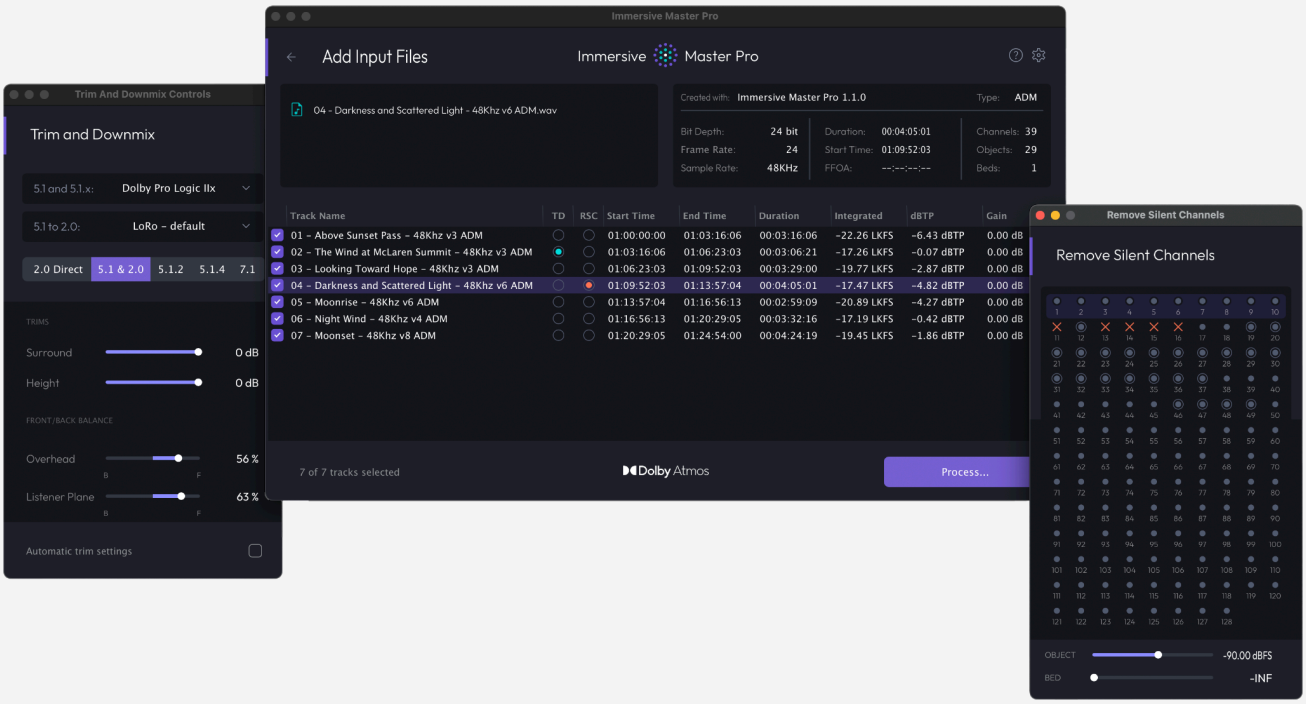
Immersive Master Pro

from Immersive Machines



Welcome to the user's guide for Immersive Master Pro, a professional software application intended for the batch editing, batch processing, analysis and management of files in the Dolby Atmos ecosystem. This manual will provide you with an overview of the application's features and how to use them.

TABLE OF CONTENTS

Features

Immersive Master Pro includes the following features:

- Batch Re-render and ADM processing of multiple Dolby Atmos masters and/or ADM masters.
- Batch Loudness Analysis of multiple Dolby Atmos masters and/or ADM masters.
- Automated Editing of Dolby Atmos masters from event lists to ADM masters and/or re-renders.
- Batch Sample Rate Conversion of multiple Dolby Atmos masters and/or ADM masters.
- Batch Trim and Downmix metadata changes of multiple Dolby Atmos masters and/or ADM masters.
- Remove Silent Channels objects and/or beds of multiple Dolby Atmos masters and/or ADM masters.
- Properties and contents view of Dolby Atmos masters and/or ADM masters.

Installation & System Requirements

Immersive Master Pro is a universal binary standalone macOS application that runs on Intel and Apple Silicon architectures. After downloading, run the installer program. *Immersive Master Pro* requires iLok licensing. If you haven't already, install the iLok License Manager from the http://www.ilok.com website. You may activate to:

- iLok 2nd generation or above
- Host Computer (machine authorization)

Every purchase of *Immersive Master Pro* entitles the user to (2) activations via iLok License Manager.

Application Overview

The application runs in two different modes:

"**Edit Mode**" is designed to extract sections of a single .atmos master file or ADM and turn those sections into ADMs or re-renders as needed. For example, a live concert recording might be mixed as one master file, but would be delivered to streaming services as many separate tracks. In Edit Mode, a timecode event list from Pro Tools or any spreadsheet program can be imported or pasted into Immersive Master Pro and that list will define the in and out of each exported track.

