MediaDesigner Component Test Tutorial

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1. Introduction

In this tutorial, we will use MediaDesigner to test an OpenMAX IL component by creating a Test Scenario for it. The tutorial then goes on to show how to create a Batch Test to test multiple components with multiple scenarios.

The tutorial is intended for use with the Bellagio Platform as supported by the evaluation version of MediaDesigner.

2. Pre-requisites

- MediaDesigner has been successfully installed on a Windows or Linux PC and a licence has been obtained.

- The user has updated MediaDesigner with the latest update packages.

- The target machine (where OpenMAX IL will run) has all the appropriate Bellagio and Incoras packages correctly installed to provide the test server application (`mdserver`).

- The `ffmpeg` libraries have been correctly installed on the target machine.

- The user has followed the **Getting started** help topic in MediaDesigner and is familiar with the basic concepts.

- In particular, the user has followed **Running the sample graph** help topic to create a suitable MediaDesigner connection to `mdserver` with the connection manager.

3. Overview

The figure below outlines the relationship between Batch Tests, Test Scenarios, Components and the Test Manager incorporated into **mdserver**.
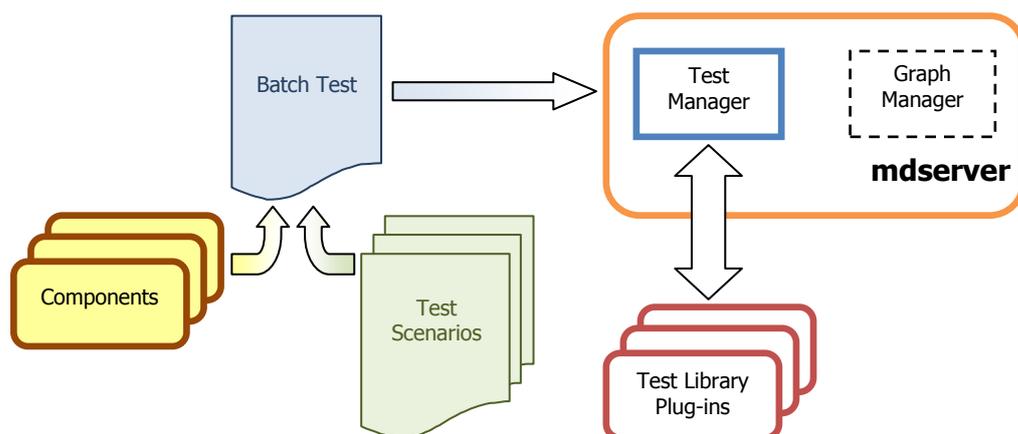
A **Test Scenario** is a list of one or more Tests and their arguments. Test arguments may be set as parameterized or absolute values. The **Test Scenario Editor** is used to create and edit the scenarios.

Test Scenarios are not run directly, instead they need to be associated with one or more components for testing. This association is the purpose behind the **Batch**

Test file. The Batch Test file lists the components to be tested against the scenarios that have been selected. The **Batch Test Editor** is used to create and edit the batches.

Individual tests belong to a group (family). For each group, **mdserver** loads a **Test Library Plug-in** that contains the code that needs to be executed to run each test on the target platform. The location of the test library plug-ins is set in the **mdserver** configuration file[1].

4. Tutorial

This tutorial takes you through the common steps running tests with MediaDesigner.

If you have not done so already, follow the help topic **MediaDesigner User Guide > Tasks > Installing the example files** and install the example files.

As a first step for working with this tutorial, we will create a new `testing` project to hold the files.

To create a new `testing` project:

1. Click File > New > Project...
2. In the **New Project** dialog, expand **General** and click **Project**
3. Click **Next**
4. Type testing in the **Project name** field
5. Click **Finish**

The `testing` project should now be visible in the **Navigator** view.

4.1 Creating a test scenario

Create a new test scenario:

1. Click File > New > New Test Scenario...
2. In the **New Test Scenario** dialog, select the **testing** project folder
3. Type `tutorial_test_scenario.xml` in the **File name** field
4. Click **Next**
5. Type `tutorial.scenario` in the **Identifier** field
6. Type `Tutorial Test Scenario` in the **Title** field
7. Type This is an example Test Scenario in the **Description** field
8. Click **Finish**

The Component-Level Test Scenario Editor will open on the `tutorial_test_scenario.xml` file.

