Managing Test Data using Rational Performance Tester

A Scenario based Approach

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Contents

Introduction:

IBM Rational Performance Tester (RPT) is a performance testing tool used for full fledge performance testing of the application under test. It helps you to gather all the performance related metrics when the application is subjected to specified user load. The application can be a thick, thin or a smart application.

It helps you to identify and execute performance tests that analyze the impact of load, its presence and cause of system performance bottlenecks thereby reducing load testing complexity.

For Example:

- Code-free testing enables you to create test scripts without programming.
- Root cause analysis tools find and diagnose the cause of performance problems.
- Real-time reporting enables immediate recognition of performance problems and renders a browser-like view of test results in web pages.
- Test data can be generated from scripts, data pools with automated variation, and the insertion of custom Java code for flexible test customization.
- Load testing helps ensure applications are able to handle large user loads prior to deployment.

The captured data is dependent on the request – response sequence and can occur with static or dynamic values. Sometimes, these data needs to be structured correctly for better playback operation. To assist this, RPT offers a built-in capability of correlating the data.

In fact the Data correlation is the retrieval of dynamic values from the server response, with respect to the requested posted to the server. These values can change anytime the requested is posted to the server.

This article covers a scenario where a particular dynamic value which is not correlated due to encoding, is manually correlated under Rational Performance Tester. Contrary to this the manual correlation operation retrieves the dynamic content with respect to the pages. The creation of Rule File for the correlation values is also described in the document.

Use Case Scenario:

In .NET applications, the page contents are sometimes encoded and sent as dynamic value in VIEWSTATE. In this particular use case, some page contents are sent without encoding, for which the VIEWSTATE value is not in the encoded format. In spite of RPT performing automatic correlation of such data, the encoded values might have to be handled manually. Dynamic content of a particular page are reproduce only once in the response as the entire page content is encoded and sent.

For Example:

In some pages the VIEWSTATE values is encoded and RPT fails to correlate these values.

The next section briefs you on the creation of Rule file which would help in the process of correlating the VIEWSTATE values.

Overview of Data Correlation Rule File

Data correlation Rule file is used to control how references and substitutions are generated in tests, and store these rules so that you do not have to manually correlate data in every test that you record against a particular application.

Benefits of a Rule file:

- Automate manual edits
- Speed up data correlation
- Decrease time from recording to execution

Rule Editor Terms:

1. Rule Pass:
   - Grouping of rules that are executed in order
   - Multiple rule passes are executed sequentially

2. Rule Argument:

   A **variable** that can be used in any rule. They are accessed by using **%argName%**

Basic Rule Format:

- Create a parent child relationship to link things together.
- Value from parent rule gets fed into child rule

Typically, you create a substitution and then link a reference to the substitution. References are located in the data that the server under test returns, while substitutions are in the data that is sent to the server. To create a substitution and then link a reference to the substitution in the rules editor:

Rule Arguments:

Types of Rules:

Following are the rules that can be designed based on the required scenario.

For more information on this, you may navigate to Rational Performance Tester Info center.
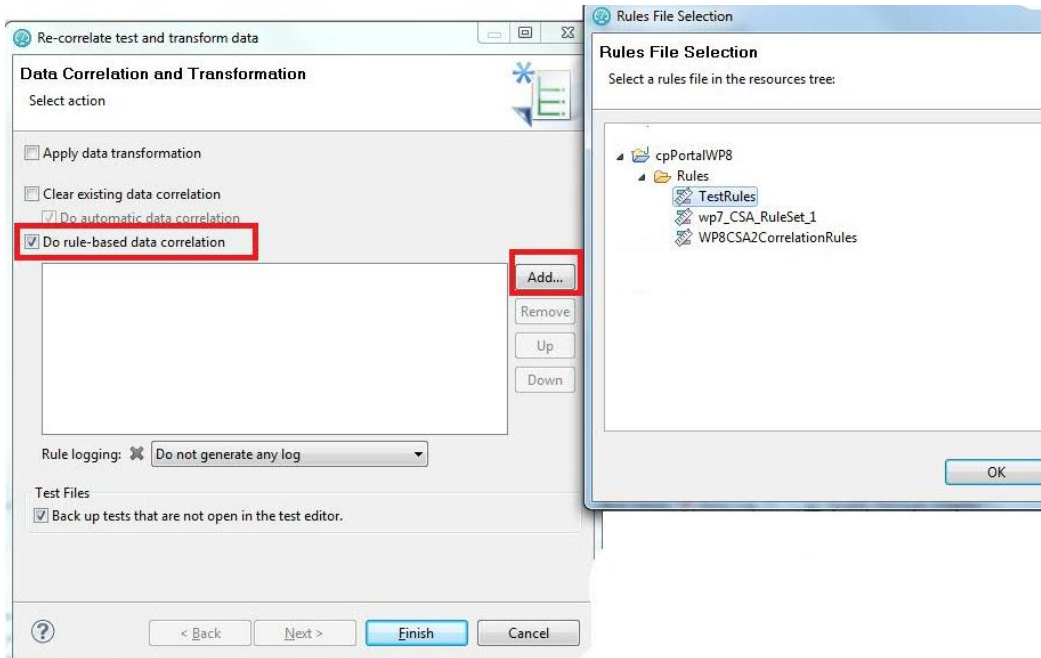
Data Correlation Options:

