



Batch Loudness Normalization

ppmBatch
Quickstart Guide v1.0

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1 Introduction

ppmBatch is zplane's latest loudness analysis and normalization tool. It allows you to scan a collection of audio files and normalize each file according to various loudness standards in multiple real-time. In contrast to zplane's PPMulator application, *ppmBatch* enables you to perform loudness normalization and to apply batch processing to multiple audio files.

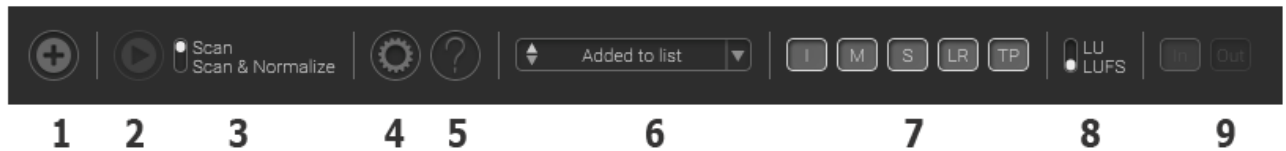
ppmBatch supports the following input file formats:

- wav (normal and broadcast wave format)
- aif
- mp3
- ogg
- wma (Windows only)
- flac

The normalized output files will always be in wave format (wav).

2 How to use

To get started, add your files to the processing table by either dragging them onto the main GUI or by clicking on the large plus sign (1) in the menu bar. This will open the file dialog which lets you select individual files and folders.



The mode selection button (3) allows you to select between two processing modes:

1. Analyzing the audio files only (Scan) and
2. Performing loudness normalization (Scan & Normalize).

Processing can be started and paused by hitting the start/stop button (2).

Clicking the gear-wheel (4) will open the settings dialog. The “General” tab allows you to enable a password protection for the settings dialog and to limit the number of CPU cores. You can select and modify the applied loudness standard in the “Scan & Normalize” tab. The settings for input, output and report files can be modified in the “Files & Reports” tab. More detailed information is available in chapter 3.

The question mark (5) opens the help panel with links to the zplane website and to this document.

You can change the order in which the files are displayed and processed by using the dropdown menu (6). You can also manually change the order of the files by selecting and dragging files to a different position in the table. **Please keep in mind that any manual order is deleted when you select another ordering option (e.g. Name) from the dropdown menu.** Once you start processing, this ordering is remembered as *Processing Order*.

The columns “Scan Status” and “Normalize Status” (in Scan & Normalize mode only) provide information about the processing status. A color-coding indicates whether a file is compliant (green) or non-compliant (red) with the target loudness. A yellow-colored cell in the “Normalize Status” column indicates that the file could be normalized but with the help of a limiter.

You can customize your table view by hiding individual columns (7). The buttons **I** (Integrated/Program Loudness), **M** (Max. Momentary Loudness), **S** (Max. Short-Term Loudness), **LR** (Loudness Range) & **TP** (Max. True Peak) activate/deactivate the columns.

The unit selection button (8) toggles the display of loudness measurements between LU and LUFS or dB and LKFS, depending on the selected loudness standard profile. The relative units LU and dB use the target integrated loudness value as a reference.

The buttons In and Out (9) toggle between the input (= scan) measurements and the output (= normalized) measurements.

The applied loudness standard profile, its reference value, as well as some general information about the files are displayed in the status bar at the bottom of the table.

3 Preferences

The preference panel contains three tabs: “General”, “Scan & Normalize” and “Files & Reports”.

In the General tab you can activate your software by clicking the “Software Activation” button. You can enable a password protection of the preference panel in case you would like to restrict access to the preferences. If you would like to reserve certain CPU cores to other tasks you can limit the number of cores used by *ppmBatch*.

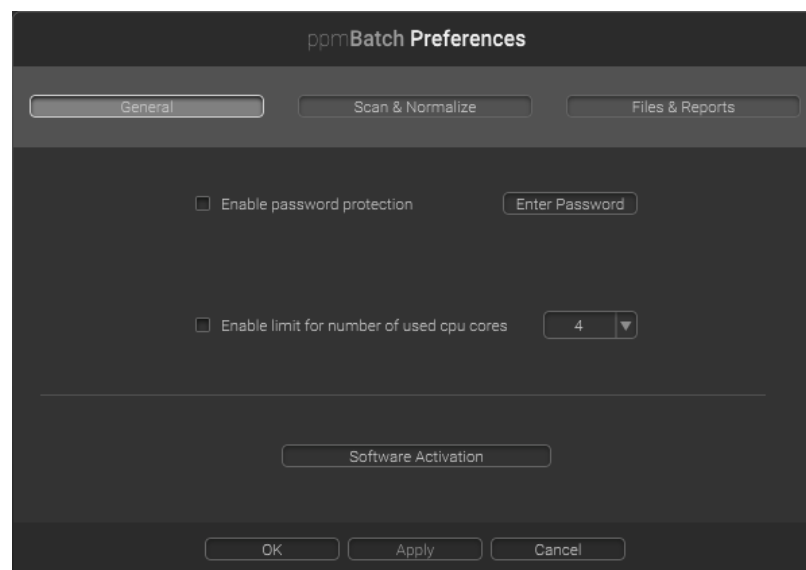


Figure 1: Preferences - General

The Scan & Normalize tab enables the selection of the loudness standard for scanning and/or normalization. A *profile* contains the settings for a specific loudness standard and can be imported and exported.

