



# **Auro Technologies**

**New Features in AURO-3D® Creative Tools Suite 3.0**

**User Manual Extension**

**Plug-in Version** 3.0.5

**User Manual Extension Version** 1.0.3

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# AURO-3D® Creative Tools Suite

## New Features in 3.0 - User Manual Extension

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## Chapter 1: What's new in 3.0 ?

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**Figure 1 - 1** | Creative Tools Suite Product

### 1.1 Introduction

Thank you for purchasing the all-new AURO-3D<sup>®</sup> Creative Tools Suite v3.0.

This document will guide you through new features and show you how to make use of them.

For more information on the existing features, please refer to the manual of the previous releases (provided with this version as well).

→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)

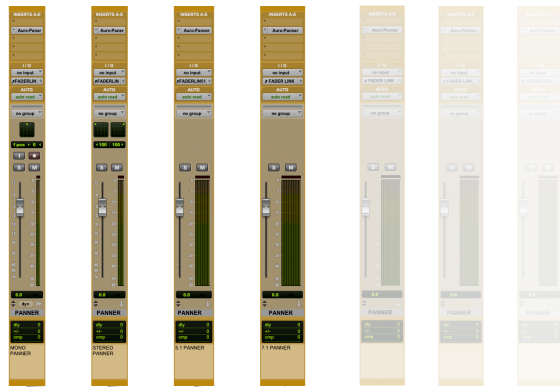
→ [Link to AURO-MATIC<sup>®</sup> PRO Documentation](#)

### 1.2 New Features

- Dynamic objects for Immersive mix. → Chapter 3.6
- Support for Loudness Measurement that ensures the immersive mix, derived down-mixes and interactive programs comply to the EBU R128 guidelines. → Chapter 3.5
- New Monitoring functions providing a unique ability to switch between different versions of the mix, all on the same monitoring setup. → Chapter 3.4
- Mix Profiles that ensure the compatibility of the mix with supported features and limitations of the target deliverable. → Chapter 3.3.1
- Multiple Programs/Presentations, with support for multiple languages, auxiliary tracks, commentary tracks and much more in a single audio stream. → Chapter 3.7
- Interactive Dialog Enhancement through Interactive Gains. → Chapter 3.7.2.3
- Auro's all new and patent-pending rendering algorithms with room-centric panning, ensuring that all mixes are translated as intended, from playback in studio, to cinema theaters, home systems and mobile devices.
- Ability to export ADM BWF-files with support for the Emission Profile, according to ITU-R Rec. BS.2076. → Chapter 3.8.1.2
- Ability to export IAB files with AuroMax for Digital Cinema using SMPTE IAB (ST 2098-2). → Chapter 3.8.1.3
- Quality Control feature with Import and Playback of SMPTE IAB and ADM files. → Chapter 3.8.3
- New output options in Auro-Return plugin (Monitoring, Bed Mix and Objects Channel Mix). → Chapter 3.9
- AuroMax Speaker Positions file to set custom speaker positioning. → Chapter 3.1

## 1.3 CTS Concept

### PANNERS

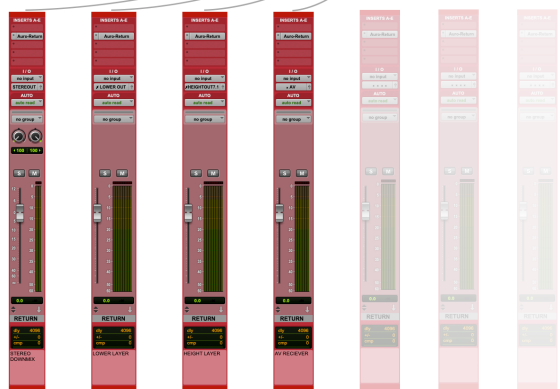


### MIXING-ENGINE

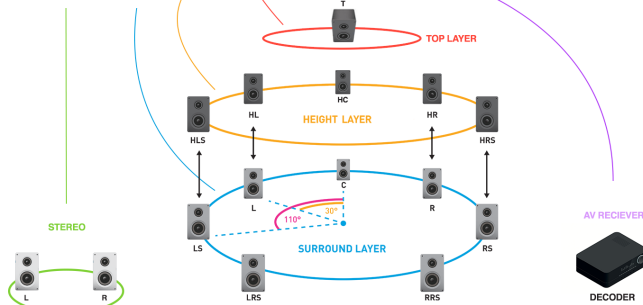


**A3DHOST**

### RETURNS



### OUTPUTS



The AURO-3D<sup>®</sup> Creative Tool Suite version 3.0 is a complete set of plugins to create and author immersive and interactive content in the AURO-3D<sup>®</sup> formats in parallel to legacy format mixes (Mono/Stereo/Surround). Each plug-in in the suite provides a distinct functionality and is designed to optimally integrate into any existing content-creation workflow for movies, music and broadcast applications.

The **Auro-Panner** plugins let users mix audio content in 3D. The vector-based panning information is then rendered in the **A3DHost** processor outside the DAW. Each inserted Auro-Panner sends its individual audio stream and related vector-based panning information, through the Auro-Bus plugin to the Auro-Mixing Engine.

The **Auro-Mixing Engine** plugin lies at the heart of the AURO-3D<sup>®</sup> workflow. It receives audio from the connected Auro-Bus plugins, sets the audio format and outputs mixes, down-mixes and encoded streams to the Auro-Return plug-ins. By selecting the right Mix Profile, it is now possible to verify the compatibility of mixes with the supported features and limitations of the target deliverable. The new Monitoring functions also bring the unique ability to switch between different versions of the mix directly from the Auro-Mixing Engine.

The **Auro-Return** plugins bring processed audio back to the DAW and eventually output the desired mix format to chosen audio devices.

An AURO-3D<sup>®</sup> configuration (e.g. immersive 13.1 in **Figure 1 - 2**) uses typically two Auro-Return plug-ins inserted on separate DAW tracks to split the Auro-Mixing Engine output into a Lower (blue circle) and a Height + Top channel-layer (yellow and red circles). Multiple masters of the same mix can be created in the uncompressed audio domain. Next to the traditional channel-based versions, the Creative Tools Suite version 3.0 now supports the creation of object-based immersive and interactive mixes.

**Figure 1 - 2** | Creative Tools Suite Concept

## 1.4 Account & Licenses

The Creative Tools Suite version 3.0 introduces a brand new licensing scheme.

All functionality to create and monitor an immersive mix in the AURO-3D® formats for any target application is now available for free (Auro-Matic 2D included). It is now possible to create personal accounts and download the installer from the new web-shop.

This free license allows users to monitor their mixes without restrictions and export uncompressed versions of the stems.

### 1.4.1 Individual Licenses

When it comes to exporting the mix in a specific format, various options are available through the new rent-to-own model. This new model requires to finance a small fee (depending on the selected export(s)) every quarter of the year. After for four years, the license becomes perpetual (at no additional cost). Users can cancel the subscription anytime. Each license can now be activated on 3 different machines, not only using the iLok, but also linked to your computer.

The following features require a license:

- **Auro-Matic® 3D up-mixing.**
- **Auro-Codec® Encoding and Decoding.**
- **AuroMax® for Digital Cinema export (SMPTE ST 2098-2).**
- **AURO-3D® ADM BWF export.**

### 1.4.2 Collections

In many occasions, a combination of multiple licenses will be needed in certain typical content creation workflows. The following Subscription Collections provide you with all the relevant tools for a reduced price as a Subscription with a monthly payment plan. In these subscription plans, new features and tools can be added over time, making sure you always have the latest and greatest tools available. Note that activation using iLok Cloud is not enabled for these Collections.

Bundle	Auro-Codec	AuroMax	ADM Export	Auro-Matic Pro 3D
AURO-3D® CTS for Music	✓			✓
AURO-3D® CTS for Cinema	✓	✓		✓
AURO-3D® CTS for Movies	✓	✓	✓	✓
AURO-3D® CTS for Broadcast	✓		✓	✓

**Table 1 - 1 | AURO-3D® CTS Collections**

### 1.4.3 Upgrades

For existing users, attractive upgrades are available. Please go to the webshop and create your account. The system will check for existing valid licenses on your iLok account and apply the discount automatically.

## Chapter 2: Starting up with 3.0

This chapter provides instructions to properly install the AURO-3D® Creative Tools Suite v3.0, steps to follow in order to set up a basic AURO-3D® mixing session in Pro Tools and additional routing approaches for each Creative Tools.

### 2.1 Requirements

CTS version 3.0 is available as AAX plugin for Pro Tools 11 and higher, running on macOS 10.9 up to 10.15.

