aadl-qa Developer Guide

1. Structure of Directories

1.1 Test Suites [tests/]

The aadl-qa/tests/ directory contains a set of test suites.

A *test suite* is a directory that contains
- MANIFEST.TS and
- either a set of test cases or a set of test suites.

So there can be a hierarchy of test suites.

MANIFEST.TS file contains attributes in format of NAME = VALUE. A list of optional predefined attributes is as follows:
- DESCRIPTION : a description of the test suite;
- INCLUDE_FILES : a space separated list of aadl files;
- INCLUDE : a space separated list of directories.

The files listed in INCLUDE_FILES and all *.aadl files from the INCLUDE directories will be added to all test cases of the test suite as library components.

A *test case* is a directory that contains MANIFEST.TC and one or more aadl files. If common include directories/files are required, it is explicitly stated in MANIFEST file of a test case or a test suite. As a result, a set of aadl files passed to a tool under test consists of:
- all aadl files in the test case directory
- all aadl files from include directories mentioned in MANIFEST file of the test case
- all aadl files from include directories mentioned in MANIFEST file of all test suites the test case belongs to;
- all common aadl files mentioned in MANIFEST file of the test case and of all the test suites.

MANIFEST.TC file contains attributes in format of NAME = VALUE. Predefined attributes include:
- EXPECTED_RESULT : VALID if aadl specification is syntactically and semantically valid and INVALID otherwise;
- INCLUDE_FILES : a space separated list of aadl files;
- INCLUDE : a space separated list of directories;
- REQ [optional] : an identifier of a requirement or a test purpose that is covered by the test case;
- EXPECTED_* - *TBD.*

All relations between test suites and test cases are defined just by location of the corresponding directories in a file system.

An example can be something like this:
- tests
  - test-suite1
    - MANIFEST.TS
    - subtest-suite1_1
      - MANIFEST.TS
      - test-case1_1_1
        - MANIFEST.TC
        - file1_1_1.aadl
      - test-case1_1_2
        - MANIFEST.TC
        - file1_1_2.aadl
    - subtest-suite1_2
      - ...
  - test-suite2
    - ...

1.2 Requirements[requirements/]

It is a text file based DB that will keep a hierarchy of requirements with explicit linkage to the text of AADLv2.1 specification.

The goal the database is to store all requirements of AADL specification in a hierarchical form and to keep linkage of the requirements to the text of the specification. Test cases can be stored in the DB as well. Any test case can be traced to the requirements using REQ attribute.

1.3 Tools [tools/]

- manager/ - manages actual execution of the tests and report generation
  - Adapters
    - ToolAdapter.pm – generic implementation of ToolAdapter
    - OcarinaAdapter.pm – adapter for ocarina inherited from ToolAdapter (requires to have ocarina in the PATH)

1.4 aadl-qa.pl

The main script to run tests.

```
aadl-qa.pl run Ocarina - Run all tests the Ocarina and generate report
aadl-qa.pl gensrc      - Generate AADL tests from other sources
aadl-qa.pl clean       - Remove all generates files
aadl-qa.pl --help      - Print help message and a list of the tools
                         supported
```

After running the tests see reports/index.html and links to requirements from it.