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.

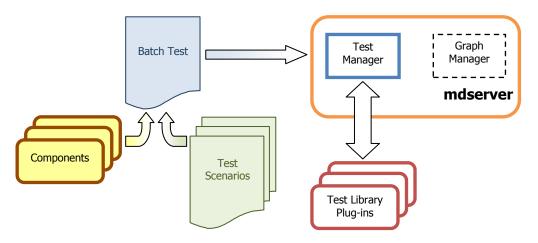
The tutorial is intended for use with the Bellagio Platform as supported by the evaluation version of MediaDesigner.

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 file¹.

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.

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.

General						
	ds are denoted by "	*".				
<u>N</u> ame*:	tutorial.scenario		Version:	1.0.0.0		
<u>T</u> itle*:	Tutorial Test Scen	ario				
	Ths is an example	Test Scenario				*
escription:						
<u>z</u> escription.						-
	*				,	
Options:					<u>S</u> eparate	1
	configure or reorde Test	r Tests. Description			Count	.
					Count	+ () () () () () () () () () ()

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:

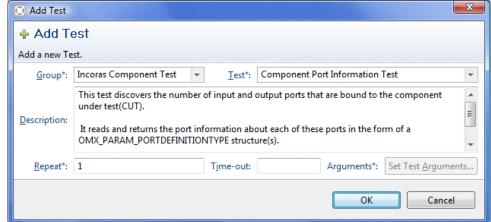
1. Click **General** in the section header

(Note: 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...

💿 Configure Test Argur	😳 Configure Test Arguments - Component EOS Test				
🛯 🕸 Configure Tes	🖥 Configure Test Arguments - Component EOS Test				
Configure the Test-spec	ific Arguments. Test Arguments may be parameterized e.g. \${var}				
Input file name*:	\${inputFileName}				
Output file name*:	\${outputFileName}				
Process buffer count*:	-1				
	OK Cancel				

- 9. Click **OK** since we will accept these default values. <u>Note</u>: 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:

- Click the Value cell to the right of the \${inputFileName} parameter and type /usr/share/incoras/source.bin²
- 2. Click the Value cell to the right of the \${outputFileName}parameter and type /tmp/sink.bin

² This file is provided by the mdserver installation packages

<u>Note</u>: 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.

- Genera	ponent-Level Bat al fields are denoted by "*".					
Name*:	tutorial.batch 1.0.0.0		Description:	This is an example Batc	h Test	
<u>T</u> itle*:	Tutorial Batch Test			4		4
Compor Na		Version	<u>5</u> ce	Name	Version	
_ ·	ments to test.	Version	<u>S</u> ce	narios to run. Name	Version	
			Add			<u>₽ A</u> dd
			emove Up			₩ <u>R</u> emove
			 <u>D</u> own			 ↓ <u>D</u> own
Run						
O Ru	n 🔁 Folder					

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.

Select Test Scenario ect one or more existing Test Scenarios, or create	a new one
Test Scenario	Title
example.component.incoras.test.scenario [1.0.0	Example Component Incoras Test Scenario
example.component.khronos.test.scenario [1.0	Example Compnent Khronos Test Scenario
tutorial.scenario [1.0.0.0]	Tutorial Test Scenario
reate a new Test Scenario:	

3. Click **OK**

<u>Note</u>: 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
- Expand tree and select the path Components > audio_processor > incoras (this path will return the four components shown)

Select Component		
Select one or more Components		
locument	Version	
🛛 🔂 Components		
audio_access		
audio_capturer		
audio_debug		
audio_decoder		
audio_encoder		
audio_mixer		
audio_processor		
a 💁 incoras		
DMX.incoras.audio_processor.reverb.rtt	t	
DMX.incoras.audio_processor.reverb		
DMX.incoras.audio.chorus		
OMX.incoras.audio.volume		
🔉 🕰 st		
audio_reader		
audio_renderer		
audio_writer		
camera		
Clock		
container_demuxer		
III		1
ОК	Cancel	
OK	Cancer	

3.

