Partner Test Management
Adapter Operations

Applies to:
SAP Solution Manager 7.2 – Test Suite – Partner Test Management – Adapter

Summary
The Partner Test Management – Adapter enables the customer to integrate the SAP Solution Manager & HP ALM (formerly HP QC). This document would explain you the process involved in SAP Solution Manager as well as in the Partner.

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Author Bio
Detail-oriented Senior Development Expert with over 9 years' of experience in SAP HANA, SAPUI5, FIORI, ABAP (including the new features of 740/750), ABAP on HANA, ABAP Objects, ABAP – Webdynpro, Gateway Services (ODATA), FPM, HR-ABAP, Interfacing, ABAP XML Processing (XSLT, Simple Transformations and JSON), Solution Manager 7.1/7.2 and upgrade. Skilled in both the “object” and the “classical” sides of ABAP stream, focusing on technical arena involved dynamic programming, design, optimization, and performance tuning.
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1. Overview

To speed up testing and improve software quality, you can transfer Solution Documentation and test assets from the SAP® Solution Manager Application management solution to the SAP Quality Center/ ALM application by HP. You can then test in HP ALM (formerly HP QC), display the results in SAP Solution Manager, and synchronize your quality center defects with service desk tickets.

**Testing Inefficiencies**

Any change to your solution landscape requires testing to ensure software quality and minimize business and IT risk. However, since so many testing tasks require manual effort, quality assurance teams find themselves pressed for time. To stay on schedule, teams must often either delay the release or skip critical tests. Both options result in higher cost and a riskier quality process.

**Better for Both Quality Managers and Product Managers**

To address this challenge, SAP has developed an adapter that integrates the SAP® Solution Manager Application management solution and the HP ALM, used for software testing. This allows you to transfer your business blueprint structure and related documents, specifications, business requirements, links, and test objects such as transactions, implementation guide activities, or custom programs. Quality managers use this information to plan and structure their test projects efficiently. Integration between the service desk of SAP Solution Manager and the defect management of SAP Quality Center makes test execution faster and more transparent. Project managers benefit as well. Test results are transferred regularly and automatically into SAP Solution Manager and are monitored centrally. Project managers gain greater control over testing processes and can reuse critical information to support future upgrades and continuous business improvement projects. The result is an integrated testing environment, as shown in the figure below, helping you reduce the time and cost of deploying new software and upgrades.

**Higher Quality, Less Cost, Reduced Risk**

Integration between the tools let us testing teams work in their familiar environments. Because information for one application is made visible in the other, your IT staff does not have to master separate testing tools, and you have a far more efficient testing process that improves software quality and reliability. Testing is standardized and integrated project wide, and information is consolidated in a single view to support informed release decisions. The efficiency you gain can reduce costs and, more importantly, help minimize the risk of outages and other problems caused by poor testing.

2. Compatibility Matrix

<table>
<thead>
<tr>
<th>Solution Manager Version</th>
<th>HP ALM Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution Manager 7.2 SP03</td>
<td>HP ALM 12.53 Patch 1</td>
</tr>
</tbody>
</table>
3. Prerequisites

Before starting the operations in the Adapter Administration Console, it is mandatory to setup the Adapter in the SOLMAN_SETUP. Please follow the below article to do the E2E setup

http://scn.sap.com/docs/DOC-75248

4. Solution Documentation

Efficient planning, reporting and operation of your SAP solutions requires clear and reliable documentation for these solutions. The documentation of your system landscape and your business processes in SAP Solution Manager is the basis for the additional usage of the comprehensive Application Lifecycle Management (ALM) functions provided by SAP Solution Manager. The documented business processes are used in many ALM phases, for example in the Implementation phase by the Template Management, in the test environment by the test workbench and the Business Process Change Analyzer (BPCA), or in the monitoring environment by the business process monitoring. Therefore, up-to-date documentation of your core business processes is a basic prerequisite for realizing the full potential of the SAP Solution Manager.

To access the Solution Documentation, Launch the Solution Manager Launch Pad & click on the tile “Solution Documentation” or use the transaction SOLADM or SOLDOC.

