

# **TSI Demo Application**

## **User's Manual**

**30.April.2015**



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## Company information

### **Unigraf Oy**

Piispantilankuja 4  
FI-02240 ESPOO  
Finland

Phone. +358 9 589 550

e-mail: [info@unigraf.fi](mailto:info@unigraf.fi)  
web: <http://www.unigraf.fi>

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# Table of Contents

1. General.....	4
1.1. About this document.....	4
1.1.1. History.....	4
1.1.2. Release History.....	4
1.2. Acronyms and abbreviations.....	4
2. Starting the TSI Demo application.....	5
2.1. Quick tour of the AV Test application.....	9
3. Using TSI Demo Application.....	12
3.1. Checking software versions.....	12
3.2. Setting a reference frame.....	13
3.3. Running tests.....	13
3.4. Setup Files.....	13

# 1. GENERAL

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## 1.1. About this document

This document explains how to use the features available in TSI demo application (“AV\_Test.exe”). This document assumes that the software is fully installed with all prerequisite software, as described in the TSI Installation manual.

This document applies to AV\_Test.exe version 1.3 [R0]

### 1.1.1. History

- 30.4.2015  
First release version of this manual

### 1.1.2. Release History

*1.3 [R0]* Initial release of this manual

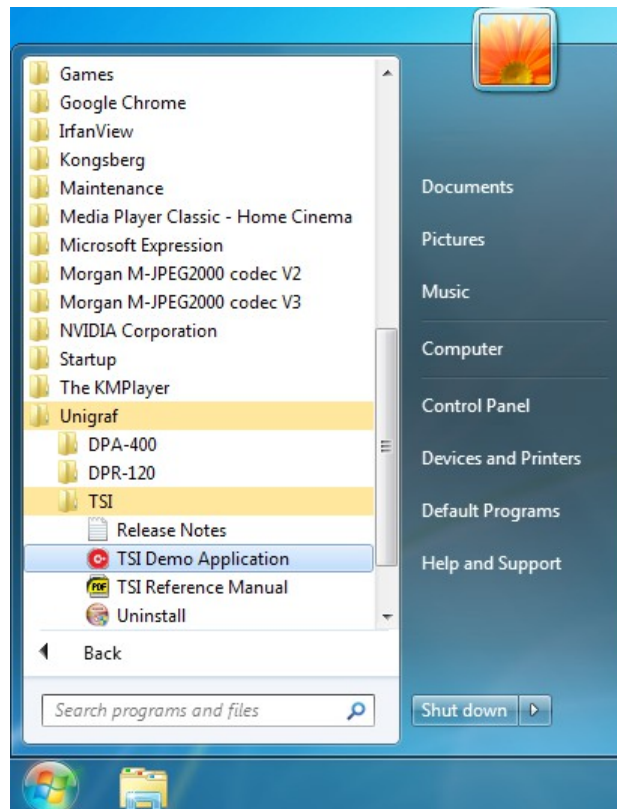
## 1.2. Acronyms and abbreviations

<i>DLL</i>	Dynamic Link Library.
<i>GUI</i>	Graphical User Interface.
<i>OS</i>	Operating System
<i>EDID</i>	Extended Display Identification Data.