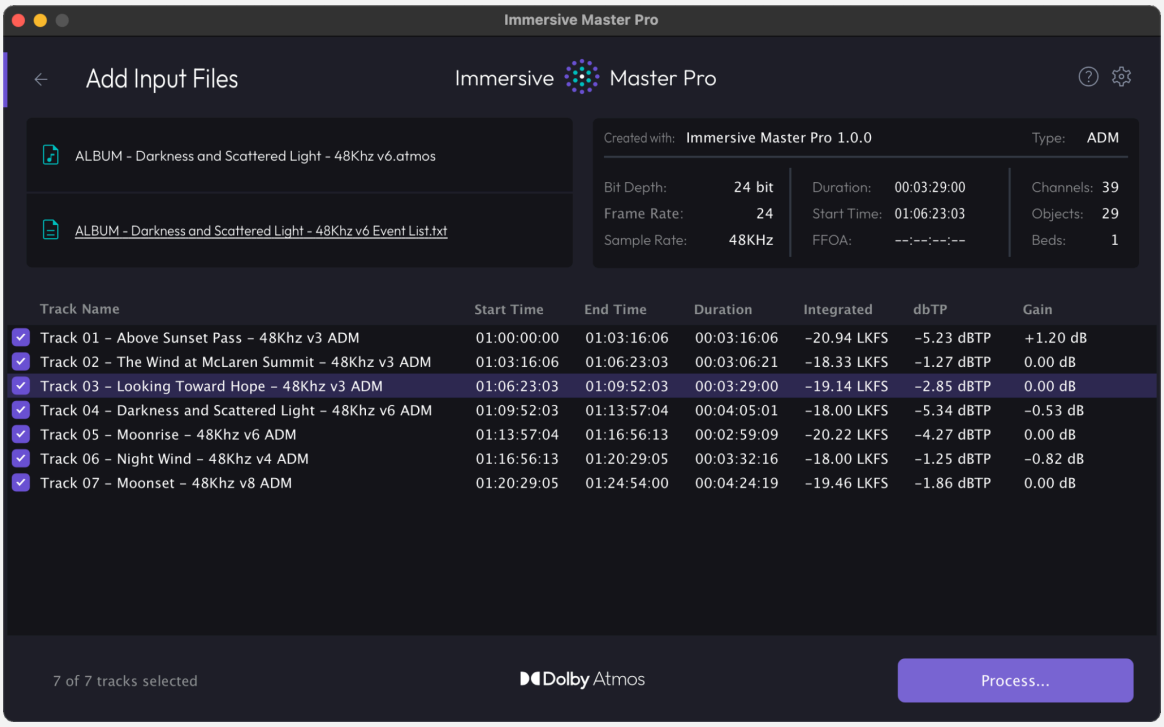
"**Batch Mode**" loads multiple .atmos master files or ADMs and performs batch operations on all of the loaded masters simultaneously. For example, if you are mixing an album and have twelve ADMs and want to quickly make twelve stereo re-renders for the client to hear, that can be done in one step.

In both modes, powerful operations such as sample-rate converting 96Khz to 48Khz, exporting re-renders and binaural mixes, batch changing trim and downmix metadata and removing silent channels can also be done in one step, significantly speeding up delivery workflows and reducing file sizes.

Edit Mode

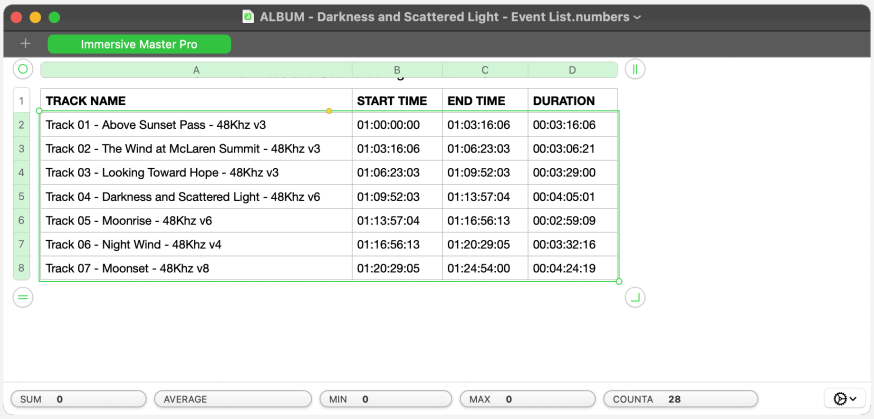
Drag and drop or browse and select a ".atmos" Dolby Atmos Master File (DAMF), or ADM BWF file. This might be the finished Dolby Atmos mix of a continuous live music concert, a film soundtrack, or an album containing many pieces of music that are now in a single master. The left panel displays the name of the loaded master file. The right panel displays the properties and contents of the master file, including Created with, Type, Bit Depth, Frame Rate, Sample Rate, Duration, Start Time, FFOA (first frame of action), Channels, Objects, and Beds.

