Dolby Atmos Conversion Tool

Release Notes

6 July 2023
Software v2.1.2

Notices

Copyright

© 2015-2023 Dolby Laboratories. All rights reserved.

Dolby Laboratories, Inc.
1275 Market Street
San Francisco, CA 94103-1410 USA
Telephone 415-558-0200
Fax 415-645-4000
http://www.dolby.com

Trademarks

Dolby and the double-D symbol are registered trademarks of Dolby Laboratories.

The following are trademarks of Dolby Laboratories:

Dialogue Intelligence™	Dolby Theatre®
Dolby®	Dolby Vision®
Dolby Advanced Audio™	Dolby Vision IQ™
Dolby Atmos®	Dolby Voice®
Dolby Audio™	Feel Every Dimension™
Dolby Cinema®	Feel Every Dimension in Dolby™
Dolby Digital Plus™	Feel Every Dimension in Dolby Atmos™
Dolby Digital Plus Advanced Audio™	MLP Lossless™
Dolby Digital Plus Home Theater™	Pro Logic®
Dolby Home Theater®	Surround EX™

All other trademarks remain the property of their respective owners.

Contents

1

Introduction to the release notes

This documentation covers installation steps, software changes, and known issues for Dolby Atmos Conversion Tool version 2.1.2.

• About this documentation
• Contacting Dolby

1.1 About this documentation

This documentation is for engineers, and others who work with Dolby Atmos content for cinema or home theater. Use the conversion tool to convert one Dolby Atmos master file format to another, edit or join masters as a composition, or perform other tool operations (such as applying frame-rate conversion to a Dolby Atmos master file).

For complete information, see the *Dolby Atmos Conversion Tool Guide*.

1.2 Contacting Dolby

You can contact Dolby regarding this product and its supporting documentation.

If you have technical questions about this product, consult the knowledge base at https://professionalsupport.dolby.com.

If you have questions or comments about this documentation, please send an email to documentation@dolby.com.

2

New in version 2.1.2

Dolby Atmos Conversion Tool v2.1.2 fixes an issue.

Fixed: In the **Composition** window, after trimming a master that has a start time or FFOA that does not fall on a whole second (that is, the frame value is not 00), the resultant conversion could have a start time or FFOA that did not match the settings after the trim. [AWT-5385]

3

New in previous versions

This version of Dolby Atmos Conversion Tool includes new features, improvements, and fixes that were included with previous versions.

- [New in v2.1](#)
- [New in v2.0.1](#)
- [New in v2.0](#)
- [New in v1.9](#)
- [New in v1.8](#)
- [New in version 1.7.3](#)

3.1 New in v2.1

Dolby Atmos Conversion Tool v2.1 includes new features and improvements.

System updates

- New application icon

Figure 1: Dolby Atmos Conversion Tool icon

- Updated list of supported operating systems:

    - Linux (Dolby Atmos Conversion Tool command-line application only):

        - RedHat 7.3
        - Ubuntu 16.04 LTS, 18.04 LTS, and 20.04 LTS
    - Mac: macOS 10.13 to 13.2.1 (including support of Apple silicon computers)
    - Windows

        - Windows 10 (64-bit)
        - Window 11 (64-bit)

Conversion and composition updates

- **Sample rate** drop-down menu: For a conversion or composition, this menu sets the target sample rate.
- **Maintain pitch and length** switch: When doing a conversion or composition and changing the target frame rate, click (enable) the switch so that it displays **Yes** to maintain pitch and length in the target master. This switch is grayed out when outputting to the same frame rate.
- Addition of two new Dolby Atmos IMF IAB `.mxf` metadata fields to support automated pipeline processes used by some studios when converting from an ADM BWF `.wav` or `.atmos` master to an IMF IAB. The new fields are IAB AudioDescription and IAB AudioDescriptionText. These fields align with *SMPTE ST 377-41:2021, MXF Multichannel Audio Controlled Vocabulary*.

    These metadata fields are always included with a conversion in the **Conversion** window. In a composition containing masters with the same channel layout and the same group description strings, the group labels will also be written. For more information, see *Conversions to IMF IAB and group labels*, in the *Dolby Atmos Conversion Tool Guide*.

Conversion only updates

- Support for these 96 kHz conversions (in the **Conversion** or **Composition** window):

    - 96 kHz ADM BWF `.wav` to 48 kHz ADM BWF `.wav`, IMF IAB `.mxf`, or `.atmos` master
    - 96 kHz ADM BWF `.wav` to 96 kHz ADM BWF `.wav` (for example, for a frame rate conversion)
    - 96 kHz `.atmos` to 96 kHz ADM BWF `.wav`

Composition only updates

- Ability to edit or join 96 kHz ADM BWF `.wav` or `.atmos` master files in the **Composition** window. Editing includes inserting silence before or after a clip, trimming a clip, and splitting a clip.