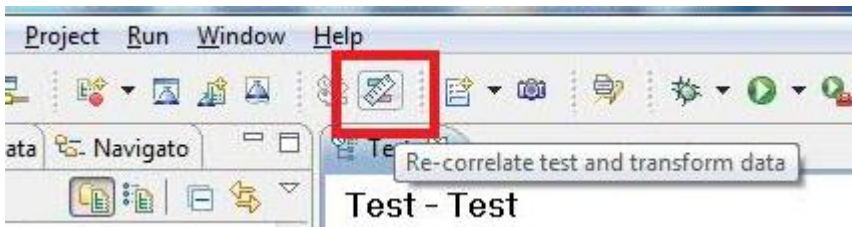To modify Test Generation options, Click **Windows > Preferences > Test > Test Generation > HTTP Test Generation**
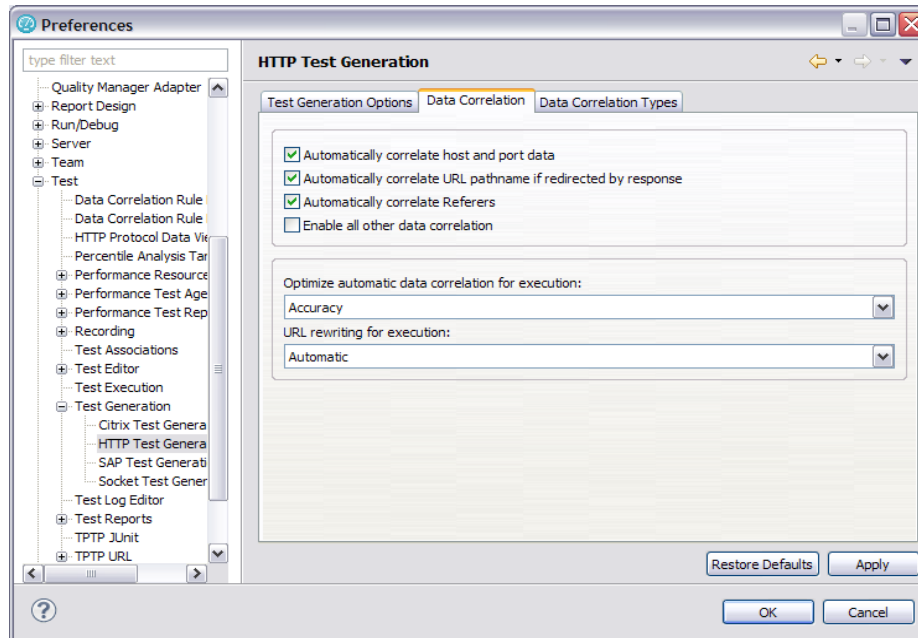
How to Apply Rules:

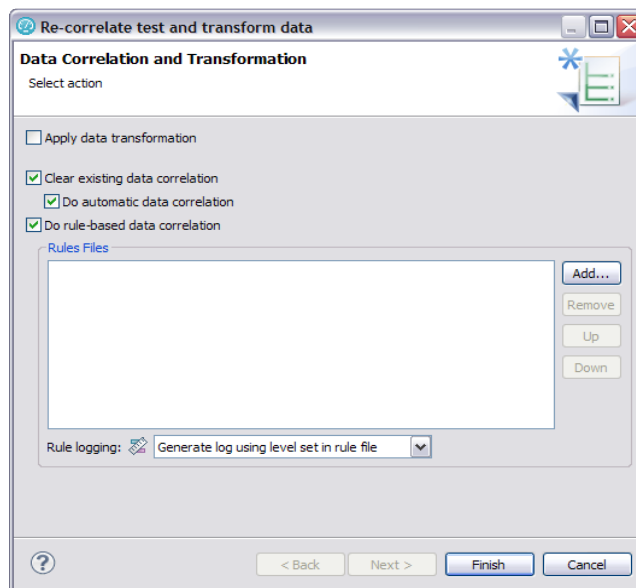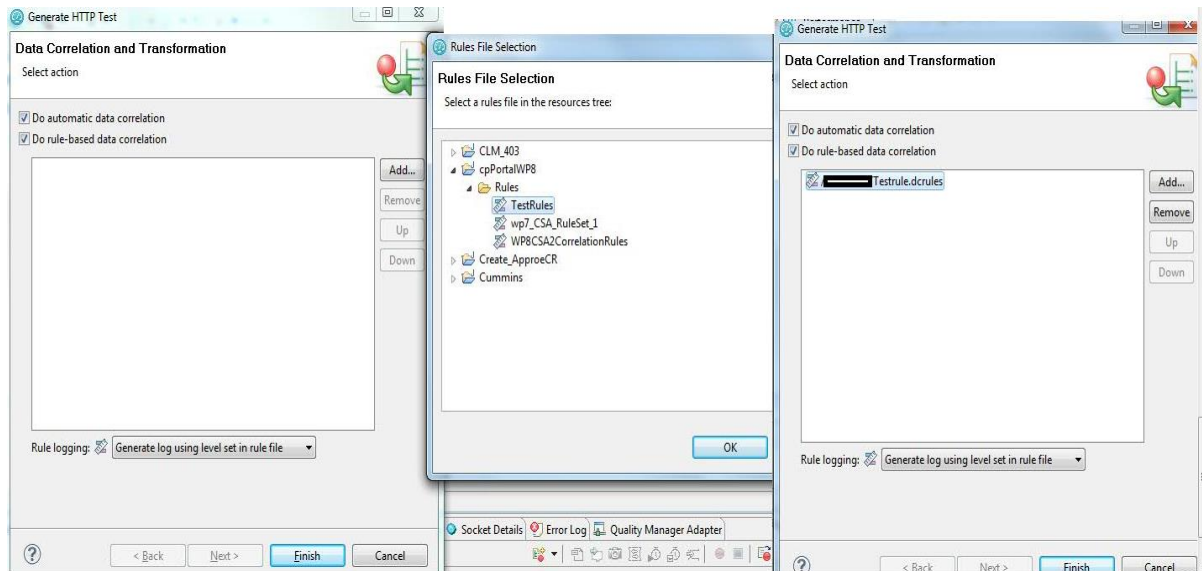- Select Test >> Right click >> **Apply data Correlation rules**
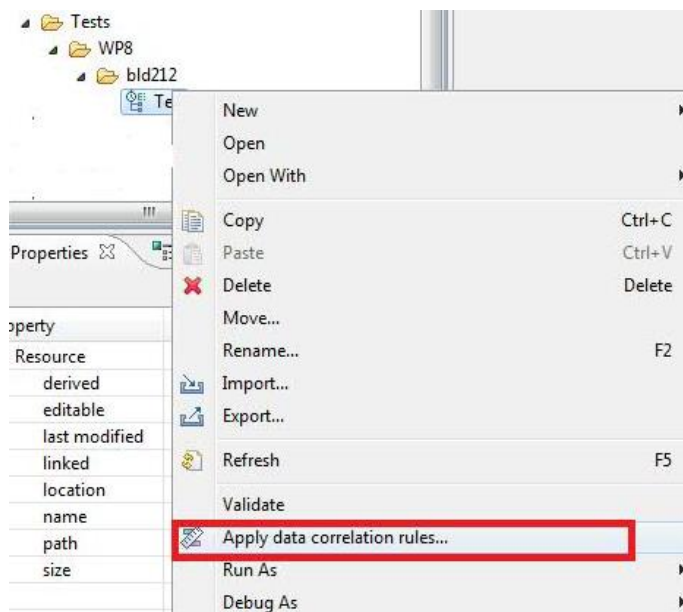
- In test there is a re-correlate button which can be used as shown below.