Edit Mode is designed to automatically edit and export this master into as many smaller master tracks as you need. A good example of this would be a live music concert in which the artist played (35) pieces of music that now need to be delivered to digital streaming platforms as (35) separate ADM files.

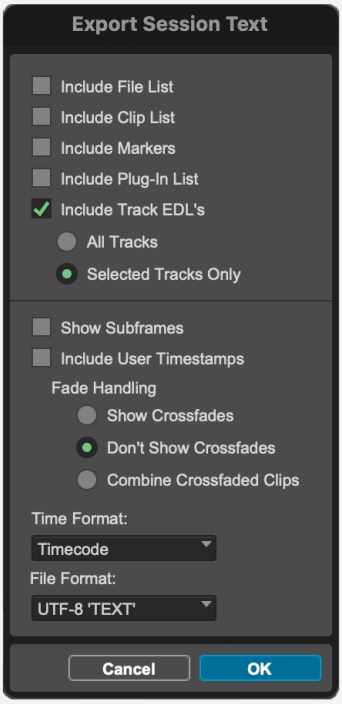


To define these edits of the loaded master file, *Immersive Master Pro* can use the following inputs:

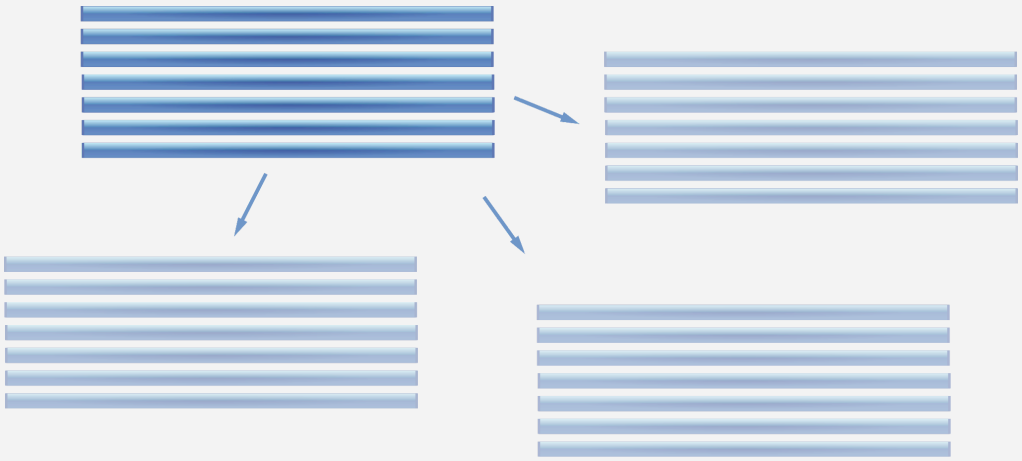
1. **macOS clipboard** copy of contents from a spreadsheet application such as Excel, Numbers, or Sheets where the columns are Track Name, Start Time, End Time, and Duration. If your data is in the form of a CSV file, open that in a spreadsheet application first, and copy and paste the data into the main panel of *Immersive Master Pro*. Once the fields are filled, they are freely editable in the main panel. So if you decide to change the Track Name, Start Time or End Time of a track, it can be done before processing. Note that timecode values must conform to the Frame Rate of the loaded master file. For example, copying and pasting 29.97fps values into the main panel with a 24fps master file loaded will result in an error. Also note that drop-frame timecode values must use a semicolon between the seconds and frames values.