    Note: For 96 kHz compositions, the output can be any of these formats:

    - ADM BWF `.wav` at 96 kHz or 48 kHz
    - `.atmos` at 48 kHz
    - IMF IAB `.mxf` at 48 kHz

Command-line updates

- Convert a 96 kHz master (via the `--target_sample_rate` command-line option). These conversions are supported:

  - 96 kHz ADM BWF `.wav` to 48 kHz ADM BWF `.wav`, IMF IAB `.mxf`, or `.atmos` master
  - 96 kHz ADM BWF `.wav` to 96 kHz ADM BWF `.wav`
  - 96 kHz `.atmos` to 96 kHz ADM BWF `.wav`

  📄 **Note:** The default target is 48 kHz.

- Maintain pitch and length in the target master (via the `--bypass_resampling` command-line option), when doing a conversion or composition and changing the input frame rate.

  📄 **Note:** Drop frame rates are not supported.

- Specify the 5.1 and 5.1.x downmix settings written to the master (via the `--set_warp_mode` command-line option). These modes are supported:

  - Standard (Lo/Ro)
  - Dolby Pro Logix IIx
  - Direct render with room balance
  - Direct render

  📄 **Note:** For more information about each mode, see the *Dolby Atmos Conversion Tools Guide*.

- Add a specified number of samples when inserting silence before or after a clip (via the `--prepend_silence` and `--append_silence` command-line options, respectively)
- Add a specified number of samples when trimming a clip (via the `trim_start` and `--trim_duration` command-line options).

Table 1: Command-line options for editing workflows

Options	Shortcut	Description
`--bypass_resampling`		Disables resampling of the audio content during a frame rate conversion (resampling only happens for sample rate conversions if needed).
`--target_sample_rate arg (=48000)`		Specifies the sample rate in Hz of the target master, valid options are: 48000 or 96000. Valid sample rate conversions: • 48000 All formats -> 48000 All formats • 96000 `.atmos`, ADM BWF -> 48000 .atmos, ADM BWF, IMF IAB • 96000 `.atmos`, ADM BWF -> 96000 ADM BWF
`--set_warp_mode arg`		Specifies the warp mode for the target master. Valid options: • downmix_loro, Standard (Lo/Ro) • downmix_pliix, Dolby Pro Logix IIx • warping, Direct render with room balance • normal, Direct render

Table 1: Command-line options for editing workflows (continued)

Options	Shortcut	Description
`--trim_start arg (=0)`		Trims n seconds from the beginning of the input master. Applied before prepending or appending silence.
`--trim_duration arg (=0)`		Trims input master to n seconds after the defined start. Applied before prepending or appending silence.
`--prepend_silence arg (=0)`		Prepends n seconds of audio silence to the beginning of the input master.
`--append_silence arg (=0)`		Appends n seconds of audio silence to the end of the input master.

3.2 New in v2.0.1

Dolby Atmos Conversion Tool v2.0.1 allows users to change the frame rate of a Dolby Atmos master file without changing the length or pitch of the file via the command line interface.

3.3 New in v2.0

Dolby Atmos Conversion Tool v2.0 includes new features and improvements, including a new graphical user interface (GUI) that supports editing, joining, and converting masters.

System and installation updates

- Support on macOS Catalina (version 10.15.x)
- New application icon

New conversion and new composition workflows
The Conversion Tool supports two primary types of workflows, which you access from the Conversion Tool home window.

New conversion
Create a new conversion to convert the format, frame rate, first frame of action (FFOA), or primary language (Interoperable Master Format (IMF) immersive audio bitstream (IAB) only) of a master.

You perform conversions in the **Conversion** window.

You can perform changes to the format, frame rate, FFOA, or primary language (IMF IAB only) simultaneously or separately.

The length of a master file opened in the **Conversion** window is not altered if the master file starts and ends on non-frame boundaries.

> **Note:** Alternatively, you can create a new composition to perform a conversion in the **Composition** window.

New composition

Create a new composition to edit, join, or convert one or more master files in the composition timeline. Editing and joining masters are new features in the GUI.

You perform compositions in the **Composition** window.

You can perform changes to the format, start time, frame rate, FFOA, or primary language (IMF IAB only) simultaneously or separately.

When a file that starts or ends on subframe boundaries is imported into the **Composition** window, it is extended with silence to the next frame boundary in either direction so that no underlying content is trimmed. This is indicated by green lines at the start and/or end of each clip.

Menus and submenus focused on workflows

The Dolby Atmos Conversion Tool GUI now provides menus and submenus for managing and performing conversion tasks. The available menus are dependent on the current window (home window, **Conversion** window, or **Composition** window). The tool includes keyboard shortcuts for many menu commands.