Click the **Re-Correlate** button to bring up the following options:

- At record time you can choose rule files to automatically apply when test generation occurs.

Correlating the Encoded Data Value:

The values to be correlated are identified by viewing the substitution for the entire script. This displays the possible candidates that can be correlated and those that have been substituted.

Steps:

1) Select the script in the test content tab in RPT.
2) Options button is right clicked to get the following drop down menu as displayed.
3) Show substitution menu option is selected.
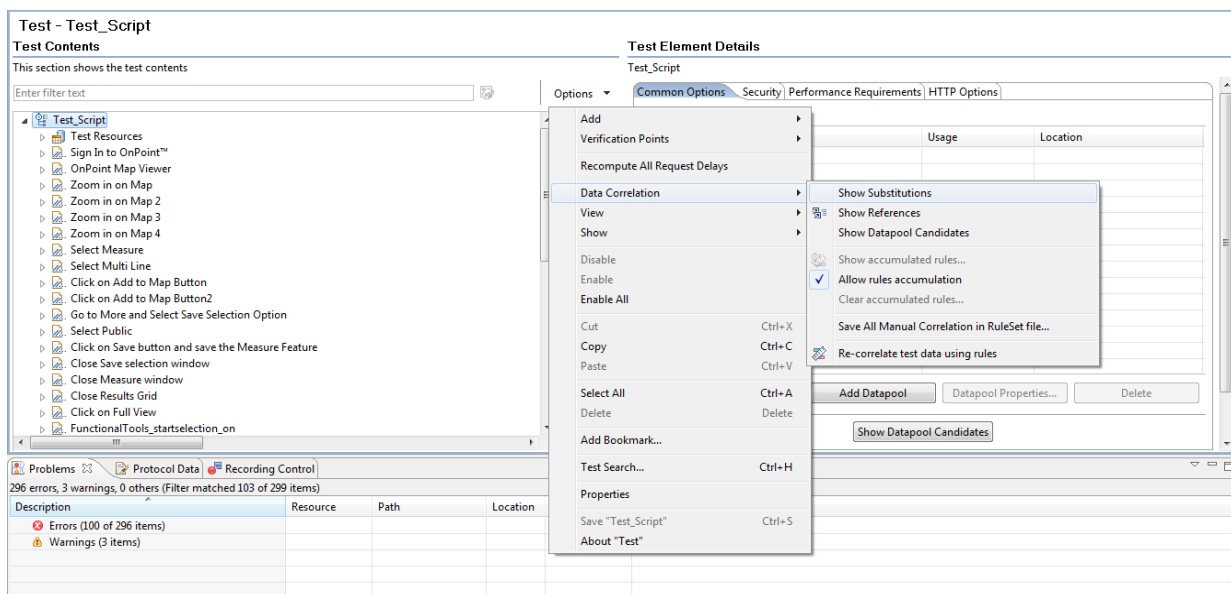
The substitution window is processed. The window below shows all the correlated values in purple color and all the data pool candidates in green.