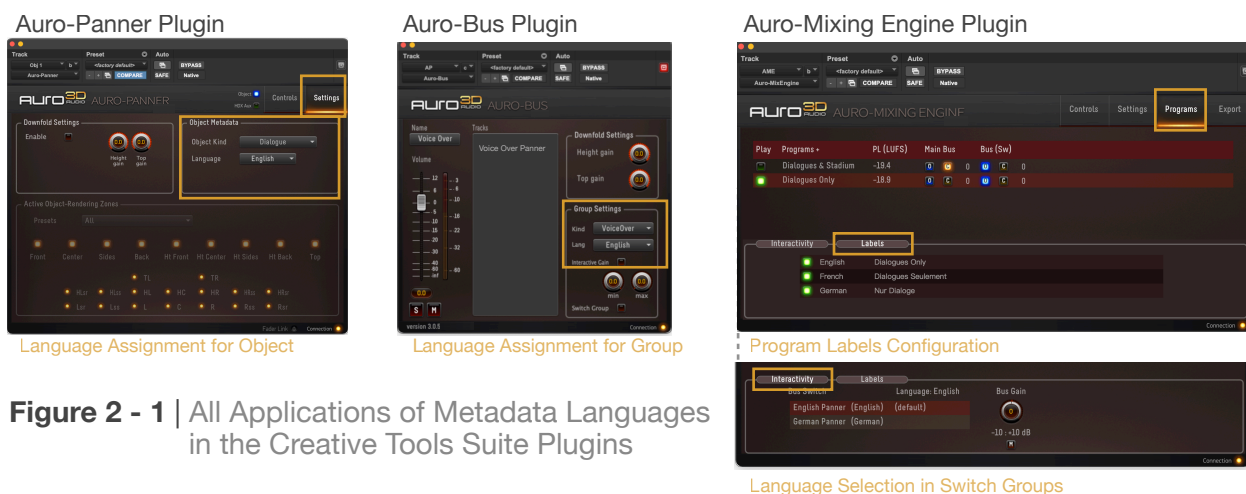
### 2.2 Installation

1. Uninstall any previous installation of the AURO-3D® Authoring Tools or AURO-3D® Creative Tools Suite by using the AURO-3D® Uninstall application.
2. Double-click the ZIP file downloaded from the Auro Technologies website, then double-click AURO-3D® Creative Tools Suite.pkg to begin the standard installation.
3. Follow the installation instructions in the install wizard and allow the installer to control “System Events” by pressing the “OK” button on the corresponding window.

### 2.3 Setting up Metadata Languages

#### What are these Metadata Languages Used for?

The AURO-3D Creative Tools Suite v3 allows to select languages that can be later assigned to Objects and Groups in the project. These selected languages will also become available in the Program Labels Table, letting users name Interactive Programs in different languages. Another typical application of these Metadata Languages is the configuration of Switch Groups in order to create multiple languages selection within one or more Interactive Programs. After selecting the desired languages and configuring them in the project, all related information then will be exported in the metadata of files that support Objects (AuroMax Export option) or files that support both Objects and interactive content such as Programs (ADM-File Export option).



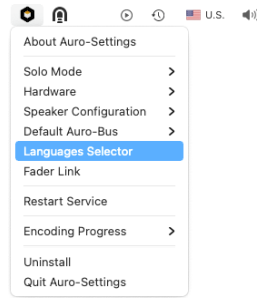
**Figure 2 - 1 | All Applications of Metadata Languages in the Creative Tools Suite Plugins**

#### Links to More Detailed Information

- Objects → Chapter 3.6
- Object Language Drop Down Menu → Chapter 3.6.3.2
- Groups → Chapter 3.7.1.4
- Group Language Drop Down Menu → Chapter 3.7.3.2
- Switch Group Button → Chapter 3.7.3.6
- AuroMax Export → Chapter 3.8.1.3
- ADM-File Export → Chapter 3.8.1.2
- Programs → Chapter 3.7
- Program Labels Table → Chapter 3.7.4

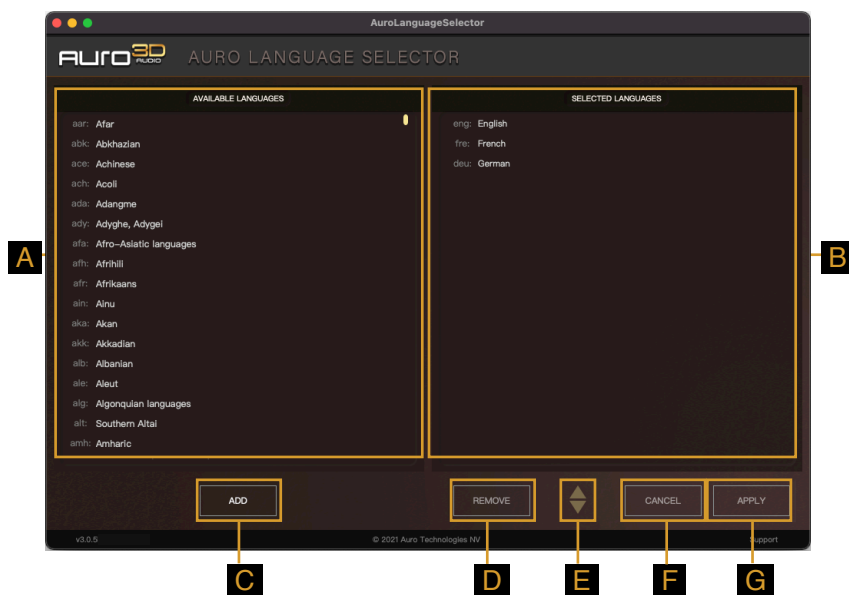
## Step Guide to Select Desired Metadata Languages

1. Open the Auro Language Selector application via the Auro-Settings Menu Bar Application.



**Figure 2 - 2 | Languages Selector Link in Auro-Settings Menu Bar Application**

2. Select desired languages to be applied.



**Figure 2 - 3 | AURO Languages Selector Standalone Application Overview**

- A Available Languages Menu:** Lets users select one language to be added.
- B Selected Languages Menu:** Displays the current selected languages in the Auro system.
- C Add Button:** Adds the selected language from the Available Languages Menu (A) into the Selected Languages Menu (B).
- D Remove Button:** Removes the selected language in the Selected Languages Menu (B).
- E Arrow Buttons:** Moves the position of the selected language in the Selected Languages Menu (B).
- F Cancel Button:** Resets the selected languages to default.
- G Apply Button:** Applies the selected languages in the Auro system after modification.



The maximum number of selected languages is limited to four. The default languages are English, French and German. The User's selection can be preserved after uninstalling the Creative Tools Suite by unchecking the User Preferences checkbox in the Uninstall Application (the Auro-Uninstall Application is accessible from the Auro-Settings Menu Bar Application).



## 2.4 Setting up Hardware

1. Go to the Menu Bar Application Auro-Settings > Hardware and select the type of hardware used with the DAW.

**Native:** Select this option if you are using a Pro Tools Native or HD Native system.

**HDX High Latency:** Select this setting if you are using an HDX System with a H/W buffer size of 1024 samples. When working in 96 kHz, HDX High Latency is not supported: Use HDX Low Latency instead.

**HDX Low Latency:** Select this setting if you are using an HDX system with a H/W buffer-size lower than 1024 samples. Only H/W buffer sizes of 256, 512 or 1024 samples are supported when working with the AURO-3D® Authoring Tools.

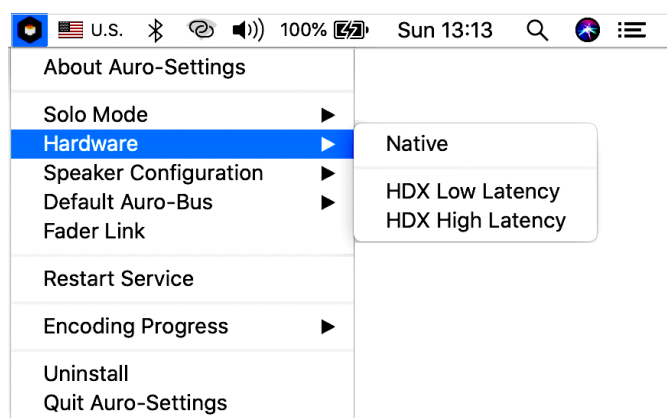


Figure 2 - 4 | Hardware Selection in Auro-Settings Menu Bar Application

2. Select one speaker configuration in the Auro-Settings menu bar application. The selected speaker configuration must correspond to the main audio system used.

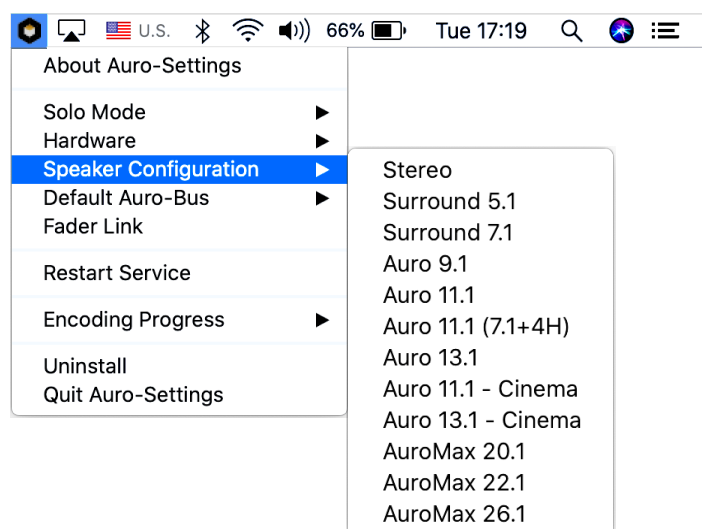


Figure 2 - 5 | Speaker Configuration in Auro-Settings Menu Bar Application

3. From the Output tab of the I/O Setup window in Pro Tools (Pro Tools > Setup > I/O...), create output paths for all audio systems in used. For Immersive configurations, at least two paths must be created to

split the outputs into a Lower and a Height (+ Top) channel-layer(s). In the Bus tab, virtual buses sharing the same formats must be mapped to the output paths (sub-paths must be automatically created as well). It is recommended to use identical names.