ppmBatch supports the following standards:

- [EBU R.128 \(2011\) \[1\]](#)
- [EBU R.128 \(2014\) \[2\]](#)
- [ATSC A-85 \[3\]](#)
- [ARIB TR-B32 \[4\]](#)
- [FreeTV OP-59 \[5\]](#)
- [ITU-R BS.1770-3 \[6\]](#)

None of these default profiles can be altered. If you need to change any value, you have to copy the profile, by using the “+” button and apply a different name to it.

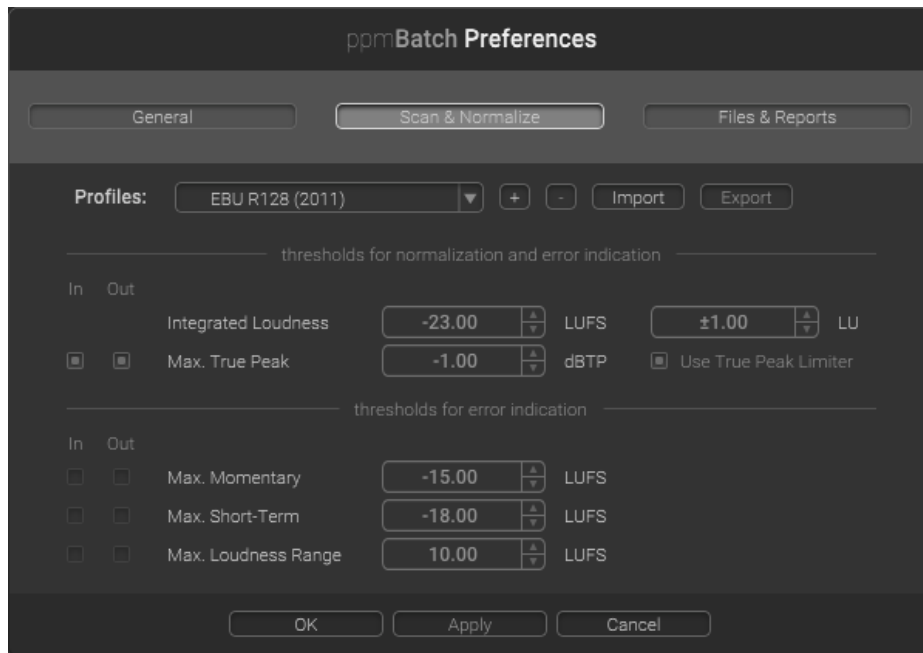


Figure 2: Preferences - Scan & Normalize

Checking the boxes for “In” and “Out” enables the error indication for each threshold. The error indication for the Integrated Loudness threshold is always enabled.

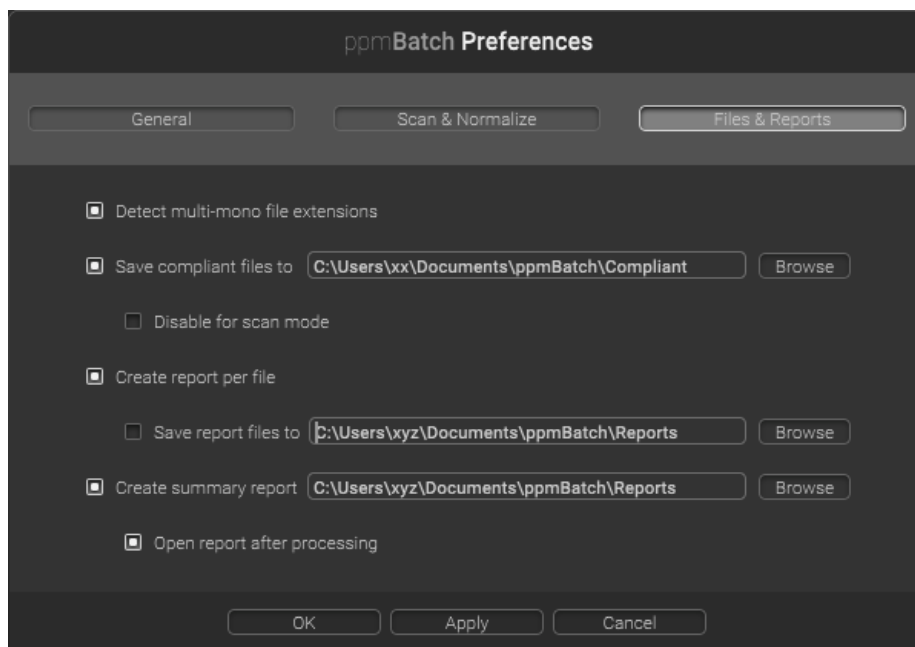


Figure 3: Preferences - Files & Reports

The third tab (Figure 3) lets you configure how files and reports are handled. You can specify file paths for output files and reports. In both processing modes (“Scan” and “Scan & Normalize”), *ppmBatch* copies all standard-compliant files

to the specified folder. If you prefer that compliant files are only copied when you are in “Scan & Normalize”-mode, check the box “Disable for scan mode”.

