



Dolby Atmos Renderer v3.4

Release Notes

2 March 2020

Notices

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1

Introduction to the release notes

This documentation covers installation steps, software changes, and known issues for Dolby Atmos Renderer v3.4.

- [About this documentation](#)
- [Contacting Dolby](#)

1.1 About this documentation

This documentation is for engineers, sound designers, and others who install or use Dolby Atmos Renderer software for editorial, pre-mix, and sound design workflows when authoring sound for digital home theater or VR, and creating Dolby Atmos masters.

 **Note:** This documentation also includes a list of features and improvements added in recent previous versions. For complete information about these features, see the *Dolby Atmos Renderer Guide*.

1.2 Contacting Dolby

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

If you have technical questions about this product, contact your reseller and/or visit <https://developerkb.dolby.com>.

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

2

New in version 3.4

Dolby Atmos Renderer v3.4 includes new features, improvements, and fixes for using Dolby Atmos Renderer software to author content in Dolby Atmos.

- [Measuring loudness](#)
- [New re-render options: 7.1.4 and Loudness](#)
- [Limiting on output and re-renders](#)
- [Group improvements](#)
- [Display of object numbers or binaural distance model settings of objects in objects view](#)
- [Synchronization updates](#)
- [Trims and downmix controls included with the Production Suite](#)
- [Additional improvements and changes](#)
- [New in previous versions](#)

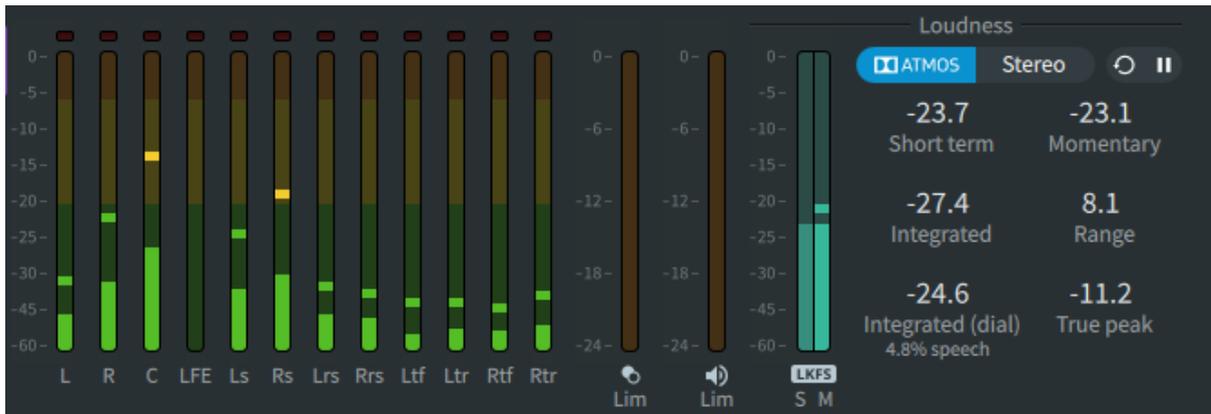
2.1 Measuring loudness

You can measure the loudness of a master in real time (when monitoring) or offline. The offline measurements can be exported as a time line (.csv file) or summary (.txt file).

Real time loudness when monitoring a Dolby Atmos mix

The Renderer provides real-time loudness measurements and metering when monitoring input or playing back a master file.

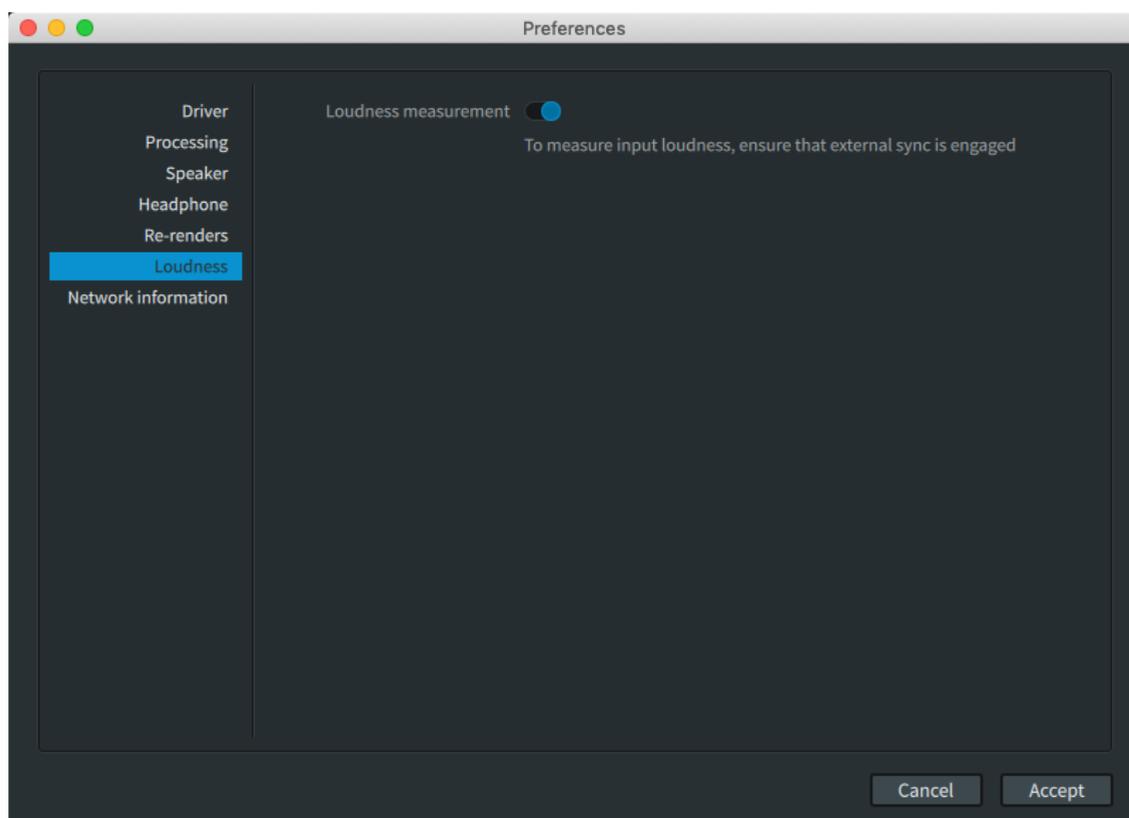
Figure 1: Loudness section in the main window



To monitor loudness in real time:

1. Turn on loudness measurement.
 - a. In the Dolby Atmos Renderer, choose **Dolby Atmos Renderer > Preferences** to open the **Preferences** window.
 - b. Select (highlight) **Loudness** to navigate to the **Loudness** preferences page.

Figure 2: Loudness page in the Preferences window



- c. Click the **Loudness measurement** switch to turn on loudness measurement.



Note: The switch turns blue when on. By default, **Loudness measurement** is on.

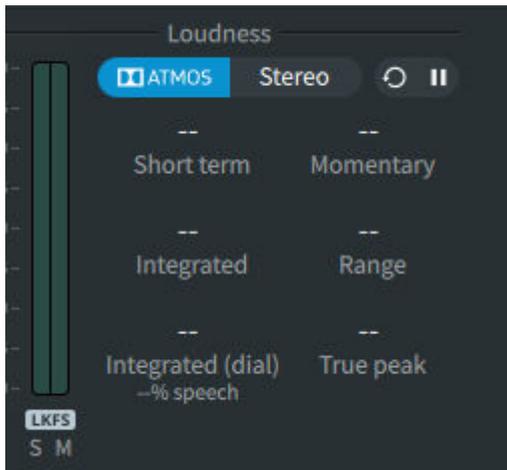
2. In the main window, in the **Loudness** section, select the type of loudness measurement you want to see.
 - **Dolby Atmos:** Provides loudness measurement for a Dolby Atmos master file based on your selected 5.1 monitoring mode.
 - **Stereo/Binaural:** Provides loudness measurement based on the stereo downmix mode selected for monitoring, or binaural when **Binaural** is selected as the **Render mode** in **Headphone** preferences.
3. Load a master in the Renderer, or have a mix ready to play via your digital audio workstation (DAW).
4. Play back audio using one of these methods:
 - Press play in your DAW (with external sync engaged).
 - Press play in the Renderer.

The loudness meters and measurements display real-time loudness information.

Loudness meters, controls, and measurements in the main window

When the **Loudness measurement** preference is on (as set in the **Loudness** preferences page), the main window includes loudness meters, controls, and measurement information. By default, the preference is on.

Figure 3: Loudness section in the main window



Loudness meters: This meter pair displays real-time loudness information. The **S** meter provides short-term peak-hold metering. The **M** meter provides momentary peak-hold metering. For both meters, signal levels display in Loudness K-weighted relative to full scale, per ITU BS 1770.

Figure 4: Loudness meters



Analysis tabs: ATMOS Stereo :

- **Dolby Atmos:** Provides loudness measurement for a Dolby Atmos master file based on your selected 5.1 monitoring mode.
- **Stereo/Binaural:** Provides loudness measurement based on the stereo downmix mode selected for monitoring, or binaural when **Binaural** is selected as the **Render mode** in **Headphone** preferences.

Reset button  : Click this button to reset the loudness measurements display to its default state of no information. You might do this, for example, before you play back a different master, or section of a master.

 **Note:** The loudness measurements will not automatically reset when unloading or reloading a master, or when returning to the beginning of a master and playing the master again. Reset must always be done manually.

Pause button  : Click (highlight) this button to stop calculations and capture the display of loudness information for a specific moment in the audio playback. Click the button again to resume receiving loudness calculations in the display. This is useful if you wish to pause measurements in order to exclude a loud section of program material from your total calculation.

Loudness measurements display:

- **Short term:** This value represents a three-second window of the loudness (which is also displayed in the **S** meter of the LKFS loudness meter pair)
- **Momentary:** This is an instantaneous reading of the loudness (which is also displayed in the **M** meter of the LKFS loudness meter pair).
- **Integrated:** This is the integrated loudness measurement, per ITU 1770-4), in LKFS.
- **Integrated (dial):** This is the integrated loudness measurement with dialogue gating applied, in LKFS.
- **Speech:** This is the percentage of speech within the program material that is calculated by the Dolby speech-detection algorithm.
- **Range:** In LU. This is the loudness range of the program material.
- **True peak:** In dBTP. This is the true peak value of the program material.

Measuring the loudness of a master offline

You can measure the loudness of a master or section of a master while offline.

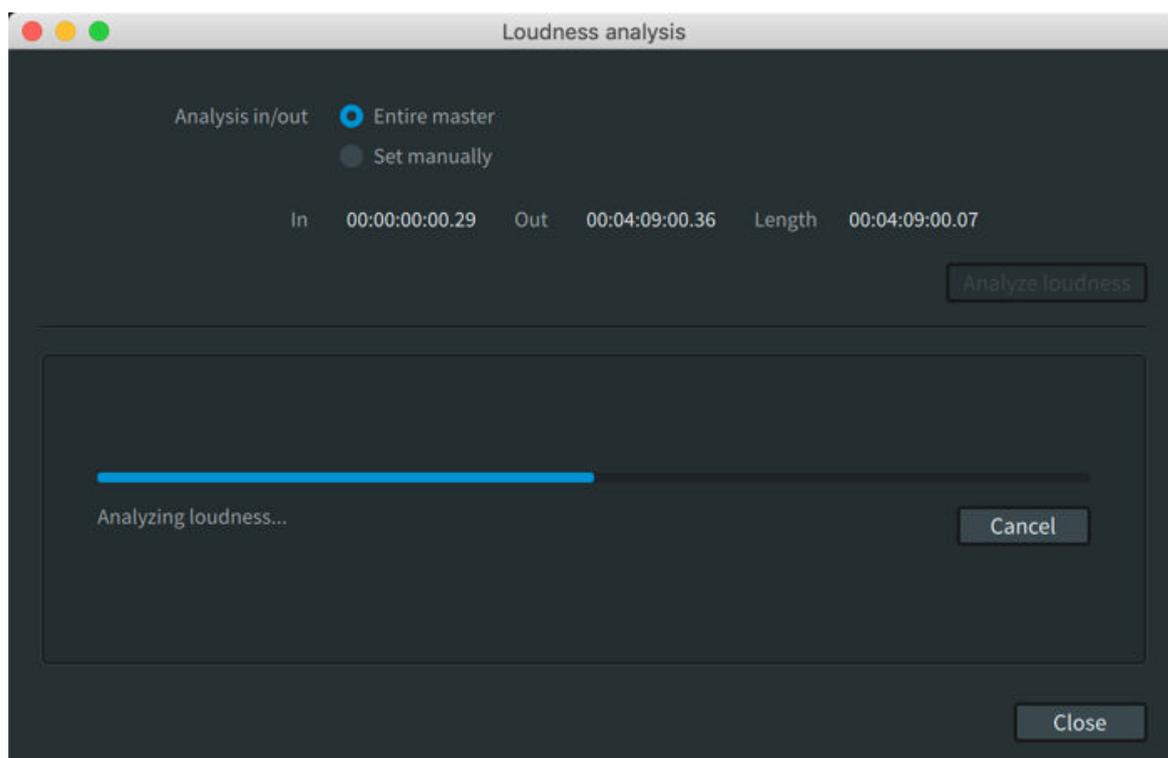
After measuring the loudness, you can then export the loudness measurements for **Dolby Atmos** or **Stereo/Binaural** as a time line (.csv file) or summary (.txt file).