Examples of paths for different speaker configurations:

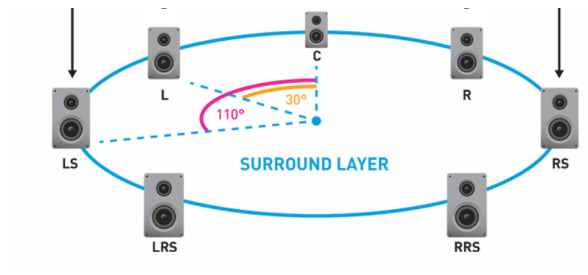
- **Stereo**: Create one stereo path.
- **Surround 5.1**: Create one 5.1 path.
- **Surround 7.1**: Create one 7.1 path.
- **Immersive 9.1**: Create one 5.1 path formats for the lower layer and one Quad path for the height layer.
- **Immersive 11.1**: Create one 5.1 path formats for the lower layer and one 5.1 path for the height layer.
- **Immersive 13.1**: Configuration: Use one 7.1 path for the lower layer and one 5.1 path for the height + top layers.
- **AuroMax**: Setup guides available in the last chapter. → Chapter 3.10



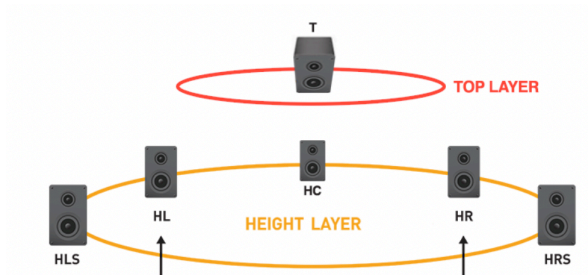
The Auro-Return plugins provide presets for channels' distribution. It is also possible to manually route any audio sources to any specific channels. Therefore, the Auro-returns plugins also operate as an I/O matrix.

Input	Output	Bus	Insert	Mic Preamps	H/W Insert Delay	A - A - HD MADI DigiLink 1																						
Show Last Saved Setup																												
Name		Format	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
✓	LOWER LAYER	7.1	L	C	R	Lss	Rss	Lsr	Rsr	LFE																		
✓	HEIGHT & TOP LAYERS	5.1				A						L	C	R	Ls	Rs	LFE											
✓	STEREO	Stereo																L	R									
✓	AV RECIEVER	5.1																										

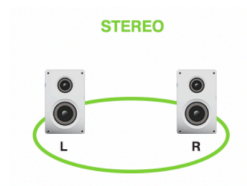
**A** 7.1 path to output audio in the lower layer of an immersive 13.1 configuration.



**B** 5.1 path to output audio in the height and top layers of an immersive 13.1 configuration.



**C** Additional stereo path (e.g. monitoring stereo down-mix with a different audio system).



**D** Additional 5.1 path (e.g. monitoring encoded stream through an AV Receiver).



**Figure 2 - 6** | Example of I/O Setup in Pro Tools for 13.1 Configuration and Additional Systems

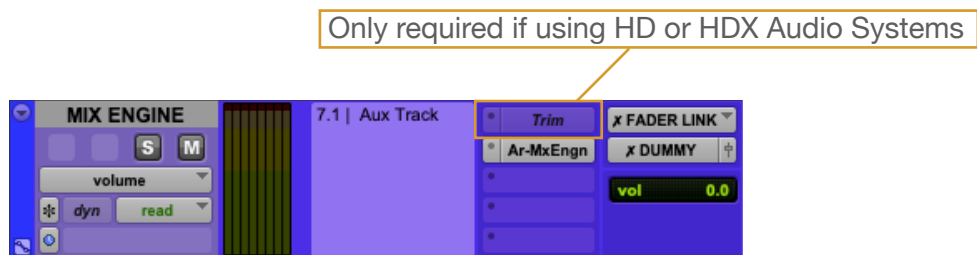
## 2.5 Setting up a New Session

1. From the Bus tab of the I/O Setup window in Pro Tools (Pro Tools > Setup > I/O...), create two 7.1 virtual buses: one named “Dummy”, the other one named “Fader Link” (Auto-create sub path option must be selected).



**Figure 2 - 7** | Virtual Buses in I/O Setup

2. In the Edit window of Pro Tools (Pro Tools > Window > Edit...), create one 7.1 Aux Track named “Mix Engine” (Shift + Cmd + N). The input module of this track must be assigned to the “Fader Link” virtual bus. The output module of this track must be assigned to the “Dummy” virtual bus. Insert Auro-Mixing Engine plugin in the track.



**Figure 2 - 8** | Auro-Mixing Engine Track in Pro Tools

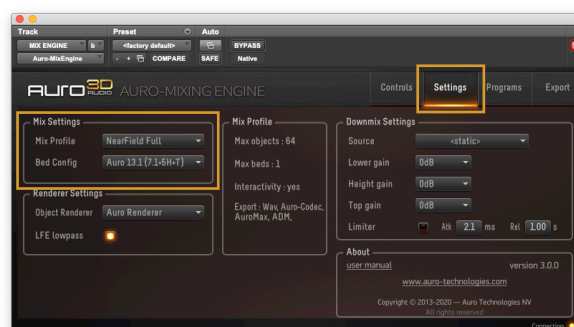


If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of every track that contains an AURO-3D<sup>®</sup> plug-in.



Inserting a (multi)-mono DSP version of the Trim plug-in reduces the DSP-overhead to a minimum and leaves the audio unaffected if the initial settings remain unchanged.

3. Open the Auro-Mixing Engine plugin and select one desired Mix profile in the Settings tab. Select one bed configuration as well.



**Figure 2 - 9** | Auro-Mixing Engine Settings Tab

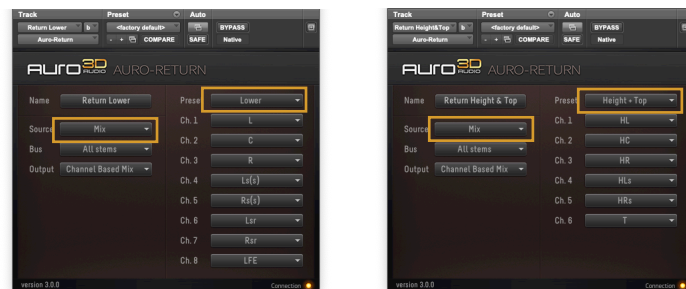
4. Still in the Edit window of Pro Tools (Pro Tools > Window > Edit...), create Aux Tracks (Shift + Cmd + N) sharing the same formats than the output paths created in the I/O setup earlier in order to insert the Auro-Return plugins. For example, the 13.1 configuration requires two Aux Tracks named “Return Lower” and “Return Height&Top”. The input modules of these track must be assigned to “no input”. The output modules of these tracks must be assigned to the corresponding output paths.



**Figure 2 - 10** | Auro-Return Tracks in Pro Tools for 13.1 Configuration

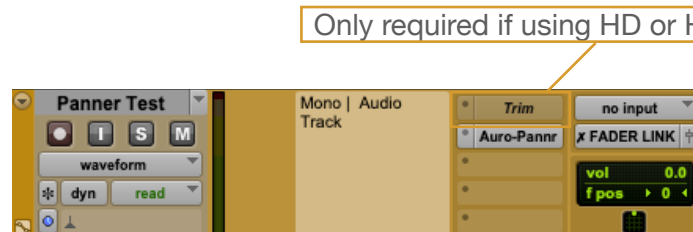
Additional Return Tracks can be created for additional audio systems. (e.g. one extra stereo Aux Track for extra stereo audio system, one extra 5.1 Aux Track for extra AV Receiver output, etc.).

5. Open the Auro-Return plugins, name them “Return Lower” and “Return Height & Top” (or simply “Return Height” if there is no Top channel in the current speaker configuration) using the Name fields. Select “Mix” in the Source Drop Down Menus and select adequate presets in the Preset Drop Down Menus.



**Figure 2 - 11** | Auro-Return Plugins for 13.1 Configuration

6. In the Edit window of Pro Tools (Pro Tools > Window > Edit...), create one mono Audio Track named “Panner Test” (Shift + Cmd + N). The input module of this track must be assigned to “no input”. The output module of this track must be assigned to the “Fader Link” virtual bus. Insert Auro-Panner plugin in the track. For better routing visualisation, drag and drop the Panner Test Track to position it at the top of the Edit window.



**Figure 2 - 12** | Auro-Panner Test Track in Pro Tools



Any other audio plugins must be inserted before the Auro-Panner plugin. If using HD or HDX Audio Systems, Any other audio plugins must be inserted after the DSP Trim plugin (cf. Audio Track Approach → Chapter 2.5.1.3).

7. In the Edit window of Pro Tools, make a selection of few seconds on the timeline and print a sine wave signal of 1000 Hz using the keyboard shortcut “Shift + Ctrl + Option + 3”.



**Figure 2 - 13** | Printed Signal in Edit Window



Instead of printing the signal, a “Signal Generator” (Avid native plugin) can also be inserted before the Auro-Panner. If opting for that solution, playback must be started in order to listen to the generated signal.

8. Start playback and manipulate the controls in the Auro-Panner plug-in. Panned audio can now be monitored through the selected speaker configuration.



**Figure 2 - 14** | Basic Setup Overview of AURO-3D<sup>®</sup> Creative Tools Suite in Pro Tools

## 2.6 Pro Tools Routing Overview

Following the basic setup guide, this next chapter describes how to configure relevant Pro Tools tracks and proposes different routing approaches when it comes to using the AURO-3D<sup>®</sup> Creative Tools Suite. Each sub-chapter outlines recommended configurations for each track wherein one or several dedicated AURO-3D<sup>®</sup> plugins are inserted.