## 2. STARTING THE TSI DEMO APPLICATION

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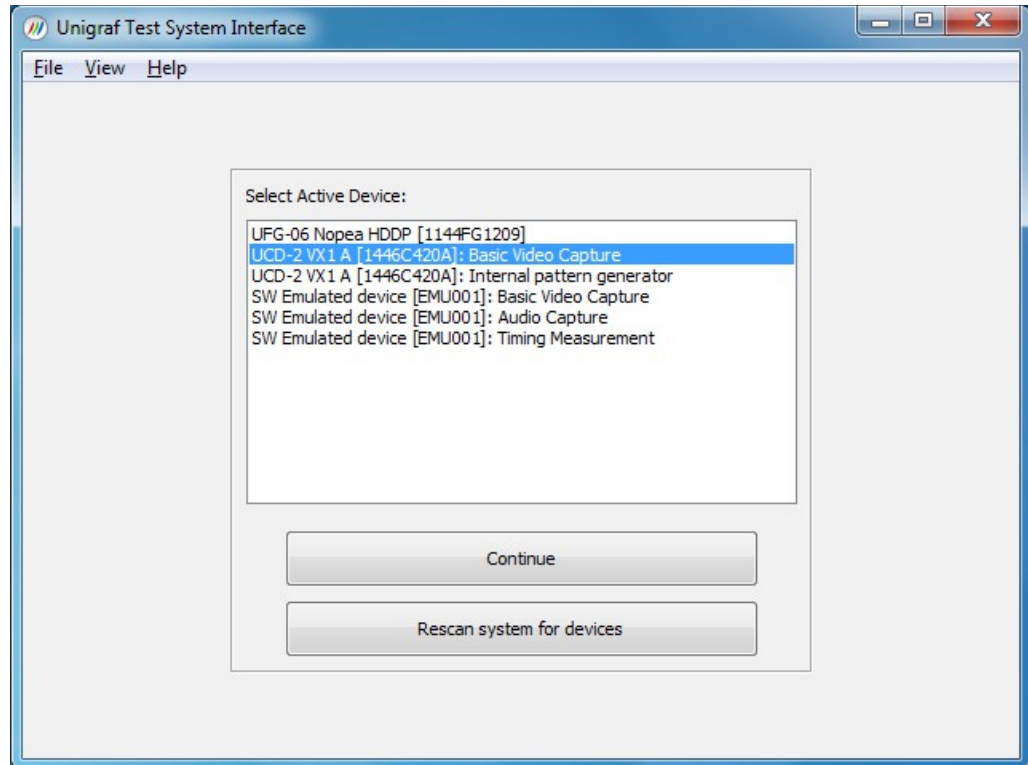
The shortcut to start the TSI Demo application shortcut is found in the start menu.



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After the application has started, a device selector is shown. The selector will contain a list of all supported hardware found attached to the local system. In case the hardware was used by another application at the time the TSI Demo application was launched, it may be missing from the device list. In this case close the other application using the device, and click “Rescan system for devices”.



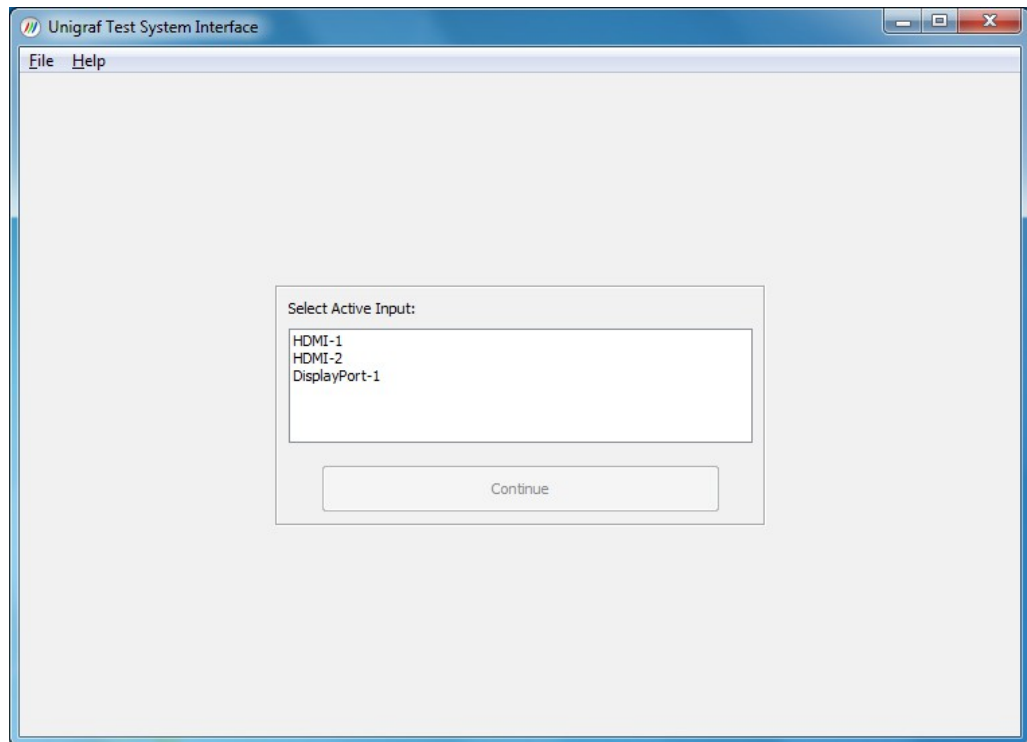
Select the device by clicking on its name in the device list-box, and then click continue. You can also double-click the device's name in the device list box.

