Using HP ALM REST API to Synch Results from an External Testing Framework

This document describes how to use ALM REST resources to upload external test results to ALM. For more information on ALM REST API, see the HP ALM REST API documentation.

Who Should Use this Document?

ALM provides out-of-the-box integration with Jenkins to synch external results with ALM. This document is intended for users who do not use Jenkins and would like to use ALM REST API to synch results from their testing framework to ALM.

How to Integrate External Test Results to ALM

To upload your test results to ALM, you need to map your test suites to ALM External Test Sets and map each test case to ALM External Test.

To do so, write a client-side parser to learn the entities from the result file and based on the mapping, use ALM API (as described below) to generate the entities.

This step should be added as part of your automation process, so that after each test execution, the client side parser will analyze the result file and call ALM rest API to generate the relevant entities.

As a starting point, it is recommended you first import your results file to ALM to generate the test sets, test instances and test entities (on the ALM sidebar, under **Testing**, select **Test Lab**. Right-click a folder in the Test Set Tree and select **Importing External Test Results**). Afterwards, use REST API to generate the run results of each execution.

Using Rest API to upload the results to ALM

After parsing the result file, the order for generating the entities is as follows:

1. Generate External Test entities (if they don't already exist)
2. Generate External Test Set
3. Generate Test Instances for this Test Set
4. Generate Run entities.

Below you can find the technical details for generating the relevant entities for uploading external test results to ALM.

1. Test

The REST resource for test is 'test'. The subtype-id is 'EXTERNAL-TEST'.

1.1 Fields

The following are fields for creating a test with subtype 'EXTERNAL-TEST':

Field	Value
parent-id	The test folder Id of the test folder that contains the test
Name	The name of the test
subtype-id	EXTERNAL-TEST
testing-framework	The testing framework of the test
testing-tool	The testing tool that is used to run the test
ut-package-name	The package name of the test
ut-class-name	The class name of the test
ut-method-name	The method name of the test
Owner	The test designer

1.2 Example:

URL

http://localhost:8085/qcbin/rest/domains/DEFAULT/projects/testexternal1/tests

METHOD

POST

Headers

X-QC-Ignore-Customizable-Required-Fields-Validation=Y

Content-Type=application/xml
Accept=application/xml

Request

```xml
<Entity>
<Fields>
<Field Name="name"><Value>TestProg1Prj1Test1_testMethod1</Value></Field>
<Field Name="subtype-id"><Value>EXTERNAL-TEST</Value></Field>
<Field Name="testing-framework"><Value>JUnit</Value></Field>
<Field Name="testing-tool"><Value>Jenkins</Value></Field>
<Field Name="ut-package-name"><Value>prog1prj1</Value></Field>
<Field Name="ut-class-name"><Value>TestProg1Prj1Test1</Value></Field>
<Field Name="ut-method-name"><Value>testMethod1</Value></Field>
<Field Name="parent-id"><Value>1022</Value></Field><Field
Name="owner"><Value>sa</Value></Field>
</Fields>
</Entity>
```

Response

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Entity Type="test">
<ChildrenCount><Value>0</Value></ChildrenCount>
<Fields>
<Field Name="estimate-devtime"/>
<Field Name="vc-checkin-time"><Value></Value></Field>
<Field Name="vc-start-audit-action-id"><Value>367</Value></Field>
<Field Name="ver-stamp"><Value>6</Value></Field>
<Field Name="description"><Value></Value></Field>
<Field Name="dev-comments"><Value></Value></Field>
<Field Name="vc-version-number"/>
<Field Name="template"><Value></Value></Field>
<Field Name="status"><Value></Value></Field>
<Field Name="has-dependencies"><Value>0</Value></Field>
<Field Name="steps"><Value>0</Value></Field>
<Field Name="check-out-user-name"><Value></Value></Field>
<Field Name="order-id"><Value>1</Value></Field>
<Field Name="runtime-data"><Value></Value></Field>
<Field Name="ut-package-name"><Value>prog1prj1</Value></Field>
<Field Name="vc-checkin-date"/>
<Field Name="ut-method-name"><Value>testMethod1</Value></Field>
<Field Name="parent-id"><Value>1022</Value></Field>
<Field Name="vc-date"/><Field Name="owner"><Value>sa</Value></Field>
```

<Field Name="user-01"><Value></Value></Field><Field Name="vc-time"><Value></Value></Field>
<Field Name="base-test-id"/>
<Field Name="storage-path"><Value>49</Value></Field>
<Field Name="configurations-count"><Value>1</Value></Field>
<Field Name="id"><Value>49</Value></Field>
<Field Name="vc-comments"><Value></Value></Field>
<Field Name="name"><Value>TestProg1Prj1Test1_testMethod1</Value></Field>
<Field Name="has-linkage"><Value>N</Value></Field>
<Field Name="vc-status"><Value></Value></Field>
<Field Name="has-criteria"><Value>N</Value></Field>
<Field Name="vc-checkin-user-name"><Value></Value></Field>
<Field Name="creation-time"><Value>2015-06-28</Value></Field>
<Field Name="ut-class-name"><Value>TestProg1Prj1Test1</Value></Field>
<Field Name="last-modified"><Value>2015-06-28 22:42:15</Value></Field>
<Field Name="testing-framework"><Value>JUnit</Value></Field>
<Field Name="testing-tool"><Value>Jenkins</Value></Field>
<Field Name="attachment"><Value></Value></Field>
<Field Name="subtype-id"><Value>EXTERNAL-TEST</Value></Field>
<Field Name="vc-end-audit-action-id"><Value>367</Value></Field>
<Field Name="exec-status"><Value>No Run</Value></Field>
<Field Name="vc-checkin-comments"><Value></Value></Field>
<Field Name="text-sync"><Value></Value></Field>
<Field Name="step-param"><Value>0</Value></Field>
<Field Name="timeout"/>
</Fields>
<RelatedEntities/>
</Entity>

2. Test Set

The REST resource for test set is 'test-set'. The subtype-id is 'hp.qc.test-set.external'.

2.1 Fields

The following are fields for creating a test set with subtype 'hp.qc.test-set.external':

Field	Value
parent-id	The test set folder Id of the test set folder that contains the test set
Name	The name of the test set
subtype-id	hp.qc.test-set.external

2.2 Example

URL

http://localhost:8085/qcbin/rest/domains/DEFAULT/projects/testexternal1/test-sets

METHOD

POST

Header

X-QC-Ignore-Customizable-Required-Fields-Validation=Y

Content-Type=application/xml

Accept=application/xml

Request