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[1] The location of the mdserver configuration file is set by the **INCORAS_SERVER_CONFIG_FILE** environment variable. This should have been initialized to `/usr/share/incoras/mdserver-install.cfg` by the server installer package.
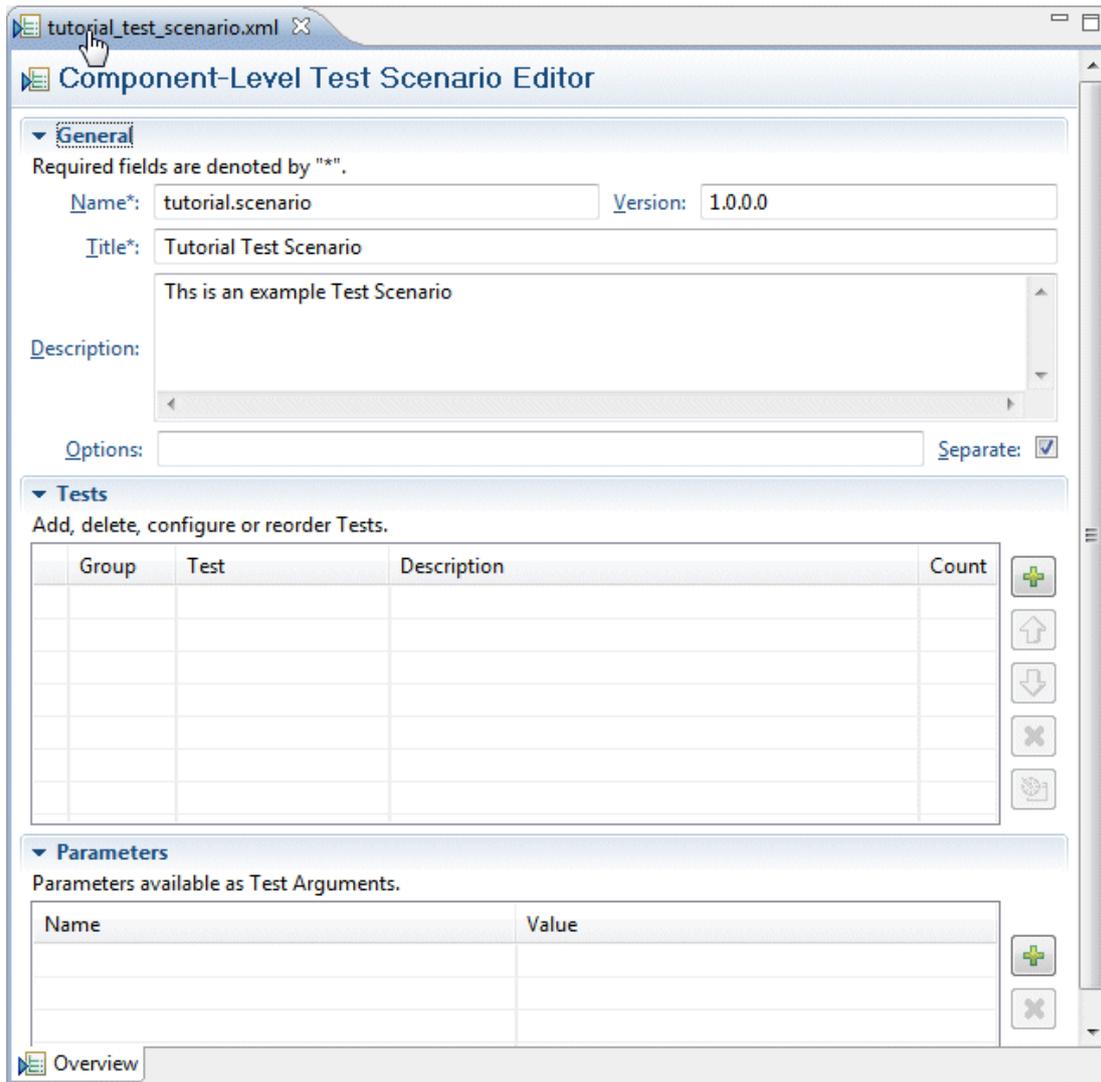
Observe that the fields in the **General** section have been filled in with the values from the wizard. We will collapse this section to make more room on the screen for the tables we will work on.

