



www.softlab.tv



sales@softlab.tv



SoftLab-NSK



SoftLabTV



+7(383) 363-04-62



SOFTLAB-NSK

MORE THAN 30 YEARS OF CREATING HARDWARE AND SOFTWARE FOR TV BROADCAST AUTOMATION

Loudness Normalization in SoftLab-NSK solutions

Russia, Novosibirsk 2024

SoftLab-NSK is one of the largest Russian manufacturers of hardware and software for television broadcast automation systems. Its solutions are used by more than 1.5 thousand broadcasters around the world.

After the adoption of new amendments to the Federal Law «On Advertising», the question of loudness normalization has become especially relevant for broadcasters. The amendments introduce requirements for the loudness level of advertisements when compared to the average loudness level of the television or radio program interrupted by the advertisements. Deviation from these requirements threatens broadcasters with a significant fine.

SoftLab-NSK solutions currently implement two different software methods for loudness normalization, along with monitoring systems that can be used to check for compliance of the loudness level with the requirements.

REAL-TIME LOUDNESS NORMALIZATION



The **SLSoundLeveler plugin** is designed to normalize audio in real time. The plugin automatically levels out the audio at the video server output while broadcasting.

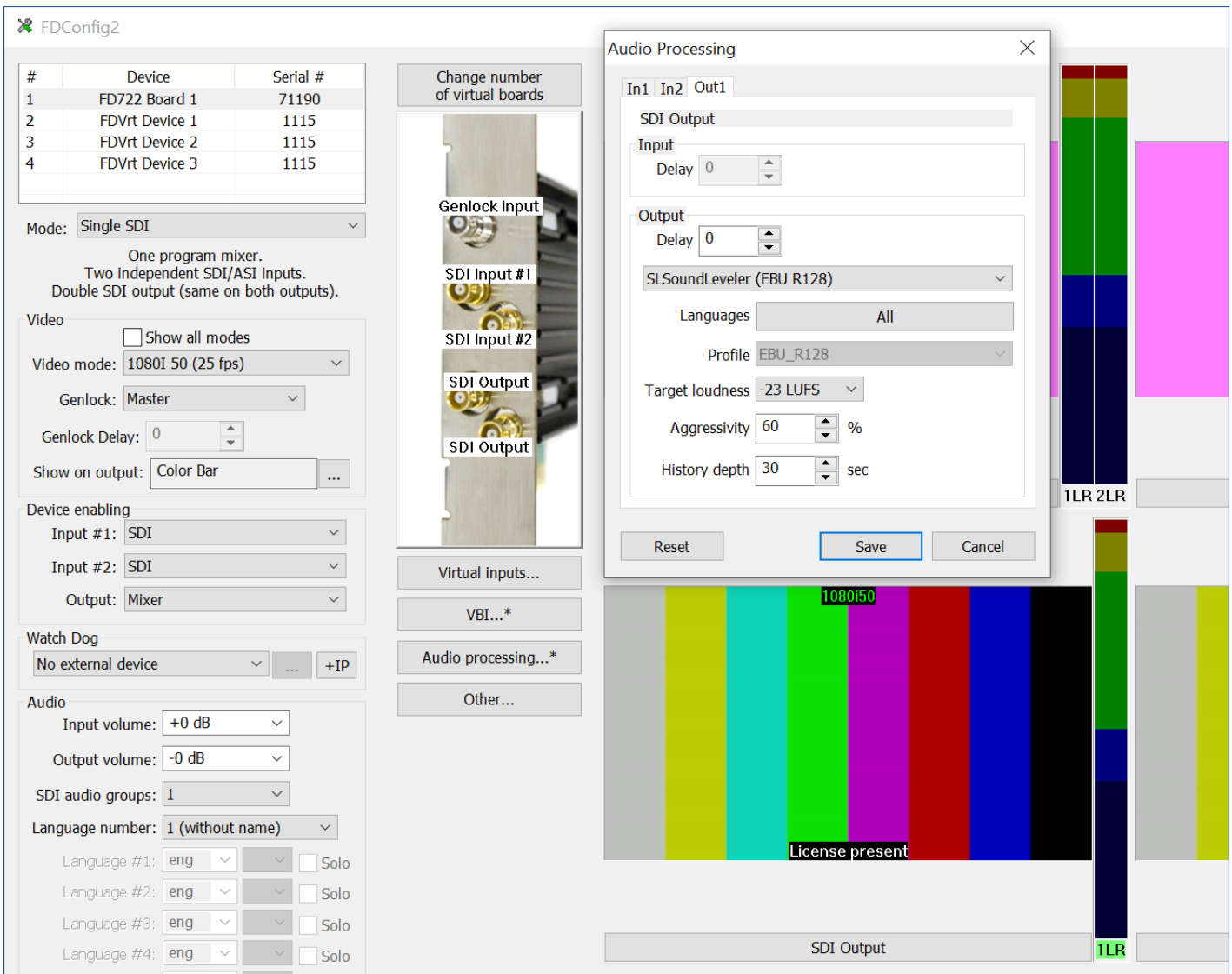
Main plugin features include:

- a special mode (EBU_R128) for compliance with legal requirements;
- a minimal set of settings;
- the «Target level» parameter – set the required value of the output volume level in LUFS;
- the «Aggressiveness» parameter – the reaction speed to changes in the sound level: the higher the parameter value, the

faster the audio is adjusted to the target level (but the more significant the sound distortion);

- the «Analysis time» parameter – the time interval for the continuous analysis of the sound parameter statistics;
- support for various signals – analog (CVBS, YUV, Y/C, RGB), SDI, as well as programs in a MPEG-TS.

To enable audio normalization the user only needs to select the target level once in the settings or select one of the presets. After configuration the plugin automatically levels out the server output audio to the specified level (for example, -23 LUFS).



Interface for configuring audio normalization parameters using the SLSoundLeveler plugin

The **SLSoundLeveler plugin** is an additional option that is purchased separately to the main product.

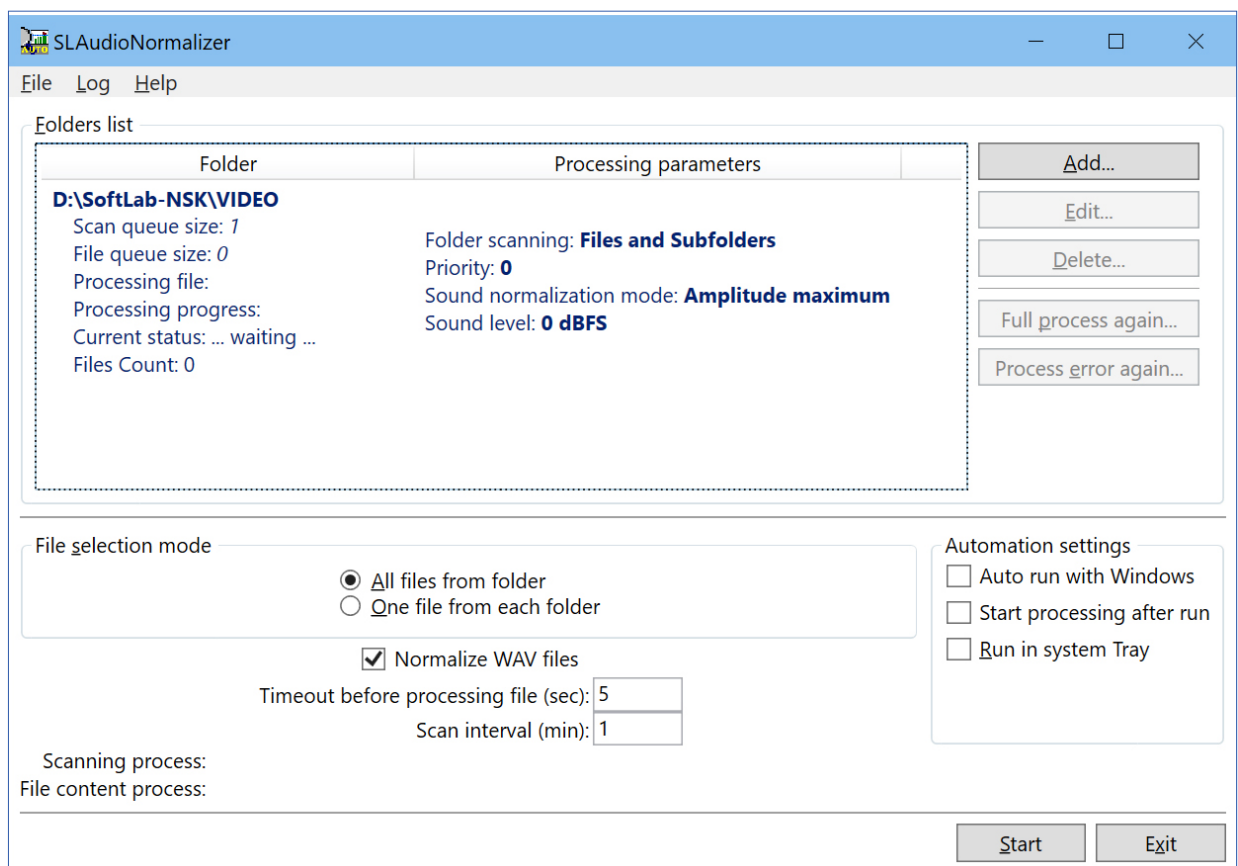
PRE-PROCESSING AUDIO IN FILES



The **SLAudioNormalizer** program, which is part of the standard SoftLab-NSK software, is designed to pre-process audio in files. To do so, the user simply needs to specify the set of folders containing the audio files and which mode to use in the settings. The program automatically analyzes the audio track of video files. The audio file itself is not edited: an auxiliary metadata file is generated with information about the required changes to the volume.