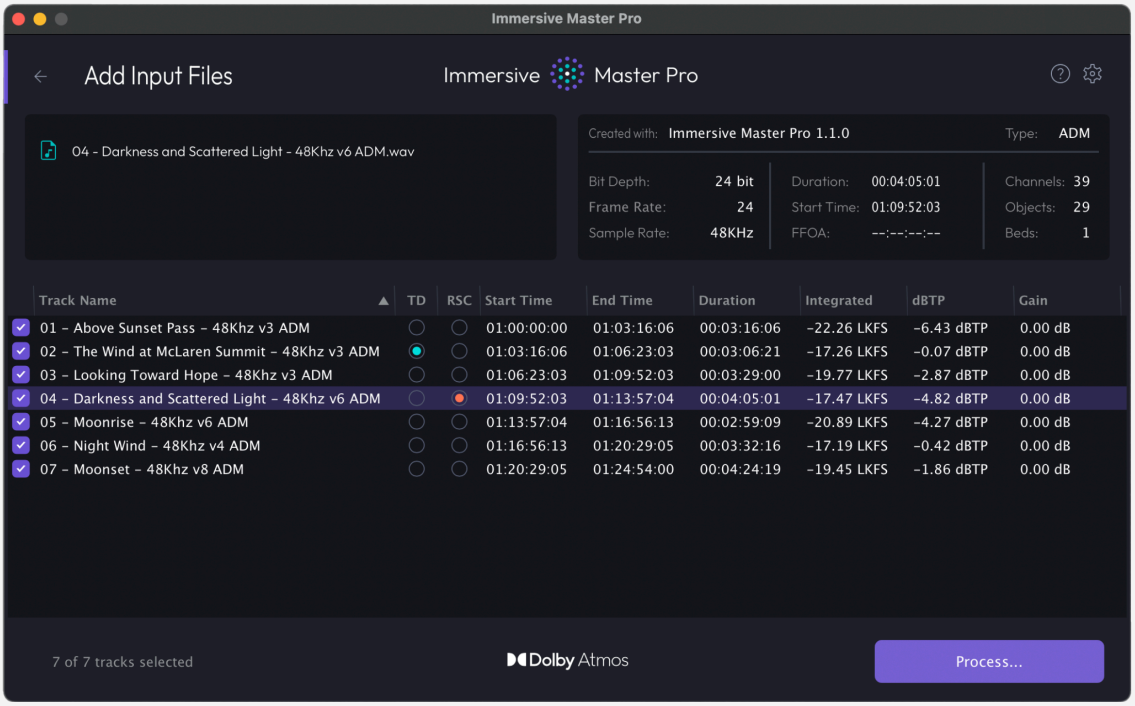
2. **Pro Tools TXT file**. For example, a stereo guide track in an Atmos mix session may have multiple clips on it, defining the beginning and ending of each track in an album. Using the function “Export Session Info as Text…” and choosing only “Include Track EDLs”, Pro Tools will make a TXT file that *Immersive Master Pro* is designed to parse. *Immersive Master Pro* will take only the first track in the TXT file, automatically drop the mono channel designation in the clip name (converting “Track Name.L” to “Track Name”), and load the timecode in, timecode out, and duration into the main panel. Once the fields are filled, they are freely editable in the main window.



Batch Mode



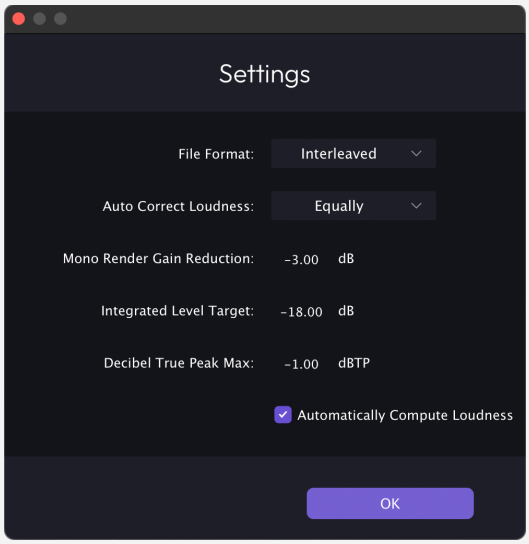
Drag and drop or browse and select multiple ADM BWF files and/or ".atmos" DAMFs. When selecting a folder, *Immersive Master Pro* will drill down through subfolders and add all compatible masters to the main panel input list. These masters might be each track on an album as ADM files, multiple episodes of a television show's soundtrack, or the output folder of a process completed above in Edit Mode. The left panel displays the name of the currently selected master file. The right panel displays the properties and contents of the selected master file, including Created with, Type, Bit Depth, Frame Rate, Sample Rate, Duration, Start Time, FFOA (first frame of action), Channels, Objects, and Beds.



Main Window Operations

AUTO CORRECT LOUDNESS

Immersive Master Pro can perform a loudness analysis of all master files (or virtual master files while in Edit Mode). If “Automatically Compute Loudness” is checked in Settings, this will happen without you needing to click on anything when master files are loaded or edit timecodes are defined. To manually compute loudness, right-click or control-click any or all of the master files and choose “Recompute Loudness.”