To create the E2E flow we are going to use the Solution “Final Solution” which has the following branches,

- Production
- Maintenance
- Development
The Solution Documentation Branches needs to be associated to the Partner Project (HP ALM Project). One branch cannot be associated to multiple HP ALM projects.

5. Partner Project

In this section, we will get to know the process involved to create the HP ALM project. Login to the HP ALM Site Administration

http://<<host name>>:8080/qcbin/

**Step 1:** Launch the Site Administration

**Step 2:** Create a domain
Step 3: Create a project “PRODUCTION”

Step 4: Create an empty project
Step 5: Choose the DB Type,
Step 6: Choose the users for the project administrators,
Step 7: Choose the following extensions,

- Application Model
- Enterprise Integration for SAP Applications

Step 8: Activate and create the project
The aforementioned instructions would create the project in the HP ALM. To proceed with an E2E flow, create two more projects (mentioned below) by referring the steps.

- MAINTENANCE
- DEVELOPMENT

6. Partner Test Management – Administrator Console

In the Adapter Administration Console, the user needs to associate the Solution Documentation Branch with the HP ALM Partner Project. The following operations are possible with the administrator console.

Launch the “Administrator Console” by clicking on the Partner Test Management tile as shown below. The UI lets you do the following,

- Association
- Push the Solution Documentation
- To display the Test Results
- Partner Logs
- Keyword Mapping
- Test Object Filters
7. Adapter – An User Story

I would like to have a User Story to perform E2E Operations,

- **Associate the branches**
  - Production
  - Maintenance
  - Development

- **Transfer the Solution Documentation**

- **Import the Solution Documentation from HP ALM**

- **Create the Test Cases in HP ALM**
  - Test Set Creation
  - Test Cases Assignment

- **Perform the Manual Testing**

- **HP ALM Defects**
  - Field Mapping
  - Create Defect Sync to Solution Manager System
  - Responsibility Transfer
  - Assign the Defect to the Test Cases

- **Test Results & Incident Processing in Solution Manager**
  - Update the Test Results
  - Test Results Display
  - Process the Incident & Propose Solution
  - Retest & Close an Incident
7.1. Branch Association

**Step 1:** In the Adapter, every branch needs to be associated to the HP ALM project. Please refer the following section.

**Step 2:** Click on the button “New Association”

**Step 3:** Choose the Solution Documentation artifacts such as Solution, Branch and the View & the Partner Details
### Partner Alias
The Partner Alias you had created in the Step – 5 (Define Partner Connections) in SOLMAN_SETUP

### Partner Project
HP ALM Project

### Project Attribute
HP ALM Domain

### Refresh Solution Documentation
Syncs the Solution Documentation with HP ALM Project on the periodic time intervals (Daily)

### Refresh Test Results
Syncs the Test Results from the HP ALM to Solution Manager system (weekly once)

After filling in the details, click on “Create/ Change Association” in order to create an association.

Once the association is created, you can do the following operations,

<table>
<thead>
<tr>
<th>Change Association</th>
<th>The following details can only be changed,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>➢ Association Name</td>
</tr>
</tbody>
</table>
Delete Association

De-Associates the association between Solution Documentation branch and Partner Project

Push Solution Documentation

Transfer the Solution Documentation to HP ALM

Display Test Results

Tester would update the Solution Manager system with the Test Results after the test cycle. The results can be viewed by clicking on this button

Refresh

The Table would be refreshed after the Asynchronous activity

---

**Step 4: Create the associations for Maintenance and Development Branch as well.**

- Associate the Maintenance Branch

<table>
<thead>
<tr>
<th>Create/Change Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Association Name: MainSolution_Maintenance</td>
</tr>
<tr>
<td>Solution: Main Solution</td>
</tr>
<tr>
<td>Branch: Maintenance</td>
</tr>
<tr>
<td>View: Default View</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partner Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner Alias: BENU_HPAM</td>
</tr>
<tr>
<td>Partner Project: MAINTENANCE</td>
</tr>
<tr>
<td>Project Attribute: SAP_PROJECTS</td>
</tr>
</tbody>
</table>

Synchronization

- Refresh Solution Documentation: 
- Refresh Test Results: 

- Associate the Development Branch
7.1.1. Test Object Filters

The Test Object filters are used to filter the Solution Documentation nodes while transferring the Solution Documentation. The filter can be made on the following types,

- **Documentation Types**
- **Executables**

In case the filters are not maintained in Test Object filters, the entire Solution Documentation would be transferred to the HP ALM system.