```xml
<Entity>
<Fields>
<Field Name="parent-id"><Value>21</Value></Field>
<Field Name="name"><Value>prog1prj1.TestProg1Prj1Test1</Value></Field>
<Field Name="subtype-id"><Value>hp.qc.test-set.external</Value></Field>
</Fields>
</Entity>
```

Response

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Entity Type="test-set">
<ChildrenCount><Value>0</Value></ChildrenCount>
<Fields>
<Field Name="close-date"/>
<Field Name="request-id"/>
<Field Name="mail-settings"><Value></Value></Field>
<Field Name="dynamic-data"><Value></Value></Field>
<Field Name="id"><Value>701</Value></Field>
```

```xml
<Field Name="ver-stamp"><Value>1</Value></Field>

<Field Name="os-config"><Value></Value></Field>

<Field Name="description"><Value></Value></Field>

<Field Name="name"><Value>prog1prj1.TestProg1Prj1Test1</Value></Field>

<Field Name="has-linkage"><Value>N</Value></Field>

<Field Name="pinned-baseline"><Value></Value></Field>

<Field Name="report-settings"><Value></Value></Field>

<Field Name="last-modified"><Value>2015-06-28 22:35:31</Value></Field>

<Field Name="assign-rcyc"><Value></Value></Field>

<Field Name="status"><Value>Open</Value></Field>

<Field Name="cycle-config"><Value></Value></Field>

<Field Name="exec-event-handle"><Value></Value></Field>

<Field Name="open-date"><Value>2015-06-28</Value></Field>

<Field Name="attachment"><Value></Value></Field>

<Field Name="order-id"><Value>1</Value></Field>

<Field Name="subtype-id"><Value>hp.qc.test-set.external</Value></Field>

<Field Name="parent-id"><Value>21</Value></Field>

<Field Name="environment"><Value></Value></Field>

<Field Name="comment"><Value></Value></Field>

</Fields>

<RelatedEntities/>

</Entity>
```

3. Test Configuration

The test configuration is automatically generated when creating a test. The REST resource for test configuration is 'test-config'. The following is an example of fetching the test configuration of a given test. The test configuration Id is used when creating Test instance and Run.

3.1 Example

URL

METHOD

GET

Response

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<Entities TotalResults="1">

<Entity Type="test-config">

<ChildrenCount><Value>0</Value></ChildrenCount>

<Fields>

<Field Name="id"><Value>1049</Value></Field>

<Field Name="name"><Value>TestProg1Prj1Test1_testMethod1</Value></Field>

</Fields>

<RelatedEntities/>

</Entity>

<singleElementCollection>false</singleElementCollection>

</Entities>

4. Test Instance

The REST resource for test instance is 'test-instance'. The subtype-id is 'hp.qc.test-instance.external-test'.