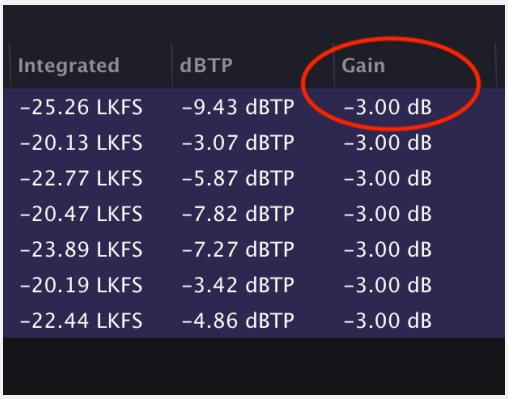


Immersive Master Pro can also automatically change the loudness of a master file using the “Auto Correct Loudness” function. To do this, highlight the desired master files, right-click or control-click any one of the highlighted files and choose “Auto Correct Loudness.” *Immersive Master Pro* will use the Integrated Level Target in Settings to determine which master files are above the target, and then will apply a gain offset. The offset will be applied in two different ways depending on whether Auto Correct Loudness in Settings is set to "Independently" or "Equally".

When set to "Independently", each highlighted master file is separately compared to the Integrated Level Target and offset to meet the target. When set to "Equally", the offset needed for the loudest master file to meet the target is applied to all highlighted master files. The "Equally" setting is designed to meet the needs of mastering engineers who might want to scale an entire album to match the target, while preserving the relative levels between files. So for example, if "Track 3" is the loudest track, and it is 2.5db over the target, a reduction of -2.5db will be applied to all tracks equally. Note that the “Auto Correct Loudness” function will only lower the level of tracks to match the target. It will not raise the level of any tracks. Integrated Level Target range is from -6.00 dB to -36.00 dB.

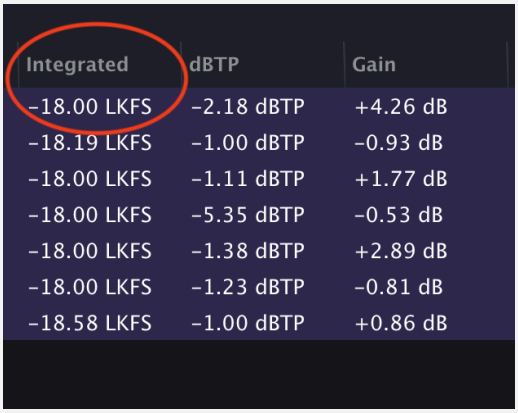
GAIN FIELD LOUDNESS CORRECTION

Alternatively, loudness of a master file can be changed manually in two ways. The first and simplest way is to highlight the desired master file(s), double-click on the numeric "Gain" field and enter a new number. Multiple highlighted master files will all be given the same gain value. Note that there is no limiter or any other post-processing of output files after the gain function. The dBTP (decibel true peak) function will recalculate with a new gain setting and ***will indicate clipping with any positive values***.



Integrated	dBTP	Gain
-25.26 LKFS	-9.43 dBTP	-3.00 dB
-20.13 LKFS	-3.07 dBTP	-3.00 dB
-22.77 LKFS	-5.87 dBTP	-3.00 dB
-20.47 LKFS	-7.82 dBTP	-3.00 dB
-23.89 LKFS	-7.27 dBTP	-3.00 dB
-20.19 LKFS	-3.42 dBTP	-3.00 dB
-22.44 LKFS	-4.86 dBTP	-3.00 dB

INTEGRATED FIELD LOUDNESS CORRECTION



Integrated	dBTP	Gain
-18.00 LKFS	-2.18 dBTP	+4.26 dB
-18.19 LKFS	-1.00 dBTP	-0.93 dB
-18.00 LKFS	-1.11 dBTP	+1.77 dB
-18.00 LKFS	-5.35 dBTP	-0.53 dB
-18.00 LKFS	-1.38 dBTP	+2.89 dB
-18.00 LKFS	-1.23 dBTP	-0.81 dB
-18.58 LKFS	-1.00 dBTP	+0.86 dB

The second way is to highlight the desired master file(s) and double-click directly on the "Integrated" field and enter a new number. *Immersive Master Pro* then calculates the appropriate gain offset to achieve the new integrated value. However, with integrated loudness correction, the gain offset ***will only be applied up to the Decibel True Peak Max*** set in Settings.

For example, if Decibel True Peak Max in Settings is set to -1.00 dBTP and a master file with a -22 LKFS integrated level and a -2 dBTP level is set to a new integrated level of -18 LKFS (a +4dB change), *Immersive Master Pro* will do 'best effort before true peak max' and apply only a +1dB change to gain in order to prevent clipping and stay within the Decibel True Peak Max setting.

