

APPLICATION NOTE

HOW TO USE TEST PATH LIBRARY FEATURE?

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<u>Abstract</u>	This Application Note explains how to use the Test Path Library feature.
<u>Keywords</u>	MaTeLo, Test Path Library, Test Path, Test Case, Test Suite, Unicity ID
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1. Introduction

This Application Note explains how to use the Test Path Library feature.

1.1 MaTeLo

MaTeLo is a tool chain developed by ALL4TEC (www.all4tec.net) that implements the Model Based Testing approach. In user friendly environment, MaTeLo offers an integrated set of components and features to enable test engineers in designing their tests based on usage models. Then, the test cases are automatically generated from the model depending on the user selected test strategy.

In general, MaTeLo manages successfully test projects in the fields of automotive, railway or energy, IT by providing professional and valuable features to obtain a better test coverage and a higher engineering productivity.

1.2 Why to use Test Path Library in MaTeLo?

In every test project in what Test cases generator as MaTeLo are used, it is important to control the test cases patrimony. This control could be based on the unique identification of each test case generated by MaTeLo.

MaTeLo as test cases generator, it is possible for different generation algorithms to specify the test cases number to generate. Sometimes, MaTeLo can generate in one shot some identical test cases if a big number of test cases to generate were specified.

Execute identical test cases by the fact to have not been able to do a detailed identification after the MaTeLo generation is not very comfortable. This can generate a big waste of time and big test cost.

In some cases like regression testing, the regeneration of the some test cases can be requested. To do this, Test Path Notion can be used.

In this application note, the use of Test Path Library is exposed. *Test Path Library is supported by MaTeLo 4.7.8.*

2. Test Path Library

2.1 MaTeLo project sample

To illustrate Test Path Library feature, Website_Selenium demo project will be used. The screen-shot of the model is showed below:

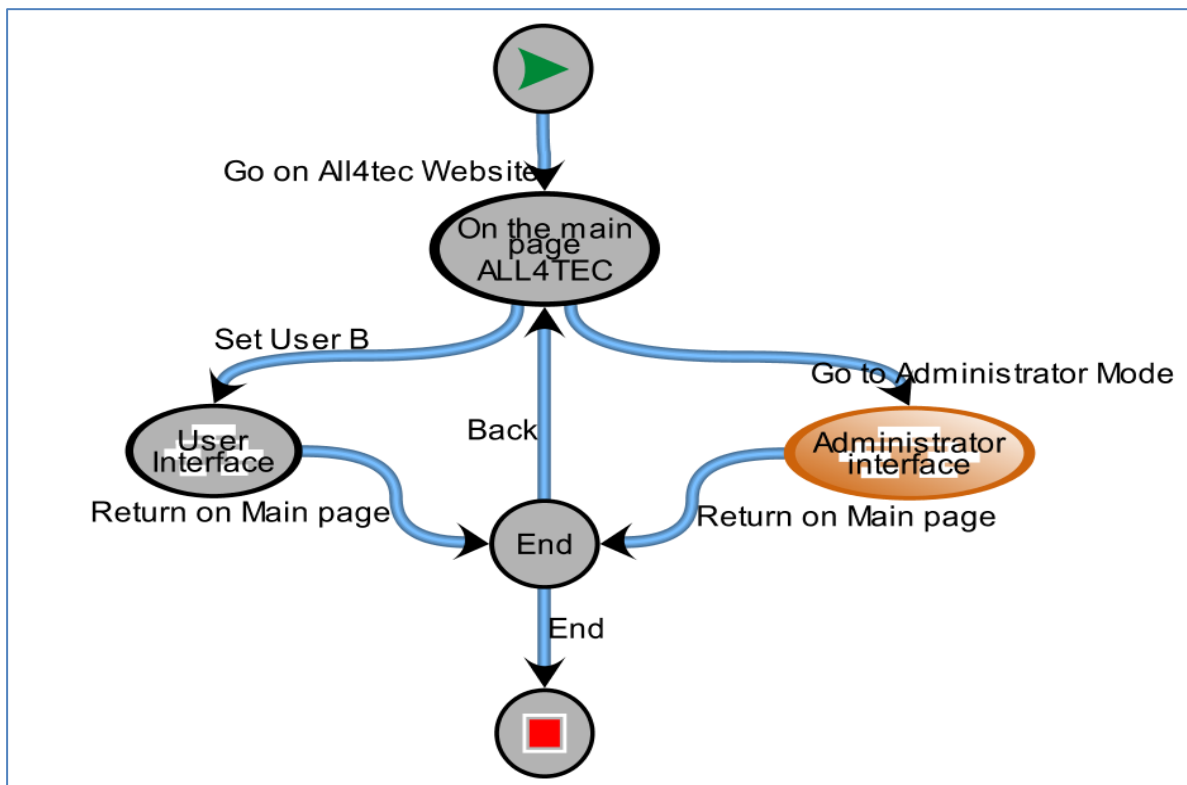


Figure 1: MaTeLo model sample screen-shot

2.2 Test Path Library in MaTeLo Editor

2.2.1 Test Path Library opening

In MaTeLo 4.7.8, it is now possible to have a view of all test cases generated and saved in MaTeLo Editor. This action is performed by click on the button framed in red at the screen-shot below.

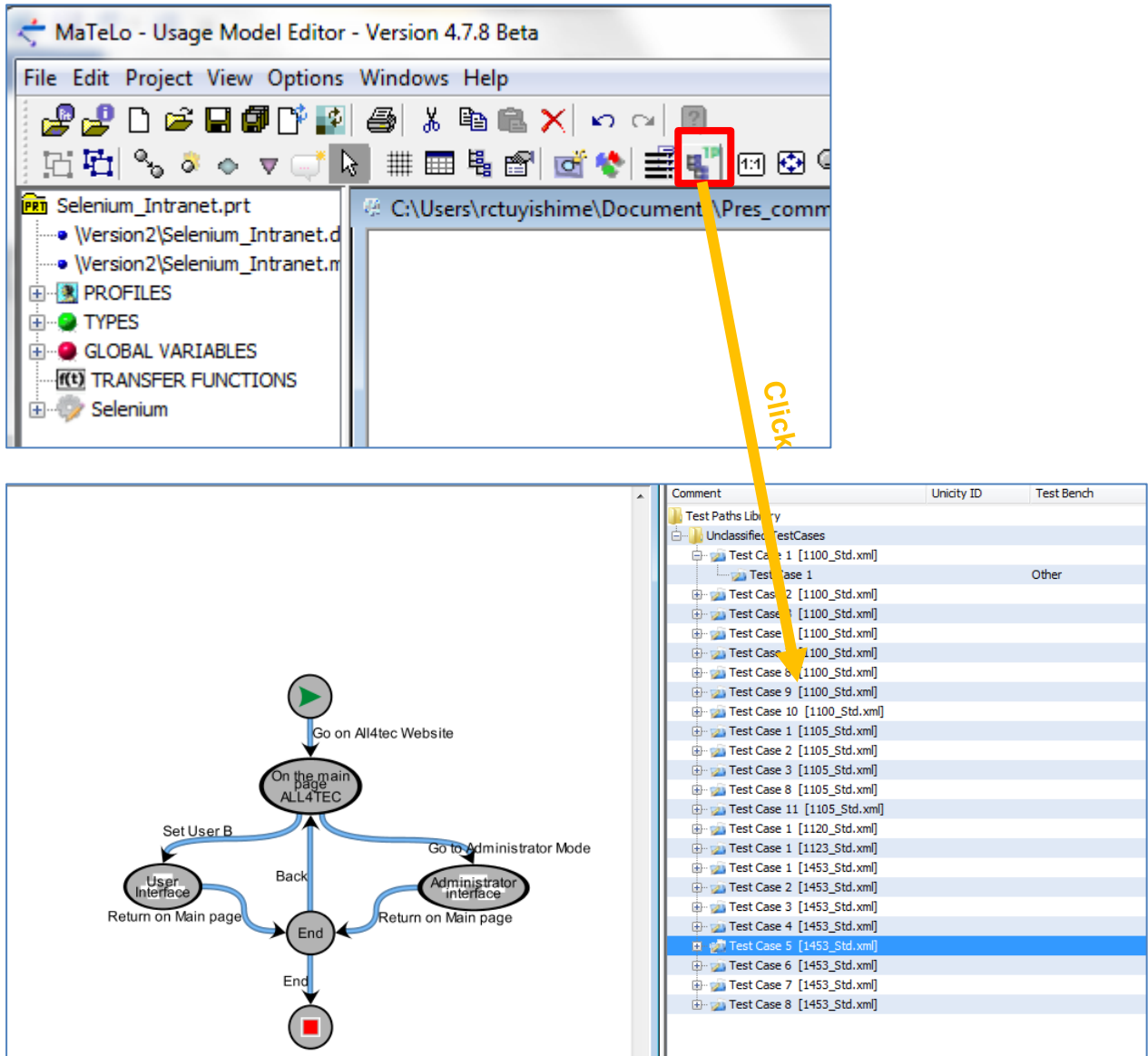


Figure 2: Displaying of project test cases in Editor

As showed on this screen-shot, after clicking on Test Path Library button, all test cases available in MaTeLo project are displayed in the right window. If a Test bench has been defined in the project, its type is displayed in the window. For Website_Selenium demo project, A test bench type “Other” was used.