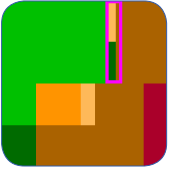
Main features of SLAudioNormalizer include:

- several loudness normalization modes, one of which meets current regulatory requirements;
- starting file processing on operating system start;
- tracking the appearance of unprocessed files;
- normalization of multi-language audio;
- logging program operation;
- processing files in subfolders;
- flexible settings for file processing mode.



Interface for pre-processing audio in files using the SLAudioNormalizer program

LOUDNESS MONITORING TOOLS



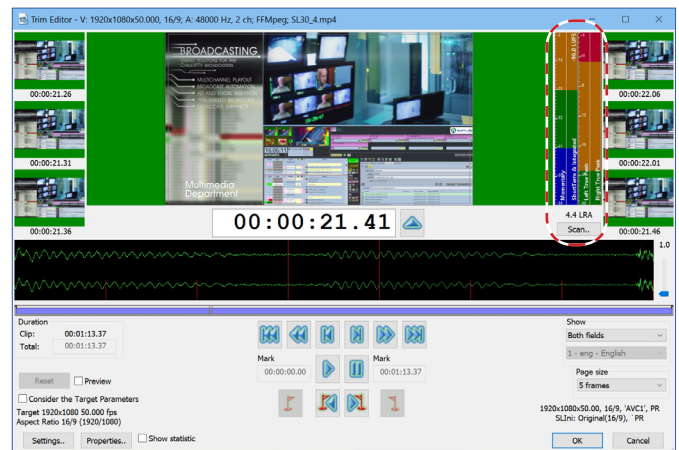
The SoftLab-NSK software includes **SLLoudnessMMeter**, an EBU mode (ITU-R BS1771 and EBU Tech3341) software loudness.

Main features of SLLoudnessMMeter include:

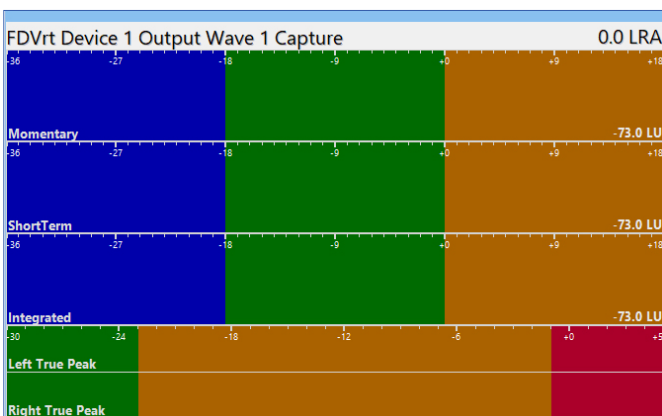
- several indicators and time scales: instant, short-term, integrated;
- a scale displaying the maximum permissible level of true peaks;
- various options for displaying indicators;
- various options for displaying the scale;
- various modes for measuring the integrated loudness;
- the ability to manually reset statistics;
- recording data to a measurement protocol file.

EDITOR FOR VIEWING VIDEO FILES AND CONFIGURING PLAYBACK OPTIONS

The functions implemented in the SLAudioNormalizer and SLLoudnessMMeter programs are also built into **SLTrimEditor**, the editor for viewing video files and configuring playback options. The user can perform all of the necessary loudness measurements and select the value that regulates the audio file loudness by opening a video file in this program.



SLTrimEditor – editor for viewing video files. The loudness measurement unit (in accordance with legal requirements) is outlined.



SLLoudnessMMeter – the software meter of loudness in EBU mode

RECOMMENDATIONS

To ensure compliance with the standards set by the regulatory authorities for loudness in television programs, the listed programs should be used in combination to normalize audio and take control measurements.

Firstly, use the **SLLoudnessMMeter** program at different stages of television production. This will allow the broadcasting company to carry out control measurements in full compliance with the measurement methodology proposed by the Federal Antimonopoly Service of the Russian Federation.

Secondly, set the file audio volume to the required level using the **SLAudioNormalizer** program, based on the results of measuring the integrated loudness of the video files.