Once the test substitution window is displayed ,these values are analyzed to see if any correlation values are present. On analyzing , VIEWSTATE was identified to be the value which needs some additional manual data correlation.
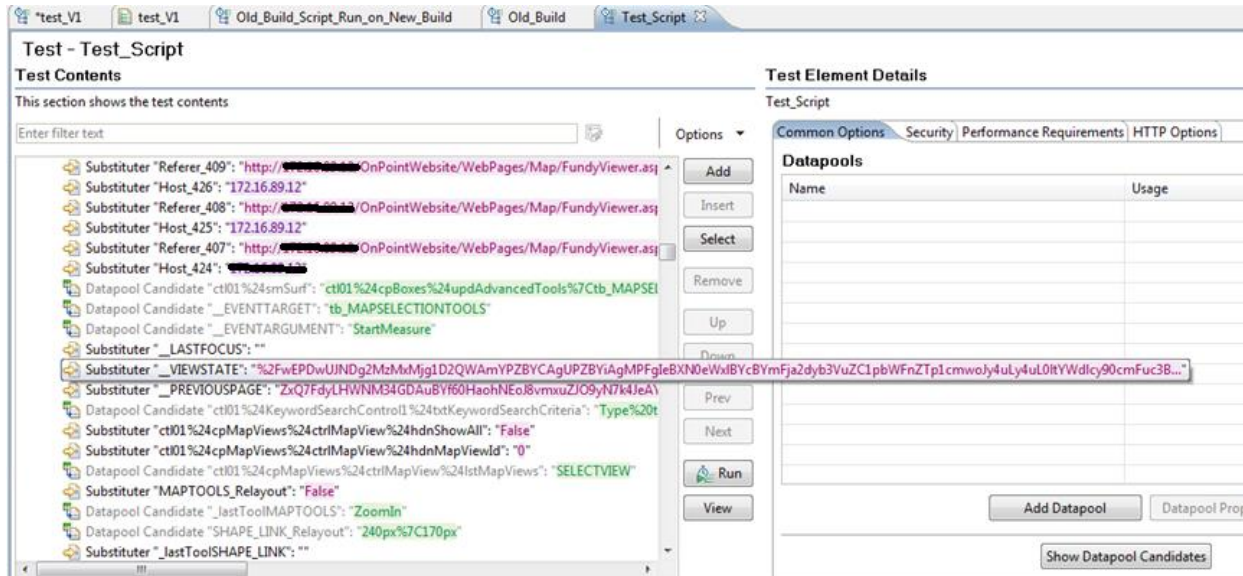
In the above screen shot the VIEWSATE value is automatically handled by RPT but these values are not encoded.

However in the below screen shot it is seen the same VIEWSTATE value is not handled by RPT.
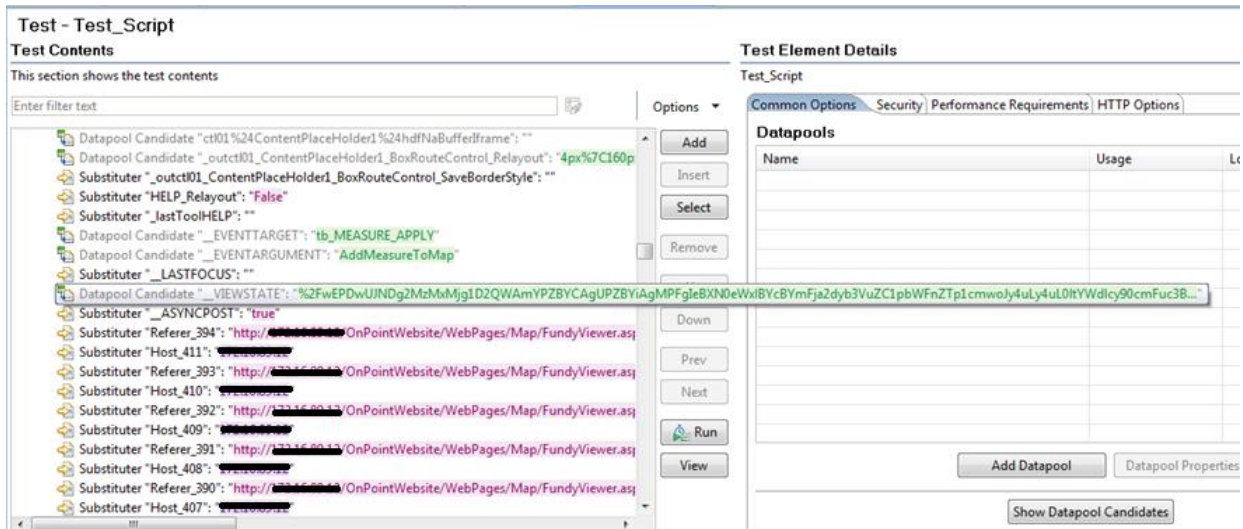
In such scenarios you have to manually correlate the test data.

By double clicking on the VIEWSTATE value, the response content of the view state is displayed in the Test element details tab in the RPT window.

The content that has to be searched in the test is selected as below.

On the searched content a reference can be created on the response. This is shown below:
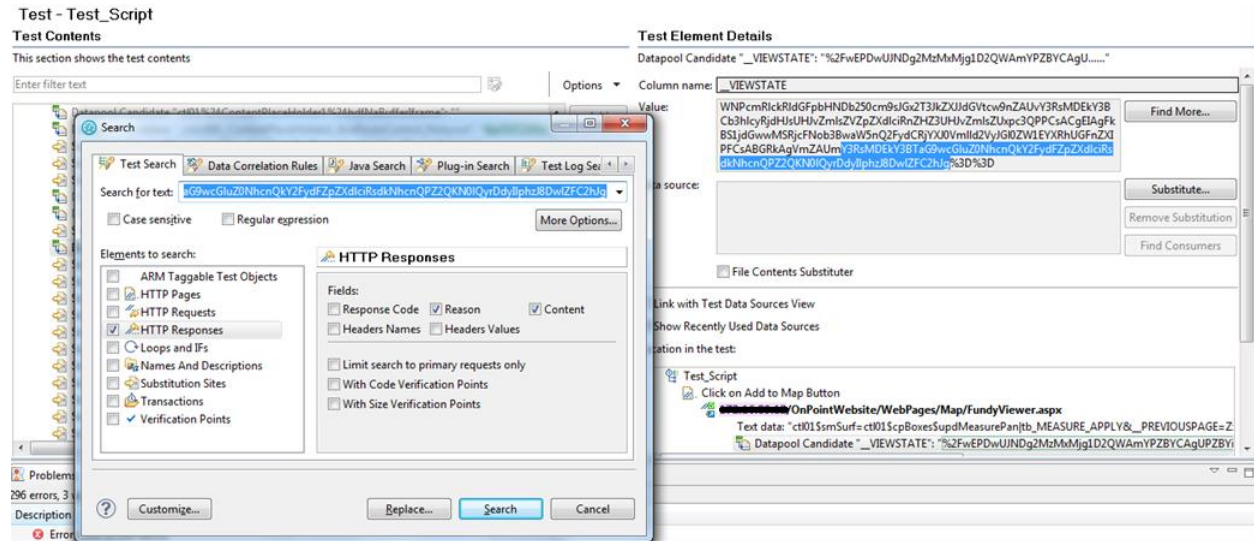
The search window can be accessed by selecting search tab in the RPT window. In order to get the content from the response, select the HTTP response check box.