The test cases displayed on the screen-shot above are unclassified because no test paths have been created.

2.2.2 Creation of Test paths

A Test Path will correspond to one test case. For reminder, a test case in MaTeLo corresponds to one path of the model from Invoke state to terminate state.

The main objective for creating Test Paths is to identify uniquely each test case by attributing an ID.

For each test case, an ID will be calculated based on the model elements (chains, sub chains, transitions and equivalence classes) covered by the Test case. That means, for e.g. two test cases can pass through same chains, same sub chains and transitions but if they have some different equivalence classes, the ID will be different.

MaTeLo offers four possibilities to create Test Paths:

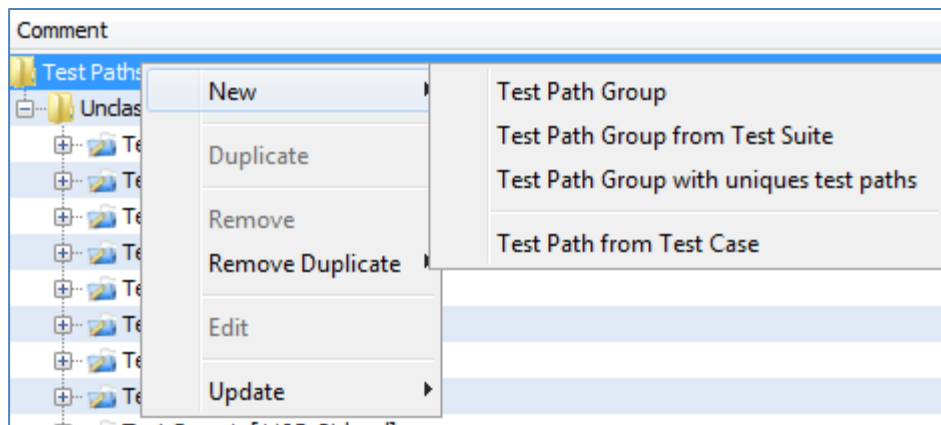


Figure 3: Test Paths creation possibilities

1. By Test Path Group

Test Paths can be organized by Test Path Group. For that, Test Path Group must be created before.

2. Test Path Group from Test Suite

Here, Test Paths will be created from Test Suites available in the project.

3. Test Path Group with unique test paths

This menu enables to create test path group with unique test paths. This menu must be used if some identical test paths already exist in Test Path Library.

4. Test Path from Test Case

Allow to create directly a test path from a test case.

In this application note, second method “**Test Path Group from Test Suite**” is used. The Paths are created from two Test Suites as showed below. (see figure 4)