Once you have selected a device a message box about opening device appears. Some device can take a short while to open for first time after being powered up. (Please allow up to 30 seconds).

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Once the device is successfully opened, the used input must be selected. The input selection works very similarly to the device selection.



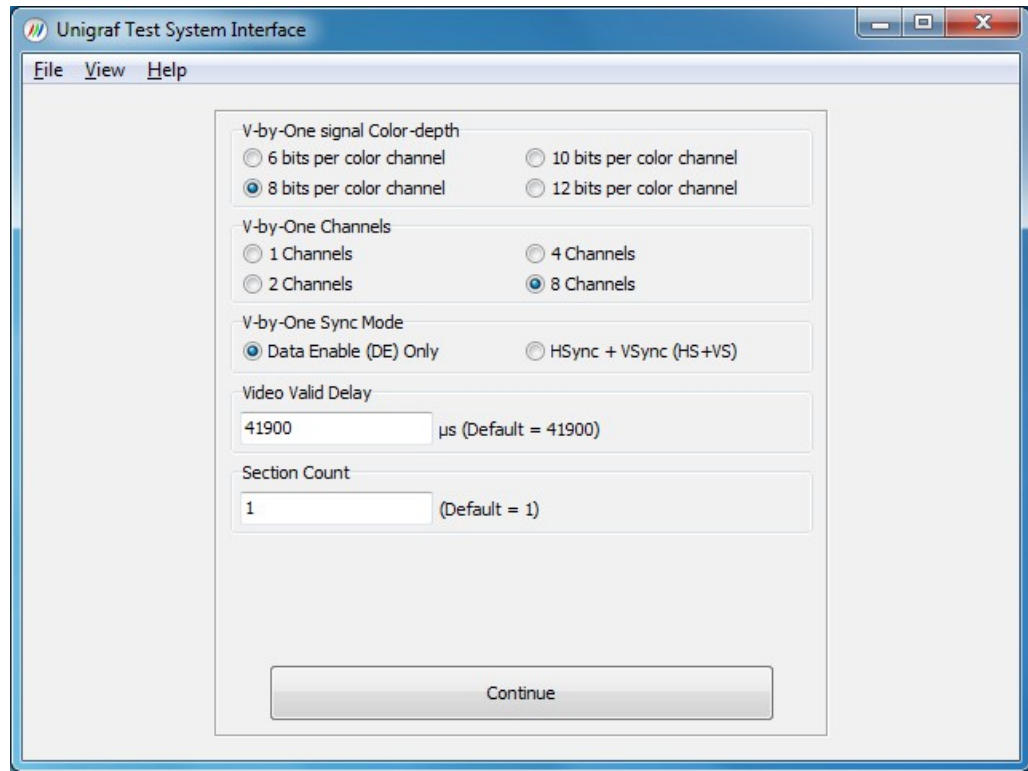
Again, select the input by clicking on it's name, and then clicking continue, or simply double-click the input's name.

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Depending on the input type, an additional step may or may not appear. Some inputs will require additional parameters to correctly capture video or audio.

As an example, an additional configuration dialog for V-by-One is shown in the image below.