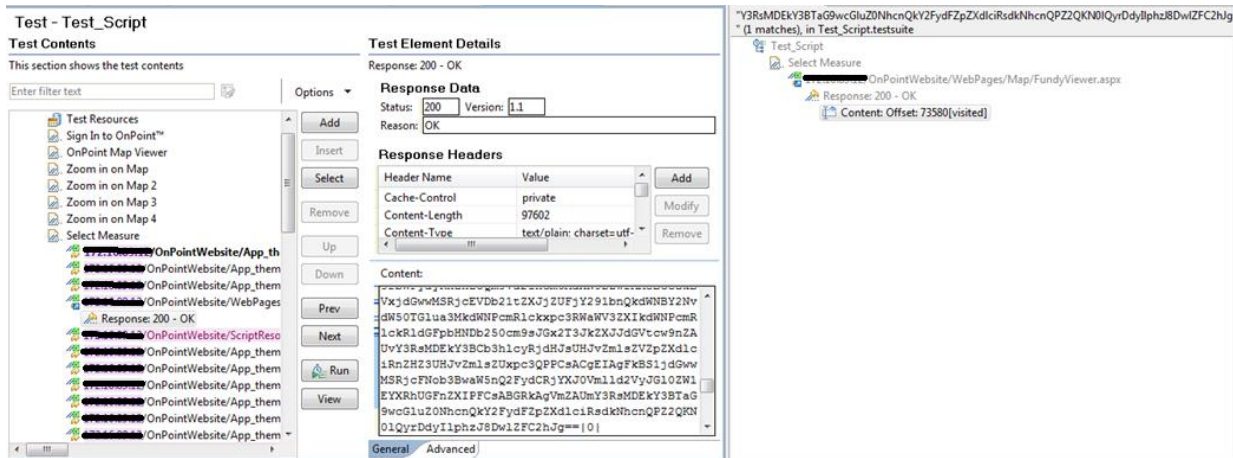After clicking on search button the response content containing the value is displayed in the search window. The first Content offset is selected to create the reference.
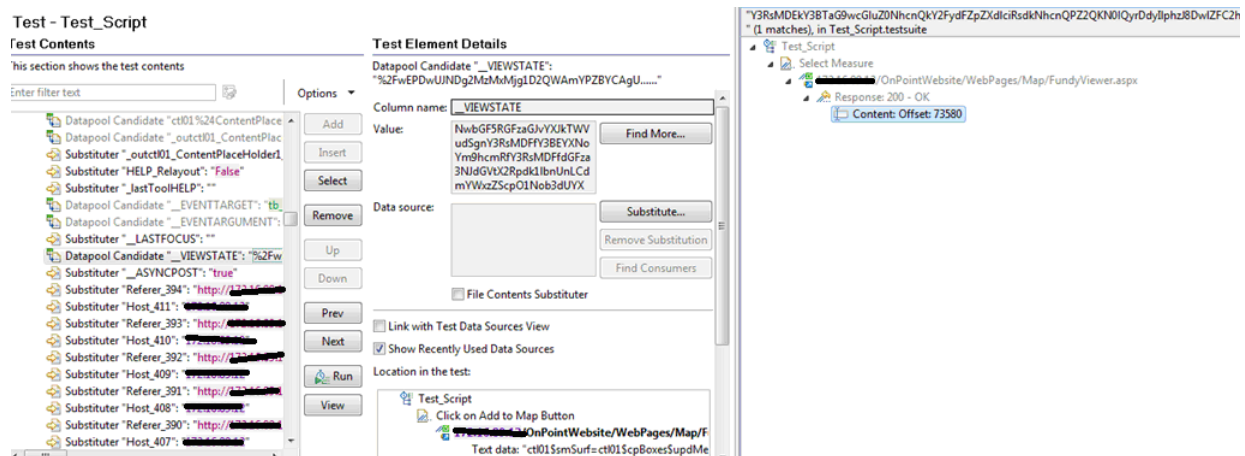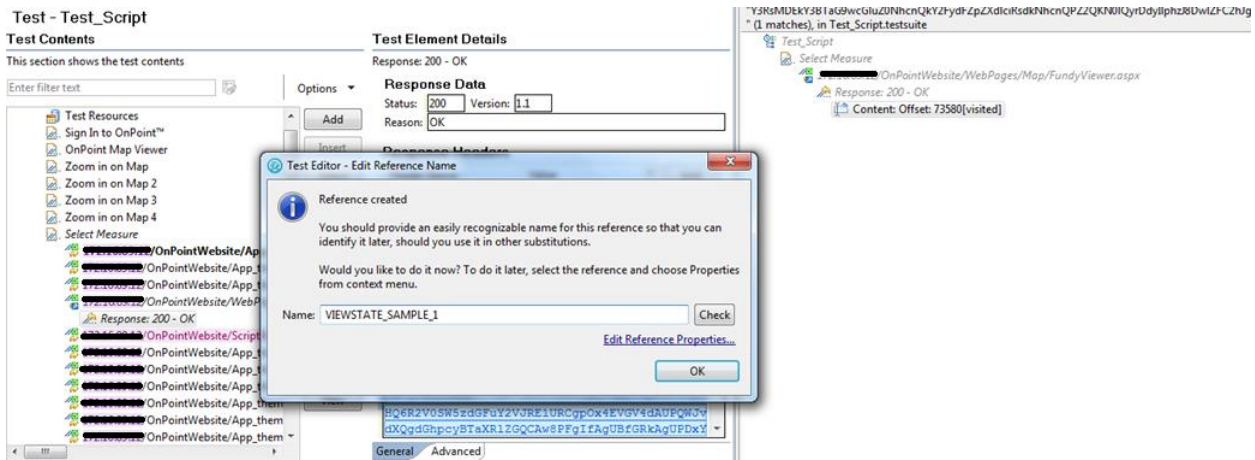
Once the offset is selected the page request where the response is present is displayed, this also shows the response content.