This section does not cover the detailed functioning of the AURO-3D<sup>®</sup> plugins themselves, but rather illustrates the possible ways of operating and connecting them inside the DAW environment. For more detailed information about the standard features of the AURO-3D<sup>®</sup> plugins, please refer to the manual of the previous releases (provided with this version as well). → [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#), → [Link to AURO-MATIC<sup>®</sup> PRO Documentation](#).

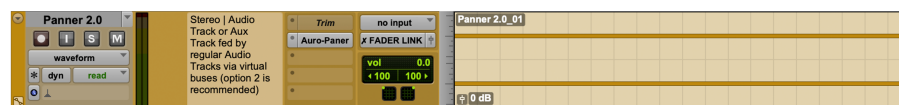
The following figure (**Figure 2 - 15**) corresponds to a practical pattern in order to rapidly examine workable configurations of tracks containing specific AURO-3D<sup>®</sup> plugins. The figure on its own visually provides information about dedicated track's type, track's format, input module, output module and insertion's order for the different AURO-3D<sup>®</sup> plugins. More detailed explanations about track's configuration and examples of routing approaches can be consulted in the corresponding sub-chapters.

2.6.1

## AURO-PANNER MONO



## AURO-PANNER STEREO



## AURO-PANNER 5.1



AND MORE...

2.6.2

## AURO-MATIC PRO 2D/3D



AND MORE...

2.6.3

## AURO-DECODER



AND MORE...

2.6.4

## AURO-BUS



AND MORE...

2.6.5

## AURO-DOWNMIX CONTROL



AND MORE...

2.6.6

## AURO-MIXING ENGINE



2.6.7

## AURO-RETURN 7.1



## AURO-RETURN 5.1



AND MORE...

**Figure 2 - 15** | Pro Tools Routing Pattern for AURO-3D<sup>®</sup> Creative Tools Suite

## 2.6.1 Auro-Panner Tracks

### Purpose of the Plugin

The Auro-Panner plugins let users mix audio content in 3D. They send their track's audio to a selected Auro-Bus, which routes it to the Auro-Mixing Engine.

For more detailed information about the functioning of the Auro-Panner plugin, please refer to chapter 8.1 of the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

### Pro Tools Routing

Auro-Panner plugins can be inserted on Audio Tracks or Aux Tracks (recommended) using any formats from “mono” to “7.1”. If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended. An Auro-Panner is assigned to the Auro Main Bus by default. However, it is possible to assign the Auro-Panner to an existing Auro-Bus in the drop down menu situated under the Solo button in the Auro-Panner plugin window.

The output module of any Auro-Panner tracks must be assigned to the “Fader Link” virtual bus in order to benefit from the optional Fader Link feature that allows the Pro Tools fader, solo and mute buttons to control the Auro Panner's fader, solo and mute buttons. Using Fader Link, X/Y panning can also be linked to the Pro Tools X/Y panning controls. Fader Link can be activated from the Auro-Settings menu bar application. The “Fader Link” virtual bus does not carry any audio. For more detailed information about Fader Link, please refer to chapter 3 of the AURO-3D<sup>®</sup> Authoring Tools - User Guide (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

There are different ways to route audio sources to the Auro-Panner Tracks. The three following sub-chapters provide three examples of routing approaches:

#### 2.6.1.1 Sub Group Track Approach

The Sub Group Track Approach is recommended.

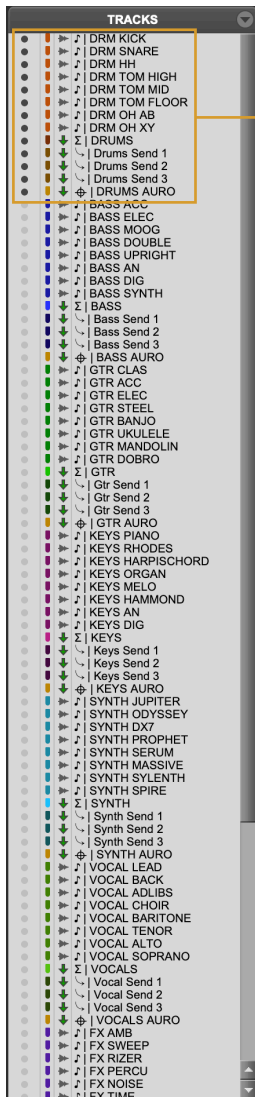
Using this approach, mixers can operate the regular Pro Tools workflow until the need of mixing in 3D using dedicated Auro-Panner tracks. This way of doing is particularly convenient when using devices such as DAW control surfaces or digital mixing consoles (e.g. Icon D-Control).

In this approach, any other audio plugins are not inserted directly on the Auro-Panner Track itself but rather inserted on the audio tracks that are routed to it.

The following figure (**Figure 2 - 16**) illustrates the Sub Group Track Approach. In this example, Drums Audio Tracks are grouped into an Aux Track (Σ | Sub Track) that is routed to another Aux Track (⊕ | Auro Panner) wherein the Auro-Panner plugin is inserted using relevant virtual buses. Parallel treatments (e.g. parallel reverb, parallel compression) are also routed and summed into the Auro-Panner track.



## List of all Tracks



## Drums Tracks

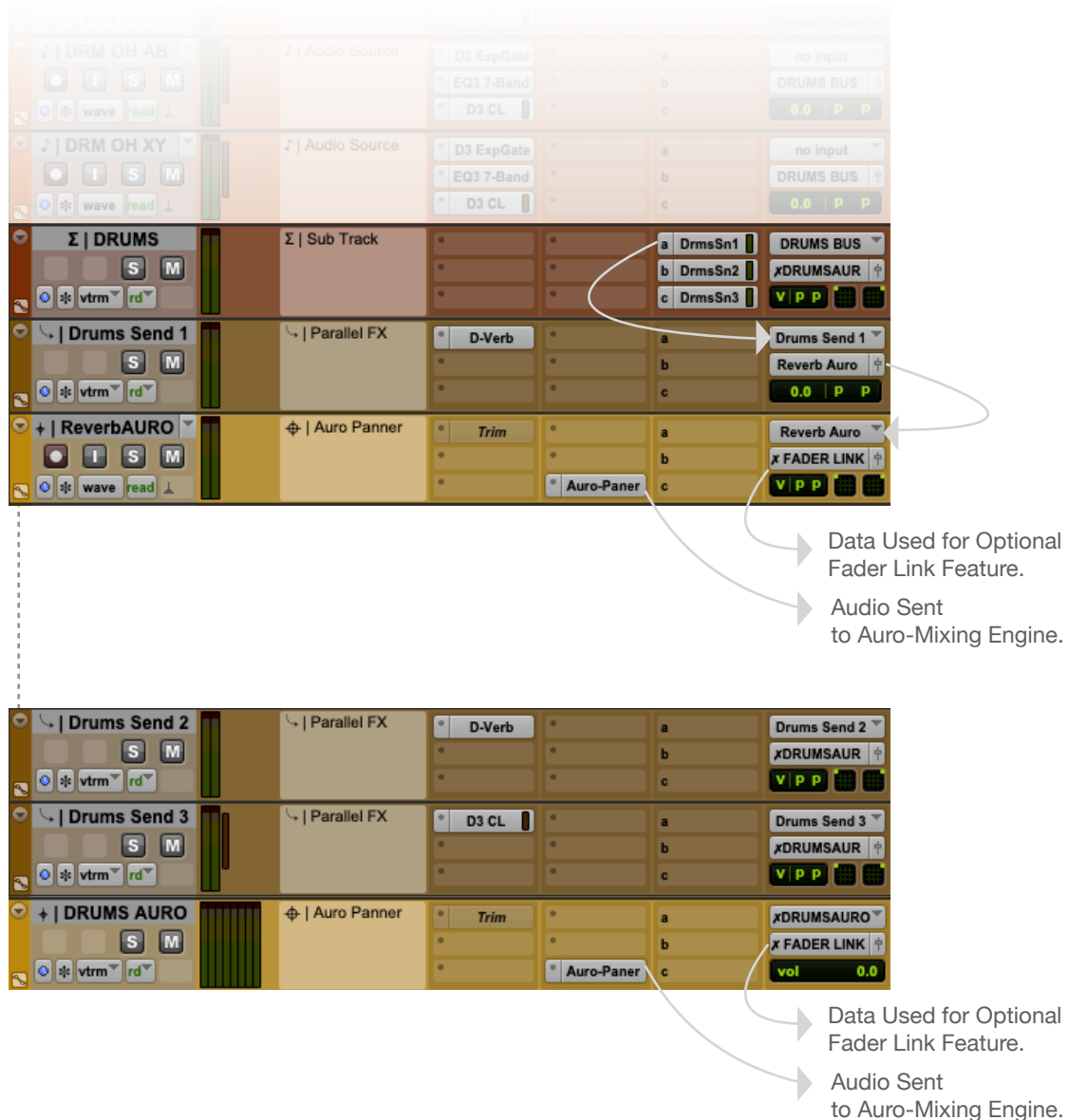


Data Used for Optional  
Fader Link Feature.  
Audio Sent  
to Auro-Mixing Engine.

**Figure 2 - 16** | Sub Track Group Approach with Auro-Panner Plugins

Alternatively, any drums Audio Tracks or parallel treatments can also be separated from the group to benefit from individual 3D panning.

