oneM2M Test System Validation Procedures

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Abstract:

This document describes policies for procedures of oneM2M Test System validation.

Version History

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V0.99	2017-12-19	Initial Draft
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Document Terminology

TTA has adopted portions of the IEEE Standards Style Manual, which dictates use of the words ***"shall"***, ***"must"***, ***"will"***, ***"should"***, ***"may"***, and ***"can"*** in the development of documentation, as follows:

- The word ***"shall"*** is used to indicate mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (shall equals is required to).
- The use of the word ***"must"*** is deprecated and shall not be used when stating mandatory requirements; must is used only to describe unavoidable situations.
- The use of the word ***"will"*** is deprecated and shall not be used when stating mandatory requirements; will is only used in statements of fact.
- The word ***"should"*** is used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain course of action is deprecated but not prohibited (should equals is recommended that).
- The word ***"may"*** is used to indicate a course of action permissible within the limits of the standard (may equals is permitted).
- The word ***"can"*** is used for statements of possibility and capability, whether material, physical, or causal (can equals is able to).

1 Scope

This document describes the procedures of oneM2M conformance test system validation.

1.1 Roles

Roles	Description
Test System Vendor	Manufacturer of a Test System seeking to be recognized as validated. Test System Vendor cannot be a role of ATL in validation process for transparency in testing.
Golden Sample Provider	Manufacturer of a Golden sample used for validation testing procedure.
CB (Certification Body)	Body responsible for review of and decision on the validation result of the Test System
Test System User	ATL as potential users of the Test System or a manufacture for internal test purpose of the product.
ATL (Authorized Testing Lab)	Body responsible for final validation policy approval. ATL cannot be Test System vendor for transparency in testing.

1.2 Definitions

Term	Definition
Test System	The complete hardware and software needed to perform oneM2M conformance Test Cases. It consists of a Test Platform and Test Case Implementations.
Golden Sample	An indicator for the test system validation. The list of the golden sample is managed and announced by CB.
IUT (Implementation under test)	The implementation which is under test. In this document, IUT means the test system under validation process.

