

# 16-Channel Video Mosaic

user manual

CW-6100

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## 12.1. 16-Channel Video Mosaic

The possibilities of the web technology are quite limited therefore we took advantage of the opportunity that Personal Stream Tools can also be managed by external platforms. The 16-Channel Video Mosaic is a Windows software which is able to control up to 16 PSTs simultaneously.

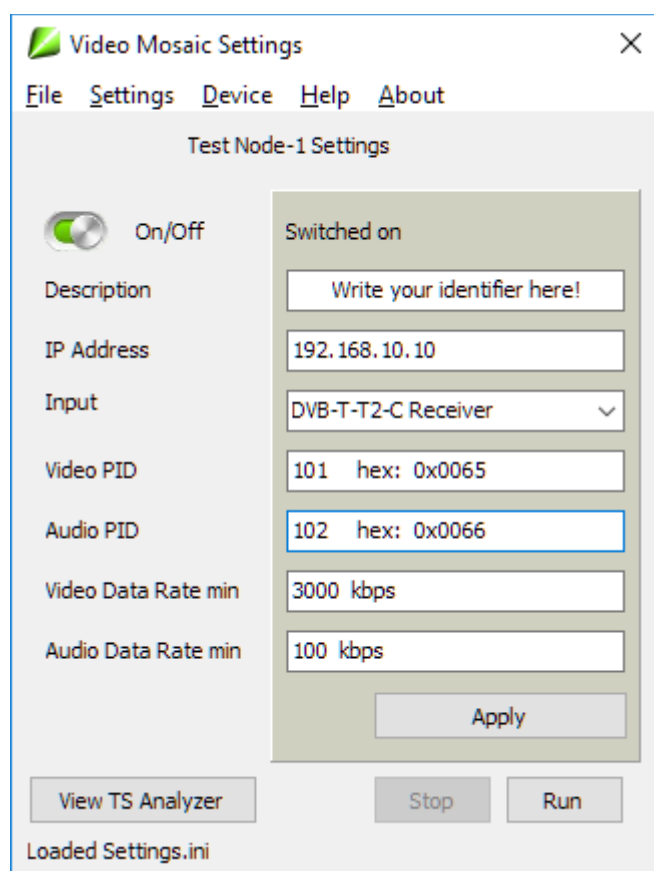
The recommended screen resolution is 1920×1080 pixels. Otherwise, the whole user interface can't be displayed.

The software divides the 1920×1080 pixel screen into 4×4 equal rectangles to display 16 thumbnails. Each thumbnail shows the options of a so-called Test Node which can be adjusted individually. Each Test Node provides information about the transport stream parameters such as data rates, various errors, and deeply analyzes the video and audio elementary streams. Additionally, it displays thumbnail images of H.262, H.264, and H.265 videos.

The Video Mosaic software is designed to monitor signal processing systems but it is also perfect for advertising purposes.

The SW-6100 software can be installed by running the VidMon16.exe which is freely available at our website. Additionally, it is also available as a zipped folder which doesn't have to be installed.

Clicking the welcome page the software displays the screen which is divided into 4×4 equal rectangles. The rectangles are for displaying the measurement reports of 16 Test Nodes. Click one of the rectangles to open



Picture 1

Test Node settings

its options window. Please note that all the Test Nodes have to be configured before clicking the Run button.

Clicking one of the rectangles the options window pops up as shown in picture 1.

It shows not only the settings of the given Test Node but the main menus of the software. The Test Nodes can be individually enabled or disabled by clicking the switch next to the On/Off text without modifying any other parameters.

The Description field helps to identify the test nodes as follows.

1. Movie Channel at the IP input.
2. Movie Channel at the ASI input of the transcoder.
3. Movie Channel at the ASI output of the transcoder.
4. Movie Channel at the output of the QAM modulator.
5. ... etc.

In the IP address field, enter the management IP address of the PST which is supposed to monitor the wanted transport stream. Of course, one PST can be used by multiple Test Nodes.

Clicking the drop-down list in the Input field, one of the 64 inputs of the PST can be selected. The same IP address and the same PST input can be used by

multiple Test Nodes.

If you fill the Video PID/Audio PID field, the software will analyze the video/audio elementary stream. Deleting the input field turns the analyzing off.