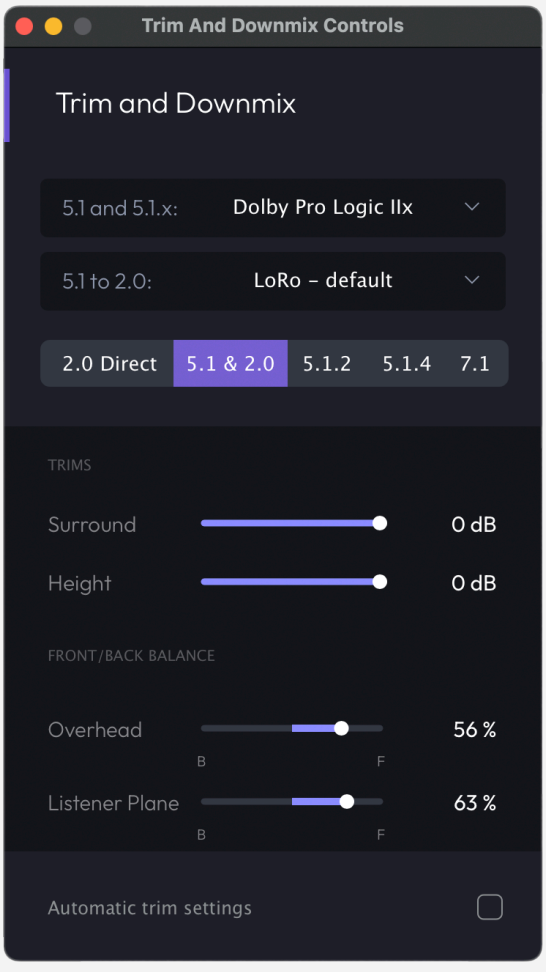
MASTER FILE RENAMING

In both Edit Mode and Batch Mode, master files can be renamed by double-clicking on the Track Name field. This can be useful for indicating date and version number for delivered mixes. ***To return to the original, unchanged master file name, double-click in the Track Name field and delete all text***.

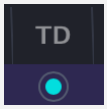
START AND END TIME MODIFICATION

In Edit Mode, the Start Time and End Time timecode fields are freely editable. With "Automatically Compute Loudness" checked in Settings, any change to the start or end will force a loudness recompute to account for the newly defined audio segment. Also note that *Immersive Master Pro* will automatically fill with silence any start or end time occurring before or ending after the length of the underlying master file.

Trim and Downmix (TD)



Immersive Master Pro's Trim and Downmix window can be accessed via the View menu, the key command 'cmd-t', or by clicking on any of the visible circles in the 'TD' column of the Main Window. Trim and Downmix metadata for the currently highlighted master file in the Main Window will be displayed. Having both the Main Window and the Trim and Downmix window open simultaneously is the recommended workflow. Use the arrow keys to go up and down the list of loaded master files and that will automatically update the Trim and Downmix window to display the corresponding master files's metadata.

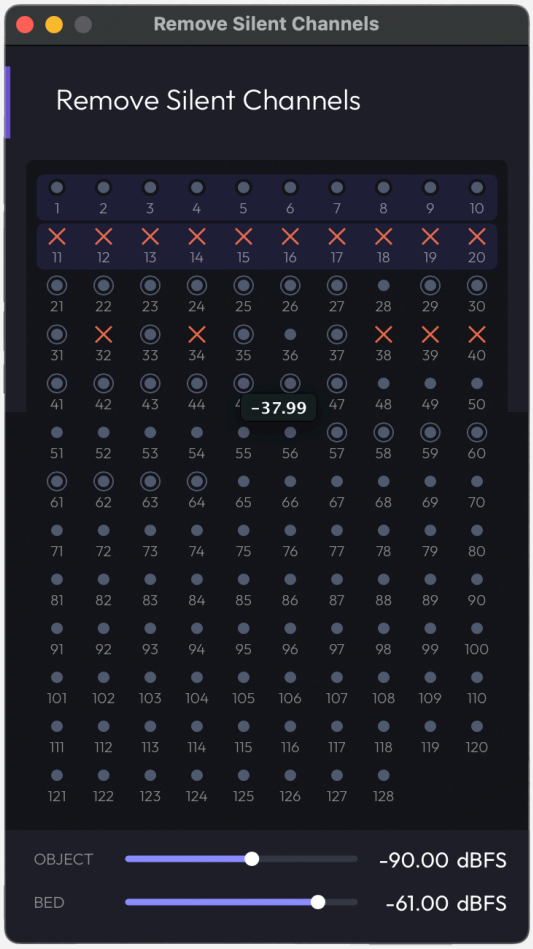


Any change to the highlighted master file's Trim and Downmix metadata will result in the blue "TD" circle illuminating in the Main Window. This circle indicates that a change has been made to Trim and Downmix. To return a highlighted master file to its original Trim and

Downmix metadata, right-click or control-click on the master file and choose “Reset Trim and Downmix Metadata to Original”. Batch Trim and Downmix operations can be achieved by highlighting multiple master files at one time. If all highlighted masters have a common Trim and Downmix parameter, that will be displayed. ***If there is any discrepancy in the highlighted masters, the Trim and Downmix window will display “Mixed”, indicating the existence of multiple different settings.*** Changing a parameter that reads “Mixed”, will result in all highlighted masters switching to the displayed setting. New Trim and Downmix settings are applied only to exported ADM files. *Immersive Master Pro* never performs destructive edits to loaded .atmos master files.