The following figure (**Figure 2 - 17**) illustrates an example of this routing alternative (e.g. separated reverb) using a second Auro-Panner plugin and one additional virtual bus:



**Figure 2 - 17** | Alternative Sub Track Group Approach with AURO-Panner Plugins

### 2.6.1.2 Sub Track Approach

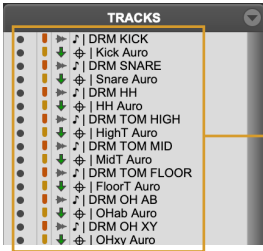
The Sub Track Approach is also recommended.

In this approach as well, mixers can operate the regular Pro Tools workflow until the need of mixing in 3D using dedicated AURO-Panner tracks. This way of doing is also convenient when using devices such as DAW control surfaces or digital mixing consoles (e.g. Icon D-Control). In this approach as well, any other audio plugins are not inserted directly on the AURO-Panner Track itself but rather inserted on the audio tracks that are routed to it.

Unlike the Sub Track Group Approach, the Sub Track Approach offers more control for panning each audio element individually in the 3D environment.

The following figure (**Figure 2 - 18**) illustrates the Sub Track Approach. In this example, each Audio Track (♪ | Audio Source) is routed to one respective Aux Track (⊕ | AURO Panner) wherein a dedicated AURO-Panner plugin is inserted using relevant virtual buses:

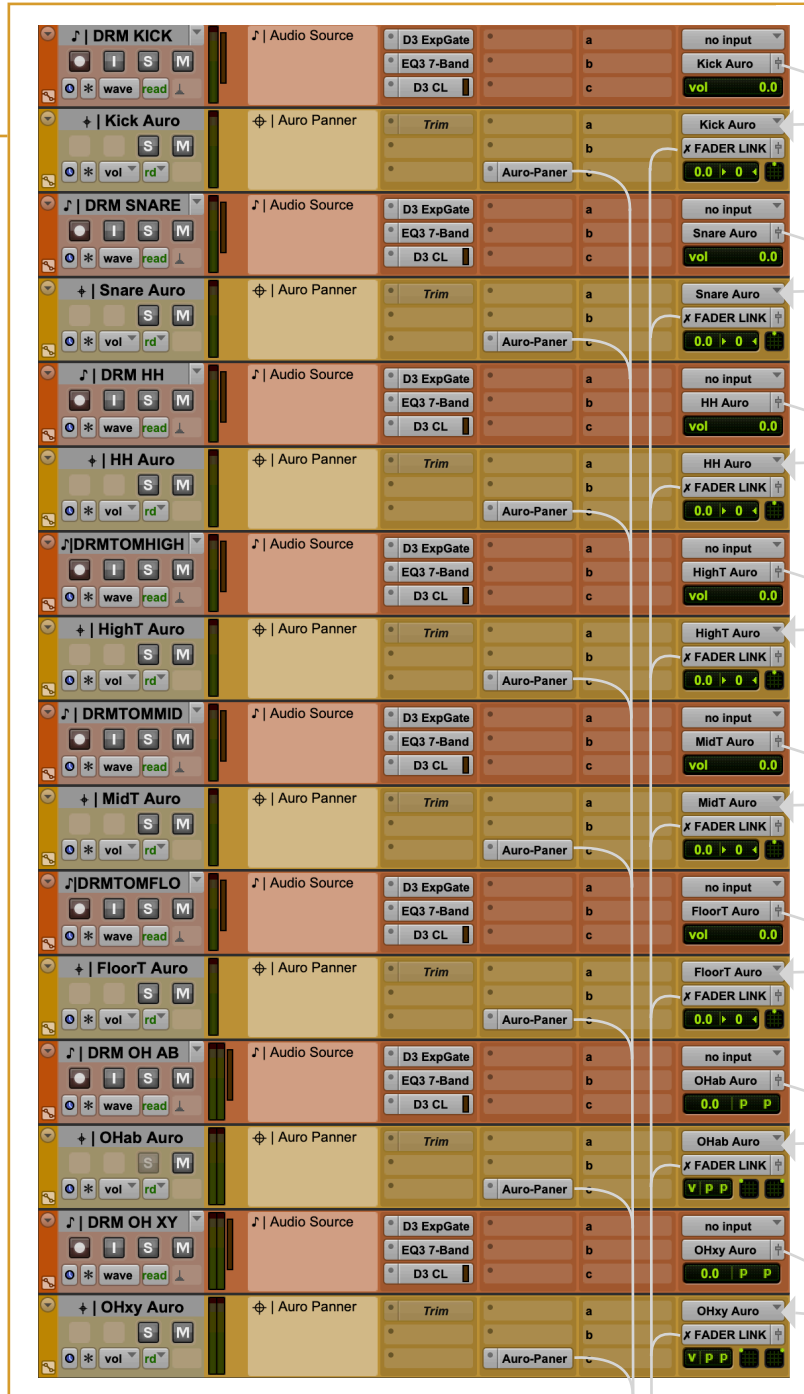
## List of all Tracks



## Additional Virtual Buses in I/O setup

<input checked="" type="checkbox"/>	Kick Auro	Mono	M	
<input checked="" type="checkbox"/>	Snare Auro	Mono	M	
<input checked="" type="checkbox"/>	HH Auro	Mono	M	
<input checked="" type="checkbox"/>	HighT Auro	Mono	M	
<input checked="" type="checkbox"/>	MidT Auro	Mono	M	
<input checked="" type="checkbox"/>	FloorT Auro	Mono	M	
<input checked="" type="checkbox"/>	OHab Auro	Stereo	L R	
<input checked="" type="checkbox"/>	OHxy Auro	Stereo	L R	

## Drums Tracks

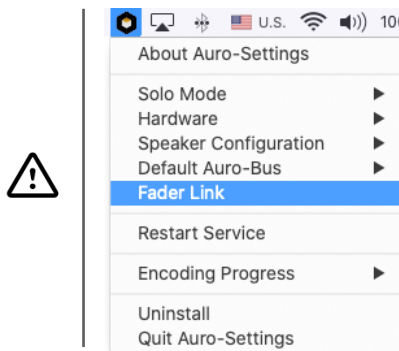


Data Used for Optional  
Fader Link Feature.  
Audio Sent  
to Auro-Mixing Engine.

**Figure 2 - 18 | Sub Track Approach with Auro-Panner Plugins**

### 2.6.1.3 Audio Track Approach

The Audio Track Approach consists on inserting the Auro-Panner plugin directly on an Audio Track.



If additional audio plugins are inserted between the optional DSP Trim plugin and the Auro-Panner plugin, this approach requires to constantly activate **Fader Link** in order to properly operate the delay compensation of all tracks (required data sent through the Fader Link virtual bus).

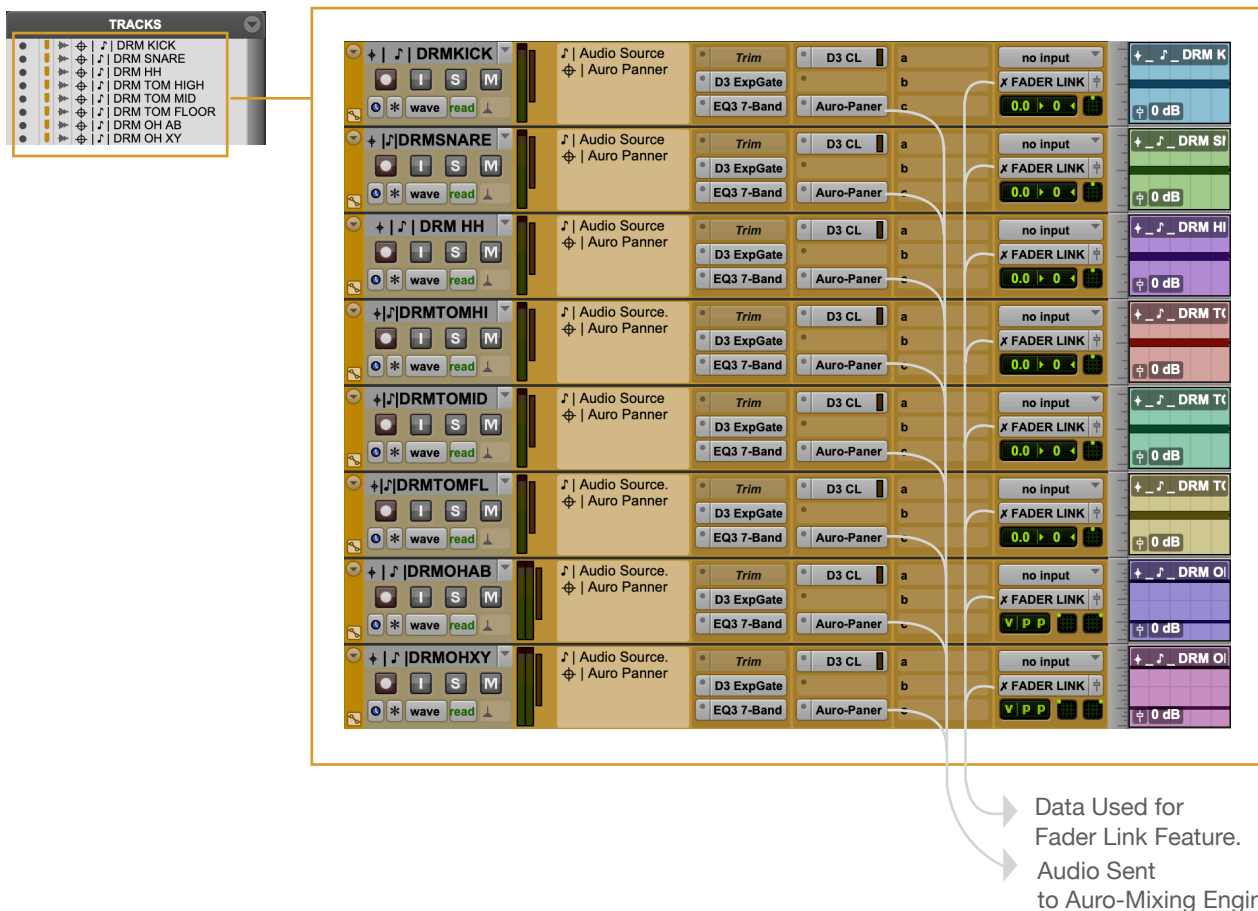
For more detailed information about Fader Link, please refer to chapter 3 of the AURO-3D<sup>®</sup> Authoring Tools - User Guide (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

**Figure 2 - 18** | Fader Link in the Auro-Settings Menu Bar Application

The following figure (**Figure 2 - 19**) illustrates the Audio Track Approach. In this example, Auro-Panner plugins are directly inserted on Audio Tracks. Additional audio plugins are inserted between the DSP Trim plugin and the Auro-Panner plugin.