Clicking the **View TS Analyzer** button and selecting a video or an audio elementary stream, the selected PID will be displayed in the Selected Elementary Stream field. If you click the Apply button, the software will automatically fill the Video PID or Audio PID fields on the Test Node Settings page.

If you fill the Data Rate min fields, the software will indicate when the data rates drop below the entered values.

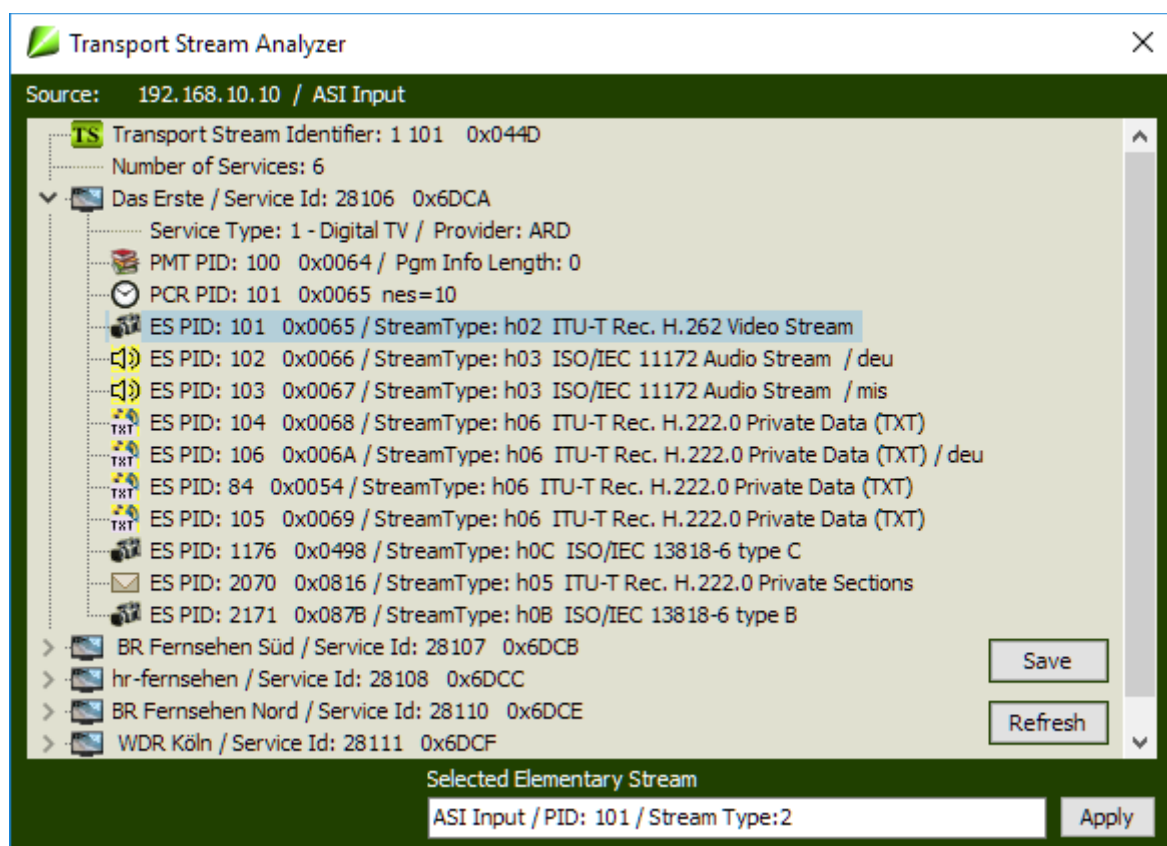
Please note that any changes are applied when you press Enter or click the Apply button. The configuration is not stored in the device but in the Settings/Settins.ini file.

In the **[File]** menu, selecting the **[Save Settings ...]** menu, the software saves all the 16-Channel's settings in the Settings.ini file. It is recommended to save the settings several times during the configuration. Selecting the **[Load Settings from Settings.ini]** menu the last saved settings will be loaded. Selecting the **[Save Settings as ...]** and **[Load Settings from ...]** menus, the location of the file can be set.

Selecting the **[New Application]** menu, the software deletes all the settings, turns off all the nodes and goes back to factory default settings.

Click the **[File / Save Project Info as ...]** in the File menu to save the Node configurations to a text file.