- **Summary:** The summary .txt file provides the loudness information for the whole file.
- **Timeline:** The time line .csv file gives a reading of measurements for every second of the master. This can be useful for finding places where you may have exceeded targets of the loudness specification that you are working towards.

To measure loudness offline:

1. In the Renderer, load a master.
2. In the Renderer window, choose **Window > Analyze Loudness**. Alternatively, you can press Command + L (Mac) or Control + L (Windows).
3. In the **Analysis in/out** section, set the length of the audio to be measured by performing one of these tasks:
 - Click **Entire master** to use the in and out points of the entire master.
 - Define the in and out points of the audio to be measured:
 - Click **Set manually**.
 - In the **In** field, type in the timecode value where the loudness measuring should start.
 - In the **Out** field, type in the timecode value where the loudness measuring should end.
4. Click the **Analyze loudness** button to begin the analysis.

A progress bar displays to note the analysis status. When analysis completes, the results are available for two types of loudness measurements: **Dolby Atmos** and **Stereo**.



5. Click the **Dolby Atmos** or **Stereo** tab to display the respective analysis.
 - **Dolby Atmos:** Provides loudness measurement for a Dolby Atmos master. This measurement is based on your selected 5.1 monitoring mode and applied trims.
 - **Stereo/Binaural:** Provides loudness measurement for a stereo component of your Dolby Atmos master, based on the stereo downmix mode selected for monitoring, or binaural when binaural is selected in **Headphone** preferences.

Loudness measurements include:

- **Integrated:** This is the integrated loudness measurement, per ITU 1770-4), in LKFS.
 - **Integrated (dial):** This is the integrated loudness measurement with dialogue gating applied, in LKFS.
 - **Speech:** This is the percentage of speech within the program material that is calculated by the Dolby speech-detection algorithm.
 - **Range:** In LU. This is the loudness range of the program material.
 - **True peak:** In dBTP.
6. Click the **Export loudness report** drop-down menu, and then select the report type (**Summary** or **Timeline**).



Note: The **Export loudness report** drop-down menu name is based on the analysis type (Dolby Atmos, Stereo, or Binaural).

7. Define the destination path and file name for the exported loudness measurements, and then click **Save**.
The loudness measurement file is saved to the location you defined.
8. Click **Close** to close the **Loudness Analysis** window.

Considerations when measuring loudness

- Ensure that downmix settings in the master are the same as the monitoring settings: Loudness settings are affected by the downmix monitoring settings in the **Trim and downmix control** window. To ensure that the settings written in the master are what is being measured, click the link icons for **5.1 downmix**

monitoring/re-renders and **5.1 to stereo downmix monitoring/re-renders** so that the monitoring settings match the respective **downmix in master** settings, and then do the loudness measurement.

- There can be slight differences between real-time and offline loudness measurements due to buffering and speech-percentage calculations. The offline calculations are always more accurate.
- To avoid inconsistencies in loudness measurement at different stages of the workflow, use the loudness re-render when loudness measurement is performed externally via a standalone application or DAW plug-in. Specifically, the loudness re-render employs a limiter to accurately reflect the loudness measure used in Dolby encoding solutions.

2.2 New re-render options: 7.1.4 and Loudness

The re-render output matrix includes two new layouts: 7.1.4 and Loudness. These layouts are available when you create and map a re-render while configuring the re-render output matrix. The layouts appear as options in the **Layout** drop-down menus in the **Re-renders** and **Properties** windows.

Use the Loudness layout (which is a 5.1 layout) for loudness measurements. For example, run the loudness re-render into the DAW if you are using an external loudness plug-in. This will be more accurate than running a standard 5.1 re-render into an external plug-in.

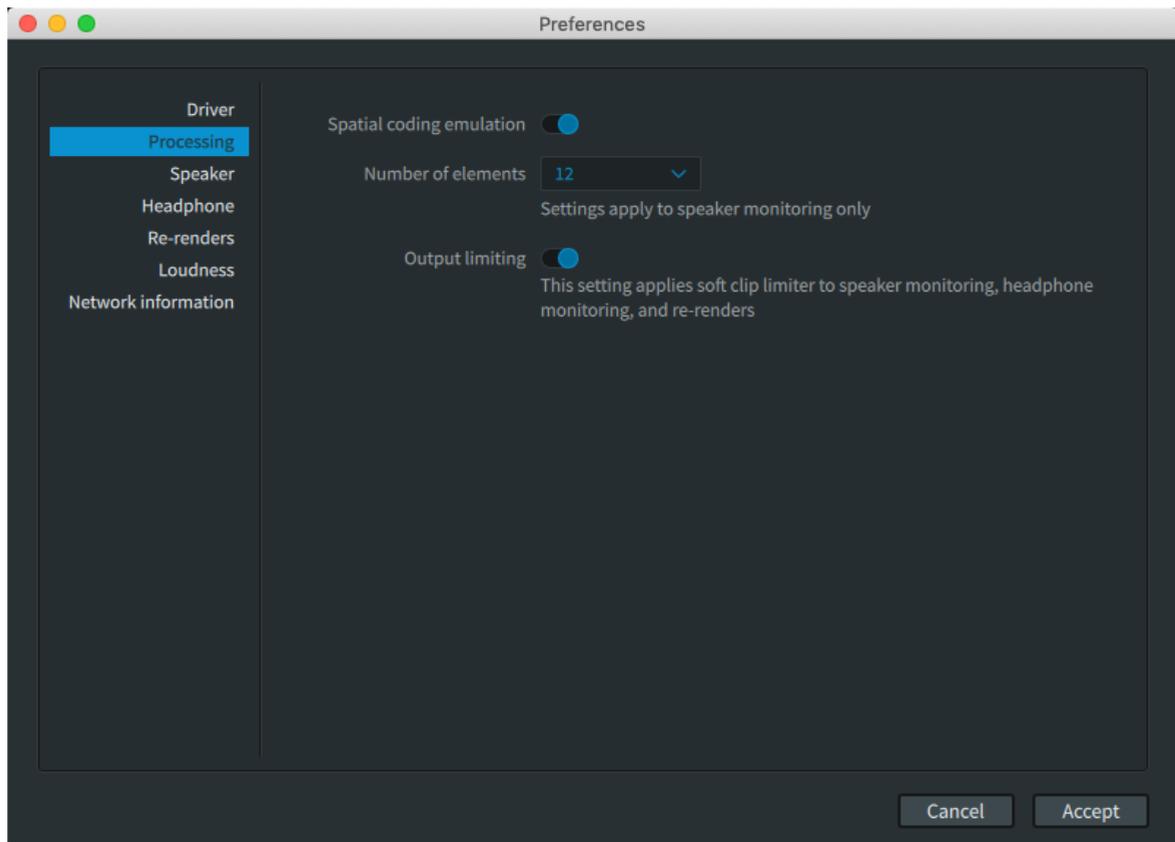
2.3 Limiting on output and re-renders

Processing preferences includes an option for turning on output limiting.

When the **Output limiting** option is on, the Renderer applies a soft clip limiter to speaker monitoring, headphone monitoring, and re-renders.

To turn on limiting:

1. In the Dolby Atmos Renderer, choose **Dolby Atmos Renderer > Preferences** to open the **Preferences** window.
2. Select (highlight) **Processing** to navigate to the **Processing** preferences page.



3. Click the **Output limiting** switch so that the option is on. The switch turns blue when on.

By default, output limiting is on.



Note: The output meters are placed before the limiter meter when a limiter meter is shown in the user interface (UI). This is a representation of all the limiting applied to the summation of all output channels of the selected monitoring layout. The output meters still show prelimiting values, enabling you to see which outputs are hitting the limiter.

While the soft clip limiter will prevent hard clipping in the outputs, for best results we recommend decreasing the level to ensure that clipping is kept to a minimum.

2.4 Group improvements

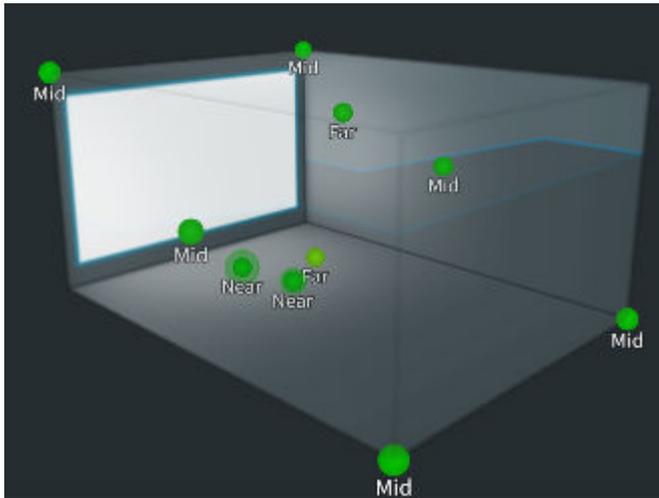
After a master is created, you can now manage and reassign groups.

- In the **Groups** window, you can add, rename, or delete a group.
- In the **Input configuration** window, you change the group assignment for any bed.

2.5 Display of object numbers or binaural distance model settings of objects in objects view

In the objects view, you can display numbers for each object or the binaural distance model settings (off, near, mid, and far) for each input object.

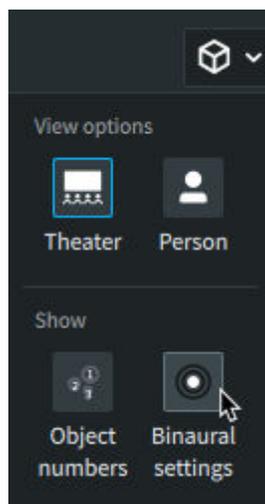
Figure 5: Binaural distance model settings shown (in theater view)



 **Note:** The binaural distance model settings are defined in the **Binaural render mode** window.

To show object numbers of binaural distance model settings:

1. Click the small box icon drop-down menu in the top-right corner of the objects view to reveal **View** and the **Show** option.
2. Perform one of these steps:
 - To display numbers for each object, select **Object numbers**.
 - To display the binaural distance model settings of each object, select **Binaural settings**.



2.6 Synchronization updates

The Renderer now includes offset controls for aligning timecode to audio and an linear timecode (LTC) Generator plug-in for sending LTC over audio from Pro Tools to the Renderer.

Aligning timecode to audio

You can add offset to timecode (in samples) to better align timecode to audio if you are routing timecode through a different A/D converter to your audio. You access these controls via the new **Advanced Settings** menu and **Audio to Timecode Alignment** submenu.

Note: If you are using Dolby Atmos Production Suite on an in-the-box workflow you, or Dolby Atmos Mastering Suite in a two-machine setup using qualified hardware, you will not need to adjust these advanced settings.

To align timecode to audio:

1. Determine the timecode latency of your system.

See *Determining the timecode latency of your system* in the *Renderer Guide*.

2. Choose **Advanced Settings > Audio to Timecode Alignment**.
3. In the **Audio to timecode alignment** window, set the timecode offset, based on timecode type and sample rate, and where applicable, the suite license.

Choices include:

- **LTC over audio timecode offset, in samples at 48 kHz**
- **LTC over audio timecode offset, in samples at 96 kHz**
- **LTC over ASIO timecode offset, in samples at 48 kHz**
- **LTC over ASIO timecode offset, in samples at 96 kHz**
- **MTC timecode offset, in samples at 48 kHz**
- **MTC timecode offset, in samples at 96 kHz**

4. Click **Accept**.

Dolby LTC Generator plug-in, for sending LTC over audio from Pro Tools to the Renderer

The Renderer installer now includes a Dolby LTC Generator plug-in, which is used for sending LTC over audio from Pro Tools to the Renderer (for example, on systems using the Dolby Audio Bridge). The plug-in is an Avid Audio eXtension (AAX) mono plug-in.

Figure 6: Dolby LTC Generator plug-in,



To send LTC from Pro Tools to the Renderer:

1. Make sure the Renderer and Pro Tools are open.
2. For the Pro Tools session, use the desired session template and input/output (I/O) settings.
3. Verify that Renderer **Driver** preferences are set correctly.
 - **Driver: Core Audio**
 - **Audio input device: Dolby Audio Bridge** or other input device
 - **Audio output device:** Your output device
4. Set the **External sync source** to **LTC over audio**.
5. Set the **LTC input channel** to 129 (or 130).

If the **LTC input channel** is set to a channel with an object assigned to it, that object will not output sound.