Multi-mono files use the following naming convention:

.L	Left channel
.R	Right channel
.C	Center channel
.LFE	Low frequency
.RL	Rear left
.RR	Rear right

3.1 Software Activation

In order to activate your product,

1. register your serial online and receive an unlock key
Go to <http://products.zplane.de> and log into your account. If you do not already have an account you need to create one before. On the top right corner below the Login-button you find the link “create account”.
2. activate your software by entering the serial number and the unlock key in the appropriate fields, see below.
If you successfully registered your serial number, you will receive an email with your unlock key. Both (serial number and unlock key) are also available in your user account.



Figure 4: Software activation

The non-registered full version as well as the demo version have restricted functionality:

- max. 5 files at a time
- *ppmBatch* times out after 10 min.
- tasks and results are not saved
- per task report only available for the first task in the list

4 ppmBATCH in action!

Files to Process	Scan Status	Normalisation Status	Integrated LUFs	Max. Momentary LUFs	Max. Short-Term LUFs	Loudness Range LU	Max. True Peak dBTP
WAV 1kHz Sine -20 LUFs-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	0.0	-23.0
WAV 1kHz Sine -26 LUFs-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	0.0	-23.0
WAV 1kHz Sine -40 LUFs-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	0.0	-22.8
WAV seq-3341-1-16bit.wav	Scan: Done!	Normalizing: Done!	-22.9	-22.9	-22.9	0.0	-22.9
WAV seq-3341-2-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	0.0	-22.8
WAV seq-3341-3-16bit-v02.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	13.0	-23.0
WAV seq-3341-4-16bit-v02.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	13.0	-23.0
WAV seq-3341-5-16bit-v02.wav	Scan: Done!	Normalizing: Done!	-23.0	-20.0	-20.0	6.0	-20.0
WAV 4.1 seq-3341-6-5channels-16bit.wav	Scan: Done!	Normalizing: Done!	-23.7	-23.7	-23.7	0.0	-24.0
WAV 5.1 seq-3341-6-6channels-WAVEEX-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	0.0	-24.0
C:\Users\martin\Documents\ppmBatch\Compliant\seq-3341-6-6channels-WAVEEX-16bit.wav C:\Users\martin\Documents\ppmBatch\Compliant\seq-3341-6-6channels-WAVEEX-16bit.wav C:\Users\martin\Documents\ppmBatch\Compliant\seq-3341-6-6channels-WAVEEX-16bit.wav C:\Users\martin\Documents\ppmBatch\Compliant\seq-3341-6-6channels-WAVEEX-16bit.wav C:\Users\martin\Documents\ppmBatch\Compliant\seq-3341-6-6channels-WAVEEX-16bit.wav							-28.0 -28.0 -24.0 -30.0 -30.0
WAV seq-3341-7_seq-3342-5-24bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-19.6	-21.0	5.0	-8.9
WAV seq-3341-2011-8_seq-3342-6-24bit-v02.wav	Scan: Done!	Normalizing: Done!	-23.0	-14.9	-18.0	15.0	-2.6
WAV seq-3342-1-16bit.wav	Scan: Done!	Normalizing: Done!	-22.6	-20.0	-20.0	10.0	-20.0
WAV seq-3342-2-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-21.2	-21.2	5.0	-21.2
WAV seq-3342-3-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-23.0	-23.0	20.0	-23.0
WAV seq-3342-4-16bit.wav	Scan: Done!	Normalizing: Done!	-23.0	-18.5	-18.5	15.0	-18.5

Profile: EBU R128 (2011) [Ref: -23LUFs] 16 of 16 Item(s) processed Total Audio Time: 00:14:34 Elapsed Time: 00:00:09 Done in: -

5 References

- [1] European Broadcasting Union, „Recommendation R 128 – Loudness normalisation and permitted maximum level of audio signals,“ 2011.
- [2] European Broadcasting Union, „Recommendation R 128 – Loudness normalisation and permitted maximum level of audio signals,“ 2014.
- [3] Advanced Television Systems Committee, „ATSC Recommended practice: Techniques for establishing and maintaining audio loudness for digital television (A/85:2013),“ 2013.
- [4] Association of Radio Industries and Businesses, „Operational guidelines for loudness of digital television programs (ARIB TR-B32),“ 2013.
- [5] Free TV Australia, „Measurement and management of loudness in soundtracks for television broadcasting. Operational Practice (OP-59),“ 2013.
- [6] International Telecommunication Union, „Recommendation ITU-R BS.1770-3: Algorithms to measure audio programme loudness and true-peak audio level,“ 2012.