Right click on the test Content for which a reference has to be created and click **Create Reference**.
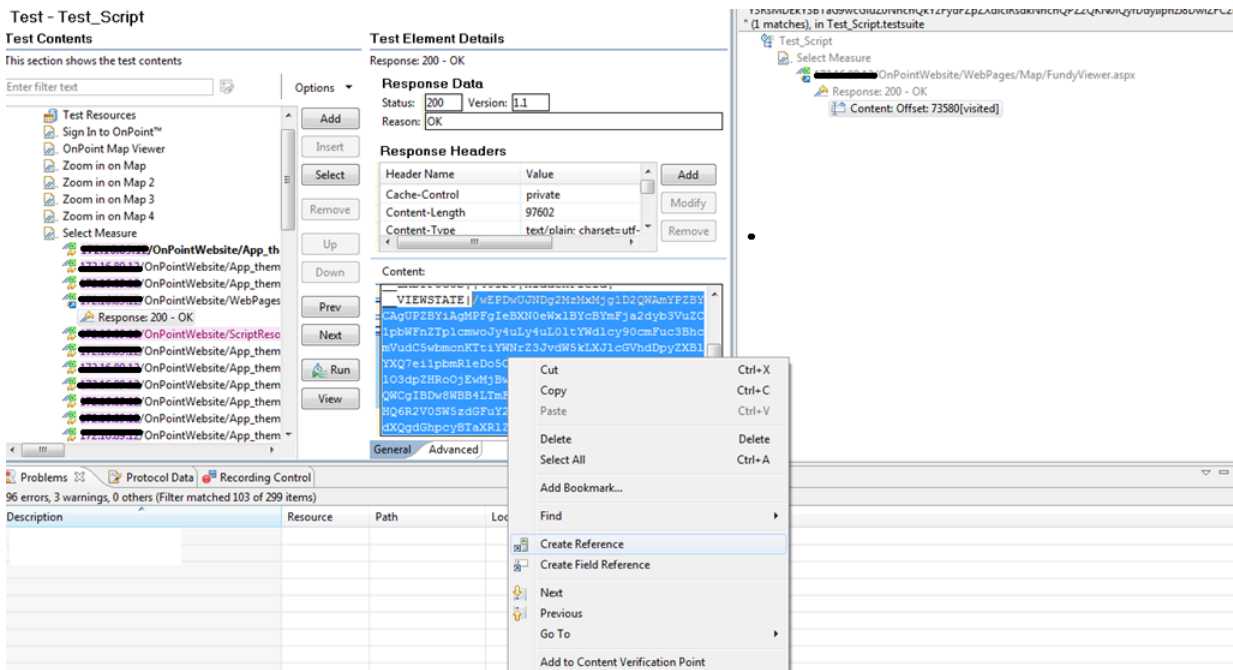
A unique name is typed for the reference being created. This is shown below:

After the creation of a reference, the value which matches the created reference is automatically retrieved from all requests in the script and is shown in a list as below. Select those Substitution Site that are required and click on Substitute Checked.
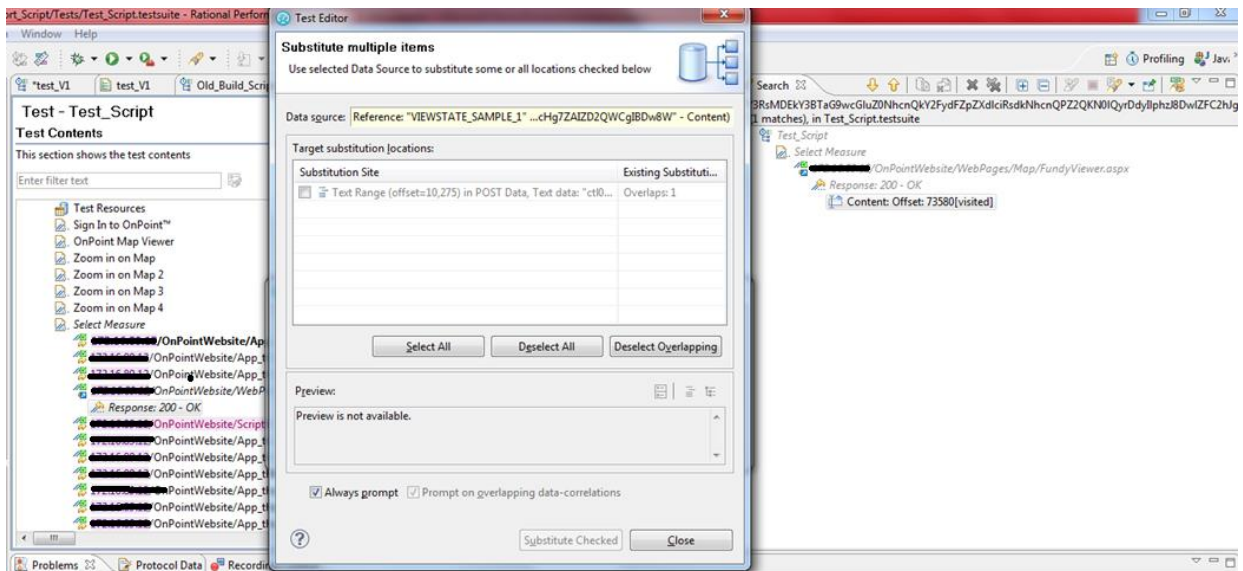