6. In Pro Tools, create a new mono track.
7. Set the output to the **LTC input channel** number that was set in the Renderer (129 or 130).

If you are using a Dolby-supplied template and I/O settings file for systems using the Dolby Audio Bridge, the channels are labeled: *TC Ch 129 (Mono)* → *LTC Ch 129 and 130*.

 **Note:** Ensure that the signal is not output to a speaker.

8. Insert a Dolby LTC Generator plug-in on the track.

 **Note:** When sorting plug-ins by type, the Dolby LTC Generator plug-in is located in the **Other** category.

2.7 Trims and downmix controls included with the Production Suite

The Production Suite now includes the ability to write the trim and downmix settings to a master file. These are available in the **Trims and downmix controls** window (accessible via **Windows > Trim and Downmix Controls**).

Use the trims and downmix controls for:

- Writing downmix metadata in a master
- Writing trim metadata in a master

2.8 Additional improvements and changes

Renderer v3.4 includes miscellaneous improvements and changes.

- The 5.1 and stereo downmix type written to the master in downmix settings, as well as the trims settings, are now included in the MP4 export.

This means that the MP4 export can be used to monitor the mix on a Dolby Atmos enabled system, or a 5.1 or stereo system.

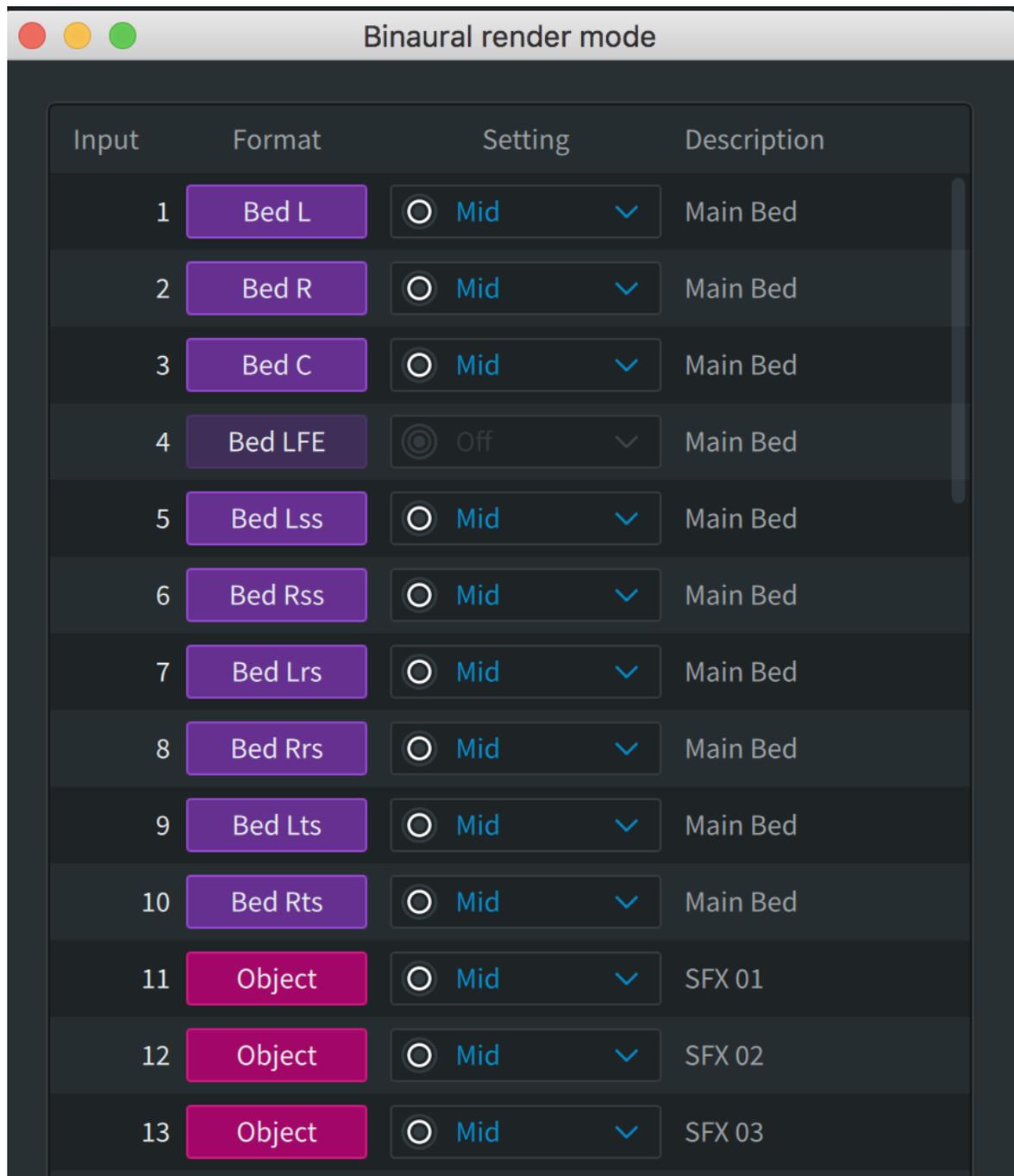
- The Dolby Atmos Panner plug-in has been removed from the Dolby Atmos Renderer v3.4 installer and is not supported with Renderer v3.4 running on macOS Catalina. As a workaround, use the object panners included with Pro Tools, or the Dolby Atmos Music Panner (available from Dolby). Alternatively, you can use the Dolby Atmos Panner included with Renderer v3.3 and earlier on supported versions of macOS Mojave and High Sierra.
- Low-Frequency Effects (LFE) limiter removed.

Previous versions of the Renderer included a limiter in the LFE with a -10 db threshold. This limiter has been removed. This allows users to write higher levels of LFE in re-renders.

 **Note:** To ensure correct monitoring, the LFE channel must be calibrated such that each 1/3-octave band between 20 and 80 Hz is 10 dB higher than the equivalent 1/3-octave bands for any of the full-range speakers, assuming that the full-range speaker is ideally flat. This level is read from a real-time analyzer (RTA), rather than a sound pressure level (SPL) meter.

- Descriptions for beds and objects (as defined in the **Input configuration** window) are now also shown in the **Binaural render mode** window.

Figure 7: Binaural render mode window



- In the **Binaural render mode** window, **Backwards Compatibility** mode has been removed. You can now always write metadata for beds and objects in this window.

2.9 New in previous versions

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

2.9.1 New in version 3.3

Dolby Atmos Renderer v3.3 includes new features, improvements, and fixes for using Dolby Atmos Renderer software to author content in Dolby Atmos.

- Ability to export to MP4 file format.

This allows you to export Dolby Atmos content for playback on Dolby Atmos-enabled consumer devices (such as a Blu-ray player or Dolby Atmos-enabled sound bar). For example, you can save the *.mp4* file to a Universal Serial Bus (USB) stick, connect the stick to a USB input port on the device, and then play back the file on the device.

An exported Dolby Atmos *.mp4* is for QC of Dolby Atmos content only. It is not for QC of 5.1 or stereo downmixes.

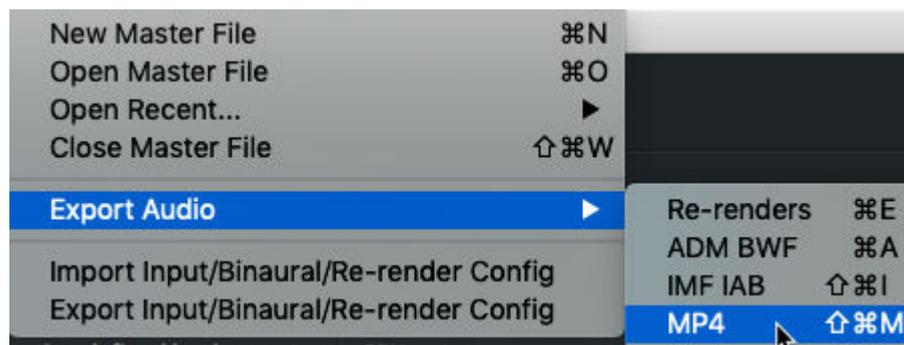
The *.mp4* file will be a multiplexed Dolby Digital Plus with Dolby Atmos content and black 720 x 1280 *.h264* video elementary stream at the frame rate of the master file.

The master must be 48 kHz. The **Export Audio > MP4** command does not support 96 kHz Dolby Atmos masters.

Procedure (to export a master to *.mp4*):

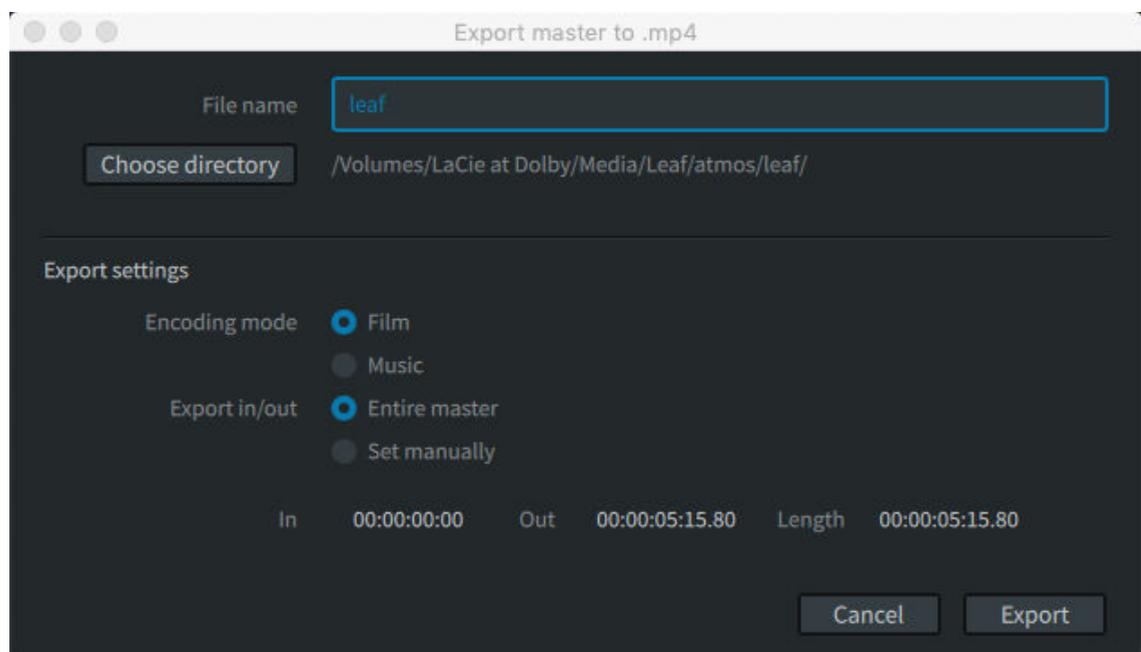
1. With a master loaded, choose **File > Export Audio > MP4**. Alternatively, you can press Command + Shift + M (Mac) or Control + Shift + M (Windows).

Figure 8: Choosing the **Export Audio > MP4** submenu command



2. In the **File name** field, enter a name for the *.mp4* file.

Figure 9: Export master to *.mp4* dialog



3. Click the **Choose directory** button, and set a path for the *.mp4*.

4. In the **Export settings** section, select the **Encoding mode: Film** or **Music**.

The encoding mode defines the encoding profile applied during the creation of the *.mp4* file.

5. In the **Export settings** section, in the **Export in/out** section, set the length of the exported master.
6. Click **Export**. During the export, a window overlay provides feedback to show the status of the export.
7. When the export has completed (100%), click **Close**.

The dialog closes.

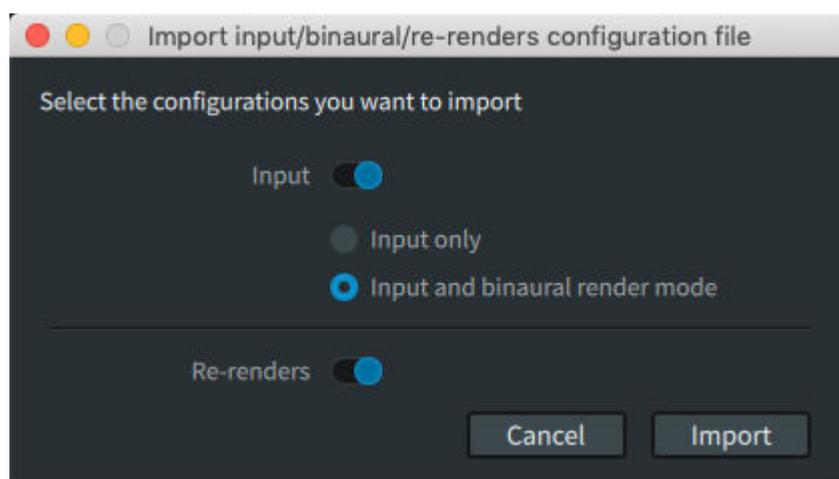
- Improved binaural headphone monitoring

Size information and LFE signal is now included in the binaural output.