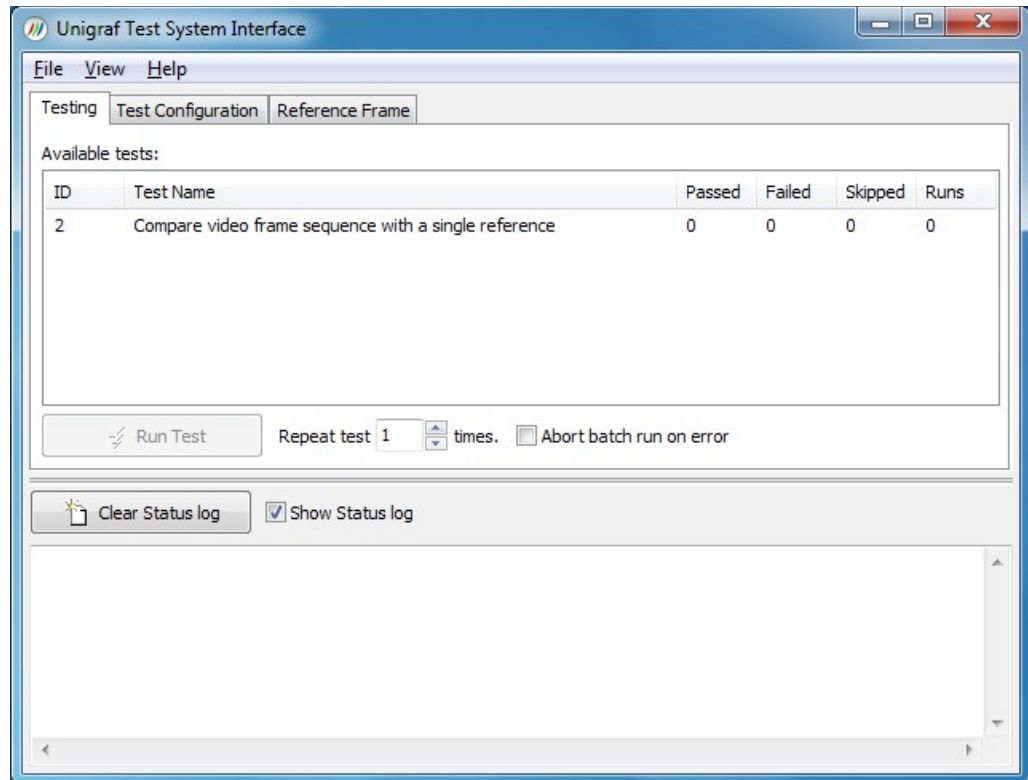
**Important:** The configuration view is generated dynamically depending on input and device type, so it may or may not appear exactly as shown above.

**Important:** For V-by-One it is important to define the input signal correctly. The most important are color depth and channel count. If the input signal is not defined correctly, video capture may not work or may produce unexpected results.

If this type of page is shown, simply select and/or fill in the appropriate settings and click continue to activate the input. Once the input is successfully activated, the main part of the application is reached.