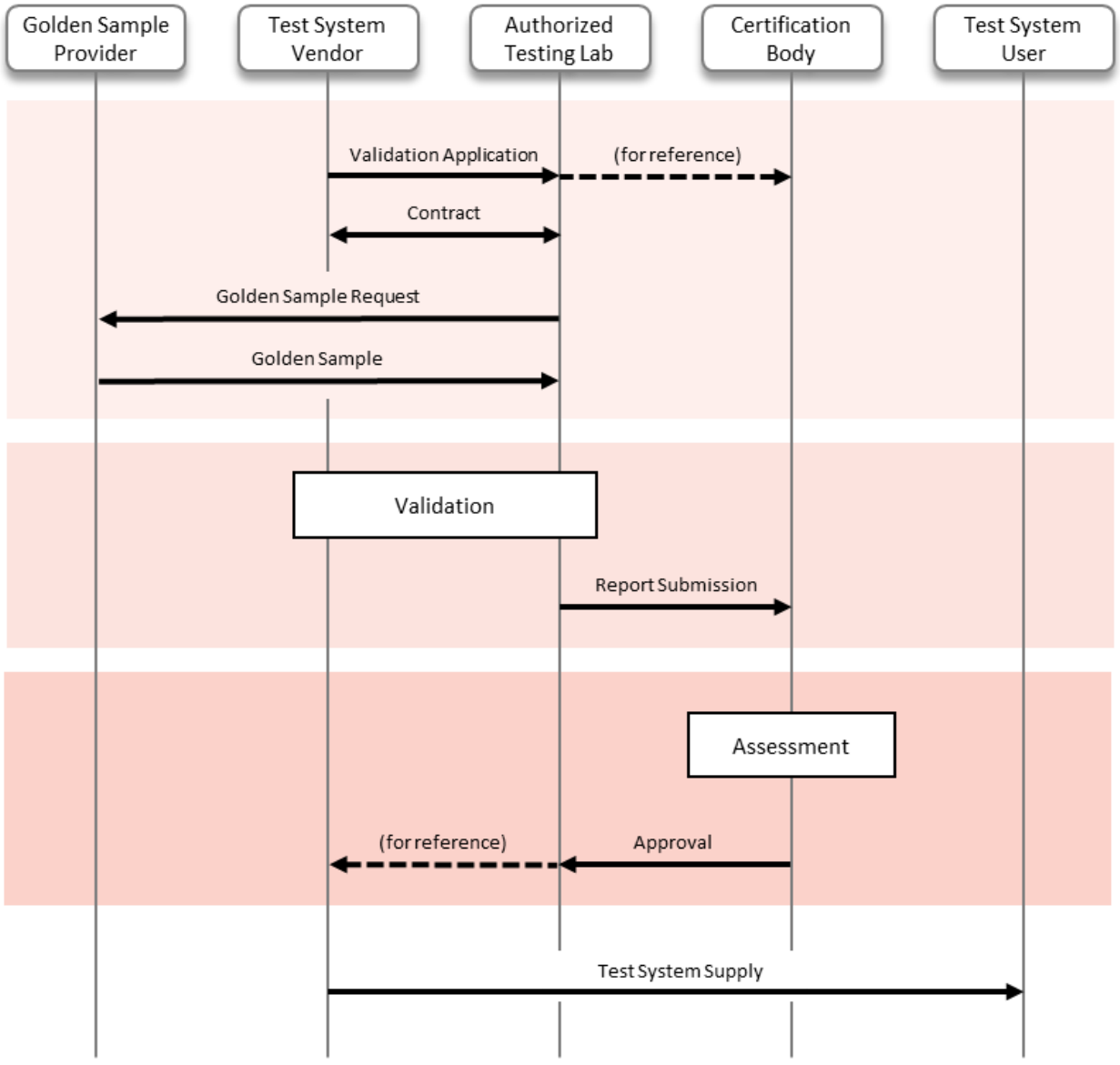
2 General

2.1 Overview

Validation demonstrates that a test system is in compliance with the implemented oneM2M components of an IoT platform and is able to perform the conformance test case scope.

To achieve validation, the ATL prepares and conducts testing according to the policies in Section 3 and 4. Certification Body reviews the validation result submitted by ATL. If the review is successful, according to the policies in Section 5, the test system may be considered validated.

2.2 Validation Procedures



Picture 1: Test System Validation Procedure

3 Preparation

During the preparation phase, Test System Vendor sends validation request to ATL (Authorized Test Lab as a Validation Organization) and ATL reports the request **to CB (Certification Body) for the record**. When it is decided that validation is ready to proceed, the Test System Vendor can fill out and send the Test System Validation Application to the ATL. A copy of the Test System Validation Application is also submitted to **CB to keep the record**. **When Test System Validation Application is submitted and confirmed by CB**, the ATL will request a golden sample selected by the CB for the validation procedure.

3.1 Test system validation apply

When a test system vendor decides to apply for Test system validation, it can apply for the test system validation. During this process, Test System Validation Application form shall be filled out and submitted to the ATL. When the ATL receives an application form, the ATL shall inform CB that an application has been received and they will proceed with the application.

Please refer to Annex(A) for the Test System Validation Application form.

3.2 Application confirm/contract

After an application has been received, ATL can confirm the application, if necessary, under an agreement between an ATL and Test System Vendor, the contract may be included during this process. As already defined in 1.1, Test System Vendor and an ATL shall not be an identical company/institute for transparency issue that might be caused during a testing procedure.

3.3 Golden sample request

When an application is confirmed and approved to proceed Test System Validation (with or without a contract), ATL shall request a golden sample to a golden sample provider.

This process shall be negligible if an ATL already acquired Golden Sample approved by the CB.

3.4 Golden sample Acquirement

ATL shall acquire Golden sample to be used as a testing system before the validation process.

4 Validation

In this section, it describes requirements, practical process, report and submission of the validation.

4.1 Validation Requirements

The ATL shall establish a validation environment in space of harmless with no physical damage could occur. This condition includes human security, power, safety, etc.

The ATL shall establish golden sample and raw packet data gathering system before the validation process.

4.2 Validation Process

The ATL shall execute all test cases in the scope of validation. If the test system (IUT) supports and includes more than one functionalities impacting the test cases based on configuration, all test cases shall be performed in each configuration.

The ATL shall run test cases with prepared golden sample to get the results. Proper configuration and environment shall be set up to the golden sample by ATL to ensure operating correctly.

During the validation process, the raw packet data for all performed test cases shall be stored. To keep neutrality, the raw data capturing action shall be operated in 3rd party professional device which is not relevant to test system H/W or golden sample H/W.

4.2.1 Quality Control

The certification body (CB) shall manage the quality and the consistency of the golden sample to keep the quality of the validation process.

4.3 Validation Result

The minimum requirement of the validation result to be submitted is passing all test cases scope for the validation. If any of the test case is failing during the validation process, ATL shall analysis the issue and report to a proper entity.

4.4 Validation Report

This clause describes the requirements for submitting the result of the validation. After performing all validation process, ATL shall submit the information and evidence to Certification Body by Validation Report (Annex B). Each subsection describes the detail requirements

4.4.1 Test System Information

The ATL shall declare all of the following information of the test system:

- Test System Manufacturer
- Test System Model Name
- Test System Model Number
- Test System Serial Number (,if applicable)
- Test System H/W information

- Test System Operating system (S/W) information
- Supported test cases (ATS) and capabilities

4.4.2 Validation Scope Information

The ATL shall declare the scope of validation to be submitted:

- oneM2M release information
- oneM2M ATS information (tag name)
- Test System functionality (binding protocols, serializations)

4.4.3 Golden Sample Information

The ATL shall declare the golden sample information used in validation:

- Company Name
- Product Name
- Product Model Number

4.4.4 Validation Evidences

The ATL shall include all of the following evidence materials:

- Valid Test Report from test system.
- Test logs from test system.
- Packet raw data.
- Notes and comments (including test setup information).