- Binaural rendering mode updates
- Ability to import or export binaural rendering mode configurations, via the **Import Input/Binaural/Re-render Config** and **Export Input/Binaural/Re-render Config** menu commands and dialog.

The **Import input/binaural/re-renders configuration file** dialog includes options to import configurations for input, input and binaural render mode, and re-renders.

Figure 10: Import input/binaural/re-renders configuration file dialog



- In the **Binaural render mode** window, all LFE channels are now set to **Off** and cannot be changed. This includes masters created with Renderer v3.2 that were saved with the LFE channel not set to **Off**.
- Changes to stereo downmix settings

The preferred stereo downmix type can now be written into the master file using Dolby Atmos Mastering Suite.

- New view options for objects view.

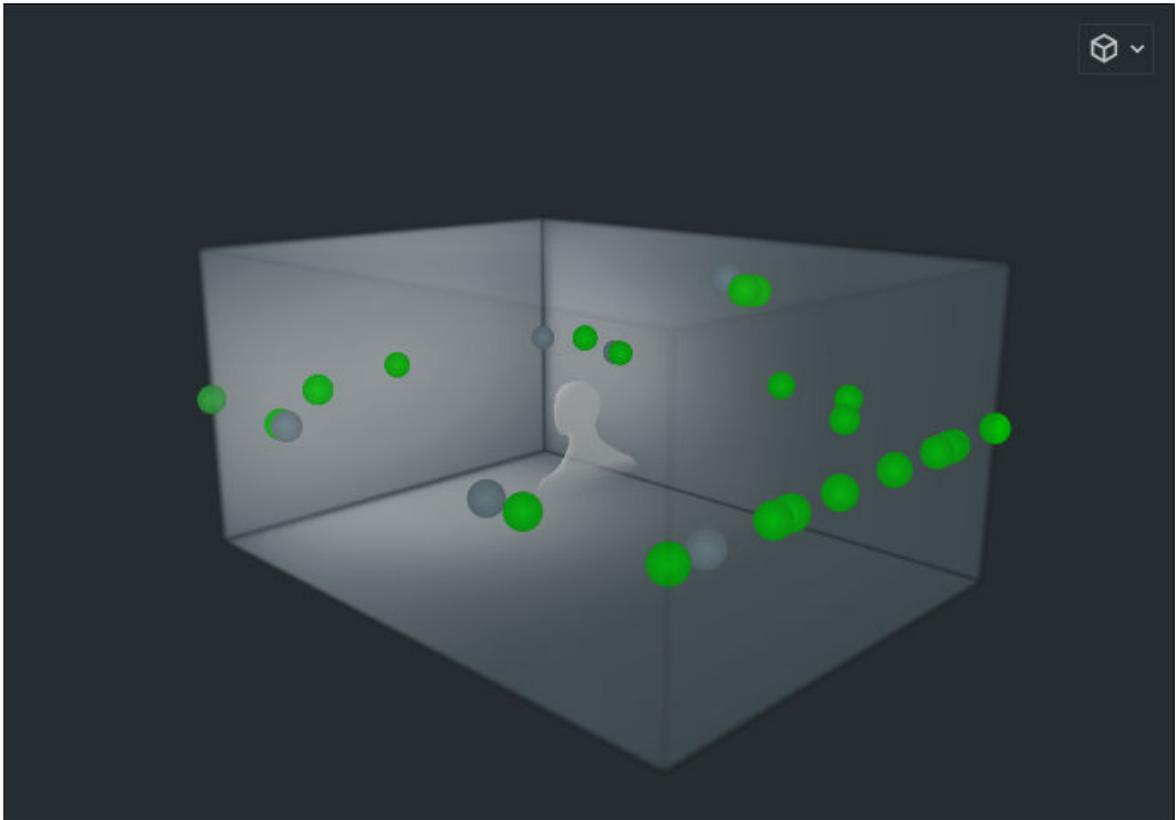
Click the small box icon drop-down menu in the top right corner of the objects view to reveal options. To select an option, click the option.

 **Note:** To close the box icon drop-down menu, click on the menu arrow, or click in any unused area in the Renderer window that is outside the objects view.

View options include:

- **Theater:** This view is the same as the view provided in earlier versions of Renderer v3.x. In this view, objects use the full room, with zero height being shown at floor level. Additionally, the front of the room includes a white screen.
- **Person:** This view includes a representation of a listener in the center of the room. Objects at zero height appear at the ear level of the listener.

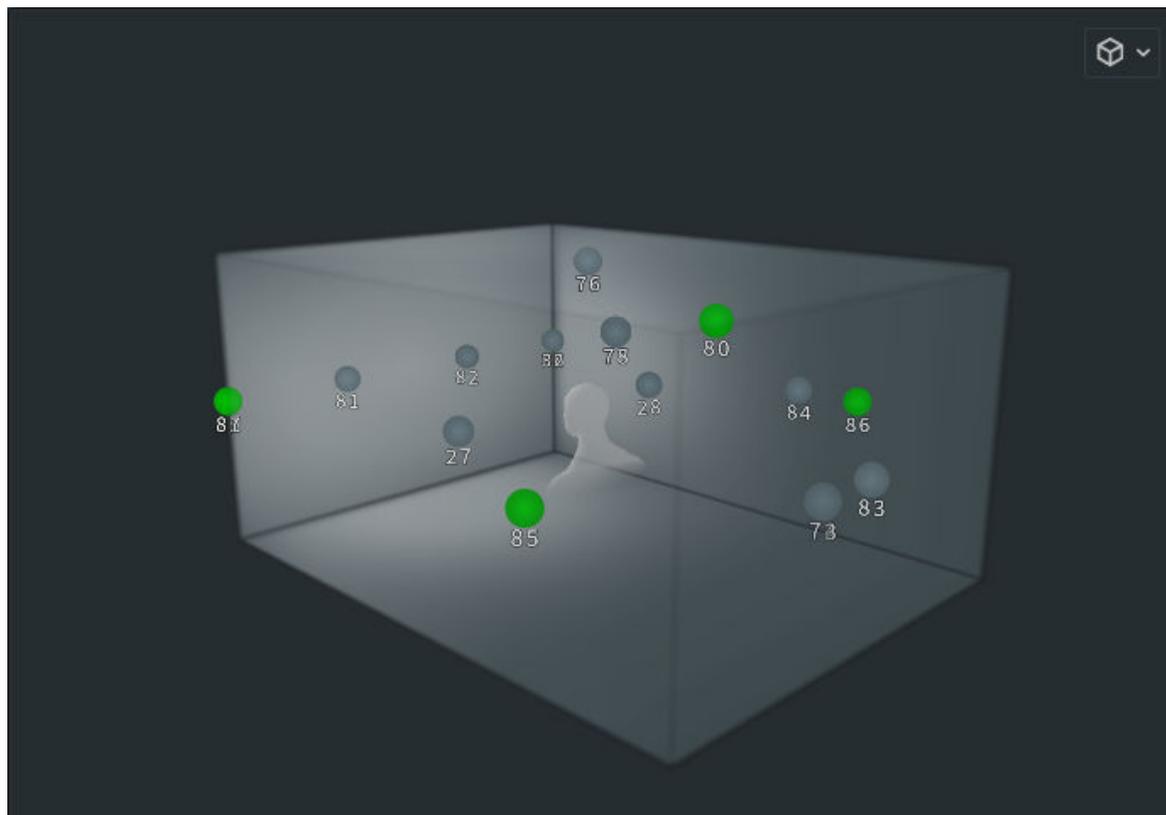
Figure 11: Person view in the objects view



Show option includes:

- **Object number:** When selected, the object number for each object in the room is displayed below the object. This option is supported in theater or person view.

Figure 12: Person view with **Show >Object Number** enabled



- Headphone output updates

Headphone limiter now applied to the binaural headphone output only. The stereo headphone output now clips at zero to simulate the real clip level.

 **Note:** The binaural limiter is still applied to the binaural re-renders.

- Changes to Pro Tools templates included with the installer.
 - Pro Tools session templates for setups using Send and Return plug-ins have been updated and renamed. Template names are based on the system setup and use of mono or stereo plug-ins.
 - For Pro Tools setups that use the Dolby Audio Bridge, Pro Tools session templates have been updated and renamed, plus the installer includes Pro Tools I/O *.pio* settings files. Template and settings file names are based on the system setup and use of mono or stereo plug-ins.

2.9.2 New in version 3.2

Dolby Atmos Renderer v3.2 includes new features, improvements, and fixes for using Dolby Atmos Renderer software to author content in Dolby Atmos.

- Ability to open and export IMF immersive audio bitstream (IAB) *.mxf* files
- Array mode (Dolby Atmos Mastering Suite):
 - Enables Home Theater content to be created in rooms that have small speaker arrays. This mode can be activated in the **Room Setup** window.

 **Note:** When working in array mode, you can monitor the physical layout (which you define in the **Speaker setup** page in the **Room setup** window). Additionally, the Renderer provides channel-based renders for monitoring. These are based on the physical layout. For example, with a physical layout using all speakers and arrays, these channel-based renders are available: 7.1.2, 7.1, 5.1.2, 5.1, and 2.0.

- Includes control of equalization (EQ), delays, and gains of arrays (when in array mode)
- Downmix settings

The 5.1 downmix type is now contained within the master. It can be written using Dolby Atmos Mastering Suite or read by both Dolby Atmos Mastering Suite and Dolby Atmos Production Suite.

- Improvements to overall performance and central processing unit (CPU) usage
- Smoother transitions between monitoring options.
- Headphone limiter: A limiter is applied to the headphone output. Limiting affects monitoring (at the spatial coding output prior to rendering to speakers), and is also applied to binaural re-renders.
- System settings automatically backed up when upgrading from previous versions of the Renderer. Settings are backed up as an *.atmoscfg* file that is saved on your local drive.
- VR mode removed

VR mode, VR panner plug-ins, and the VR transcoder have been removed from the Dolby Atmos Renderer.

- Playing back DAW audio from the **Speaker calibration** window:

External signal fed into the Renderer can play back when applying gain, delay, or EQ in the **Speaker calibration** window. In previous versions of the Renderer, external audio would be muted when the **Speaker calibration** window was open.

2.9.3 New in version 3.0.2

Dolby Atmos Renderer v3.0.2 includes new features, improvements, and fixes for using Dolby Atmos Renderer software to author content in Dolby Atmos.

- Supports control of level, mutes and dims via an Avid System 5 digital audio system (or other control surface using commslib).
- Binaural rendering performance at 96 kHz improved.
- Improved trim functionality. (Dolby Atmos Mastering Suite only)
- Room EQ can now be used to set bass managed speakers. (Dolby Atmos Mastering Suite only)

2.9.4 New in version 3.0.1

Dolby Atmos Renderer v3.0.1 includes new features, improvements, and fixes for using Dolby Atmos Renderer software to author content in Dolby Atmos.

- Ability to automatically number object descriptions sequentially (in the **Input configuration** dialog **Description** column).
- **5.1 downmix** drop-down menus include two **Direct render** options: **Direct render** and **Direct render without warp**.
- In the **Record in/out** section, ability to use the Tab key to move the cursor between the **In** point and **Out** point settings.
- Improved re-render naming when creating re-renders offline (with **File > Export Re-renders**).

Each mono *.wav* file is now named with the channel number and then the channel type at the end of the file name (before *.wav*). This better prepares the files for importing into a DAW.

The naming convention for an exported re-render *.wav* file is `<export_file_name>_<re-render_name>_<channel_number>.<channel>.wav`, where

- Exported re-renders timestamped in accordance with the Broadcast Wave Format (BWF) format standard.

Each re-render *.wav* file is timestamped with the start time. This lets you import the files into a DAW and have them appear in the correct position on the timeline.

- Ability to export re-renders as interleaved multichannel *.wav* files.
- Access to log information via the **Open Logs Folder** command in the **Help** menu.