## 2.1. Quick tour of the AV Test application

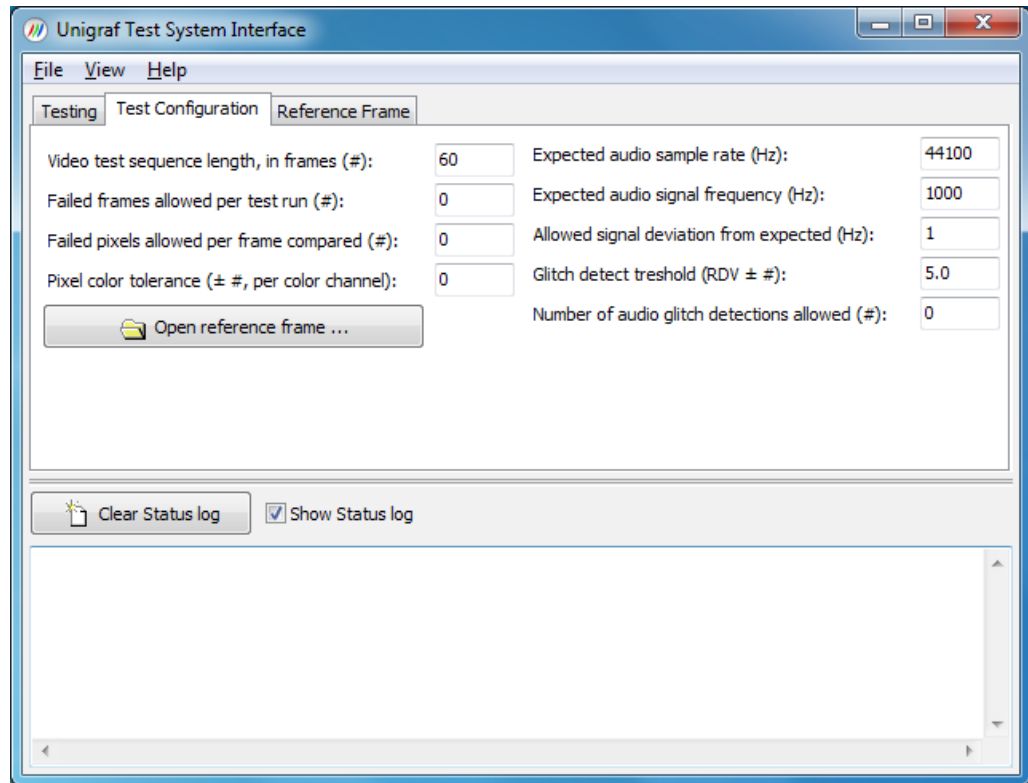


The main window consists of two parts: In the bottom, the TSI status log with controls to clear and/or hide it, and at the top a set of pages that contain various features.

The Testing page contains a list of tests that can be executed with the current device. The number of available tests depends on the type of test hardware being used, and on which licenses are installed for that device. To run a test, simply select the appropriate test from the list and click "run test" button.

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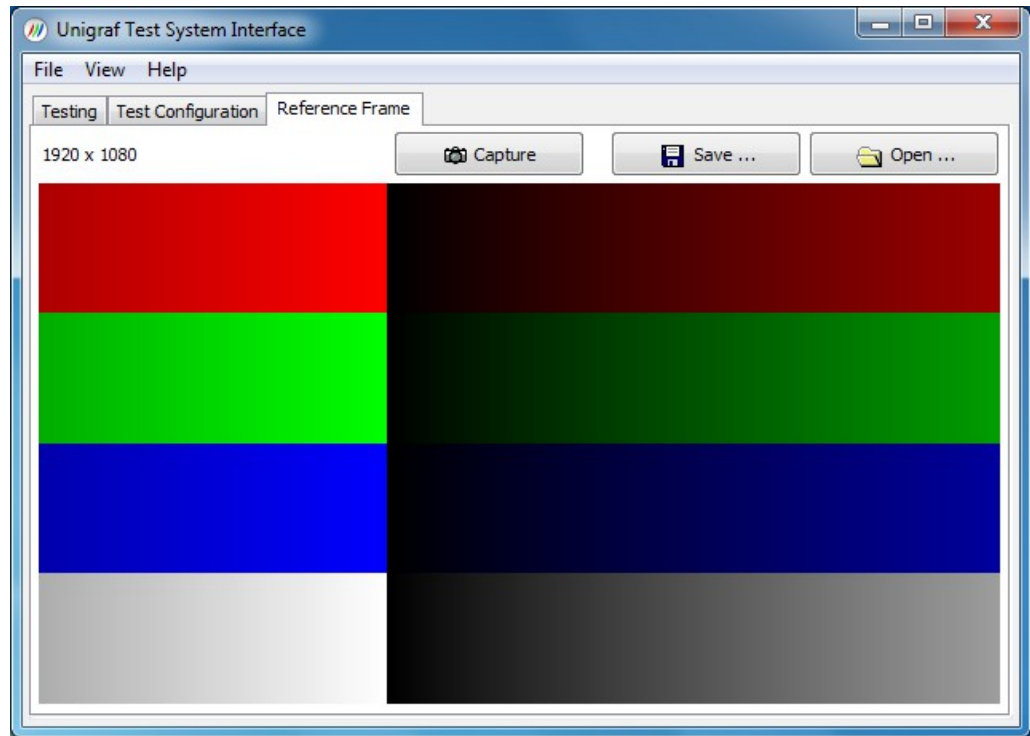