Workflow features for a new conversion or new composition

This version includes features that apply to performing a new conversion or composition:

- Clicking in the empty, dotted area in the **Conversion** or **Composition** window opens the file browser, where you can import a master.
- The metadata view displays detailed information about the master.
- The application includes copy and paste support of timecode values.
- The FFOA of the converted master can be excluded (set to **Not included**). This feature is supported by the Dolby Atmos Conversion Tool GUI and command-line interface (CLI).
- The FFOA is now rounded to the nearest frame boundary if on a subframe.
- The last used import and save location are remembered when you close the Conversion Tool or use another function. This helps to speed up workflows when using the same import and save locations.
- When the target format is `.atmos`, `.wav` (ADM BWF), or `.mxf` (IMF IAB), the output file name for a conversion uses the source file name by default (Mac only).

Workflow features for a new composition only

This version includes features that apply to performing a new composition only:

- Joining and editing masters
- Setting the primary master in the GUI determines which master program-level metadata will be used when multiple masters are joined together.
- Trimming a master
- Splitting a master
- Adding silence to a master
- Zooming view options for how one or more masters display in the timeline
- Advanced metadata view, which provides detailed information about a master file or clip in the timeline. Additionally, the view can display the length of a silence clip.

Miscellaneous updates and fixes

Command-line improvements: The FFOA of the converted master can be excluded (set to not included). This feature is supported by the GUI and CLI.

Note: The CLI no longer adds an FFOA by default if it has been undefined in the source master.

New .xml (pmstitch) file examples and location

Example `.xml` (`pmstitch`) files have been updated to better represent real-world workflow scenarios and needs. Example files (and supporting media) are now available online, instead of being included with installation.

You can find examples and a link to supporting media files online at https://professionalsupport.dolby.com/s/article/Where-can-I-find-more-examples-of-pmstitch-xml-files.

Dolby provides `.xml` (`pmstitch`) file examples for use when creating a new `.xml` configuration file for padding (adding silence) a master, joining masters, or trimming a master. With the CLI, the examples can also be used to create `.xml` files for other tool operations (such as converting the master file format).

3.4 New in v1.9

Dolby Atmos Conversion Tool v1.9 includes new features and improvements.

- Support for IMF IAB `.mxf` masters in the Conversion Tool user interface (UI) and command-line options.

  Includes the ability to:

  - Convert to an `.mxf` (IMF IAB) master from another Dolby Atmos master format.
  - Convert from an `.mxf` (IMF IAB) master to another Dolby Atmos master format.
  - Change the frame rate of a master during a conversion to or from an `.mxf` (IMF IAB). When converting to an IMF, the FFOA is not included.

  The IMF IAB format supports these frame rates: 23.976, 24, 25, and 30 fps.
- When converting to an IMF IAB, the Conversion Tool includes an option to set the primary language.
- `.xml` (pmstitch) support for `.mxf` (IMF IAB) files.

Additionally, this publication of the guide provides more information regarding `.dbmd` metadata file parameters.

3.5 New in v1.8

Dolby Atmos Conversion Tool v1.8 includes new features and improvements.

- Support for converting from a 96 kHz `.atmos` master file set.
- Updates to audio definition model Broadcast Wave Format (BWF) (`.wav`) master files to conform to International Telecommunication Union (ITU) BS.2076-0.
- Support of non-English master file names.
- Improvements to frame-rate conversion ratios when the difference between the source and target frame rates is larger (for example, when converting from a source frame rate of 25 fps to a target frame rate of 23.976 fps).
- Support for Binaural render mode metadata, which is designed for use when content is being encoded as Dolby AC-4 immersive stereo.
- Support for Trim metadata, which is designed to provide better control of 5.1 and 7.1 encodes when Dolby Atmos content is rendered in a 5.1 or 7.1 playback environment.
- Changes to `.xml` (pmstitch):

  - `primary="true"` attribute in the `source` element sets which source master of a stitch workflow defines the metadata values to be used for all masters (for example, when stitching together masters that have different program-level metadata, such as `.dbmd` parameters).
  - `<start>` and `<end>` now called `<outputStart>` and `<outputEnd>`, respectively, to better describe their function.

    📄 **Note:** `<start>` and `<end>` are still supported. Older `.xml` (pmstitch) files do not need to be updated.

- Ability to trim the beginning and end of a Dolby Atmos master via an `.xml` (pmstitch) and change the frame rate during the same conversion.
- Updates to Dolby Digital Plus segment parameters and values in a `.dbmd` metadata file: `program_id` removed.
- Command-line options removed from the Dolby Atmos Conversion Tool command-line application:

  - `--dump_bwav_chunks`
  - `-flatten`

    📄 **Note:** When joining masters that have different bed widths, the beds are flattened into a single 9.1 bed.