**Documentation Types:**

In case you wish to transfer only the documents of specific document type, you can select the document types from the popup.
Executables:

The Executables can be filtered by choosing an executable filter,
Upon adding the filters, the “Test Object Filters” would be shown with the selected filters,

7.1.2. attribute Mapping

By default, the default attributes will be transferred to the HP ALM project when you push the Solution Documentation. In case you need to push an extra SAP/ Customer attributes, you can map the Solution Documentation attribute to HP ALM UDFs (User Defined Fields).

7.1.2.1. How to create UDF (User Defined Fields) in HP ALM

**Step 1:** Logon to the HP ALM project

**Step 2:** Choose “Customize” from Tools
Step 3: Click on the “Project Entities” >> Requirement >> “User Fields” in the Project Customization view

Step 4: Create the new Field
Similarly, create two more Attributes,

**Step 5:** Choose “Requirement Types” in the Project Customization View
Step 6: Choose the User Defined Fields for the following Requirement Types,

- Folder
- Business
- Testing
Step 7: Click on “Major Change” & hit “OK”

Step 8: The User Defined Fields are created by now. Choose the fields in the Requirements module,
Step 9: Choose the fields

The attributes are displayed in the Requirements Module,

Once the UDFs are created, you can map the attributes in the Administration console,
Choose the Solution Documentation attribute

Choose the HP ALM User Defined Attribute,
Similarly map the other two attributes as well,

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Object Filters</td>
</tr>
<tr>
<td>---------</td>
</tr>
</tbody>
</table>

**Note:** In Solution Manager 7.2 SP03, the “Map Attribute” was named as “Map Keyword” where we allow user to map the keywords (maintained in 7.1) to the HP ALM User Defined Fields. (We cannot map the Solution Documentation Standard/ Custom Attribute with HP ALM UDFs)

7.1.3. Logs

Each actions in the Adapter Administration console, will be logged in this section.

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Object Filters</td>
</tr>
<tr>
<td>---------</td>
</tr>
</tbody>
</table>

The “Launch Log” would display the HP ALM Log file with the exact error message,

7.2. Transfer Solution Documentation

The “Push Solution Documentation” is to transfer the Solution Documentation to the HP ALM System based upon the Test Object Filters. In case of no Test Object Filters, an entire Solution Documentation is transferred.

There are two options for “Push Solution Documentation”

- Run in foreground
- Run in background

In this case, we are going to transfer the “Development Branch” to Partner Project.
Business Process:

Libraries:

7.2.1. Run in foreground

The Push Solution Documentation would transfer the Solution Documentation in the foreground mode.

Use this option only IF the Branch is having less number of nodes. There will be a warning asking the user to confirm the Push Solution Documentation,
Upon the successful completion of the Push Solution Documentation, the rating shows as Green.

In addition, the Log created for the “Push Solution Documentation”. The HP ALM LOG is launched in the browser upon clicking on the “Launch Log”. The status of every node in Solution Documentation is displayed in the Log File.