In the **[Settings]** menu the Node configuration can be chosen without clicking to any test node window. This function helps us to select the desired node in case of using a low resolution screen. Clicking the **View Project Info** in the Settings menu, the software displays the 16 Test Node configurations. The pop-up window can be closed by clicking the Close Project Info.



Picture 2

TS Analyzer

Clicking the **[Run]** button the software starts analyzing the streams and decoding pictures. Clicking to any Node during the analyzing process the setting window appears again. To stop the analyzing process click the stop button.

Selecting the **[Device]** menu, all the Test nodes will be listed. Selecting one of the listed test nodes, the web-based user interface of the test node will be opened in the default web-browser.

In the **[Help]** menu the English/Hungarian user manual can be selected. For downloading the newest user manual from our website select the **User manual from Internet** menu.

Clicking the **[View TS Analyzer]** button, the software shows the previously saved Transport Stream structure. Data can be refreshed by clicking the **[Refresh]** button. If the device is not available or not configured the refresh will not work. Clicking the **[Save]** button the TS will be saved in the database of the software. The TS Analyzer interface is shown in Picture 2.

The software can be closed by selecting the **[Exit with Save]** or the **[Exit]** menu in the File menu or clicking the X button in the top right corner.

### Description of the analyzing process

Clicking the **[Run]** button, the software sends a Query message to the added analyzer devices and indicates if one of them is not available. The software continues working even if a communication error occurs and a device is not responding. The missed device probably will not be configured for the measurement. The software switches on the RTA (Real Time Analyzer) module and the internal loop from input four in the device.

The software optimizes the data read from the configurations and performs the following measurements:

- It measures the Transport Stream data rate after each 10 images are drawn (approximately every 10 seconds). A large yellow warning sign will be shown if the data rate is less than 100 kbps.
- It reads the RTA module in approx. every 2 to 3 minutes (after decoding 200 images). Shows the number of CC errors, the number of elementary streams containing TEI error, the number of scrambled streams, and the number of PCR data streams. The video and audio data rates are also shown. The data rate is displayed in red when it is fewer than the set limit. After the software read the RTA module, the counters in the module will be reset and a new test cycle is started.
- In every cycle a picture is refreshed. To show a picture takes approx. 700 ... 1000 ms in case of H.262 data stream and 800 to 1300 ms in case of H.264 HD data stream. The time of a cycle is typically ~1 second.
- The video information is refreshed after 1000 picture is shown.

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#### Additional information:

*The software was developed under Windows 10 (32-bit), and backward compatibility is not guaranteed (it does not work under Windows XP).*

*The software has a high quality multistandard decoder, but it can not be guaranteed that it can decode any kind of video streams.*

*Refreshing the images are ordered in ascending sequences. The order of the other measurements is optimized by the software.*

*The MPEG-2 encoded streams contain a number of data packets (IDR images) from which a high-quality image can be displayed. As a result, MPEG-2 data streams can be decoded almost every time.*



In order to avoid freezing or slowdown of the software, the video processing module of the PST has one second time slots to get reduced-size pictures from the video elementary stream. As IDR (Instantaneous Decoder Refresh) coded pictures are not transmitted in MPEG-4 streams, and the number of the pictures, which can be displayed without decoding the previous pictures, has been reduced, occasionally it is not possible to collect enough information to display a thumbnail in a one second time slot. In this case, one or more thumbnails won't be refreshed. If a thumbnail picture fails to refresh, the **Refresh failed** text will be displayed in the lower right corner of its rectangle. The piece of transport stream of a time slot has to contain a whole I frame for displaying a whole thumbnail picture.

The thumbnails don't show the real quality of the picture because they are reduced by a scale factor of 1:5, to a resolution of 384×216 pixels. They are only for illustrating if there is an appropriate video content. For analyzing the quality of the picture it is recommended to use a professional decoder.

The 16-Channel Video Mosaic software displays a 1920×1080 pixel mosaic as shown in Picture 3.



Picture 3

### Screenshot of a 16-channel analysis

Clicking the **[File/Save Settings]** menu the configuration of the Test Nodes are saved into the Settings/Settings.ini file. The configuration can also be modified by changing the content of the file.

The TS Analyzer stores the structure of 16 different transport streams. The analyzer reports can be saved into file (Settings/TSR1...16.tsr) by clicking any Save button on the Transport Stream Analyzer page.