To collapse the **General** section:

1.   Click **General** in the section header

(<u>Note</u>: to restore this section later, click **General** again.)


To this scenario, we will now add a number of tests:

1.   Right-click the table in the **Tests** section and select ✚ **Add…**
2.   In the **Add Test** dialog, select **Incoras Component Test** in the **Group** field

3. Select **Component Port Information Test** in the **Test** field
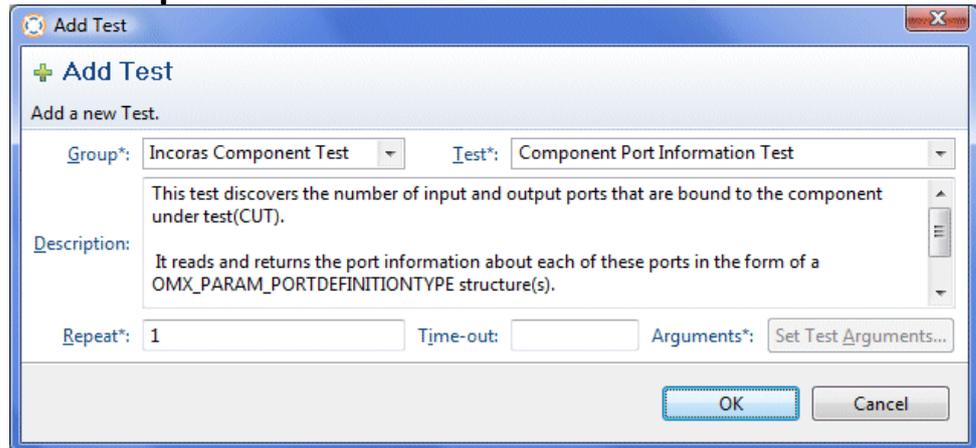
4. Since this test does not require and test arguments, click **OK**
5. Right-click the table in the **Tests** section again and select ✚ **Add...**
6. In the **Add Test** dialog, select **Incoras Component Test** in the **Group** field
7. Select **Component EOS Test** in the **Test** field
8. Click **Set Test Arguments...**
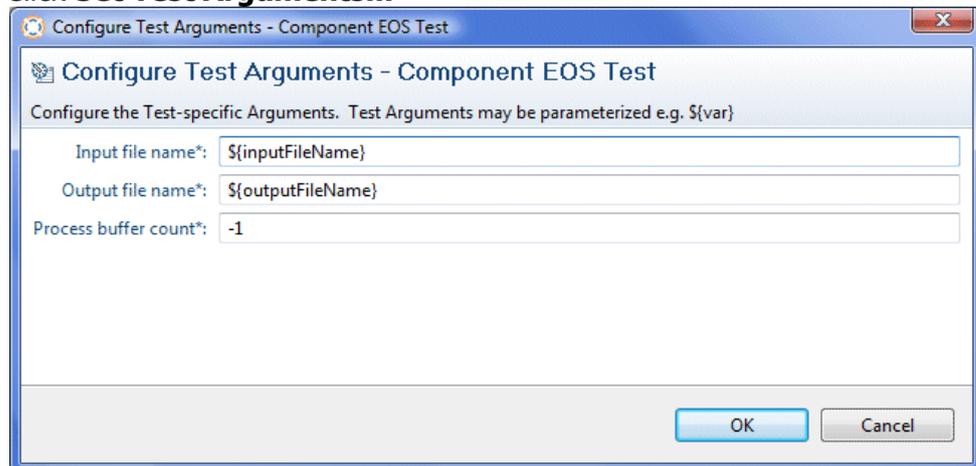
9. Click **OK** since we will accept these default values.
   Note: the input and output file name values are *parameterized* here; you can type absolute values should you wish, but parameters are more flexible since they are shared across tests.
10. Click **OK** to add the test
11. Repeat steps 6-11 and add the **Incoras Component Mark Buffer Test**. It has the same test arguments as the **Component EOS Test**.