4.1 Fields

The following are fields for creating a test instance with subtype 'hp.qc.test-instance.external-test':

Field	Value
subtype-id	hp.qc.test-instance.external-test
cycle-id	Test set Id of the test set that contains the test instance
test-id	The test Id of the test instance
test-config-id	The test configuration Id of the test instance
exec-date	The execution date of the test instance
exec-time	The execution time of the test instance
owner	The owner of the test instance

4.2 Example

URL

http://localhost:8085/qcbin/rest/domains/DEFAULT/projects/testexternal1/test-instances

METHOD

POST

Header

X-QC-Ignore-Customizable-Required-Fields-Validation=Y
Content-Type=application/xml
Accept=application/xml

Request

```
<Entity>
<Fields>
<Field Name="cycle-id"><Value>701</Value></Field>
<Field Name="test-config-id"><Value>1049</Value></Field>
<Field Name="test-id"><Value>49</Value></Field>
<Field Name="owner"><Value>sa</Value></Field>
<Field Name="subtype-id"><Value>hp.qc.test-instance.external-test</Value></Field>
</Fields>
</Entity>
```

Response

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<Entity Type="test-instance">

<ChildrenCount><Value>0</Value></ChildrenCount>

<Fields>

<Field Name="test-instance"><Value>1</Value></Field>

<Field Name="eparams"><Value></Value></Field>

<Field Name="plan-scheduling-date"/>

<Field Name="plan-scheduling-time"><Value></Value></Field>

<Field Name="id"><Value>49</Value></Field>

<Field Name="ver-stamp"><Value>1</Value></Field>

<Field Name="os-config"><Value></Value></Field>

<Field Name="host-name"><Value></Value></Field>

<Field Name="test-config-id"><Value>1049</Value></Field>

<Field Name="data-obj"><Value></Value></Field>

<Field Name="name"><Value>TestProg1Prj1Test1_testMethod1 [1]</Value></Field>

<Field Name="has-linkage"><Value>N</Value></Field>

<Field Name="pinned-baseline"><Value></Value></Field>

<Field Name="exec-date"/>
```

```
<Field Name="cycle-id"><Value>701</Value></Field>

<Field Name="cycle"><Value></Value></Field>

<Field Name="assign-rcyc"><Value></Value></Field>

<Field Name="exec-time"><Value></Value></Field>

<Field Name="last-modified"><Value>2015-06-28 22:49:03</Value></Field>

<Field Name="status"><Value>No Run</Value></Field>

<Field Name="iterations"><Value></Value></Field>

<Field Name="actual-tester"><Value></Value></Field>

<Field Name="exec-event-handle"><Value></Value></Field>

<Field Name="is-dynamic"><Value></Value></Field>

<Field Name="attachment"><Value></Value></Field>

<Field Name="order-id"><Value>1</Value></Field>

<Field Name="test-id"><Value>49</Value></Field>

<Field Name="subtype-id"><Value>hp.qc.test-instance.external-test</Value></Field>

