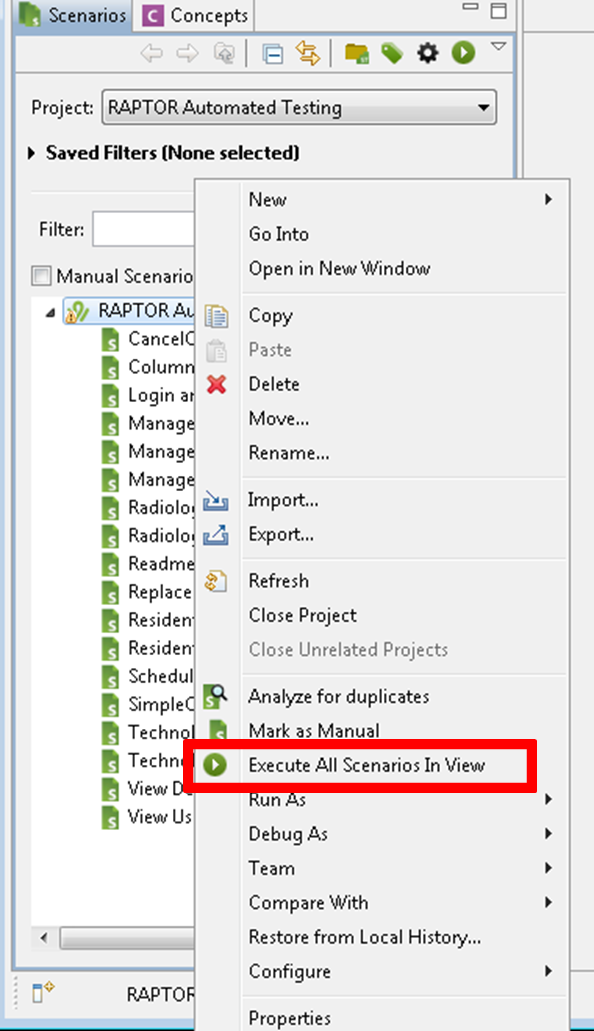


Figure 12: Execute all scenarios in Twist

To execute a single or a subset of all scenarios: use CTL+click to select a series of tests and right click on one of them. From the menu, select “Execute Selected Scenarios”

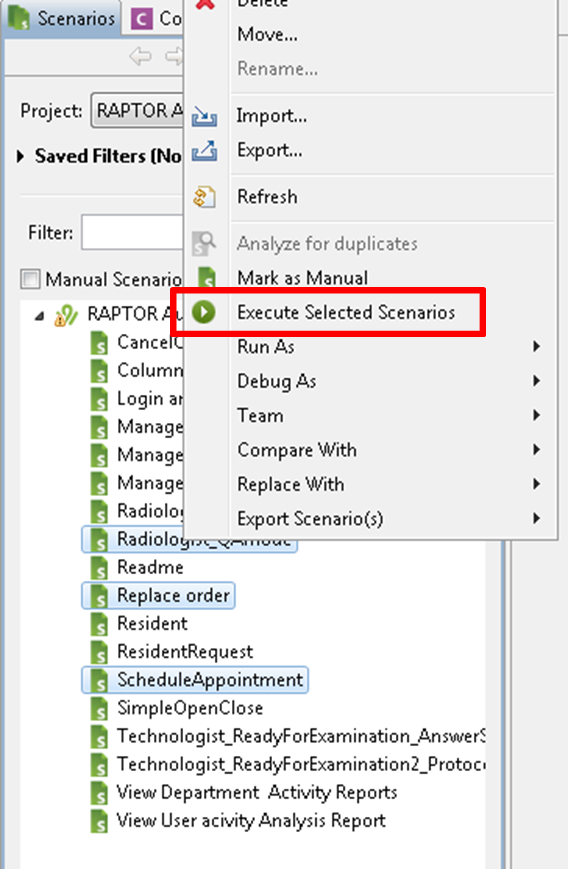


Figure 13: Execute subset of Scenarios in Twist

## Expected results

All of the RAPTOR tests should pass when run individually. There have been some instances of the tests reporting errors or failing when run as part of a group. The cause of this discrepancy is still under investigation.