<u>Note</u>: 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 \swarrow to establish the connection.

To run the batch test:

1. Click **Q 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.

tutorial_test_scenario.xml	tutorial_batch_test.xml	🗐 tutorial.batch.20090917144816.xml 🛛 🖓 🗖
📃 Batch Test Report		
Test Scenario: Tutorial Batch 1	est	2009-09-17 14:48:16
COMPLETED		12 passed, 0 failed, 0 not run
 OMX.incoras.audio_pro tutorial.scenario [1.0] OMX.incoras.audio.volu tutorial.scenario [1.0] OMX.incoras.audio.cho tutorial.scenario [1.0] OMX.incoras.audio_pro tutorial.scenario [1.0] 	ume [1.1.0.0] 0.0.0] urus [1.1.0.0] 0.0.0] ucessor.reverb [1.1.0.0]	OMX.incoras.audio_processor.reverb.rtt [1.1.0.0]

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

🔚 tutorial_test_scenario.xml 🛛 🙀 tutorial_batch_test.xml	🗐 tutorial.batch.20090917144816.xml 🛛 🖓 🗖
📕 Batch Test Report	٣
Test Scenario: Tutorial Batch Test	2009-09-17 14:48:16
COMPLETED	12 passed, 0 failed, 0 not rur
 tutorial.scenario [1.0.0.0] OMX.incoras.audio_processor.reverb.rtt [1.1.0.0] OMX.incoras.audio.volume [1.1.0.0] OMX.incoras.audio.chorus [1.1.0.0] OMX.incoras.audio_processor.reverb [1.1.0.0] 	🔚 tutorial.scenario [1.0.0.0] There are 4 test reports for this Test Scenario.
< >	

To view a detailed test report for a particular component:

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

tutorial_test_scenar 👔 tutorial_batch_test.	tutorial.batch.20090	📑 Tes Report Viewer 🛛	
B C D B B UUT: OMX	.incoras.audio_proces	sor.reverb.rtt [1.1.0.0]	
est result 1 of 3		Thu Sep 17, 2009 at 14:51:51 BS	т
est Scenario: Tutorial Test Scenario		3 passed, 0 failed, 0 not ru	n
• Summary			2
No summary available			
•		+	
 Incoras Component Test : Component Port Information 	on Test		
Iteration:1 - PASSED - Duration:10ms			
, Component Name:	OWV incomes a	udio processor.reverb.	
Test Description:			
Component Test Description:	This test pri	nts out all informatio	
Component Test Specific Output:			
AUDIO Domain Input Port Information:			
nPortIndex:	0		
	0 96 257		
nPortIndex: nSize: nVersion.nVersion: Enabled:	96 257 OMX_TRUE		
nPortIndex: nSize: nVersion.nVersion: Enabled: bBuffersContiguous:	96 257 OMX_TRUE OMX_FALSE		
nPortIndex: nSize: nVersion.nVersion: Enabled:	96 257 OMX_TRUE OMX_FALSE OMX_FALSE		
nPortIndex: nSize: nVersion.nVersion: Enabled: bBuffersContiguous: Populated: Direction: Domain:	96 257 OMX_TRUE OMX_FALSE OMX_FALSE OMX_DirInput Audio		
nPortIndex: nSize: nVersion.nVersion: Enabled: bBuffersContiguous: Populated: Direction:	96 257 OMX_TRUE OMX_FALSE OMX_FALSE OMX_DirInput		

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

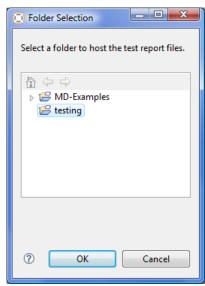
Button	Action
	First test report
۲	Previous test failure report
۲	Previous test report
۲	Next test report
۲	Next test failure report
M	Last test report

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:

- Use the *S* 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 \checkmark 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.)