3

Introduction to the Dolby Atmos Renderer

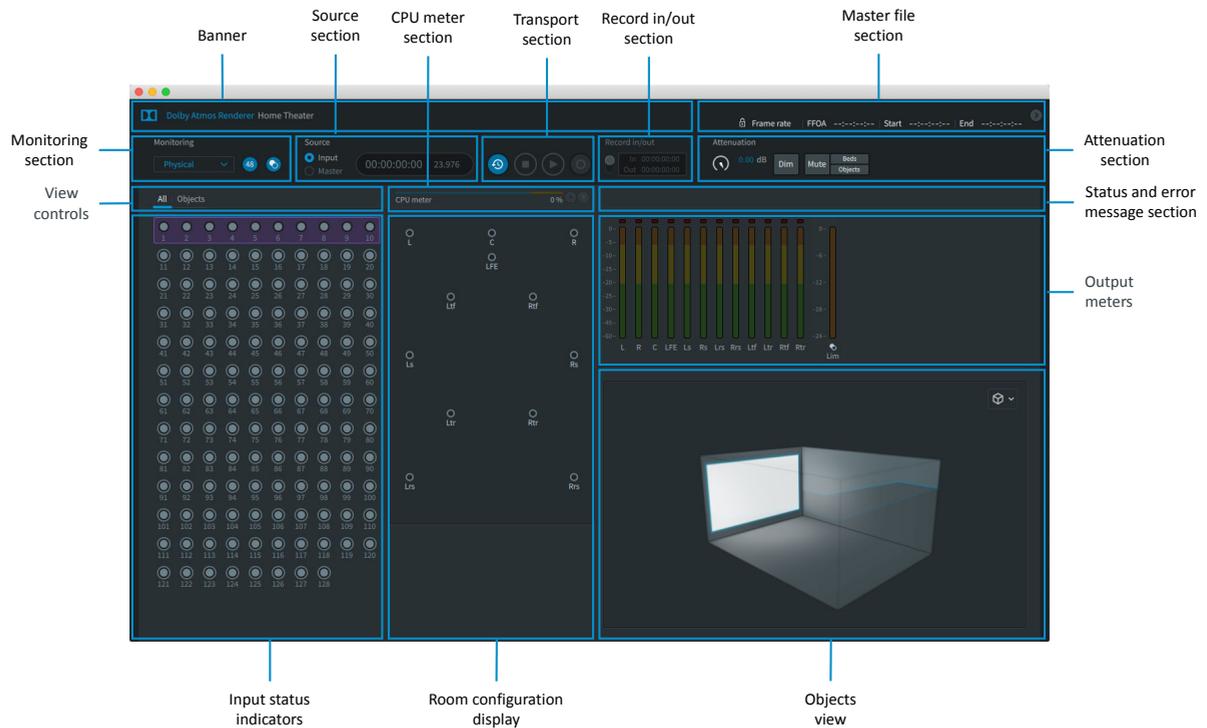
The Dolby Atmos Renderer provides the software components required to monitor, create, and play back Dolby Atmos masters.

- [Dolby Atmos suites and the Renderer](#)
- [Dolby Atmos Renderer installer components](#)

3.1 Dolby Atmos suites and the Renderer

The Dolby Atmos Renderer is included in two different Dolby Atmos suites: Dolby Atmos Mastering Suite and Dolby Atmos Production Suite. Depending on the suite license, different features are provided.

Figure 13: Dolby Atmos Renderer main window (shown with loudness measurement disabled)



3.1.1 Dolby Atmos Mastering Suite software package

The Dolby Atmos Mastering Suite package includes the Dolby Atmos Renderer, which provides the software components required to monitor, create, and play back Dolby Atmos masters for home theater and music.

This suite is for engineers, sound designers, and others who use Dolby Atmos Renderer software for creating and monitoring high-value complex content for home distribution (Blu-Ray, and over-the-top (OTT)) on a multiple computer system that supports full EQ calibration and includes a dedicated rendering and mastering workstation for power on demand.

The Dolby Atmos Mastering Suite includes one license for Dolby Atmos Mastering Suite and three licenses for Dolby Atmos Production Suite.

Use the Dolby Atmos Mastering Suite to run the Renderer on a rendering and mastering workstation, which is a dedicated Mac or Windows machine with a Dolby-specified hardware configuration. Use the Dolby Atmos Production Suite to run the Renderer in-the-box (on a single computer) to monitor, create, and play back Dolby Atmos content in a premix or editorial workflow.

The Dolby Atmos Renderer installer includes the Dolby Atmos Renderer Remote application. This application controls the Renderer on the rendering and mastering workstation from a computer on the same network. The Renderer Remote application does not require a license.

3.1.2 Dolby Atmos Production Suite software package

The Dolby Atmos Production Suite package includes the Dolby Atmos Renderer, which provides the software components required to monitor, create, and play back Dolby Atmos content in a premix or editorial workflow.

This suite is for engineers, sound designers, and others who use Dolby Atmos Renderer software in-the-box (on a single computer) for editorial, premix, and sound-design workflows.

The Dolby Atmos Production Suite provides access to one license for running the suite on a supported Mac CPU.

 **Note:** The Dolby Atmos Renderer Remote application, included as an option when installing the Renderer, is used for Dolby Atmos Mastering Suite workflows only. If you are working with the Dolby Atmos Production Suite only, you do not need the Dolby Atmos Renderer Remote.

3.2 Dolby Atmos Renderer installer components

The Dolby Atmos Renderer installer provides software for mixing and recording Dolby Atmos content.

Table 1: Renderer installer components

Component	Description
Dolby Atmos Renderer	This application is required to render audio and Dolby Atmos metadata from a supported DAW. The software supports various tasks, including monitoring a Dolby Atmos mix, and recording or playing back a Dolby Atmos master.
Dolby Renderer Send plug-in (Mac only)	This optional Pro Tools plug-in is installed with the Dolby Atmos Renderer and can be used to send object or bed source audio to the Dolby Atmos Renderer from Pro Tools. The Send and Return plug-ins are designed for in-the-box workflows with the Dolby Atmos Production Suite, and can be used instead of the Dolby Audio Bridge.
Dolby Renderer Return plug-in (Mac only)	This optional Pro Tools plug-in is installed with the Renderer and can be used to receive Dolby Atmos audio from the Dolby Atmos Renderer, and then route the rendered mix to Pro Tools outputs. The Send and Return plug-ins are designed for in-the-box workflows with the Dolby Atmos Production Suite, and can be used instead of the Dolby Audio Bridge.
Dolby Atmos Renderer Remote (Dolby Atmos Mastering Suite workflows only)	This optional application enables remote control of a Dolby Atmos Renderer that is running with a Dolby Atmos Mastering Suite license and is located on the same network. In this configuration, the Dolby Atmos Renderer Remote on the DAW machine controls the Dolby Atmos Renderer on the rendering and mastering workstation.
Dolby Audio Bridge (Mac only)	This optional Core Audio driver enables the rendering application to act as a virtual Core Audio device. It supports routing audio (beds and objects) to or from a DAW configured to use the bridge. Installing this component requires restarting your computer.
Dolby LTC Generator plug-in	This plug-in is required for synchronizing the Renderer to LTC as audio from Pro Tools on systems using the Dolby Audio Bridge.
Documentation	The installer includes user documentation for working with Dolby Atmos home theater content.
Session templates (Mac only)	The installer includes DAW session templates for creating a session that is configured and ready for Dolby Atmos authoring. Dedicated Pro Tools and Nuendo templates are provided and installed separately. Selecting the Pro Tools template option also installs Pro Tools I/O settings files.

Additionally, you can download the Dolby Atmos Conversion Tool (from <https://developer.dolby.com/forms/dolby-atmos-conversion-tool>). This tool enables you to convert one Dolby Atmos media file format to another, or perform other conversion tool operations (such as changing the frame rate of a Dolby Atmos media file).

3.2.1 Dolby Atmos authoring documentation

The Dolby Atmos Renderer installer includes supporting documentation.

When selected during installation, documentation for Dolby Atmos Production Suite and Dolby Atmos Mastering Suite on Mac is installed at `~/Applications/Dolby/DolbyAtmosRenderer/Documentation`. For Dolby Atmos Mastering Suite on Windows, documentation is installed at `C:\Program Files (x86)\Dolby\DolbyAtmosRenderer\Documentation`.

After installation, installed documentation is also available in the Renderer. You can access an HTML version of the Renderer guide via the **Help > Dolby Atmos Renderer Guide** menu command. You can access all Renderer documentation via the **Help > Open Documentation** menu command.

Dolby Atmos Production Suite and Dolby Atmos Mastering Suite on Mac include the entire documentation set. Dolby Atmos Mastering Suite on Windows does not include the documentation noted as Mac only.

Dolby Atmos Renderer Guide

This documentation provides information for using the Dolby Atmos Renderer and other Dolby Atmos software to create or play back a Dolby Atmos master, listen to a Dolby Atmos mix, and pan audio objects in a Dolby Atmos mix.

Dolby Atmos Renderer Release Notes

Refer to this documentation for installation instructions, new features and improvements, and known issues.

New in Dolby Atmos Renderer

This documentation provides a list of what is new in the release. For releases with major UI changes, this documentation details these changes as a primer to the main guide.

Dolby Atmos Production Suite Quick Start Guide (Mac only)

This documentation introduces you to the Dolby Atmos Production Suite components and provides the steps needed to install the suite and then verify your setup by playing audio from a supported DAW session.

Dolby Atmos Renderer Third-Party Software

This documentation provides the third-party software licensed under open-source or proprietary licenses that are incorporated into the Dolby Atmos Renderer software along with the required notices.

Dolby Atmos Plug-ins Third-Party Software

This documentation provides the third-party software licensed under open-source or proprietary licenses that are incorporated into Dolby Atmos plug-ins along with the required notices.

3.2.2 Dolby Atmos Renderer DAW templates

The Renderer installer includes DAW templates for Dolby Atmos Production Suite workflows. Use the installer to install templates on the computer running the DAW.

Pro Tools session templates for setups using Send and Return plug-ins

Pro Tools session templates for setups using Send and Return plug-ins are installed in a Pro Tools session templates folder (`~/Documents/Pro Tools/Session Templates/DolbyAtmosProductionSuite`).

Template names are based on the system setup and use of mono or stereo plug-ins

- *DolbyAtmosRendererSendReturnMono.ptxt*
- *DolbyAtmosRendererSendReturnStereo.ptxt*

Pro Tools session templates and Pro Tools I/O .pio settings files for setups using the Dolby Audio Bridge

For Pro Tools setups that use the Dolby Audio Bridge, the Renderer installer includes Pro Tools session templates and Pro Tools I/O *.pio* settings files.

Template names are based on the system setup and use of mono or stereo plug-ins

- Session templates are installed in a Pro Tools session templates folder (*~/Documents/Pro Tools/Session Templates/Dolby Atmos Production Suite*).
 - *Dolby Atmos Renderer Dolby Audio Bridge Mono.pxt*
 - *Dolby Atmos Renderer Dolby Audio Bridge Stereo.pxt*
- Pro Tools I/O .pio settings files are installed in the Pro Tools IO Settings folder (*~/Documents/Pro Tools/IO Settings*)
 - *Dolby Atmos Renderer Dolby Audio Bridge Mono.pio*
 - *Dolby Atmos Renderer Dolby Audio Bridge Stereo.pio*

Nuendo project template

The Nuendo session template is installed in a Nuendo project templates folder: *Dolby Atmos Production Suite - 128 channels* for Nuendo 10 is installed at *Users/username/Library/Preferences/Nuendo 10/Project Templates/Dolby Atmos Production Suite*

4

Installing Renderer software

This documentation covers how to install Dolby Atmos Renderer software. For detailed information about system configurations and installing the renderer and DAW on a Dolby Atmos system, see the *Dolby Atmos Renderer Guide*.

- [Requirements for a Dolby Atmos Production Suite system](#)
- [Requirements for a Dolby Atmos Mastering Suite system](#)
- [Activating a Dolby software license](#)
- [Installing the Dolby Atmos Renderer on Mac](#)
- [Installing the Dolby Atmos Renderer on Windows](#)
- [Launching the Dolby Atmos Renderer on a Mac](#)
- [Launching the Dolby Atmos Renderer on Windows](#)

4.1 Requirements for a Dolby Atmos Production Suite system

The Dolby Atmos Renderer with a Dolby Atmos Production Suite license has been tested in these configurations.

Setup	CPU	Operating system	DAW
Renderer and Pro Tools on a Mac (using Send and Return plug-ins)	MacBook Pro 15,1; Intel Core i7 2.6 GHz, 16 GB RAM	macOS Mojave (version 10.14.4)	Pro Tools Ultimate 2019.10
	MacBook Pro 11,5; Intel Core i7 2.8 GHz, 16 GB RAM	macOS High Sierra (version 10.13.6)	Pro Tools Ultimate 2018.10
	Mac Pro 6,1; 6-Core Intel Xeon E5, 3.5 GHz, 32 GB RAM	macOS Mojave (version 10.14.5)	Pro Tools Ultimate 2019.6
	Mac mini 8,1; Intel Core i7 3.2 GHz, 16 GB RAM	macOS Mojave (version 10.14.5)	Pro Tools Ultimate 2019.10
	Mac mini 8,1; Intel Core i7 3.2 GHz, 16 GB RAM	macOS Catalina (version 10.15.3)	Pro Tools Ultimate 2019.12
Renderer and Pro Tools on a Mac (using Dolby Audio Bridge)	MacBook Pro 15,1; Intel Core i7 2.6 GHz, 16 GB RAM	macOS Mojave (version 10.14.4)	Pro Tools Ultimate 2019.10
	MacBook Pro 11,5; Intel Core i7 2.8 GHz, 16 GB RAM	macOS high Sierra (version 10.13.6)	Pro Tools Ultimate 2018.10
	Mac Pro 6,1; 6-Core Intel Xeon E5, 3.5 GHz, 32 GB RAM	macOS Mojave (version 10.14.5)	Pro Tools Ultimate 2019.6
	Mac mini 8,1; Intel Core i7 3.2 GHz, 16 GB RAM	macOS Mojave (version 10.14.5)	Pro Tools Ultimate 2019.10
	Mac mini 8,1; Intel Core i7 3.2 GHz, 16 GB RAM	macOS Catalina (version 10.15.3)	Pro Tools Ultimate 2019.12
Renderer and Nuendo on a Mac	MacBook Pro 15,1; Intel Core i7 2.6 GHz, 16 GB RAM	macOS Mojave (version 10.14.4)	Nuendo 10.2.10
	MacBook Pro 15,1; Intel Core i7 2.6 GHz, 16 GB RAM	macOS High Sierra (version 10.13.6)	
	MacBook Pro 11,5; Intel Core i7 2.8 GHz, 16 GB RAM	macOS Mojave (version 10.14.5)	
	Mac Pro 6,1; 6-Core Intel Xeon E5, 3.5 GHz, 32 GB RAM	macOS Mojave (version 10.14.5)	

4.2 Requirements for a Dolby Atmos Mastering Suite system

The Dolby Atmos Renderer with a Dolby Atmos Mastering Suite license on the Dolby Atmos rendering and mastering workstation, and a Renderer Remote on the CPU with the DAW, has been tested in these configurations.