Note: The Push Solution Documentation (in foreground) is not entertained for the branch that has huge number of nodes.
7.2.2. Run in background

This is the recommended approach for transferring the Solution Documentation. During the process the following tasks are performed internally,

- The associations is locked for any further operations
- The SM37 background job would be created with the name “TSTM_ADAPTER_SOLDOC_PUSH”
- Once the Job is completed & the requirements tree is created successfully, HP ALM would send a notification back in Solution Manager to unlock the association

The association would be locked after the asynchronous process,

The SM37 Job is created,

Once the requirement tree is created in HP ALM, the notification is sent back to Solution Manager system to unlock the association,
HP ALM – Requirements Overview:

[Image of HP ALM dashboard with requirements listed]
7.3. **Import Solution Documentation from HP ALM**

The Solution Documentation can be imported from HP ALM system as well. This is done using the option, *Tools >> SAP Tools >> Import from Solution Manager*
The popup “Import Requirements from Solution Manager” is launched with the following options:

<table>
<thead>
<tr>
<th>Import</th>
<th>Imports the Solution Documentation Branch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import From</td>
<td>The Administrator Console launches where user could push the Solution Documentation branch by changing the View</td>
</tr>
</tbody>
</table>

**Import Requirements from Solution Manager**

<table>
<thead>
<tr>
<th>Solution Manager Project</th>
<th>Solution Manager System</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVELOPMENT</td>
<td>H3 (201) Idea3</td>
</tr>
</tbody>
</table>
Import:

The “Import from” launches the “Administrator Console” (as a popup) with an association for which the HP ALM Project is associated. The user gets a chance to change the Solution Documentation – View, before pushing the Solution Documentation.
7.4. Create the Test Cases in HP ALM

The Solution Documentation was transferred to HP ALM & the Requirements are built in HP ALM. In order to do the testing, the Test Cases has to be created from the created requirements. In the below diagram we are creating the Test Cases for the Business Process in US region,

**Step 1:** Right Click on the region “US” and click on “Convert Tests”

**Step 2:** Choose the lowest child requirements to tests. This would create the Test Cases for the Executables and Documentation. (Because Executables and Documentation are the lowest requirements in the node)
Step 3: Click on Next & Finish the wizard with the default options.

The created Test Cases can be seen in the “Test Plan” section
7.4.1. Test Set Creation

Once test design using Test Plan module is completed, testers organize test execution by creating test sets in the Test Lab module. A test set contains a set of the tests that are designed to achieve specific test goals.

**Step 1: Create a Folder in the Test Lab**
Step 2: Create the Test Set
7.4.2. Test Case Assignment

**Step 1: Assign the Test Cases to the Test Sets. “Choose Select Tests” in the Test Set**

The “Test Plan Tree” is displayed in the last pane,

**Step 2: Add Tests to Test Set**
Step 3: Follow Step 1 and Step 2 to assign the Test Cases to the other Test Sets.
7.5. Perform Manual Testing

After the creation of the Test Set, the tester will start the testing by clicking on “Run”

**Step 1: Run the Test Case**

![Image of Test Set and Run Button]

**Step 2:** A popup is launched with the set of instructions, which lets you do the testing (manually). Maintain the Status based on the outcome of the Testing

![Image of Manual Runner and Run Details]

**Step 3:** Click on “End Run”. This would show the Test Result in the Execution Grid
**Step 4:** Follow the Step 1 to 3 in order to test the other Test Sets

7.6. **HP ALM Defects**

In this section, we need to create the defects & sync those to the Solution Manager System

7.6.1. **Field Mapping**

The Field Mapping is required to Map the “Defect Fields” in HP ALM and Solution Manager. This is mandatory before creating the defect. The Field Mapping Dialog can be done in the Field Mapping Dialog. **Tools >> SAP Tools >> Field Mapping**
Step 1: The Field “Detected by” needs to be mapped to the SAP Field “Reported by”,

Step 2: The Field “Severity” needs to be mapped to SAP Field “Priority”
Step 3: Do the Value Mapping

Step 4: Map all the Severity Values
Step 5: Choose the check box “Apply Append Only” mode to defects comments & perform Apply and OK
7.6.2. Create HP ALM Defect

**Step 1:** Create a “New Defect”

**Step 2:** Choose the Defect Type as “SAP Related Defect” & click on “SAP Related Details” tab

**Step 3:** Fill the Application Component from the Drop Down
Step 4: Choose the System ID and Client

Step 5: As soon as the SAP Related Defect is created in the HP System, the Defect would be synced with Solution Manager system. The Sync Status can be seen in the Tools >> SAP Tools >> Manage Defect Synchronization
Step 6: Click on “Refresh” to see the Sync Status. Once the defect is synced with Solution Manager System, the defect would be removed from this dialog (This indicates the defect synchronization is successful with Solution Manager System)