The Test Configuration page contains settings that can be used to set various parameters that change how the tests operate, or how the pass/fail decision is done. The left column is reserved for video related tests, while the right side column contains audio related tests.

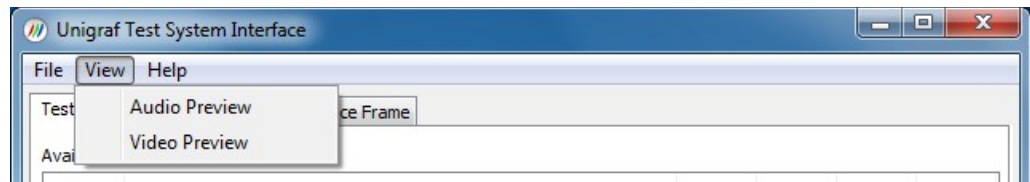
- “Video test sequence length, in frames” defines the number of frames to capture into system RAM to perform the actual comparison.
- “Failed frames allowed per test run” defines the number frames that can fail before the entire test run gets the failed outcome.
- “Failed pixels allowed per frame compared” defines the number of pixels that can fail before the entire frame gets the failed status.
- “Pixel color tolerance” defines the allowed difference between a reference frame's pixel and compare frame's pixel before the entire pixels is counted as failed.
- “Expected audio sample rate” defines the expected sample rate received on audio input.
- “Expected audio signal frequency” defines the audible signal's expected frequency for all active channels.
- “Allowed signal deviation from expected” defines how much the audible signal can deviate from the expected frequency.
- “Glitch detect threshold” defines how sensitive the glitch detection algorithm is. Lower values mean more sensitive.
- “Number of audio glitch detection allowed” defines how many glitches can be present in the test audio block before the audio test is considered failed.

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The reference frame page shows the current reference frame, and its dimensions. It also has buttons that allow user to capture reference frame from the device, as well as to save the current reference frame to disk, or load an existing image file as reference frame.



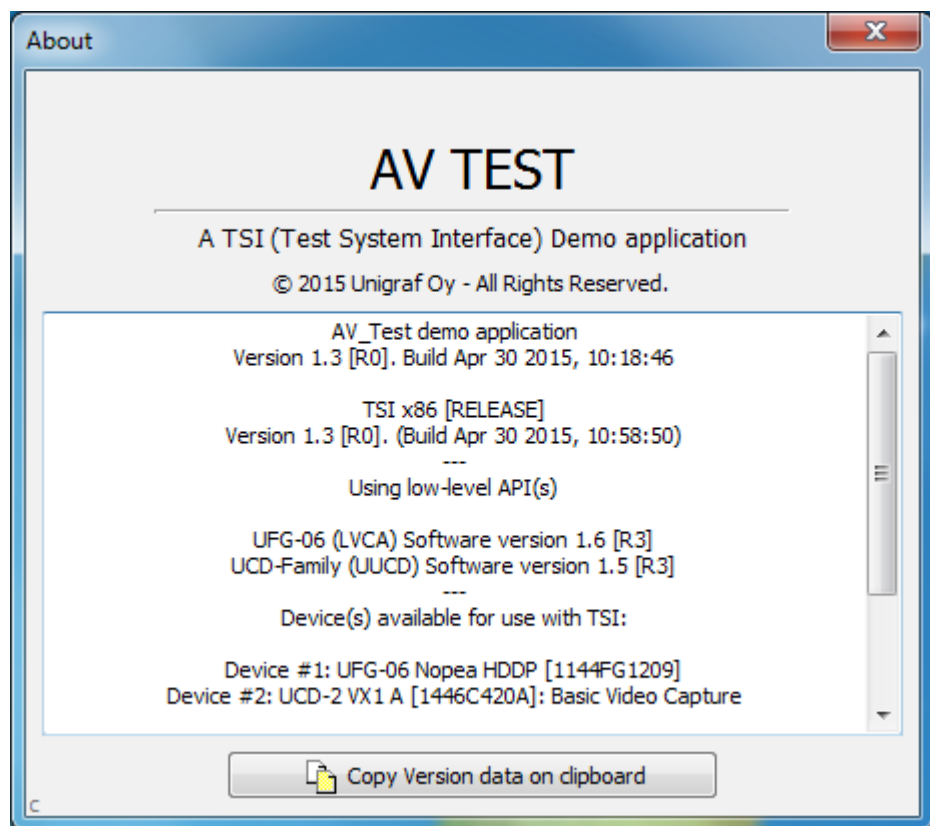
The AV Test application also offers video preview and visual audio preview. Both previews are contained in separate windows, and are available simultaneously. To show or hide these windows, go to the “view” menu, and select the window to show/hide.