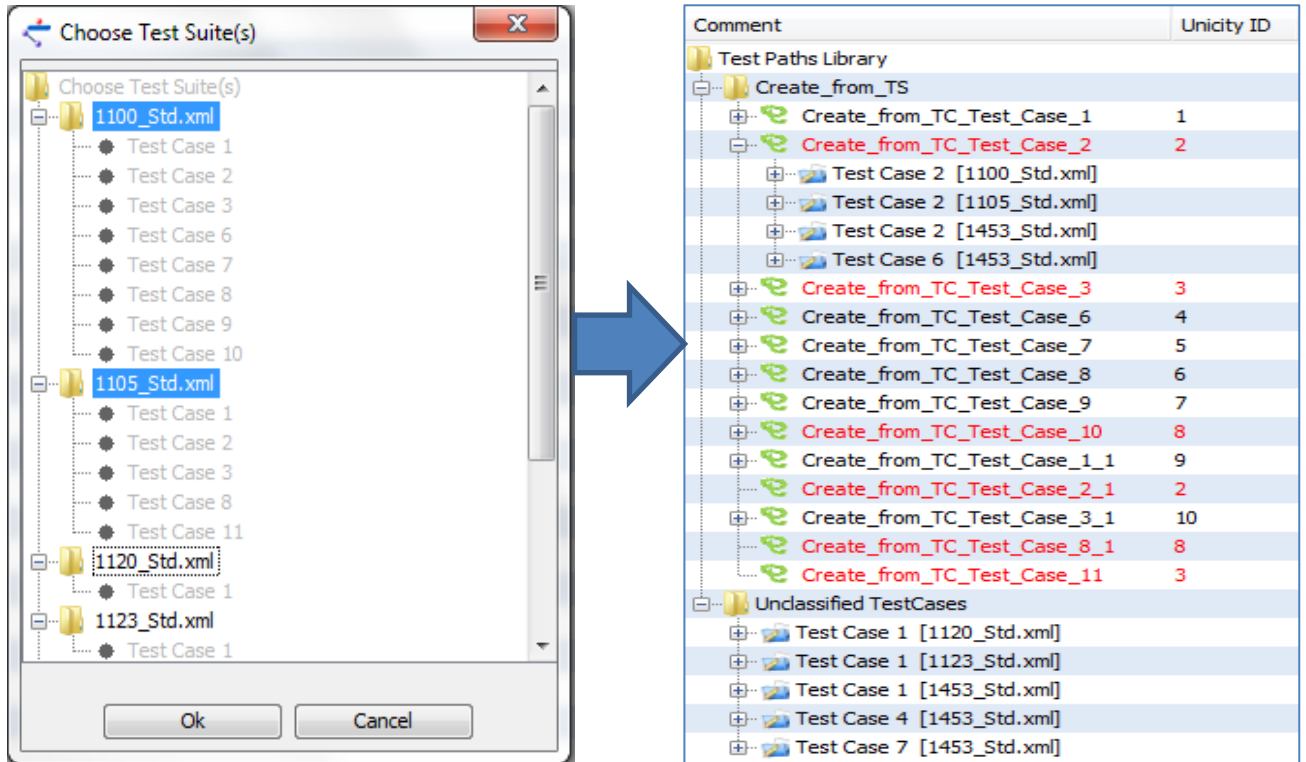


Figure 4: Test Paths creation from Test Suites

The Test Paths Highlighted in red are identical. *Example*: The Test Path Created from the Test Case 2 is identical as the Test path created from the Test Case 2_1.

As showed on the screen-shot, each Test Path has an ID (Unicity ID). The removing of those duplicate Test Paths must be done by a right click on "Test Paths Library" or Test Path Group > click on the button Remove Duplicate > Click on Test Paths in Group or Test Paths in project.

The result of Test Paths removing action is showed below:

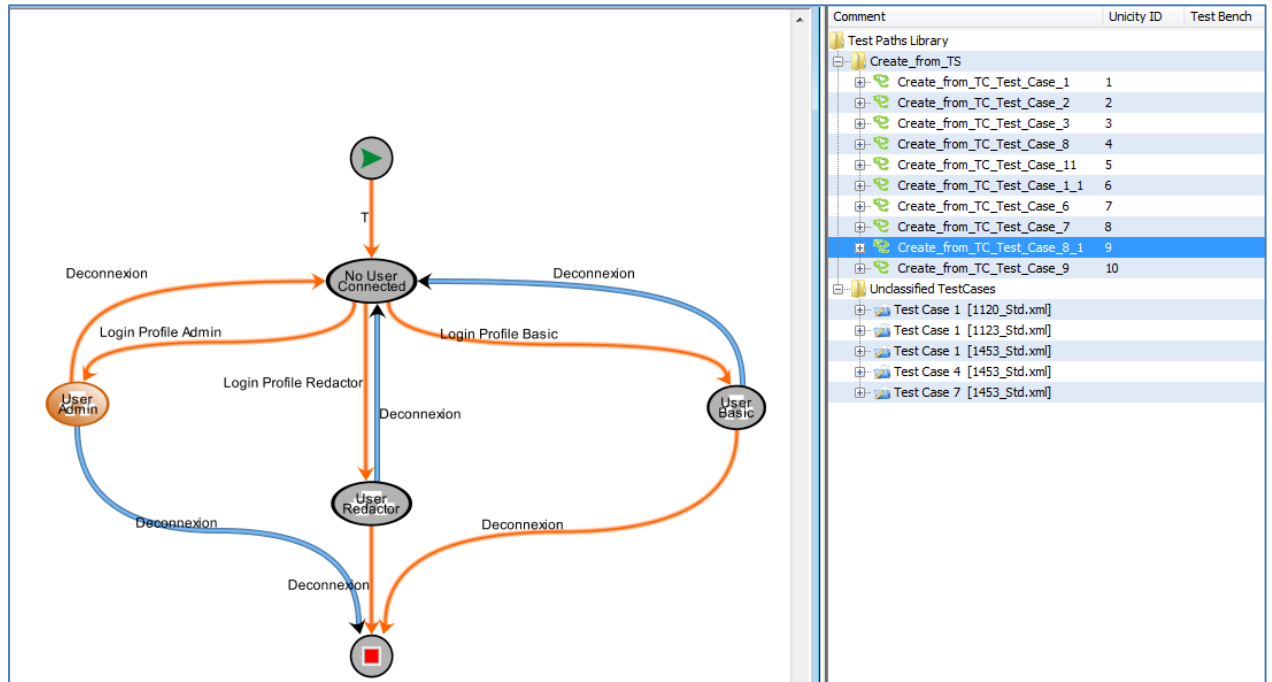


Figure 5: Test Paths Library after remove of duplicated Test Paths

The model path covered by the Test Path is highlighted in red. This is done by double clicking on the concerned Test Path (Create_from_TC_Test_Case_8_1 on the sample).

2.3 Test Path Library in MaTeLo Testor

One of Test Path Library advantage is the ability to regenerate a desired test case(s) based to the Test path. This will be performed using new algorithm named "Tagged Path".

The user has to select Tagged Path algorithm in algorithm menu (1), choose the Test Path(s) to generate (2) then click on Generate button (3).

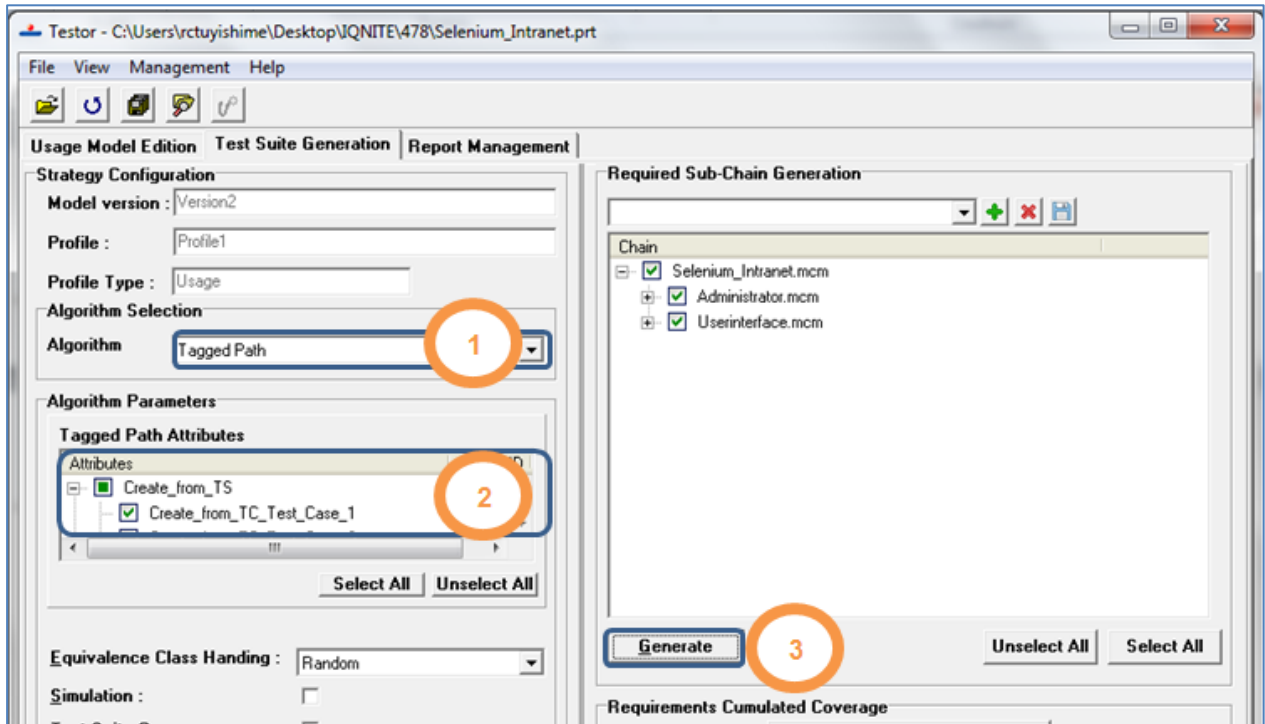


Figure 6: Test Path(s) generation

Another major evolution in MaTeLo 4.7.8 is the possibility to have an exhaustive identification of each test case generated by Testor. The identification is based on the Unicity ID (1). It allows to easily recognizing identical test cases (2) in a same Test Suite and deselects it (3) in order to save only none similar test cases.