These tables provide the minimum hardware and operating system requirements.

The Mac and Windows Dell rendering and mastering workstation setups require a dealer-built workstation. Contact your dealer for ordering details.

Table 2: Renderer on a Mac rendering and mastering workstation (using Dante I/O) and Pro Tools on a Mac

Hardware	CPU	Operating system	Audio software	Expansion chassis
Mac rendering and mastering workstation	Mac mini 8,1; Intel Core i7 3.2 GHz, 16 GB RAM	macOS Mojave (version 10.14.5) macOS Catalina (version 10.15.3)	Renderer software	Sonnet Echo III-D chassis Sonnet xMac mini Server PCIe 2.0 Thunderbolt 3
	Mac Pro 6,1; 6-Core Intel Xeon E5, 3.5 GHz, 32 GB RAM	macOS Mojave (version 10.14.5)		Sonnet Echo III-D chassis
Mac DAW machine	Mac Pro 6,1; 6-Core Intel Xeon E5, 32 GB RAM; AMD FirePro D300 2,048 MB; Sonnet xMac Pro Server PCIe 2.0 expansion system	macOS Mojave (version 10.14.5)	Renderer Remote software Pro Tools Ultimate 2019.10	

Table 3: Renderer on a Windows rendering and mastering workstation (using Dante I/O) and Pro Tools on a Mac

Hardware	CPU	Operating system	Audio software
Windows Dell rendering and mastering workstation	Windows Dell Precision Rack, model 7920; Intel Xeon Silver 4114 2.2 GHz, 2,400 MHz, 10 Cores, 12 Logical Processors, 16 GB RAM	Windows 10 Pro for Workstations	Renderer software
Mac DAW machine	MacPro 6,1; 6-Core Intel Xeon E5, 32 GB RAM; AMD FirePro D300 2,048 MB; Sonnet xMac Pro Server PCIe 2.0 expansion system	macOS Mojave (version 10.14.5)	Renderer Remote software Pro Tools Ultimate 2018.10

Table 4: Renderer on a Windows rendering and mastering workstation (using MADI I/O) and Pro Tools on a Mac

Hardware	CPU	Operating system	Audio software
Windows Dell rendering and mastering workstation	Windows Dell Precision Rack, model 7920; Intel Xeon Silver 4114 2.2 GHz, 2,400 MHz, 10 Cores, 12 Logical Processors, 16 GB RAM	Windows 10 Pro for Workstations	Renderer software
Mac DAW machine	MacPro 6,1; 6-Core Intel Xeon E5, 32 GB RAM; AMD FirePro D300 2,048 MB; Sonnet xMac Pro Server PCIe 2.0 expansion system	macOS High Sierra (version 10.13.6)	Renderer Remote software Pro Tools Ultimate 2019.6

Table 5: Renderer on a Windows RMU (using MADI I/O) and Pro Tools on a Mac

Hardware	CPU	Operating system	Audio software
Dolby Atmos Rendering and Mastering Unit (RMU)	Dolby Atmos RMU	Windows 7 Ultimate	Renderer software
Mac DAW machine	MacPro 6,1; 6-Core Intel Xeon E5, 32 GB RAM; AMD FirePro D300 2,048 MB; Sonnet xMac Pro Server PCIe 2.0 expansion system	macOS High Sierra (version 10.13.6)	Renderer Remote software Pro Tools Ultimate 2019.6

4.3 Activating a Dolby software license

On a supported computer or iLok, activate the license that enables your software. We recommend that you activate the license before you install the software.

Prerequisites

- Download and install the iLok License Manager from www.ilok.com.
- Ensure that you have iLok authorization for the license.

About this task

This task is performed in the iLok License Manager.

Procedure

1. Launch the **iLok License Manager**.
2. In the **iLok License Manager** window, sign in to your account, and then click (highlight) your account name in the navigation bar.

Your account name is shown in the upper-left panel. Your host machine and iLok USB devices are shown as icons in the panel below your account information.

3. Click the **Available** tab in the **iLok License Manager** header.

Figure 14: Available tab in iLok License Manager



If you do not see the **Available** tab, widen the application window until the tab is visible in the header.

The available licenses are shown under the tabs.

4. Locate the license for your software, and then drag and drop it to your host machine icon or to the iLok device icon on the left.
5. Follow any additional onscreen instructions.
6. In the **iLok License Manager** window, repeat these steps if you are installing additional licenses to other machines or iLoks.

4.4 Installing the Dolby Atmos Renderer on Mac

Depending on your system setup, install the Dolby Atmos Renderer components on the Mac that is running your DAW, on a Mac rendering and mastering workstation, or both.

Prerequisites

- Ensure that the machine meets system requirements, including any required software. (See the *Dolby Atmos Renderer Guide* or *Dolby Atmos Renderer Release Notes*.)
- Ensure that you have activated the license for your software.

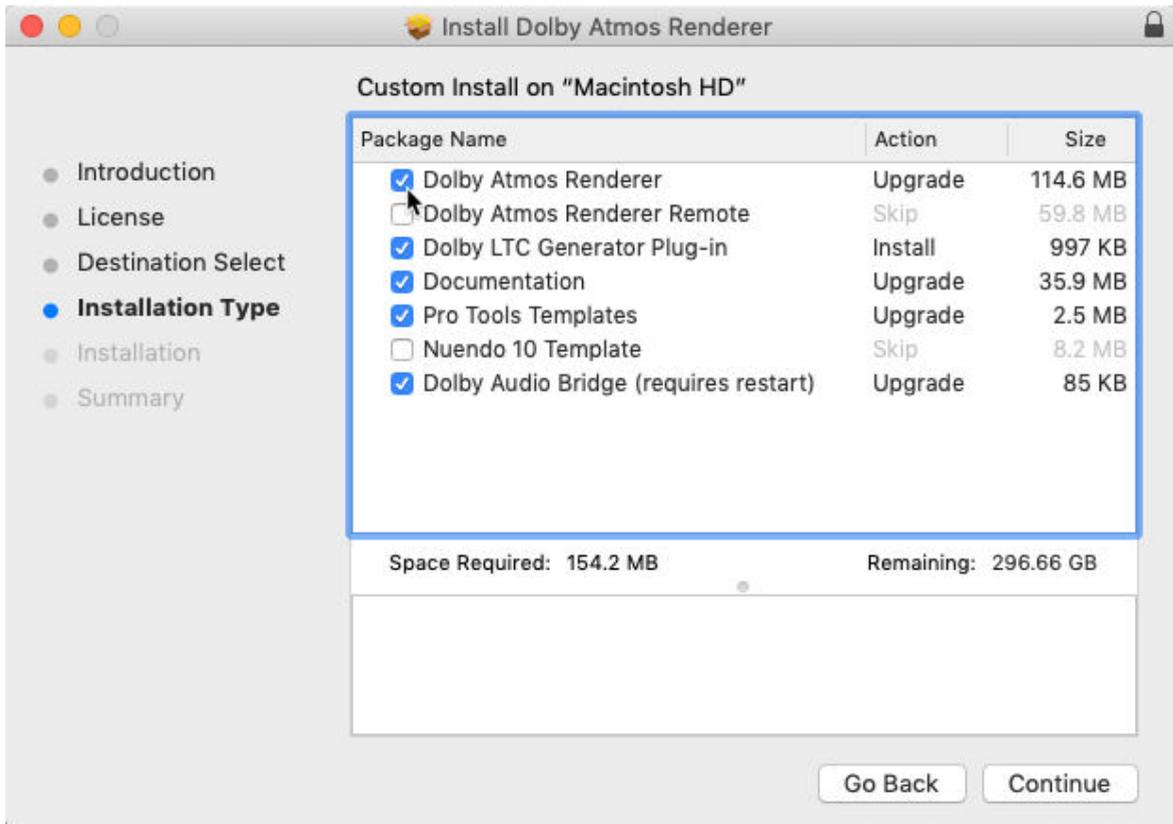
About this task

- When selecting which components to install, select the components that are required for your system configuration.
- The installer also includes optional components (such as the Dolby Audio Bridge, documentation, and templates). Choose optional components based on your Dolby Atmos Renderer configuration and needs.
- When the Dolby Audio Bridge option is selected, installation includes a restart of the Mac OS.
- When updating the Renderer or Renderer Remote software, the existing Renderer system settings are automatically backed up as an *.atmoscfg* that is saved on your local drive (*~/Users/username/Library/Application Support/Dolby/Dolby Atmos Renderer/Backups*).

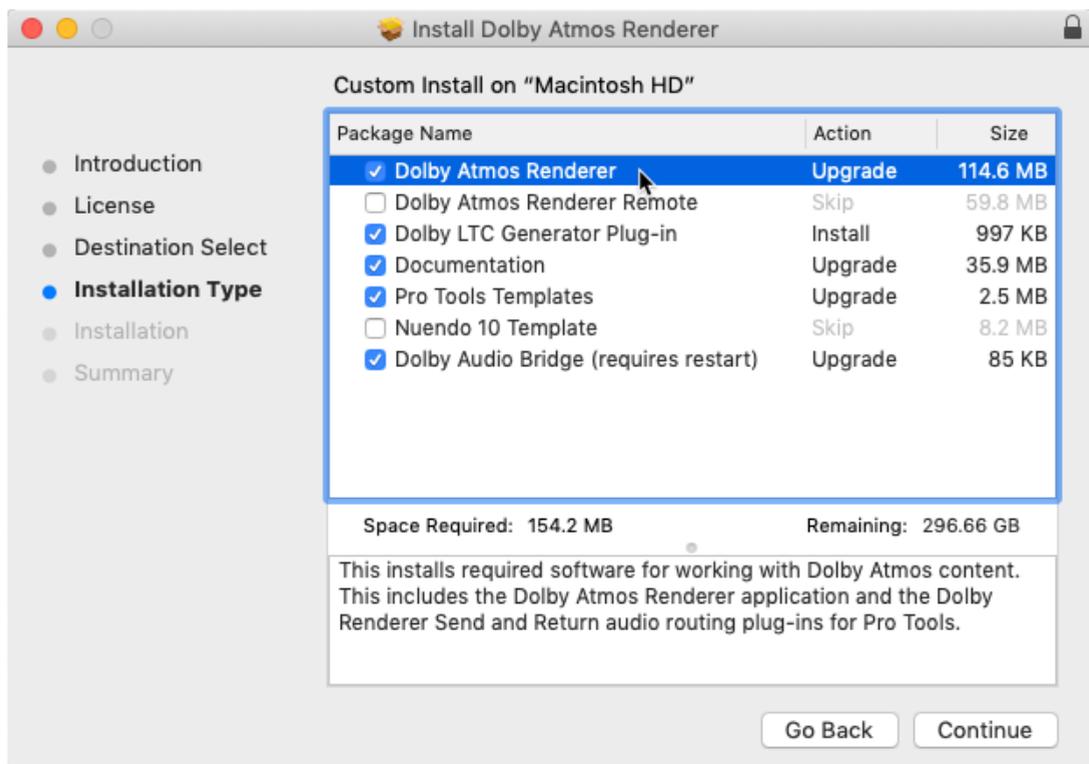
Procedure

1. If updating the Dolby Atmos Renderer and supporting software, ensure that the Dolby Atmos Renderer is not running.
2. Double-click the Dolby Atmos Renderer *.dmg* file (*Dolby_Atmos_Renderer-3.x.x-xxxxxx.dmg*).
This file provides access to the installer and documentation. Refer to the documentation for what is new in this version of the Renderer, release notes (including known issues), and additional information.
3. Double-click the Dolby Atmos Renderer installer package (*DolbyAtmosRenderer.pkg*).
4. Follow the onscreen instructions.
5. When prompted to select which components to install, select the components required for your system configuration, and then click **Continue**.