You will observe, after adding the **Component EOS** and **Component Mark Buffer** tests, that an error has been detected, and also that the two parameters used in these tests' arguments have been added to the table in the **Parameters** section. The error arises since the parameters have not been assigned values.

We will now assign the parameter values:

1. Click the **Value** cell to the right of the `${inputFileName}` parameter and type `/usr/share/incoras/source.bin`[2]
2. Click the **Value** cell to the right of the `${outputFileName}` parameter and type `/tmp/sink.bin`

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[2] This file is provided by the mdserver installation packages

Note: In this case, the parameter values are paths to files; they must be valid on the target system.

Finally click **File > Save** to save the test scenario.

4.2 Creating a batch test

Create a new batch test:

1. Click **File > New > New Batch Test...**
2. In the **New Batch Test** dialog, select the **testing** project folder
3. Type `tutorial_batch_test.xml` in the **File name** field
4. Click **Next**
5. Type `tutorial.batch` in the **Identifier** field
6. Type `Tutorial Batch Test` in the **Title** field
7. Type `This is an example Batch Test` in the **Description** field
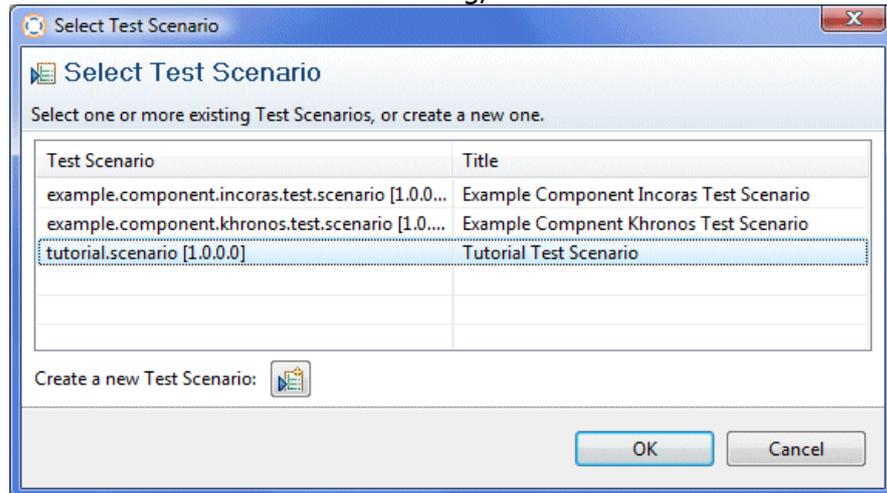8. Click **Finish**

The Component-Level Batch Test Editor will open on the `tutorial_batch_test.xml` file.
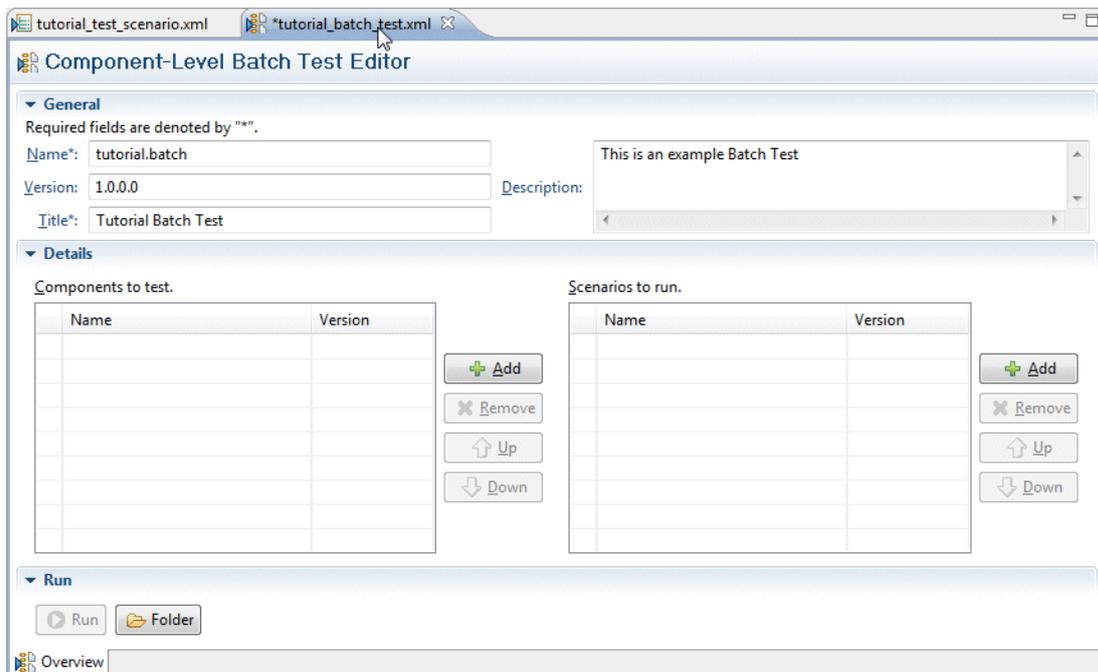
Having created this test batch file, the first step is to add the test scenario we have previously created:

1. Click ✚ **Add** to the right of the **Scenarios to run** table

2.   In the **Select Test Scenario** dialog, select **Tutorial Test Scenario**
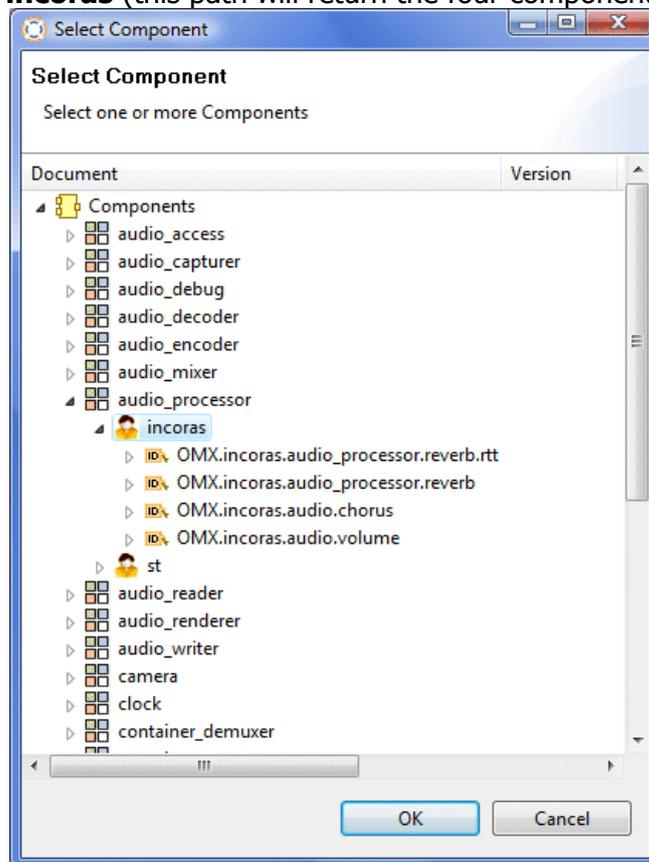

3.   Click **OK**

Note: You can also add scenarios to a batch test by dragging them from either the **Navigator** or the **Library** views and dropping them on the **Scenarios to run** table.

We will now add the components we want to test using this scenario:

1.   Click ✚ **Add** to the right of the **Components to test** table
2.   Expand tree and select the path **Components > audio_processor > incoras** (this path will return the four components shown)

3.   Click **OK**

Note: You can also add components to a batch test by dragging them from either the **Navigator** or the **Library** views and dropping them on the **Components to test** table.

Finally click **File > Save** to save the batch test file.

4.3 Running the batch test

Follow the instructions in the help topic **MediaDesigner User Guide > Getting started > Running the sample graph** start and then connect to the mdserver application. In the toolbar, click 🖋 to establish the connection.