## 3. USING TSI DEMO APPLICATION

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### 3.1. Checking software versions

To access information about currently used software versions, select “Help” → “About” from the application's menu. This item is available already before selecting active device, so in order to check version information of all relevant software packages it is enough to TSI Demo application and go to the about box:



The version information box's contents are easily copied to the system clipboard by clicking the “Copy version data on clipboard” -button.

**Important:** When reporting bugs, or problems with TSI Demo application, it is a good practice to include the version information displayed in the about box. Also notice, that simply running the AV Test application is enough to get access to this information – It is not necessary to open device or input.

## 3.2. Setting a reference frame

Reference frame is always required when using the test feature. To make it very simple to get a reference frame into the demo application, there are two ways of doing it directly and one indirect method.

The simplest is to capture a reference frame. To do this, simply click the “Capture Reference frame” -button, and the rest is automatic.

The second option to get a reference frame directly, is to load it from a picture file. The current TSI Demo only support BMP 24/32 bit file format picture files. Later versions will support additional formats. The problem with this approach is that the picture generated by the source may not be readily available as an image file. In these cases, please use the capture method.

The third way, is to load settings from the menu “File” → “Load Setup”. Doing this requires a previously saved setup file, and because of this, this method is considered “indirect”. To understand what these setup files are, please refer to 3.4 Setup Files.

## 3.3. Running tests

First step is to make sure the test parameters are correctly set up in the “Test configuration” page. For video tests, you might additionally need to capture or load a reference frame. Audio test does not require any reference data to be loaded.

Once the settings are correct, running the tests is very straight forward. On the “Testing” page, Simply select the test to run, and click the “run test” button below the list of tests.

If you want to run the test multiple times, you can increase the repeat count.

You can also select multiple tests to be run as batch process. To select multiple tests, hold down CTRL key when selecting additional tests.

If the “Abort batch run on error” check-box is checked, the batch run will stop on first failed test it encounters.

## 3.4. Setup Files

The setup file is a new concept introduced in TSI 1.1 [R1]. Basically, a setup file is a file that contains all the test settings, and the reference frame. To save a setup file using TSI Demo application, go to the menu “File” → “Save Setup”.

The setup files are supported on the TSI API level, meaning that the setup files are useable across different applications that are built on TSI. The setup files are also backward compatible, meaning that a setup file created with an older version of TSI can always be loaded in a newer version TSI application.

One conceivable use for the setup files is to create test setups using the TSI Demo application, save the settings into setup files, and then simply load these setup files in a custom test application. This way, the custom test application does not need to have the test parameters built in, and there already is a graphical utility that allows easy creation or modification of the setup files.