List of all Tracks

Drums Tracks



**Figure 2 - 19** | Audio Track Approach with Auro-Panner Plugins

## 2.6.2 Auro-Matic Pro Tracks

### Purpose of the Plugin

Auro-Matic Pro 3D can function as a stand-alone plug-in (without an Auro-Mixing Engine) that upmixes mono, stereo, 5.1 surround, and 7.1 surround sound sources to a three-dimensional sound field. If the AURO-3D<sup>®</sup> Creative Tools are installed, Auro-Matic Pro 3D can also be connected to the Auro-Mixing Engine to use the upmixed sound source directly in an AURO-3D<sup>®</sup> mix.

Auro-Matic Pro 2D can function as a stand-alone plug-in that upmixes mono and stereo sound sources to a 5.1 surround sound field. If the AURO-3D<sup>®</sup> Creative Tools are installed, Auro-Matic Pro 2D can also connect to the Auro-Mixing Engine to use the upmixed sound source directly in an Auro- 3D mix.

For more detailed information about the functioning of the Auro-Matic Pro 2D/3D plugins, please refer to the Auro-Matic Pro 2D/3D - User Guide (→ [Link to AURO-MATIC<sup>®</sup> PRO Documentation](#)).

### Pro Tools Routing

Auro-Matic Pro 2D/3D plugins can be inserted on Audio Tracks or Aux Tracks (recommended) using any formats from “mono” to “7.1” (c.f. routing approaches in previous chapter). As illustrated in **Figure 2 - 20**, the format of the track is modified according to the selected up-mix version of Auro-Matic Pro plugins.



**Figure 2 - 20** | Auro-Matic Pro 3D Plugin Insertion

Just like the Auro-Panner plugin, an Auro-Matic Pro plugin is assigned to the Auro Main Bus by default. However, it is possible to assign the Auro-Matic Pro plugin to an existing Auro-Bus in the drop down menu situated under the Solo button in the Auro-Panner plugin window.

The output module of any Auro-Panner tracks must be assigned to the “Fader Link” virtual bus. If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended.

## 2.6.3 Auro-Decoder Tracks

### Purpose of the Plugin

The Auro-Decoder plug-in is designed to decode AURO-3D<sup>®</sup> encoded content. It is a real-time processing plug-in that connects to Auro-Return plug-ins, either directly or via an Auro-Mixing Engine, to output the decoded AURO-3D<sup>®</sup> mix.

For more detailed information about the functioning of the Auro-Decoder plugin, please refer to chapter 3.7 of the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

## Pro Tools Routing

Auro-Decoder plugins can be inserted on Audio Tracks (recommended) or Aux Tracks using any formats from “mono” to “7.1”. The Auro-Mixing Engine assignment menu, located in the bottom right corner of the Auro-Decoder allows to connect the output of the Auro-Decoder to an Auro-Mixing Engine. This enables monitoring of the decoded channels and the original mix through the Auro-Return plug-ins already connected to the Auro-Mixing Engine. This plugin acts as a quality control feature and is not designed to be used along other audio plugins within the track.

The output module of any Auro-Panner tracks must be assigned to the “Dummy” virtual bus. If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended.

## 2.6.4 Auro-Bus Tracks

### Purpose of the Plugin

In addition to the default “Main Bus”, additional Auro-Buses can be created for additional routing and grouping functions. Therefore, the Auro-Buses collect panned information from a number of Auro-Panner and Auro-Matic Pro plugins to form a subgroup or stem before delivering them to the Auro-Mixing Engine. These buses also act as Groups for Interactive Programs that are accessible from the Auro-Mixing Engine.



**Figure 2 - 21 | Auro-Buses in the Auro-Mixing Engine**

For more detailed information about the functioning of the Auro-Bus plugin, please refer to chapter 3.2 of the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

For more detailed information about Groups in Programs, please refer to the corresponding chapter:  
→ Chapter 3.7.1.4

## Pro Tools Routing

Auro-Bus plugins can be inserted on Audio Tracks or Aux Tracks using any formats. The type of track and its format have no influence on their behaviour. These plugins do not treat any audio signals on the track wherein they are inserted. Multiple Auro-Bus plugins can be inserted on the same track and additional



ones if necessary. The output module of any Auro-Bus tracks must be assigned to the “Dummy” virtual bus.

If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended.

## 2.6.5 Auro-Downmix Control Tracks

### Purpose of the Plugin

The Auro-Downmix Control plugin allows to creatively and dynamically control the down-mix that encodes AURO-3D<sup>®</sup> content into a 5.1 Surround or four-channel carrier and allows to control the non-encoded down-mix.

Unlike the Downmix Settings in the Auro-Mixing Engine (accessible in the Settings tab), the Auro-Downmix Control lets you automate the channel gain attenuations so you have complete dynamic control. When the encoded carrier plays through a 5.1 surround system, these gains determine how the source channels are mixed together.

One Auro-Downmix Control must be selected in the Settings tab of the Auro-Mixing engine. An Auro-Return plugin must output “Channel Downmix” in order to listen to the modifications operated by the selected Auro-Downmix Control.



**Figure 2 - 22 | Auro-Downmix Control Configuration**

For more detailed information about the functioning of the Auro-Downmix Control plugin, please refer to chapter 3.6 of the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

## Pro Tools Routing

Auro-Downmix Control plugins can be inserted on Audio Tracks or Aux Tracks using any formats. The type of track and its format have no influence on their behaviour. These plugins do not treat any audio signals on the track wherein they are inserted. Multiple Auro-Downmix Control plugins can be inserted on the same track and additional ones if necessary. The output module of any Auro-Down-mix Control tracks must be assigned to the “Dummy” virtual bus.

## 2.6.6 Auro-Mixing Engine Track

### Purpose of the Plugin

The Auro-Mixing Engine plug-in lies at the heart of the AURO-3D<sup>®</sup> workflow and performs the following functions:

- Receives audio from connected Auro-Bus plug-ins in addition to the Auro Main Bus.
- Contains the AURO-3D<sup>®</sup> Encoder.
- Outputs mixes and derived down-mixes to the Auro-Return plug-ins.
- Sets the Bed configuration. → [Chapter 3.3.3](#)
- Loudness Measurement that ensures the immersive mix, derived down-mixes and interactive programs comply to the EBU R128 guidelines. → [Chapter 3.5](#)
- New Monitoring functions providing a unique ability to switch between different versions of the mix, all on the same monitoring setup. → [Chapter 3.4](#)
- Mix Profiles that ensure the compatibility of the mix with supported features and limitations of the target deliverable. → [Chapter 3.3.1](#)
- Multiple Programs/Presentations, with support for multiple languages, auxiliary tracks, commentary tracks and much more in a single audio stream. → [Chapter 3.7](#)
- Interactive Dialog Enhancement through Interactive Gains. → [Chapter 3.7.2.3](#)
- Auro's all new and patent-pending rendering algorithms with room-centric panning, ensuring that all mixes are translated as intended, from playback in studio, to cinema theaters, home systems and mobile devices.
- Ability to export ADM BWF-files with support for the Emission Profile, according to ITU-R Rec.BS.2076. → [Chapter 3.8.1.1](#)
- Ability to export IAB files with AuroMax for Digital Cinema using SMPTE IAB (ST 2098-2). → [Chapter 3.8.1.2](#)
- Quality Control feature with Import and Playback of SMPTE IAB and ADM files. → [Chapter 3.8.3](#)

The Auro-Mixing Engine output can be monitored by routing it to one or more Auro-Return plug-ins.





The features from the former "Encoder" tab from the previous versions are now available in the new "Export" tab in version 3.0 ("Auro-Codec encoded" type).

For more detailed information about the standard features of the Auro Encoder, please refer to chapter 8.3.2 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

For more detailed information about the standard features of the Auro-Mixing Engine plugin, please refer to chapter 3.3 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

### Pro Tools Routing

At least one, but only one, Auro-Mixing Engine plugin must be inserted on an Audio Track. It is recommended to use a track in the 7.1 format. This plugin is not designed to be used along other audio plugins within the track.

The input module must be assigned to the "Fader Link" virtual bus and the output module must be assigned to the "Dummy" virtual bus. If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended.