To run the batch test:

1. Click 🟢 **Run**. If this is the first time you have run tests, then the **Folder Selection** dialog will appear.
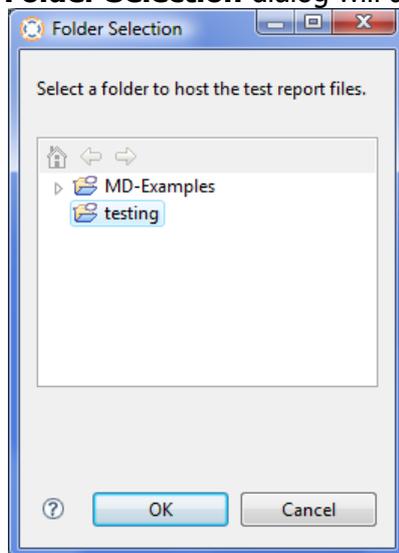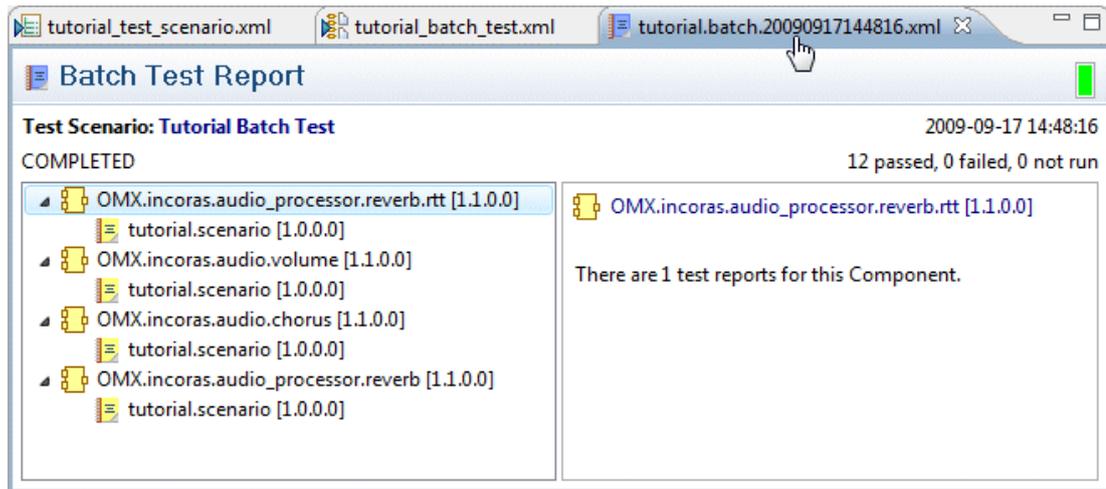

2. Select **testing**
3. Select **OK**

The tests should now run with a progress indicator, and status information is written to the **Console** view.

4.4 Displaying test reports

When the test run completes, a batch test report and individual component test reports are created in the **Test_Reports** folder inside the **testing** project. The **Batch Test Report** will automatically open.

The **Batch Test Report** shows a summary of the testing. Initially, the tree shows for each component the list of scenarios it was tested with (in this case just one). Reports that contain test failures are highlighted in red.
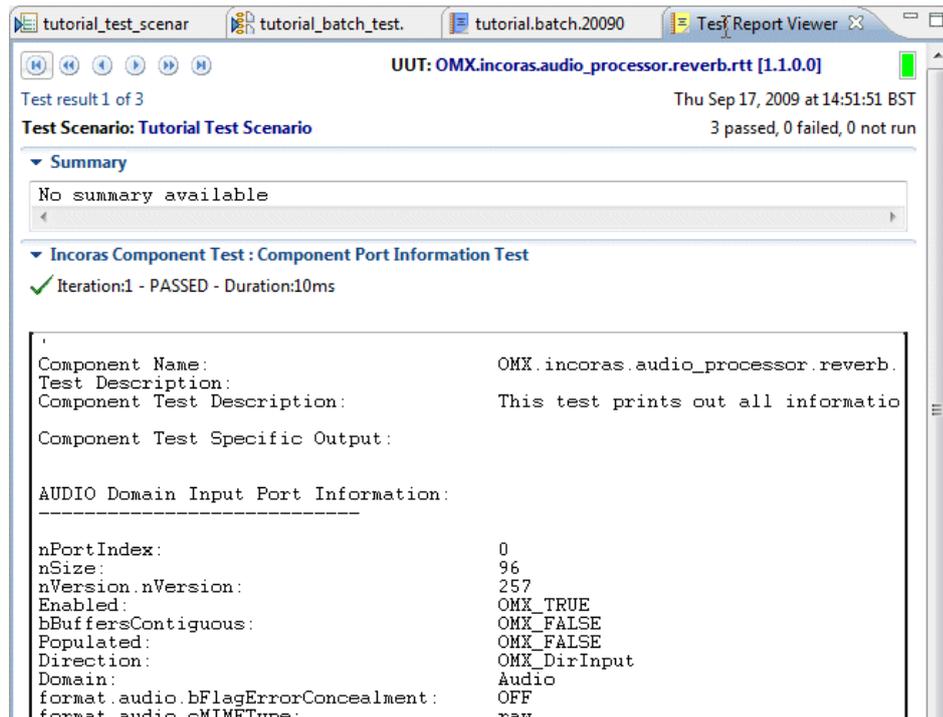
To display a scenario-centric view of the results:

1.   Right-click the tree and select **Toggle**
2.   Select and expand **tutorial.scenario**
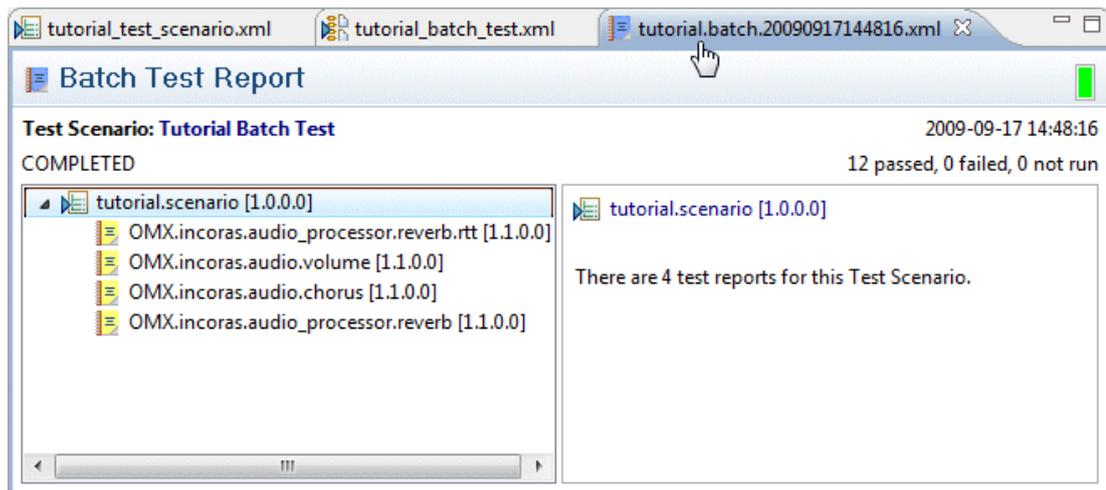
To view a detailed test report for a particular component:

1.   Double-click on a component leaf node in the tree. (In the component-centric tree orientation, double-click on a scenario leaf node.)

A **Test Report Viewer** will open with the report.

To move through the individual test reports for each test, use the navigation buttons at the top of the report:

Button	Action
	First test report
	Previous test failure report
	Previous test report
	Next test report
	Next test failure report
	Last test report

5. Running tests from the component editor

As a convenience, the **Component Editor** allows the current component to be tested with a single test scenario without first creating a Batch Test file.

To run a test scenario from the component editor:

1. Use the toolbar button to connect to the media target (mdserver). See the help topic **MediaDesigner User Guide > Getting started >Running the sample graph** for details.

2. Use the ✓ toolbar button to add and/or select a test scenario.

3. If the **Folder Selection** dialog appears, select an existing project or folder to contain the test results.
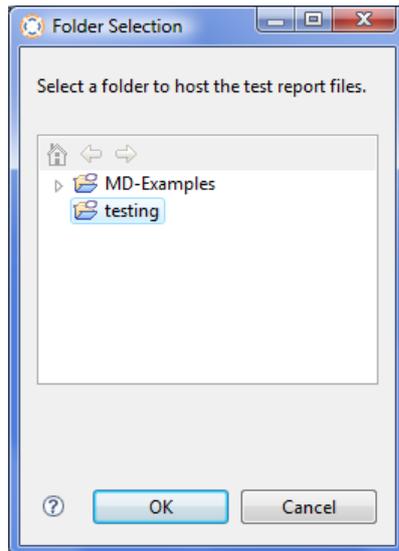
(A **Test_Reports** folder will be created under the item you select.)