Here only one value is displayed. As the page contents are unique.
Once the script is edited and all the relevant dynamic values are correlated, the script is saved.

On saving the script, RPT prompts for the creation of a rule file as shown below:
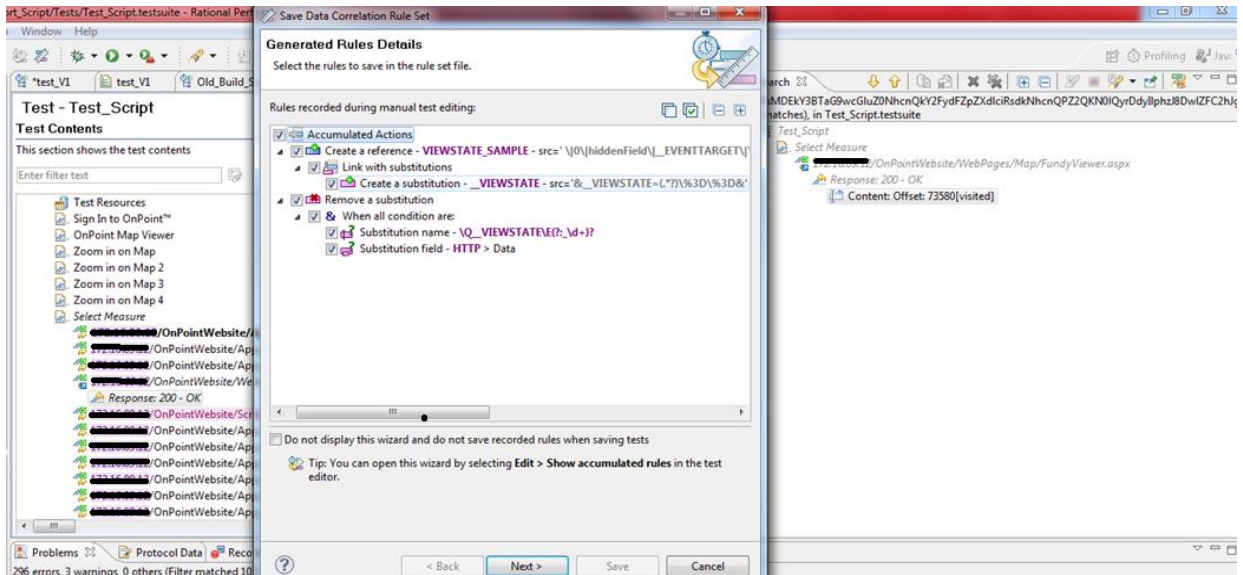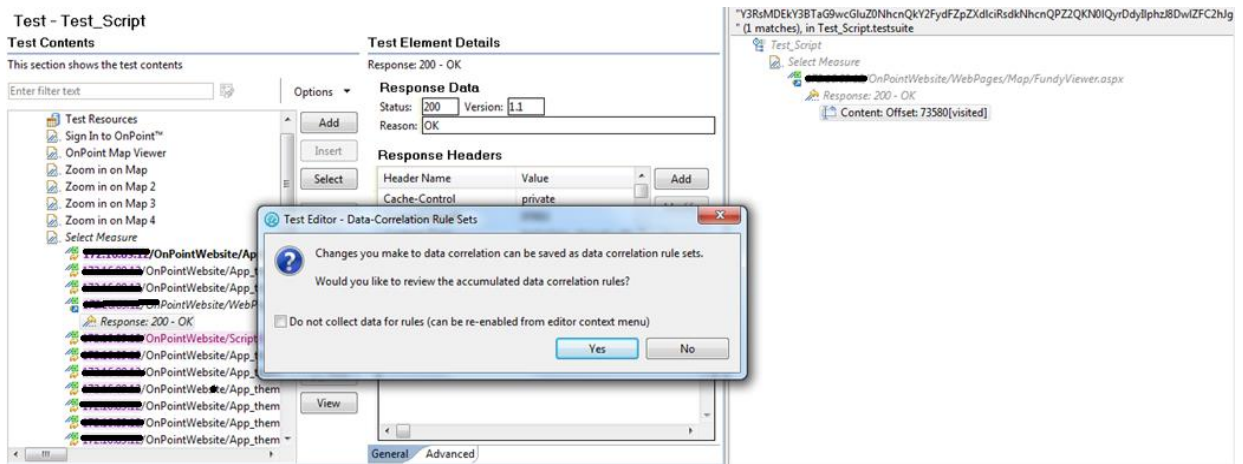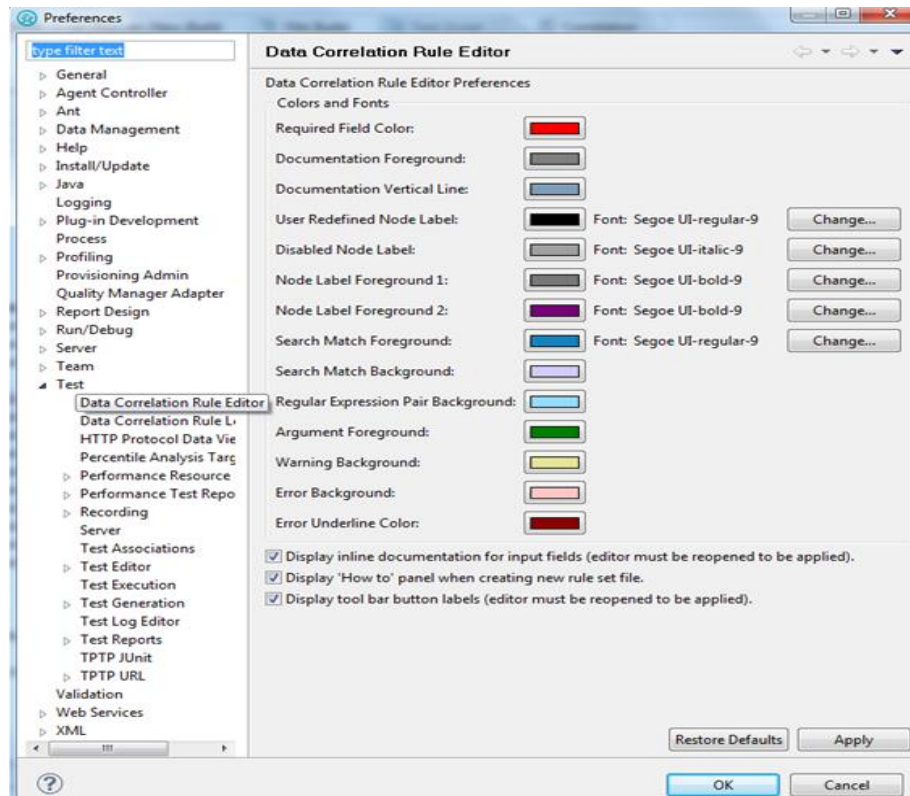