Figure 15: Default Installation Type page of the Install Dolby Atmos Renderer dialog



 **Note:** You can click on an item in the **Package Name** column to reveal information about the package.



6. Complete installation.

 **Note:** If this installation is the first time you are installing Dolby software on the Mac, you may be prompted with a dialog to enable any system extensions signed by Dolby. To use this application, you must enable the Dolby extension. To continue installation, click **Open Security Preferences**, and then enable any Dolby extensions in the **Security and Privacy** window.

Results

All items selected for installation are installed.

4.5 Installing the Dolby Atmos Renderer on Windows

Install the Dolby Atmos Renderer on a Dolby Atmos rendering and mastering workstation running on Windows.

Prerequisites

- Ensure that the machine meets system requirements, including any required software. This includes updated drivers.
- Ensure that you have activated the Dolby Atmos Mastering Suite license.
- When updating Renderer or Renderer Remote software, the existing Renderer system settings are automatically backed up as an *.atmoscfg* file, which is saved to *C:\ProgramData\Dolby\Dolby Atmos Renderer\Backups*.

About this task

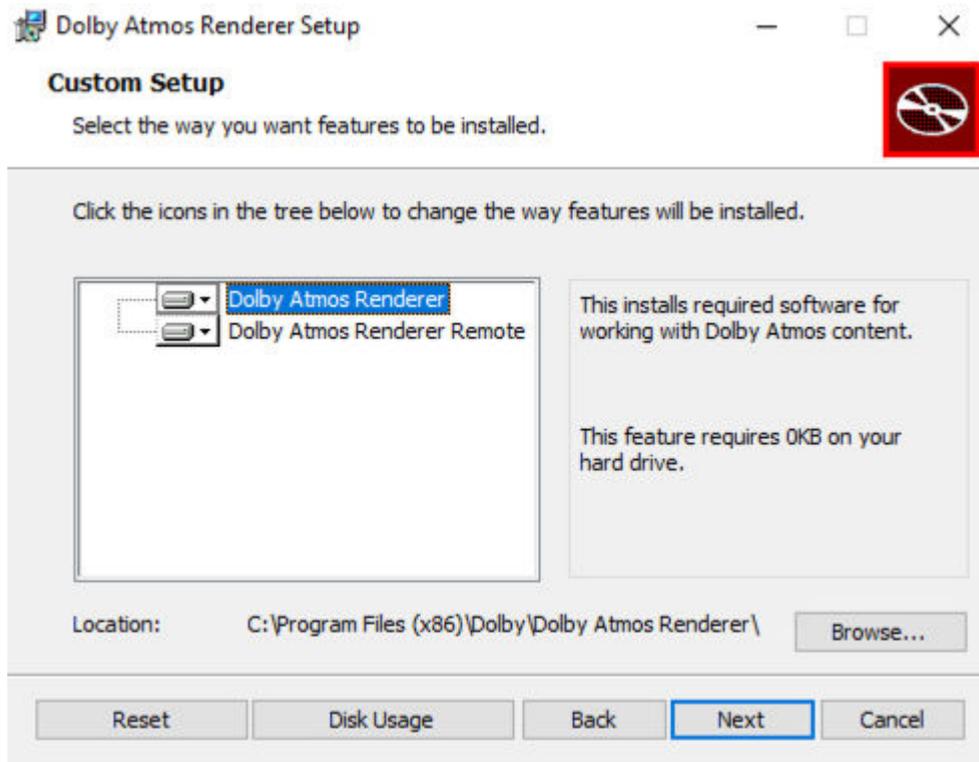
When selecting which components to install, select the components that are required for your system configuration.

The installer also includes optional components (such as documentation). Choose optional components based on your Dolby Atmos Renderer configuration and needs.

Installation includes a restart of Windows.

Procedure

1. If updating Dolby Atmos Renderer and supporting software, ensure that the Dolby Atmos Renderer is not running.
2. Double-click the Dolby Atmos Renderer *.zip* file (*Dolby_Atmos_Renderer-3.0.0-xxxxxx.zip*).
This provides access to the installer and documentation. Refer to documentation for what is new in this version, release notes (including known issues), and additional information.
3. Double-click the Dolby Atmos Renderer installer executable (*DolbyAtmosRenderer.exe*).
4. Follow the onscreen instructions.



5. Complete installation.
6. Set **Performance options** to **Programs**:
 - a) Navigate to **Control Panel > System & Security > System > Advanced System Settings > Advanced**.
 - b) In **Performance Options** click on the **Settings** button, select the **Advanced** tab, and under **Processor scheduling**, choose **Adjust best performance of: Programs**.

4.6 Launching the Dolby Atmos Renderer on a Mac

After Dolby Atmos Renderer software is installed, you can launch the Renderer.

Prerequisites

Download and install the iLok License Manager from www.ilok.com.

About this task

You can perform this task with the Dolby Atmos Renderer using a Production Suite or Mastering Suite license.

Depending on your system configuration, the Renderer will be on the computer running your DAW, or on a Dolby Atmos rendering and mastering workstation.

Procedure

1. Locate the Dolby Atmos Renderer application name or icon.

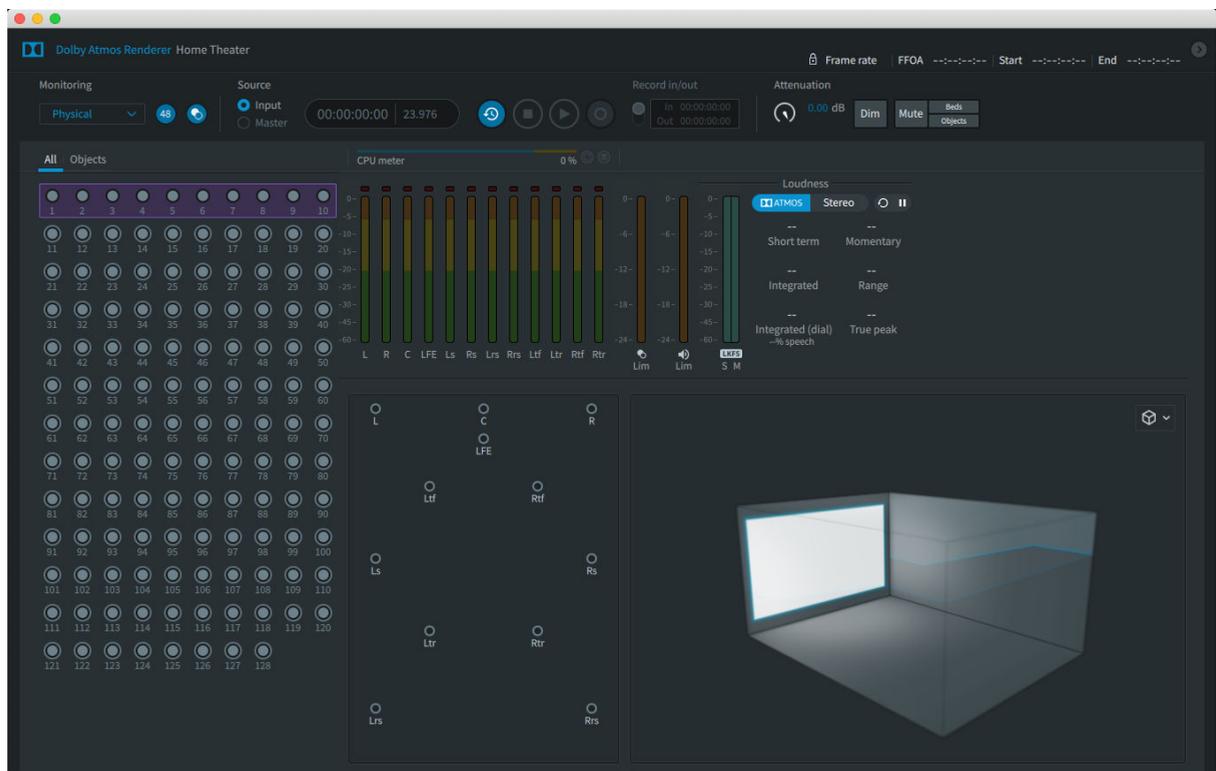
The Dolby Atmos Renderer application is in the *Applications/Dolby/Dolby Atmos Renderer* folder.

Figure 16: **Dolby Atmos Renderer icon**

2. Double-click the Dolby Atmos Renderer application name or click the icon in the dock.

Results

The Dolby Atmos Renderer window displays.



4.7 Launching the Dolby Atmos Renderer on Windows

Launch the Dolby Atmos Renderer application on a Dolby Atmos rendering and mastering workstation running Windows after completing the prerequisites for launching the application.

Prerequisites

- Download and install the iLok License Manager from www.ilok.com.
- To run Renderer v3.x on a Windows rendering and mastering workstation that has an older Renderer version installed on it, you must change workstation settings before installing and launching Dolby Atmos Renderer v3.x. The new settings will ensure that older Renderer software versions do not launch on restart.

About this task

You can perform this task with the Dolby Atmos Renderer using a Production Suite or Mastering Suite license.

Procedure

1. Locate the Dolby Atmos Renderer application name or icon.

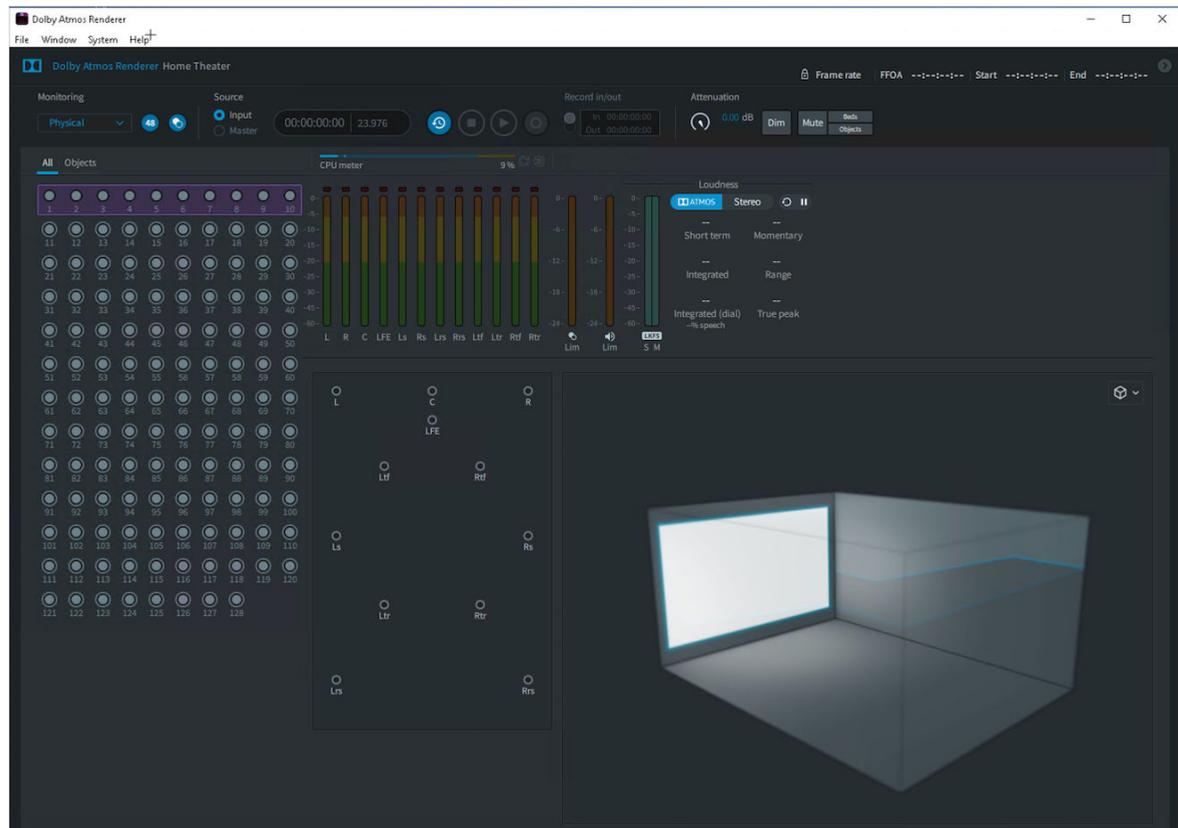
The Dolby Atmos Renderer application is in the `C:\Program Files (x86)\Dolby\Dolby Atmos Renderer` folder.



2. Click the Dolby Atmos Renderer application name or icon.

The Dolby Atmos Renderer window displayed.

Figure 17: Dolby Atmos Renderer in Windows



5

Known issues

This release has some known issues, for which we provide workarounds, comments, and solutions.