Note that only the 5.1 & 2.0 trim panel affects loudness computation. Any changes made to this panel automatically force a loudness recompute in the Main Window. Settings for all other trim panels (2.0 Direct, 5.1.2, 5.1.4, and 7.1) have no effect on loudness computation. *Immersive Master Pro* strictly adheres to Dolby Laboratories’ guidelines on the display and editing of Trim and Downmix metadata parameters for master files.

Remove Silent Channels (RSC)



Immersive Master Pro’s Remove Silent Channels window can be accessed via the View menu, the key command ‘cmd-r’, or by clicking on any of the visible circles in the ‘RSC’ column of the Main Window. The arrangement of beds and objects for the currently highlighted master file in the Main Window will be displayed. Having both the Main Window and the Remove Silent Channels window open simultaneously is the recommended workflow. Use the arrow keys to go up and down the list of loaded master files and that will automatically update the Remove Silent Channels window to display the corresponding master file’s arrangement of beds and objects.

The object and bed sliders at the bottom of the Remove Silent Channels window range from -INF to -45.00 dBFS. These sliders indicate the threshold level at which objects or beds would be removed from a loaded master file on export. For example, setting the object slider to -90.00 dBFS would cause objects that have no

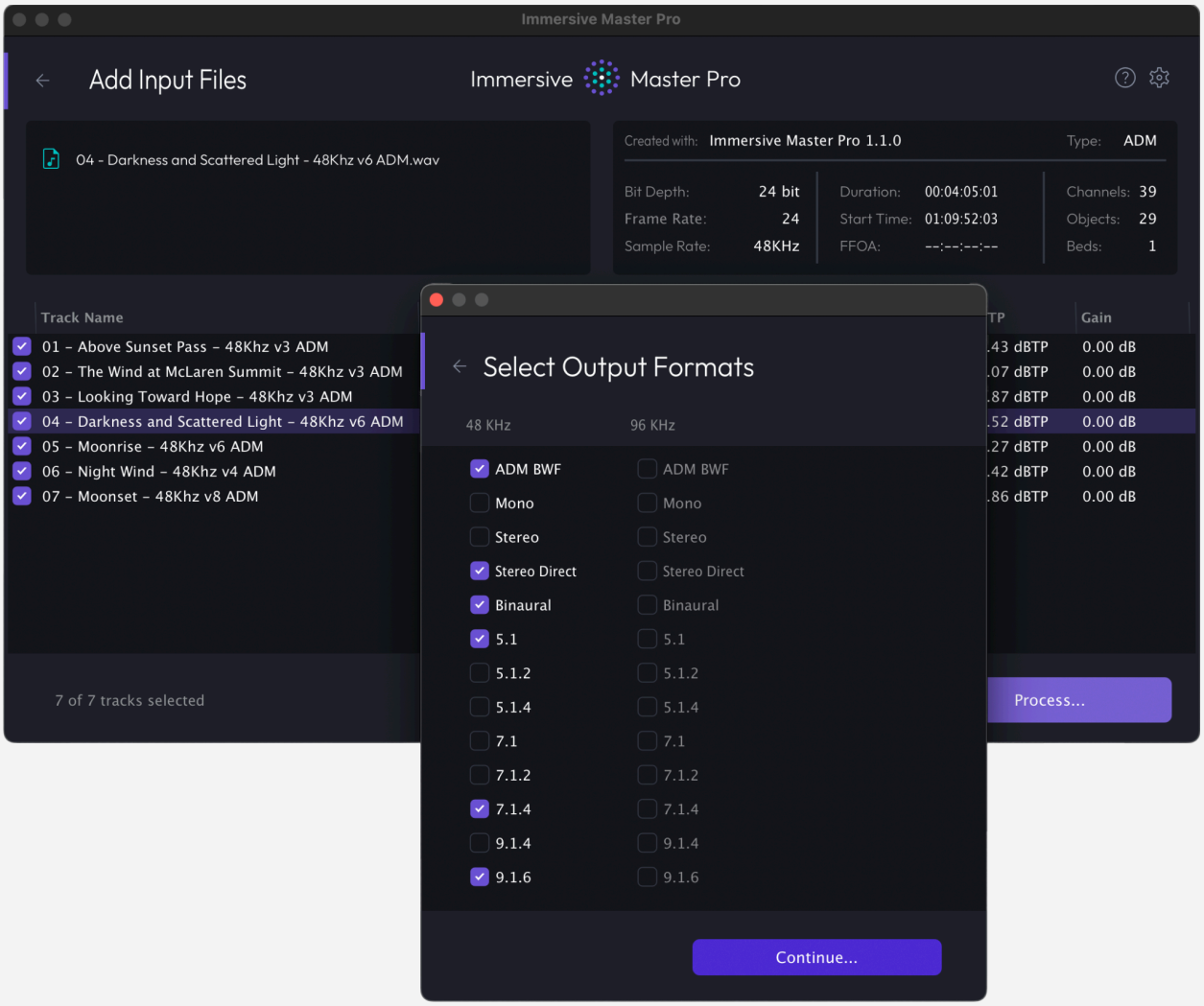
signal above this threshold level to be removed from any exported ADMs or channel-based re-renders. The Remove Silent Channels window visually indicates which channels will be removed with a red "X" placed over the channel. ***Note that for a bed to be removed from a master file, all channels in the bed must have signal level below the threshold set by the slider.*** *Immersive Master Pro* does not break beds, each bed is either fully preserved, or fully removed.