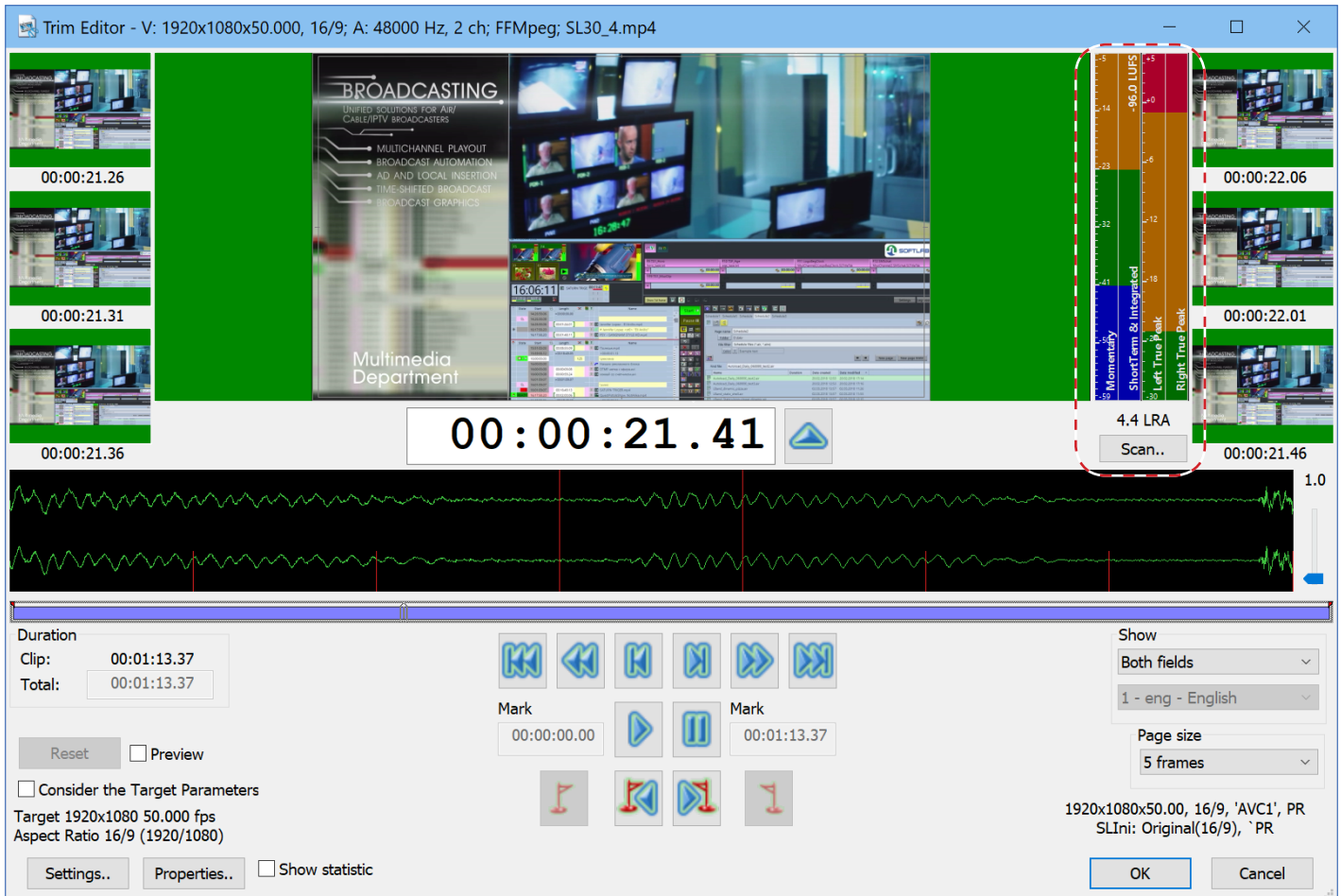
Thirdly, enable the constant equalization of the TV program volume at the server output using the **SLSoundLeveler plugin**.

Using only the **SLAudioNormalizer** program for normalization will only produce the desired result in the case of relatively short and uniform commercials. If the integrated loudness of each commercial is equal to the target level, then the integrated volume of all commercials will be close to it, as well. But in the case of TV programs or movies this tool is not enough, since the

volume of different fragments of a TV program or movie can vary greatly (the same is true when broadcasting local programs (news, for example) which are immediately followed by an advertising block).

In this case the use of the **SLSoundLeveler plugin** is required, as it performs audio processing in real time, responding to changes in the audio level and taking into account the accumulated measurement statistics.

The combined use of these proposed normalization methods will provide automatic loudness leveling with the smallest audio distortion possible throughout the entire broadcast and, most importantly, when inserting advertising blocks into TV programs and movies.



SLTrimEditor – editor for viewing video files. The loudness measurement unit (in accordance with legal requirements) is outlined.

SoftLab-NSK



sales@softlab.tv



+7 (383) 363-04-62,
(multichannel, MSK+4, UTC+7)



Russia 630090, Novosibirsk,
1a Akademika Koptuyuga avenue,
office 311



SOFTLAB-NSK