4.5 Submission

The ATL shall submit the validation report after all requirements are prepared.

5 Assessment

This section describes how to assess the validation report submitted by ATL.

5.1 Prerequisite

5.1.1 Integrity of Validation Report

At the time of receiving the validation report, CB must check the integrity of the validation report. The validation report shall include:

- General information on the ATL
- General information on the IUT vendor
- A list of test cases on which validation testing is fulfilled
- Configurations of IUT on each test cases
- Configurations of the golden sample on each test cases
- Verdict on each test cases (verdict is chosen among PASS, FAIL, and INCONCLUSIVE)
- Evidence on verdict, e.g., logs and raw packet data

5.1.2 Start of Assessment

Assessment starts with the notification from CB to ATL that the validation report contains every information for CB to perform assessment.

5.2 Assessment process

5.2.1 Board of Assessment Members

CB can convene a series of board meeting which consists of oneM2M expertise, to manage assessment.

5.2.2 Process details

CB and the board members process the assessment through reviewing the Validation Report with the attached evidences.

5.3 Approval

CB shall make a decision on the approval of the validation report and inform ATL within 30 calendar days. CB shall decide whether the validation report is accepted, accepted with waiver, or rejected, according to the verdict and evidence in each test case.

5.3.1 Validation Accepted

Provided that the validation report meets the requirement, CB decides that the IUT is approved for an authorized test system. CB then notifies the assessment result to ATL with the term of *validation accepted*. Test system vendor generally can get the assessment result through ATL.

CB may announce in public the status of IUT through any type of media, immediately or release embargo.

5.3.2 Validation Rejected

Provided that the validation report doesn't meet the requirement, CB decides that the IUT is not ready to be approved for an authorized test system. CB then notifies the assessment result to ATL with the term of *validation rejected*.

In this case, ATL can make a revision of the validation report within 30 calendar days. Or, ATL can make a statement of opinion of CB on the assessment result.

5.4 Particular cases

5.4.1 Degradation of Authority

An authorized test system shall lose its status of authorized test system if:

- A defect in the authorized test system is identified and confirmed

5.4.2 Additional Test cases

In the case when an authorized test system wants to be validated with some additional features, the previous validation report is effective in the assessment.

6 Annex A. Test System Validation Application Form

<Optional logo of Test Vendor >

Title:	oneM2M Test System Validation Application
Description:	<test system main description>
Source:	<name of Test Vendor and contact>
Date:	<document date>

Test System Validation Application

Test System Vendor, name: <details>

Test System Details:

Every single one of the components of the Test System (i.e. the Test System in addition to any external components expected to run the Test System) shall be detailed:

Hardware configuration details

All major hardware components including the component's name and company of manufacture shall be listed.

NOTE: Application Enabler Test Platforms may not utilize a particular hardware component. In the event that this applies it should be noted in the table that a particular hardware component is not required and the generic HW component(s) or device(s) should be listed.

Hardware Manufacturer	HW Components Name	Other

Software configuration details

All significant software components including the components' name should be listed.

SW Component	Other

NOTE: "Other" column can be used to describe any other relevant information related to test system.

Application of Test Platform Availability before Test Case Validations

The Test Vendor, <test system vendor name>, thus affirms that the Test System, <test system name> with all the required hardware and software units and components are commercially accessible or will be commercially accessible preceding the accommodation of any approved experiments, and that the test stage as portrayed above can be conveyed inside a reasonable time of a request being placed.

7 Annex B. Validation Report Form

Validation Report

Title:	**oneM2M Test System Validation Report**
oneM2M information	<oneM2M release and ATS tag>
Description:	Validation of <test system vendor name> <test system name>
Source:	<name of ATL and contact>
Date:	<date>

Validation Information

Test System vendor, name: <test system vendor name> <test system name>

Test System Details: <test system model name>, <test system model number>, <test system serial number>

All the components of the Test System (i.e. the Test Platform plus any external components needed to run the Test System) shall be detailed, along with their version numbers, such that the test(s) can be properly reproduced

Hardware configuration details

All major hardware components including the component's name and its associated hardware version and any associated firmware versions shall be listed.

Component	Hardware Version	Firmware/Software Version	Other

Software configuration details

All major software components including the component's name and associated version shall be listed.

Component	Version	Other

NOTE: "Other" column can be used to describe any other relevant information related to test system.

Test Specification names, versions and oneM2M ATS:

Target scope of the test specification detail information shall be listed.

Test Specification	Version (oneM2M Release)	ATS git tag	Supported oneM2M nodes or product profiles
<Test Spec name>			

Supported functionalities and capabilities: <binding protocols, serializations, upper tester>

Golden Sample:

Golden sample information shall be listed.

Product name	Company name	Product Model Information

Validation Evidences:

All evidences shall be attached with the validation report.

Test report (from the test system) file: <attached test report file name>

Test logs (from the test system) file: <attached test logs file name>

Packet raw data file: <attached packet raw data file name>

Notes: <any other essential information, optional>

■ End