Any change to the highlighted master file's Remove Silent Channels threshold sliders will result in the red "RSC" circle illuminating in the Main Window. This circle indicates that a change has been made to Remove Silent Channels. To return a highlighted master file to its original state, right-click or control-click on the master file and choose "Reset Remove Silent Channels". Batch Remove Silent Channels operations can be achieved by highlighting multiple master files at one time. If all highlighted masters have a common Remove Silent Channels threshold, that will be displayed. ***If there is any discrepancy in the highlighted master's threshold values, the Remove Silent Channels window will display "Mixed", indicating the existence of multiple different settings.*** Changing a parameter that reads "Mixed", will result in all highlighted masters switching to the displayed setting. Remove Silent Channels settings are applied to all exported file formats. *Immersive Master Pro* never performs destructive edits to loaded .atmos master files. Hovering over any channel in the RSC window will display a tool tip with the peak dbfs value of that channel (see the white -37.99 pictured above).

Process and Select Output Formats

Check or uncheck the master files you want to process (option-clicking will check/uncheck all). Click "Process..." and choose any of the following output formats in the pop-up window:

- ADM BWF (Audio Definition Model Broadcast Wav File with Dolby Atmos encoding) at 48 kHz and 96 kHz sample rates
- Mono: monaural re-render at 48 kHz and 96 kHz sample rates
- Stereo: stereo re-render at 48 kHz and 96 kHz sample rates
- Stereo Direct: stereo direct re-render at 48 kHz and 96 kHz sample rates
- Binaural: binaural render at 48 kHz and 96 kHz sample rates
- 5.1 surround sound re-render at 48 kHz and 96 kHz sample rates
- 5.1.2 surround sound re-render at 48 kHz and 96 kHz sample rates
- 5.1.4 surround sound re-render at 48 kHz and 96 kHz sample rates
- 7.1 surround sound re-render at 48 kHz and 96 kHz sample rates
- 7.1.2 surround sound re-render at 48 kHz and 96 kHz sample rates
- 7.1.4 surround sound re-render at 48 kHz and 96 kHz sample rates
- 9.1.4 surround sound re-render at 48 kHz and 96 kHz sample rates
- 9.1.6 surround sound re-render at 48 kHz and 96 kHz sample rates



Edit Mode is a frame-based editing architecture, designed to export ADMs and re-renders for gapless playback. To achieve gapless playback, the end timecode of one track should be the start timecode of the next track.

Batch Mode is a sample-based architecture, so exported ADMs and re-renders will preserve any audio before the first frame edge, or after the last frame edge. This approach guarantees sample-accurate export regardless of timecode start and end.

Immersive Master Pro derives mono output from the stereo re-render. The Mono Render Gain Reduction value determines the downmix from stereo to mono. The value indicates the gain change that is performed on the left and right channels before those channels are summed to mono. In most cases, -3.00 dB will prevent clipping of the mono output file, but with some

high-level and also highly-correlated program material, levels lower than -3.00 dB may be desirable. Range is from 0.00 dB to -24.00 dB.

Note that the output file format is globally determined in the Settings panel and can be set as interleaved or multi-mono. Interleaved channel order follows the order set by Dolby in their Atmos rendering tools. Also note that upsampling from 48Khz to 96Khz is disallowed.

Click "Continue…" and choose a destination folder for the processed files. *Immersive Master Pro* has percentage-complete indicators for each track and for the total process job as a whole. When all processing is done, the pop-up window "Process Complete" will appear.

Additional Metadata

Immersive Master Pro is currently designed to pass all panning automation, binaural distance metadata and FFOA timecode from the source master files to the output ADM masters untouched.

Conclusion

This manual has provided you with an overview of the features of *Immersive Master Pro*. For more information, please refer to our website at: www.immersivemasterpro.com

Dolby Atmos

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Dolby Atmos Storage

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Sample rate converter designed by Aleksey Vaneev of Voxengo

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libebur128 is a library that implements the EBU R 128 standard for loudness normalisation.