- A Dolby Atmos *.atmosIR* configuration file with special characters in the file name may cause errors on import. As a workaround, do not use special characters with an *.atmosIR* configuration file. [PRAU-736]
- Older versions of the Dolby Atmos Renderer Remote application will not connect to newer versions of the Dolby Atmos Renderer. Install both the Renderer and Remote applications from the same installer. [DACT-8989]
- Renderer v3.4 is not supported with macOS 10.14.2. Launching v3.4 on this macOS can result in a black screen and is unusable. To avoid this, upgrade your macOS to a version tested for your configuration. See *System requirements* for your configuration. [PRAU-1194]
- An *.atmos* master file set that has naming differences between the *.atmos*, *.audio*, and *.metadata* files will be corrupted on editing. [DACT-8670]
- Recording a master file over a network HDD is not supported. The recording process will be stopped due to disk underruns produced by low transfer rates. [DACT-8802]
- When the 5.1 downmix is set to Standard (Lo/Ro) or Dolby Pro Logic IIx, and Spatial coding emulation is off, object size is not applied. [DACT-8837]
- When *localhost* is used as the IP address to connect to a Renderer, a double colon (::) is displayed in the **Network information** page of the **Preferences** window. As a workaround, use a valid IP address. [DACT-7996]
- When installing the Dolby Audio Bridge the first time, the bridge sometimes has to be reinstalled in order for it to appear in the Renderer and Audio MIDI Setup drivers list. [PRAU-1152]
- Using the Dolby Audio Bridge with some external hardware may result in clocking errors. As a workaround, create an aggregate device with the Dolby Audio Bridge and your external hardware. See *Using the Dolby Audio Bridge as an Aggregate device* in the *Dolby Atmos Renderer Guide*. [PRAU-1139]
- For systems with a dual-boot rendering and mastering workstation, Cinema Renderer services have to be closed in order to use the Home Theater Renderer running with a Dolby Atmos Mastering Suite license, and vice versa. [PRAU-589]
- Cinema Renderer settings containing 12.1 re-renders cannot be imported into Renderer v3.4. As a workaround, remove the 12.1 re-renders using the Cinema Renderer before importing the settings. [PRAU-1189]
- If the Dolby Atmos Renderer Remote application is launched before the Dolby Atmos Renderer, the remote will not auto-connect to the Renderer. As a workaround, connect the Renderer Remote to the rendering and mastering workstation using the IP address drop-down menu or launch the Remote after launching the Renderer. [DACT-8012]
- Resetting the Renderer to the factory default does not reset the Loudness UI. As a workaround, click the Loudness reset button, perform a factory reset, and then restart the Renderer. [PRAU-1127]
- If an object is reassigned when signal is present, the signal may appear present in the previous object. As a workaround, do not reassign objects while playing audio. [PRAU-1016]

- When opening an Interoperable Master Format (IMF) IAB *.mxf* master via the Renderer Remote, and the Renderer is in external sync and the transport is running, the master input configuration may not be applied. When opening a master file, ensure that the transport is stopped. [DACT-9251]
- Exporting to MP4 with two or more successive commas (for example ",,") in the file name will produce an export error. As a workaround, use a maximum of one comma in a file name. [PRAU-1147]
- In Windows, the Renderer will fail to initialize if you open the Renderer with a previously loaded master from an encrypted drive that has not been unlocked. As a workaround, make sure the drive has been unlocked before launching the Renderer. Alternatively, close the master before closing the Renderer to avoid reloading the master upon launch. [DACT-8099]
- If the Core Audio input device or Core Audio output device is set to **None**, or if the field is empty, when Core Audio is the active audio driver for the Renderer, an **Audio driver error** message is displayed and the Renderer is not fully operational. Set the devices to available choices other than **None** to make the Renderer fully operational. [DACT-6301], [DACT-8256]
- Connecting an audio device to your system while the Renderer is running may change the device audio settings in your system. This can result in audio drops due to an invalid system setup, and produce a log error (*ERROR RendererExecutive audio device processor overload*). If this occurs, check the settings for the **Audio Driver Configuration** in the Renderer and the Mac Audio MIDI Setup. If the settings are not correct, update them. [DACT-6280]
- Connecting or disconnecting headphones while the Renderer is running and using the Core Audio Built-in output causes an audio driver error. This occurs because the Mac OS system changes the device audio configuration. As a workaround, re-initialize the Renderer to reconfigures the Core Audio driver. For example, choose **Dolby Atmos Renderer > Preferences**, and then click **Accept**. [DACT-7902]
- Pro Tools Aggregate and Built-in output audio devices can intermittently, and without warning, change the sampling rate to 44.1 kHz (typically, after a CPU overload). This sample rate change causes rendered audio to be jittery. As a workaround, open the Mac OS X Audio MIDI Setup application and select the 48 kHz sample rate. If 48 kHz is already selected, unselect it, and then reselect it. [DACT-5484]
- When importing Dolby Atmos system settings from another computer, Core Audio input and output device settings are not included. After importing system settings, an **Audio driver error** message lets you know that the devices have not been accessed. As a workaround, navigate to **Driver** preferences and add the input and output devices. [DACT-7227]
- Removing speakers in the physical room configuration (in the **Speaker setup** page of the **Room setup** window) results in loss of calibration settings for those speakers. [DACT-8000]
- When in array mode, the output meters in the main Renderer window are post b-chain gain and EQ. [DACT-9249]
- Dolby Atmos system configurations support only one Pro Tools recorder system at a time. For example, if you enable Recorder mode on two Pro Tools systems, and then disable Recorder mode on one of them, trying to record on the system still in Recorder mode results in no recorded automation. To restore Recorder mode on this system, toggle Recorder mode off and on. [DACT-2215]
- The Dolby Atmos Panner plug-in has been removed from the Dolby Atmos Renderer v3.4 installer and is not supported with Renderer v3.4 running on macOS Catalina. As a workaround, use the object panners included with Pro Tools, or the Dolby Atmos Music Panner (available from Dolby). Alternatively, you can use the Dolby Atmos Panner included with Renderer v3.3 and earlier on supported versions of macOS Mojave and High Sierra. [PRAU-1200]
- Do not use Dolby Atmos panners and Pro Tools object panners in the same session. For example, if a Pro Tools track has an assigned Object Output Path and a Dolby Atmos panner plug-in inserted, the Dolby Atmos panner object metadata will not be sent to the Renderer. The Pro Tools panner metadata will change and overwrite the Dolby Atmos panner plug-in metadata. This can cause unwanted recorded data. [DACT-7167].

- You cannot lock a new master before recording any content. Doing so results in a Master file error dialog, which reports that the master was not found. When you close the error dialog, the master closes. [PRAU-124, DACT-8023]
- Pro Tools offline bounce is not supported with the Dolby Atmos Renderer. Attempting an offline bounce on Pro Tools HDX systems can cause a crash. Attempting an offline bounce on a Pro Tools native system can cause significant metadata loss. [DACT-6053], [DACT-5743]
- The Pro Tools scrubber tool is not supported when monitoring a Dolby Atmos master file. [DACT-5859]
- If a Dolby Atmos Pro Tools session connected to a Renderer using the **Send/Return plug-ins** audio driver is closed, the associated input channels in the Renderer remain active. To clear the meters, re-initialize the Renderer (for example, by closing the Renderer and relaunching it). [DACT-5821]
- The Renderer can disconnect from the DAW with sessions that use the Dolby Atmos Music Panner and have high channel counts and excessive Dolby Atmos metadata. [PRAU-998]
- Loudness meter data cannot be cleared when the **Send/Return** driver is selected and no Send or Return plug-ins are inserted in the Pro Tools session. [PRAU-1025]
- When using the **Send/Return plug-ins** audio driver, ensure that the Pro Tools transport stops after the recording end time. This ensures that the final master does not have any missing samples at the end time. [DACT-7998]
- When using the **Send/Return plug-ins** driver, the Pro Tools pre-roll feature does not work. Instead, the Renderer will start chasing LTC when the pre-roll period has ended. [DACT-8026]
- The Dolby Atmos Renderer does not support upper case master file extensions (such as *ATMOS*) in its input fields. Files with upper case file extensions fail to load. Change extensions manually to lower case to load them into the Renderer. [DACT-5983]
- Playing back a master file from an external optical drive can result in undesired artifacts or glitches when monitoring. As a workaround, open the master file from a fast SSD drive or from the internal drive of the Renderer machine. [DACT-7969]
- Do not lock a new master before recording any content. Doing so results in a **Master file error** dialog, which reports that the master was not found. When you close the error dialog, the master closes. [DACT-8023]
- If master file content is present at the offset start time, playback without pre-roll may result in the loss of the first buffer. To avoid this, always start playback with at least one frame of pre-roll. For optimum performance, Dolby recommends pre-roll and post-roll of greater than two frames for playback and recording. [DACT-6821]
- Before beginning the workflow to record a master using set in and out points, ensure that the DAW session is open. If you set up the Renderer for recording, and then open a DAW session that has an input configuration conflict with the Renderer, the Renderer will disarm the master when the In point is reached and not provide any warning that this has occurred. [DACT-7132]
- Master files created in Renderer v3.0, v3.0.1, or v3.0.2 that have multi-beds containing binaural render mode data do not play back correctly in v3.2 or later. Beds beyond channel 10 will be muted. As a workaround, manually edit the master file, changing `active: false` to `active: true`. [DACT-9066]
- When two machines are connected to the Renderer and the Renderer is recording audio and metadata from a Pro Tools session on the first machine, opening a Dolby Atmos Pro Tools session on the second machine that has object panners enabled on Object IDs that are being recorded to by the Renderer will send metadata to the Renderer and overwrite metadata in the session on the first machine. This can produce unwanted recorded data. [DACT-7380]
- During a punch in and out of a master recording at set points workflow, the master file audio mutes after you press the record button and start playback, and then unmutes when the out point is reached. This is because the Renderer toggles to Input mode when you press the record button. [DACT-5972]

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- With Pro Tools 2018.10 and earlier, when you import a 7.1.2 multichannel interleaved file, the tracks are not imported in Film order. Instead, they are imported as L, C, R, Rrs, Lss, LFE, Lrs, Rss, Lts, Rts. As a workaround, use multimonos files. [DACT-8353]
 - When exporting re-renders to an external drive, if the drive is unplugged during the export, the export will continue and report a successful operation even if the re-renders were not successfully written to the drive. As a workaround, do not unplug the destination drive when exporting re-renders. [DACT-8006]
 - Attempting to use a read-only directory to export re-renders, export an ADM BWF *.wav*, or create a new master does not provide a descriptive error to the Dolby Atmos Renderer Remote application. Instead, the error simply notes that the file was not written. As a workaround, choose a destination directory that is not read only. [DACT-7568]
 - When using Remote Desktop to manage installation of the Renderer on a Mac rendering and mastering workstation, the Dolby Audio Bridge will not successfully install on the workstation. As a workaround, install the Dolby Audio Bridge directly on the workstation. [DACT-7721]

Glossary

.wav

Waveform Audio Format. An audio bitstream file format.

AAX

Avid Audio eXtension. A plug-in format for Avid Pro Tools software.

ADM

Audio Definition Model. A metadata model specified in ITU.R.BS.2076 that describes channel-, object-, or scene-based audio file formats.

ASIO

Audio Stream Input/Output. A soundcard driver protocol from Steinberg Media Technologies GmbH that allows musicians and sound engineers to access PC soundcards directly without going through Microsoft Windows.

BWF

Broadcast Wave Format. An extension of the Microsoft Waveform Audio Format (WAV) file format to include metadata important to broadcast applications. This format is specified in EBU Tech 3285.

B-format

A speaker-independent representation of a soundfield.

CPU

Central processing unit.

DAW

Digital audio workstation. An electronic device or computer software application used to record, edit, and produce audio files.

Dolby RMU

Dolby Rendering and Mastering Unit.

EQ

Equalization. The adjustment of audio frequency responses for practical or aesthetic reasons.

frame

In audio, a series of PCM samples or encoded audio data representing the same time interval for all channels in the configuration. Metadata pertaining to the frame can be carried within the frame or separately, depending on context.

frame rate

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

HD

High definition.

HTML

HyperText Markup Language.

I/O

Input/output. The communication between a system and an entity outside the system, such as another system or a human being.

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.

IP address

Internet Protocol address. A numerical identifier assigned to a device that is a member of a network that uses the IP for communication.

LFE

Low-Frequency Effects. A band-limited channel specifically intended for deep, low-pitched sounds.

LTC

Linear timecode. A timecode developed by the Society of Motion Picture and Television Engineers (SMPTE) that provides a time reference for editing, synchronization, and identification.

MADI

Multichannel Audio Digital Interface. A communications protocol for an interface that carries multiple channels of digital audio, defined by the Audio Engineering Society. Also known as AES10.

MP4

A digital multimedia container format defined in MPEG-4 (ISO/IEC-14496, parts 12 and 14) most commonly used to store video and audio streams.

object

An audio signal plus associated object audio metadata.

PC

Personal computer.

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.

RMU

Rendering and Mastering Unit.

UI

User interface.

USB

Universal Serial Bus. A standard that defines the cables, connectors, and communications protocols used in connections between computers and electronic devices.

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