## 2.6.7 Auro-Return Tracks

### Purpose of the Plugin

These plugins bring processed audio back to the DAW and must be properly configured to receive and output relevant audio materials. If using Audio Tracks to insert the Auro-Return plugins, the input button "I" of the Pro Tools track must be activated in order to listen to the audio source. It is also possible to print the stems by recording on Audio Tracks.

New output's options are now available in 3.0: → [Chapter 3.9](#)

For more detailed information about the standard features of the Auro-Return plugin, please refer to chapter 3.5 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

### Pro Tools Routing

Auro-Return plugins can be inserted on Audio Tracks or Aux Tracks (recommended) using any formats from "mono" to "7.1". Multiple Auro-Return tracks can be created in order to output desired output paths created in the I/O setup of Pro Tools using the output modules of the tracks. These plugins bring processed audio back to the DAW and must be properly configured to receive and output relevant audio materials. If using Audio Tracks to insert the Auro-Return plugins, the input button "I" of the Pro Tools track must be activated in order to listen to the audio source. It is also possible to print the stems by recording on Audio Tracks.

If using HD or HDX Audio Systems, a DSP plug-in must be inserted and activated on the first Insert slot of the track before inserting the Auro-Panner plugin. A simple mono or multi-mono DSP Trim plugin (Avid native) set as default is recommended.

— — — —



For more detailed information about the Auro-Aux plugin, please refer to chapter 8.4 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

For more detailed information about Fader Link, please refer to chapter 3 in the AURO-3D<sup>®</sup> Authoring Tools - User Guide (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

## Chapter 3: Features in 3.0

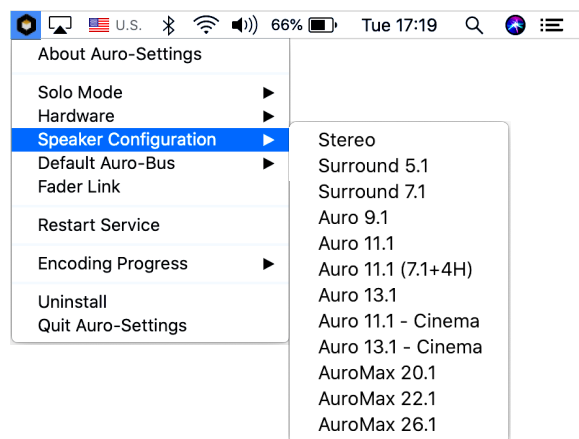
### 3.1 AuroMax Speaker Positions File

The AuroMax Speaker Positions File is a text file accessible from the Auro Technologies folder (Macintosh HD > Library > Application Support > Auro Technologies > AuroMaxSpeakerPositions.txt).

This file allows to set custom positions for the speakers used in an AuroMax Configuration. Further details about the setup procedure can be requested via the Support service at → <https://support.auro-technologies.com/>.

### 3.2 Speaker Configuration Drop Down Menu

The selected Speaker Configuration must correspond to the hardware setup as it defines how the mix will be monitored. The Speaker Configuration Drop Down Menu is accessible from the Auro-Settings menu bar application:



**Figure 3 - 1 | Speaker Configuration in the Menu Bar**



The selected Speaker Configuration filters monitoring's options in the Auro-Mixing Engine (see chapter 3.4 "Monitoring Configuration" for more explanation → Chapter 3.4).



The Speaker Configuration is system-wise, which means that the selected configuration is not saved or loaded by DAW session data.



The Speaker Configuration must be the first option to examine and configure before using the Auro Creative Tools.

### 3.3 Mix Settings

The Mix Settings define the target application and features of the mix and are accessible from the Settings tab in the Auro-Mixing Engine plugin.



**Figure 3 - 2** | Mix Settings tab in Auro-Mixing Engine

#### 3.3.1 Mix Profile Drop Down Menu



**Figure 3 - 3** | Mix Profile Drop Down Menu in Auro-Mixing Engine

Mix Profiles set mix settings according to the nature of the project. One mix profile must be selected in order to benefit from adequate mixing options. Mix profiles define:

- The maximum number of objects that can be used.
- The ability to use interactive programs or not.
- The available export options.
- Calibration levels of Surround channels in beds.



More information about objects system in chapter 3.6. → Chapter 3.6  
 More information about bed configurations in chapter 3.3.3. → Chapter 3.3.3  
 More information about programs management in chapter 3.7. → Chapter 3.7  
 More information about export options in chapter 3.9. → Chapter 3.9

There are five mix profiles:

- **Cinema AuroMax**: Profile intended for theatrical mixes when using AuroMax configurations.
- **Cinema Auro 3D**: Profile intended for theatrical mixes when using Auro 3D configurations.
- **NearField Full**: Profile intended for NearField monitoring with little limitations.
- **NearField Home**: Profile intended for home entertainment releases.
- **NearField Broadcast**: Profile intended for broadcast releases.

## Specifications of Mix Profiles:

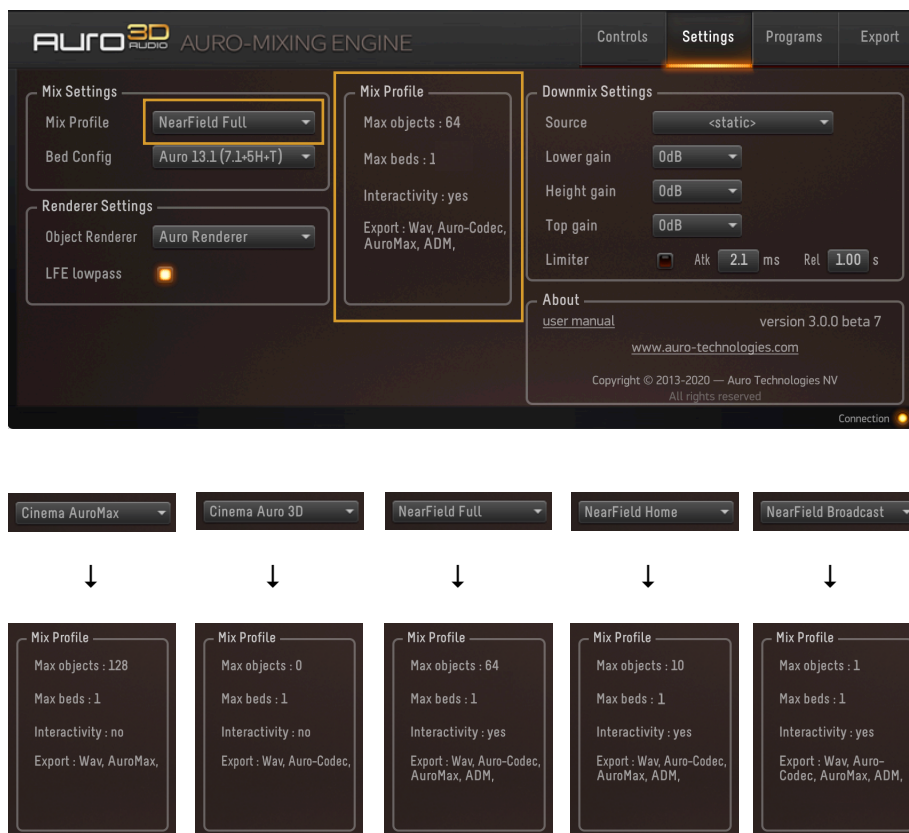
Mix Profiles	Max Objects	Max Beds	Export Formats	Bed Surround Level
Cinema AuroMax	128	1	Wav   AuroMax	85dB
Cinema AURO-3D <sup>®</sup>	0	1	Wav   Auro-Codec	82dB
Nearfield Full	64	1	Wav   Auro-Codec   AuroMax   ADM	85dB
Nearfield Home	10	1	Wav   Auro-Codec   AuroMax   ADM	85dB
Nearfield Broadcast	1	1	Wav   Auro-Codec   AuroMax   ADM	85dB

**Table 3 - 1 | Mix Profiles Specifications**

The Bed Surround Level in **Table 3 - 1** corresponds to the calibration level for the Surround channels. The Creative Tools version 3.0 currently support only one bed per mix. Profiles supporting more than one bed will be provided in next versions.

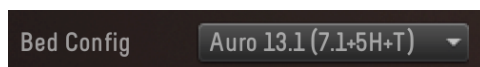
### 3.3.2 Mix Profile Specifications List

The specifications of the selected Mix Profile are shown in the Mix Profile Specification List. The third criteria “Interactivity” refers to the ability to use Programs.



**Figure 3 - 4 | Mix Profile Specifications List in the Auro-Mixing Engine**

### 3.3.3 Bed Config Drop Down Menu



**Figure 3 - 5** | Bed Config Drop Down Menu in Auro-Mixing Engine

The bed corresponds to the format of the channel-based element in the mix.



The configurations that are available in the menu depend on the selected Mix Profile.