<table>
<thead>
<tr>
<th>Defect Id</th>
<th>Summary</th>
<th>Sync Status</th>
<th>Status Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create Quotation is Failed</td>
<td>Synchronizing</td>
<td>Currently synchronizing</td>
</tr>
</tbody>
</table>

Step 7: Go to the Solution Manager system in order to see the Created Defect. Launch the CRM UI (using the transaction \textit{CRM\_UI} in Solution Manager System)
Step 8: The Defect is transferred. Open the Defect & verify the details forwarded from HP ALM

Step 9: For more details about Solution Documentation & HP ALM Project, Expand the Tab “External Help Desk” to see more details,
Note: The defect is only synced with Solution Manager System. This does not mean that user could process the incident. This is READ-ONLY. In order to process the incident, the responsibility has to be transferred to Solution Manager System (Refer section 7.6.3)

**Step 10:** Create another Defect for “Purchase Order Failure”

7.6.3. Responsibility Transfer

In order to process the incident in Solution Manager System, the Tester in HP ALM must assign the Responsibility to Solution Manager. There are two options to achieve this.

**Option 1:** Right Click on the HP ALM Defect & choose “Assign Responsibility to SAP”
Option 2: In the CRM Defect (in Solution Manager), user can request the responsibility.

Once the responsibility is transferred, the status will be changed to “In Internal Processing” & user can process the incident.

7.6.4. Assign the Defect to the Test Case

The created defect needs to be assigned to the Test Cases (in the result of the Manual Testing).

Step 1: Launch the Test Plan in HP ALM
Step 2: Click on the Test Case

Step 3: Select the Tab “Linked Defects” & add the created defect

Choose the Defect
Now the failed Test Cases are linked with the defects, & do the same for the rest of the test cases,

7.7. Test Results & Incident Processing in Solution Manager

This section explains you how to update the Test Results to Solution Manager & how the incidents are processed in Solution Manager System

7.7.1. Update the Test Results to Solution Manager

Update the Test Results to the Solution Manager using Tools >> SAP Tools >> Update Solution Manager

There are two options,

<table>
<thead>
<tr>
<th>Update</th>
<th>Only the changes (Delta) are be transferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update Full</td>
<td>The Entire Test Results are transferred. This option is recommended if you are doing the update very first time.</td>
</tr>
</tbody>
</table>

As we are going to update the Solution Manager very first time, let’s use “Update Full”
After the successful update to Solution Manager, the status would be displayed as “Passed”

7.7.2. Display Test Results in the Solution Manager system

Launch the Adapter Administration Console as shown in Section - 6

**Step 1:** Choose the Association

**Step 2:** Launch the Test Results UI by clicking on the “Display Test Results”
Step 3: Launch the Defect
Step 4: Launch the CRM Defect by clicking on the Incident Number

7.7.3. Process an Incident & Propose the Solution

The Solution Manager Business User would provide the solution for the defect created & provide a solution to HP ALM

Step 1: Add the Reply

Step 2: Expand the Tab “External Help Desk” & click on Propose Solution

The Solution is proposed & the responsibility is transferred to HP ALM.

7.7.4. Retest and Close an Incident

Once the Solution is proposed, the tester retests the Test Case & close the defect
Step 1: Test the Test Case & make the Test Result to passed Status

Step 2: Close the HP ALM Defect by changing the Status from “Fixed” to “Closed”

Step 3: Once the Defect is closed in HP ALM, an Incident created in Solution Manager would be closed as well. The status of the Incident closure can be tracked in Tools >> SAP Tools >> Manage Defect Synchronization

After the closure, the Solution Manager Incident is also closed.
Step 4: Update the Solution Manager with new Test results. **Tools >> SAP Tools >> Update Solution Manager**

This time only the Delta (changes) needs to be transferred by clicking on “Update”