  - `--force_write_current_damf_version`
  - `--log_config arg`

- `--printmasterkeypath arg`
- Mac installer now installs the command-line application.

3.6 New in version 1.7.3

Dolby Atmos Conversion Tool v1.7.3 includes new features and improvements.

- Ability to trim or pad the beginning and end of a Dolby Atmos master via an `.xml` (pmstitch) file.
- Dolby Atmos Conversion Tool command-line application and options to perform tool operations on Linux, Mac, and Windows operating systems.
- Fixed issue: Running a conversion with an `.xml` (pmstitch) file that stitches two masters with different input configurations no longer results in a master in which there are audio gaps in the bed and object audio channels prior to the stitch sample point.

4

Known issues

Before you install or use the new software in this release, we recommend that you review known issues, along with the respective workarounds, comments, and solutions.

- When converting a large master file, Dolby Atmos Conversion Tool will not warn the user when the destination drive does not contain enough available space, and will allow the user to begin the conversion. As a workaround, verify that the available space on the destination drive is larger than the source file by at least 50% before beginning the conversion. For example, if your source file is 100 GB, the destination drive should have at least 150 GB available space. [AWT-394]
- When importing an IMF IAB file with an invalid primary language, the primary language is set to English and no warning is shown. [AWT-3226]
- When displaying duration or end timecode values that are on non-frame boundaries, the subframe division in the timecode may be incorrect because it is calculated inconsistently. [AWT-5123]
- When converting to `.mxf` (IMF IAB) in a composition that crosses the midnight boundary, you may experience multiple error messages. Crossing the midnight boundary is not supported. As a workaround, set an earlier start time, or shorten the composition duration. [AWT-2922]
- On macOS, quitting the Conversion Tool application with the Dock right-click Quit command while an `.rpl` file is importing can result in a crash. To avoid this issue, do not quit from the Dock when an `.rpl` import is in progress. [AWT-3225]
- Opening an `.xml` (`pmstitch`) file clears any master files in the master files list. If clips also exist on the timeline, you will be prompted with a warning message. However, no warning is displayed if there are master files in the master files list and no clips in the timeline. [AWT-3133]
- When working with an `.xml` (`pmstitch`) file that has multiple `.atmos` files, the `.atmos` file that is the primary source master does not define the binaural metadata for all `.atmos` files as expected. When converting from an `.xml` (`pmstitch`) to an audio definition model BWF file, binaural metadata from the first `.atmos` file is used and binaural metadata in subsequent `.atmos` masters is lost. When converting from an `.xml` (`pmstitch`) to `.atmos`, binaural metadata for each `.atmos` file is retained. [AWT-1913]
- When working on a Conversion Tool composition on Windows, you cannot open an `.xml` (`pmstitch`) file that contains international characters. [AWT-5350]

Glossary

A/V
> Audio/video.

ADM BWF
> Audio Definition Model Broadcast Wave Format.

audio definition model
> A metadata model specified in ITU-R BS.2076 that describes the content and format of audio files.

BWF
> Broadcast Wave Format. An extension of the Microsoft Waveform Audio File Format (.wav) that includes metadata important to broadcast applications. This format is specified in EBU Tech 3285.

CLI
> Command-line interface.

DCP
> Digital Cinema Package. A packing list (PKL) file and all of the files that it references.

Dolby RMU
> Dolby Rendering and Mastering Unit.

FFOA
> First frame of action. The point on a film reel or corresponding file at which the program content begins.

fps
> Frames per second. Measurement unit of frame rate.

frame rate
> The number of frames decoded per second in real-time operation.

GUI
> Graphical user interface.

IAB
> Immersive audio bitstream. A frame-based audio bitstream that includes audio channels and/or audio objects, plus metadata.

IMF
> Interoperable Master Format. A SMPTE standard that defines an interoperable, file-based framework designed to facilitate the management and processing of multiple versions of the same high-quality finished work. See SMPTE ST 2067-2 and related documentation.

immersive stereo
> A technology that delivers a virtualized immersive experience to headphones or stereo speakers through a Dolby AC-4 bitstream with appropriate stereo content and metadata that converts the stereo signal into the virtualized experience.

MXF
> Material Exchange Format. A file format used to transfer and store different types of content (for example, audio, video, data, or metadata). MXF currently supports various compression and encoding formats, and its specification can be extended to new essence formats, if needed.

object
> An audio signal plus associated object audio metadata.

rendering
> Processing of audio content to adapt it to specific speaker layouts, such as 5.1- and 7.1-speaker feeds, or headphones and sound bars.

SMPTE

Society of Motion Picture and Television Engineers.

UI

User interface.

DI Dolby