All the generated rule details are show above, this is displayed once the creation of rule file is started. On clicking next the location where the rule file has to be saved is provided.
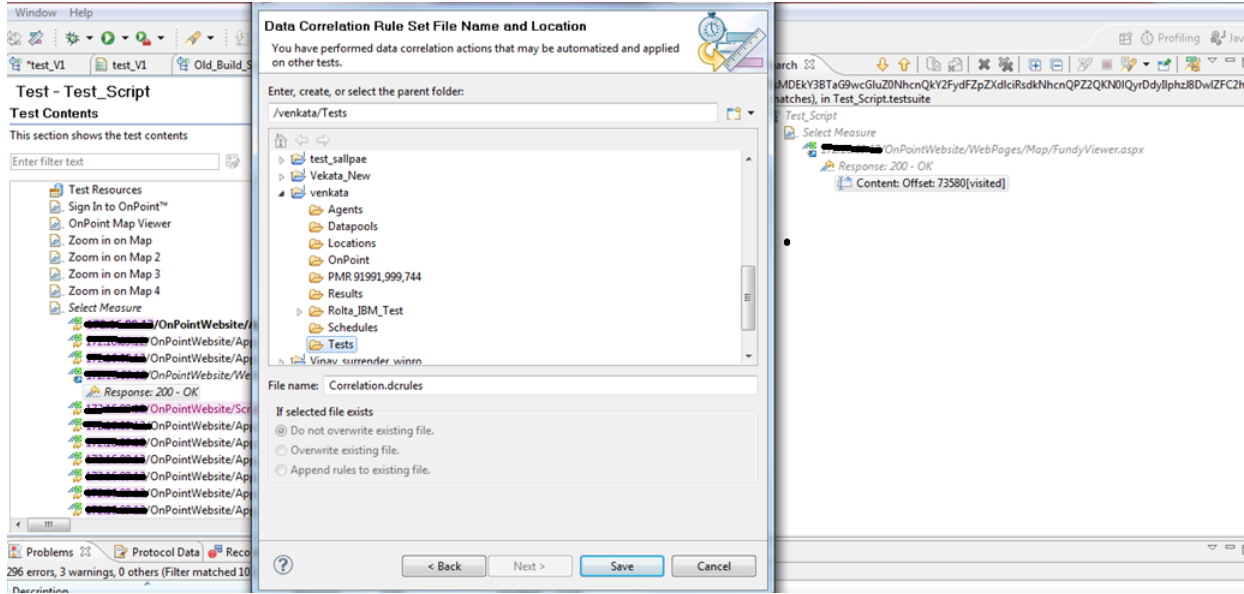
The rule file can be used in the next script or in the current script during regeneration. This will automatically handle all the manually correlated values. The rule file can be applied as mentioned in section How to Apply Rules.

Several options with respect to the rule file can be changed as shown below:

References:

1. Rational Performance tester Info Center:
http://pic.dhe.ibm.com/infocenter/wrklight/v6r0m0/index.jsp?topic=%2Fcom.ibm.rational.test.lt.common.doc%2Ftopics%2Ftrulerecorr.html

2. Rational Performance tester Product guide:
http://www.ibm.com/software/products/us/en/performance