<Field Name="environment"><Value></Value></Field>

<Field Name="owner"><Value>sa</Value></Field>

<Field Name="bpta-change-awareness"><Value></Value></Field>

</Fields>

<RelatedEntities/>

</Entity>
```

5. Run

The REST resource for run is 'run'. The subtype-id is 'hp.qc.run.external-test'.

5.1 Fields

The following are fields for creating a run with subtype 'hp.qc.run.external-test':

Field	Value
subtype-id	hp.qc.run.external-test

cycle-id	The test set Id
testcycl-id	The test instance Id
test-id	The test Id
test-config-id	The test configuration Id
execution-date	The execution date
execution-time	The execution time
status	The status of the Run
detail	The detail information of the run
duration	The duration of the run execution
build-revision	The build number of the run
jenkins-job-name	The name of the Jenkins job that run the test
jenkins-url	The result page url of the Jenkins job

5.2 Example

URL

http://localhost:8085/qcbin/rest/domains/DEFAULT/projects/testexternal1/runs

METHOD

POST

Headers

X-QC-Ignore-Customizable-Required-Fields-Validation=Y
Content-Type=application/xml
Accept=application/xml

Request

<Entity>
<Fields>
<Field Name="test-config-id"><Value>1049</Value></Field>

<Field Name="cycle-id"><Value>701</Value></Field>
<Field Name="test-id"><Value>49</Value></Field>
<Field Name="testcycl-id"><Value>49</Value></Field>
<Field Name="build-revision"><Value>1</Value></Field>
<Field Name="name"><Value>Import_Run_6-28_22-51-18</Value></Field>
<Field Name="owner"><Value>sa</Value></Field>
<Field Name="status"><Value>Passed</Value></Field>
<Field Name="subtype-id"><Value>hp.qc.run.external-test</Value></Field>
<Field Name="detail"><Value>PD94bWwgdmVyc2lvbj0iMS4wIiA/PjxjYXNlPgogICAgPGR1cmF0aW9uPjAuMDAyPC9kdXJhdGlvbj4KICAgIDxjbGFzc05hbWU+cHJvZzFwcmojMVllc3RRcm9nMVBByajFUZXN0MTwvY2xhc3NOYW1lPgogICAgPHRlc3ROYW1lPnRlc3RNZXRob2QxPC90ZXN0TmFtZT4KICAgIDxza2lwcGVkPmZhbHNlPC9za2lwcGVkPgogICAgPGZhaWxlZFZNpbmNlPjA8L2ZhaWxlZFZNpbmNlPgo8L2Nhc2U+</Value></Field>
<Field Name="duration"><Value>0</Value></Field>
<Field Name="jenkins-job-name"><Value>local</Value></Field>
<Field Name="jenkins-url"><Value>http://localhost:8085/</Value></Field>
<Field Name="execution-date"><Value>2015-05-12</Value></Field>
<Field Name="execution-time"><Value>12:23:27</Value></Field>
<Field Name="status"><Value>Passed</Value></Field>
</Fields>
</Entity>

Response

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<Entity Type="run">

<ChildrenCount><Value>0</Value></ChildrenCount>

<Fields>

<Field Name="detail"><Value>PD94bWwgdmVyc2lvbj0iMS4wIiA/PjxjYXNlPgogICAgPGR1cmF0aW9uPjAuMDAyPC9kdXJhdGlvbj4KICAgIDxjbGFzc05hbWU+cHJvZzFwcmojMVllc3RRcm9nMVBByajFUZXN0MTwvY2xhc3NOYW1lPgogICAgPHRlc3ROYW1lPnRlc3RNZXRob2QxPC90ZXN0TmFtZT4KICAgIDxza2lwcGVkPmZhbHNlPC9za2lwcGVkPgogICAgPGZhaWxlZFZNpbmNlPjA8L2ZhaWxlZFZNpbmNlPgo8L2Nhc2U+</Value></Field>

<Field Name="test-instance"><Value>1</Value></Field>

<Field Name="execution-date"><Value>2015-05-12</Value></Field>

<Field Name="build-revision"><Value>1</Value></Field>

<Field Name="ver-stamp"><Value>1</Value></Field>

<Field Name="os-config"><Value></Value></Field>

<Field Name="vc-version-number"/>

<Field Name="test-description"><Value></Value></Field>

<Field Name="cycle-name"><Value>prog1prj1.TestProg1Prj1Test1</Value></Field>

<Field Name="cycle-id"><Value>701</Value></Field>

<Field Name="cycle"><Value></Value></Field>

<Field Name="host"><Value></Value></Field>

<Field Name="status"><Value>Passed</Value></Field>

<Field Name="iters-params-values"><Value></Value></Field>

<Field Name="test-name"><Value>TestProg1Prj1Test1_testMethod1</Value></Field>

<Field Name="test-id"><Value>49</Value></Field>

<Field Name="jenkins-job-name"><Value>local</Value></Field>

<Field Name="environment"><Value></Value></Field>

<Field Name="owner"><Value>sa</Value></Field>

<Field Name="bpta-change-detected"/>

<Field Name="testcycl-name"><Value>TestProg1Prj1Test1_testMethod1 [1]</Value></Field>

<Field Name="execution-time"><Value>12:23:27</Value></Field>

<Field Name="bpta-change-awareness"><Value></Value></Field>

<Field Name="vc-locked-by"><Value></Value></Field>

<Field Name="os-sp"><Value></Value></Field>

<Field Name="state"><Value></Value></Field>

<Field Name="id"><Value>53</Value></Field>

<Field Name="test-config-id"><Value>1049</Value></Field>

<Field Name="name"><Value>Import_Run_6-28_22-51-18</Value></Field>

<Field Name="has-linkage"><Value>N</Value></Field>

<Field Name="path"><Value>701_53</Value></Field>

<Field Name="vc-status"><Value></Value></Field>

<Field Name="pinned-baseline"><Value></Value></Field>

<Field Name="os-build"><Value></Value></Field>

<Field Name="testcycl-id"><Value>49</Value></Field>

<Field Name="assign-rcyc"><Value></Value></Field>

<Field Name="last-modified"><Value>2015-06-28 22:53:13</Value></Field>

<Field Name="os-name"><Value></Value></Field>

<Field Name="attachment"><Value></Value></Field>

<Field Name="results-files-network-path"><Value></Value></Field>

<Field Name="subtype-id"><Value>hp.qc.run.external-test</Value></Field>

<Field Name="draft"><Value>N</Value></Field>

<Field Name="iters-sum-status"><Value></Value></Field>

<Field Name="duration"><Value>0</Value></Field>

<Field Name="bpt-structure"><Value></Value></Field>

<Field Name="text-sync"><Value></Value></Field>

<Field Name="jenkins-url"><Value>http://localhost:8085/</Value></Field>

<Field Name="comments"><Value></Value></Field>

</Fields>

<RelatedEntities/>

</Entity>