### Update Solution Manager With Test Results

<table>
<thead>
<tr>
<th>Solution Manager Project</th>
<th>Solution Manager System</th>
<th>Last Update</th>
<th>Status</th>
<th>Status Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVELOPMENT</td>
<td>HF3 (200), IdcH3</td>
<td>2016-09-29 00:24:15</td>
<td>Passed</td>
<td></td>
</tr>
</tbody>
</table>

### Update Solution Manager With Test Results

<table>
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<th>Solution Manager System</th>
<th>Last Update</th>
<th>Status</th>
<th>Status Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVELOPMENT</td>
<td>HF3 (200), IdcH3</td>
<td>2016-09-29 00:24:15</td>
<td>In Progress</td>
<td></td>
</tr>
</tbody>
</table>

### Update Solution Manager With Test Results

<table>
<thead>
<tr>
<th>Solution Manager Project</th>
<th>Solution Manager System</th>
<th>Last Update</th>
<th>Status</th>
<th>Status Notes</th>
</tr>
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<tbody>
<tr>
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<td>2016-09-29 00:24:15</td>
<td>Passed</td>
<td></td>
</tr>
</tbody>
</table>

Step 5: Display the Test Results UI in the Solution Manager to check the updated Test Result
Step 6: Launch the Defect to check the status of the Incident

8. Merge and Sync

In the Solution Documentation, according to our use case we have three branches – Production, Maintenance and Development.

So far, we were playing around only with the Development Branch.

- The content was built only in the Development Branch (Scenarios, Business Process & Process Steps).
- The Production and Maintenance Branch are empty
- The content would be replicated (copied) to the Production & Maintenance branch once the Development Branch is released

8.1. Solution Documentation Branch Release

Once the Development Branch is released, the following actions would happen automatically
- The Content of the Development Branch would be transferred to the Base Branch (Production Branch). This Process is called as **Merge**.
- Once the changes are available in the Production Branch, the content would be transferred to Sub Branches. (Maintenance Branch). This process is called as **Sync**.

At this moment, we have the content only in the Development Branch & Production and Maintenance branch is empty.

**Production Branch (Empty)**

**Maintenance Branch (Empty)**
Step 1: Release the Libraries from Development Branch

Step 2: Release the Business Process from Development Branch

Step 3: Check the Production Branch. (The content of the Development Branch is merged to Production Branch)
Step 4: Check the Maintenance Branch. (The content of the Development Branch is **Synced** to Maintenance Branch)

8.2. **HP ALM Branch Release**

After the Branch Release in Solution Documentation, the changes are merged/synced to BASE branch and SUB branches automatically. However in HP ALM, user has to trigger this manually.

- After the branch release, a notification is sent to HP ALM System
- HP ALM Tester must trigger the Merge to the Production Branch Manually
- Once the merge is completed, the DEVELOPMENT project is synced.
- **Scope of Merge/Sync**: Test Cases only

*Step 1: Check the Pending Merge Request from Solution Manager*

After the Branch Release, the notification is sent to the HP ALM system where tester could see the pending requests. **Tools >> SAP Tools >> Test Version Control**
Choose the PRODUCTION project & click on “Check Pending Request”

Step 2: Merge Tests on the DEVELOPMENT to PRODUCTION

The PRODUCTION project does not have a REQUIREMENTS transferred from Solution Manager System. Thus, this merge process would do the following during the “Merge Tests”

- Import the Solution Documentation from Production Branch
- Compare the DEVELOPMENT & PRODUCTION project
- Check for the Conflicts
- Move the Changes
Step 3: Let us check whether the Test Cases are copied to the PRODUCTION project

> The Production Branch is imported to the Production Project

The Test cases are copied as well

Step 4: Sync the PRODUCTION project to MAINTENANCE project

> Login to the MAINTENANCE & click on the Test Version Control. Tools >> SAP Tools >> Test Version Control

> Choose the PRODUCTION branch & do a “Sync Tests”
This process would import the Maintenance Branch & copy the Test Cases from the PRODUCTION project.

The Maintenance branch is imported in MAINTENANCE project.

The Test Cases are also copied from the PRODUCTION project,