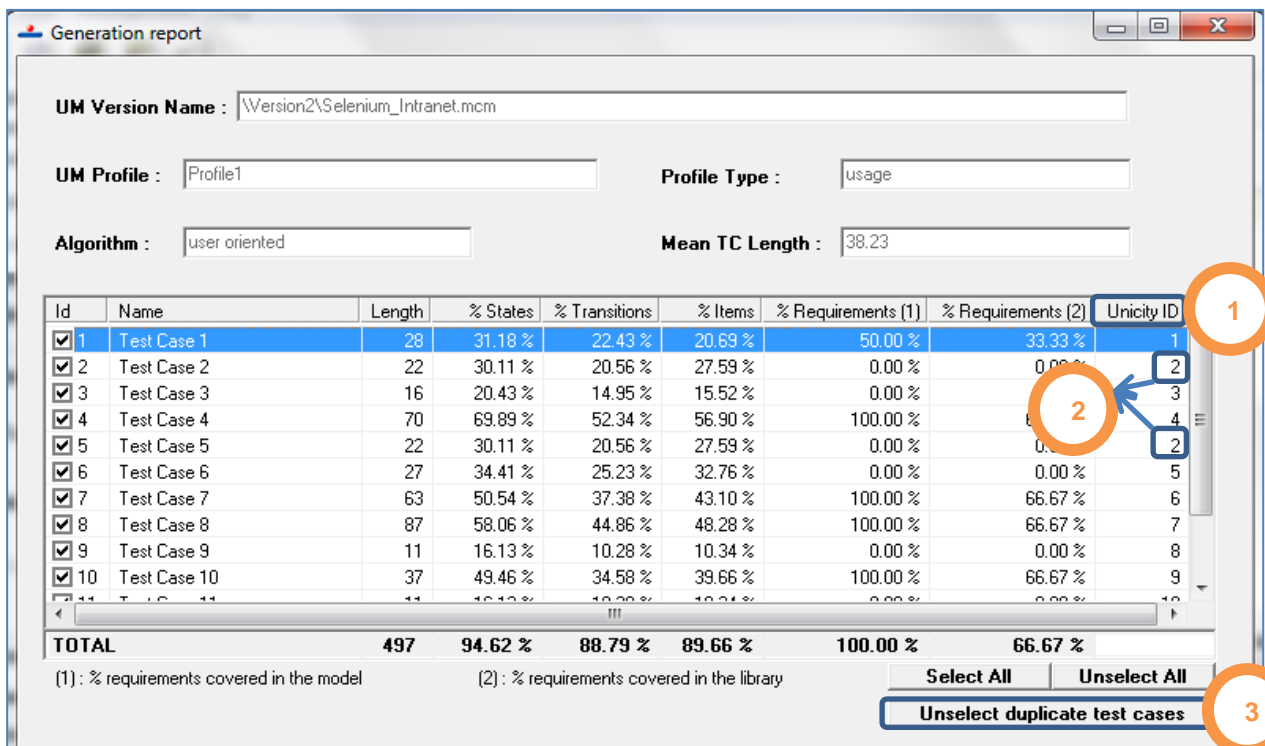


Figure 7: Test Cases identification by Unicity

3. Conclusion

Test Path Library feature is a very important evolution in MaTeLo. As presented in the application note, the user has a total control on the test cases generation thanks to the Test Path notion. By using Tagged Path algorithm and specifying in MaTeLo Testor the test path(s) already created in MaTeLo Editor, he can generate desired Test case (s).

Each test case is identified by an unicity ID. This helps to compare test cases of a same Test Suite or a same project and enables to remove duplicates one.

To resume, Test Path Library is very helpful in Test Cases management.

4. References

Websites:

- MaTeLo: <http://www.all4tec.net/>

Wiki MaTeLo :

http://www.all4tec.net/wiki/index.php?title=Main_Page