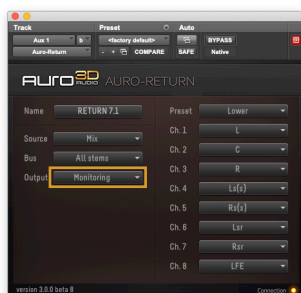
The following table highlights the available bed configurations according to the selected Mix Profile:

AVAILABLE BED CONFIG	SELECTED MIX PROFILE				
	Cinema AuroMax	Cinema Auro 3D	NierField Full	NierField Home	NierField Broadcast
Mono			✓	✓	✓
Stereo			✓	✓	✓
LCR			✓	✓	✓
LCRS			✓	✓	✓
QUAD			✓	✓	✓
OnScreen 2-2H			✓	✓	✓
Surround 5.0			✓	✓	✓
Surround 5.1			✓	✓	✓
Surround 6.0			✓	✓	✓
Surround 6.1			✓	✓	✓
Surround 7.0			✓	✓	✓
Surround 7.1			✓	✓	✓
Auro 2-2-2			✓	✓	✓
Auro 8.0			✓	✓	✓
Auro 9.1			✓	✓	✓
Auro 10.1			✓	✓	✓
Auro 11.1	✓	✓	✓	✓	✓
Auro 11.1 (7.1+4H)			✓	✓	✓
Auro 13.1 (7.1+5H+T)	✓	✓	✓	✓	✓

**Table 3 - 2** | Compatible Bed Configurations with Mix Profiles



The selected monitoring configuration can be auditioned by setting the Auro-Return plugin to “Monitoring” in the Output Drop Down Menu:



More information about the Auro-Return plugin version 3.0 can be found in chapter 3.9.



The available Monitoring Configurations depends on the selected Speaker Configuration.

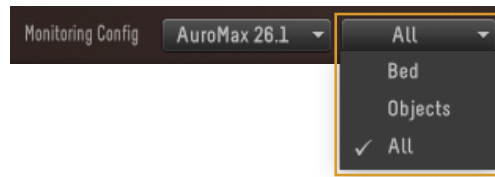
**Figure 3 - 9 |** Monitoring Output in Auro-Return Plugin

The following table highlights the available Monitoring Configurations according to the selected Speaker Configuration:

AVAILABLE MONITORING	SELECTED SPEAKER CONFIGURATION											
	Stereo	Surround 5.1	Surround 7.1	Auro 9.1	Auro 11.1	Auro 11.1 (7.1+4H)	Auro 13.1	Auro 11.1 Cinema	Auro 13.1 Cinema	AuroMax 20.1	AuroMax 22.1	AuroMax 26.1
Mono	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stereo	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LCR		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LCRS		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
QUAD		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OnScreen 2+2H				✓	✓	✓	✓	✓	✓	✓	✓	✓
Surround 5.0		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surround 5.1		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surround 6.0			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surround 6.1			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Surround 7.0			✓				✓		✓	✓	✓	✓
Surround 7.1			✓				✓		✓	✓	✓	✓
Auro-222				✓	✓	✓	✓	✓	✓	✓	✓	✓
Auro 8.0				✓	✓	✓	✓	✓	✓	✓	✓	✓
Auro 9.1				✓	✓	✓	✓	✓	✓	✓	✓	✓
Auro 10.1					✓		✓	✓	✓	✓	✓	✓
Auro 11.1					✓		✓	✓	✓	✓	✓	✓
Auro 11.1 (7.1+4H)						✓	✓		✓	✓	✓	✓
Auro 13.1 (7.1+5H+T)							✓		✓	✓	✓	✓
Atmos							✓		✓	✓	✓	✓
AuroMax 20.1										✓	✓	✓
AuroMax 22.1											✓	✓
AuroMax 26.1												✓

**Table 3 - 3 |** Compatible Bed Configurations with Mix Profiles

### 3.4.2 Monitoring Configuration Filters Drop Down Menu



**Figure 3 - 10** | Monitoring Configuration Filters Drop Down Menu

The Filters Drop Down Menu allows to filter different kinds of audio sources processed by Auro-Panner plugins. It is set to “All” by default. There are three possible filters:

- **Bed:** Only channel-based audio elements are monitored.
- **Objects:** Only object-based audio elements are monitored.
- **All:** Both channel-based and object-based audio elements are monitored.



### 3.5 Loudness Metering

The Loudness Metering area is accessible from the Controls tab in the Auro-Mixing Engine plugin:



**Figure 3 - 11** | Monitoring Configuration in the Auro-Mixing Engine

The Auro-Mixing Engine provides LUFS meters (Loudness Unit Full Scale). LUFS takes human perception of hearing into account thanks to measurements of Momentary Loudness, Short Term Loudness, Integrated Loudness, Loudness Range and True Peaks.

- **Momentary Loudness (M)** measures the loudness of the past 400 Milliseconds.
- **Short-Term (S)** measures the loudness of the past 3 Seconds.
- **Integrated Loudness (I)** is a measurement taken from beginning to end of the audio material, indicates the total average volume.
- **Loudness Range (LRA)** quantifies, in LU, the dynamic range of the mix as the statistical distribution of short term loudness.
- **True Peak (Peak)** indicates accurate measurements of inter-sample peaks.

#### 3.5.1 Loudness Metering Drop Down Menu



**Figure 3 - 12** | Loudness Drop Down Menu in the Auro-Mixing Engine

The drop down menu displays two main groups of options:



**Figure 3 - 13** | MSI Group in Loudness Drop Down Menu

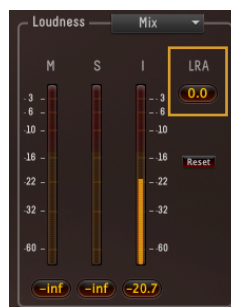
- **MSI Group:** This group allows to select which version of the mix (Mix, Down-mix or Stereo) is measured and will show Momentary, Short-term and Integrated meters (M, S and I).



**Figure 3 - 14** | Comparison Group in Loudness Drop Down Menu

- **Comparison's Group:** This group allows to select a specific measurement (Integrated, Short-term, Momentary or Peak) that is shown for the different versions of the mix simultaneously (2.0, Down-mix and Mix).

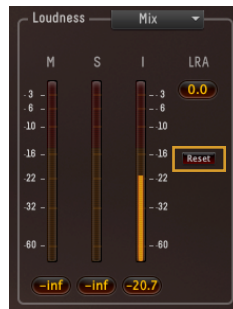
### 3.5.2 LRA Meter Value



**Figure 3 - 15** | LRA Meter Value in Loudness Area

The LRA Meter Value displays the Loudness Range of the selected mix version in the Loudness drop down menu.

### 3.5.3 Reset Button



**Figure 3 - 16** | Reset Button in Loudness Area

The Reset Button resets all loudness measurements.

## 3.6 Objects

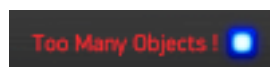
Objects are individual sounds with related metadata defining the position of the sound in the sound-field. Depending on the selected export format, these will be transmitted separately from the channel-based bed and rendered during playback, adapting to the playback environment (from small home environments to large cinema theaters).

### 3.6.1 Object Button



**Figure 3 - 17** | Object Button in Auro-Panner Plugin

The Object button can be enabled in the Controls tab of any Auro-Panner plugin. As a result, the audio processed by this Auro-Panner plugin is then treated and rendered as an object.



**Figure 3 - 18** | Object Button “Too Many Objects !” Message

The maximum number of objects that can be used in a mix depends on the selected Mix Profile. If the maximum number of object is reached, a red message “Too Many Objects !” is displayed next to all object buttons.

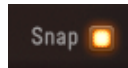
When activated, the object button modify, disable and enable certain options in the AURO-Panner:



**Figure 3 - 19 | Object AURO-Panner Options**

1. Disable LFE send (only if Export Type is set to “ADM” in the Export tab).
2. Modify regular Spread Parameters to single Object Spread Parameter.
3. Disable C%, HC% and T% parameters.
4. Enable Snap option (except if Export Type is set to “ADM” in the Export tab).
5. Enable Active Object-Rendering Zones option (except if Export Type is set to “ADM” in the Export tab).
6. Enable Object Metadata option.
7. Modify panning behaviour for AUROMax Configurations (gradual movement).

### 3.6.2 Snap Button



**Figure 3 - 20** | Snap Button

When the Snap Button is activated, the object will be played back from the closest speaker instead of panning smoothly between the speakers. This is especially useful if the sound colour of the object's audio is more important than its actual position.



The Snap Button is not accessible if the Export Type is set to ADM-File.

### 3.6.3 Object Metadata



**Figure 3 - 21** | Object Metadata in Auro-Panner Settings Tab

The Object Metadata options are accessible from the Settings tab in the Auro-Panner.

#### 3.6.3.1 Object Kind Drop Down Menu



**Figure 3 - 22** | Object Kind Drop Down Menu

The Object Kind Drop Down Menu allows to select one object's categorisation that will be used in the corresponding metadata fields supported by the selected Export format.

### 3.6.3.2 Object Language Drop Down Menu



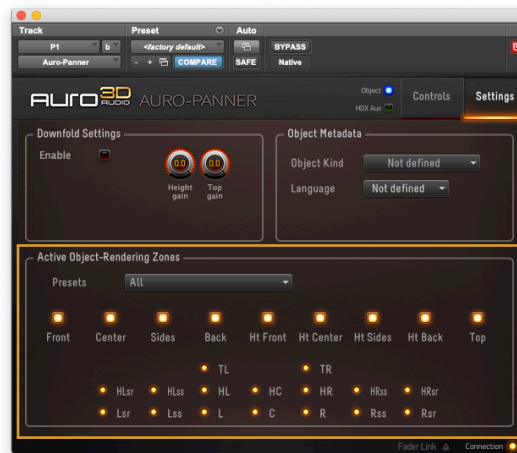
**Figure 3 - 23** | Language Drop Down Menu

The Language Drop Down Menu allows to assign a language to the object. This information will be exported in metadata and is particularly useful when using Switch Groups in Programs.



More information about Switch Group can be found in chapter 3.7.2.5. → Chapter 3.7.2.5  
More information about Programs can be found in chapter 3.7. → Chapter 3.7

### 3.6.4 Active Object-Rendering Zones



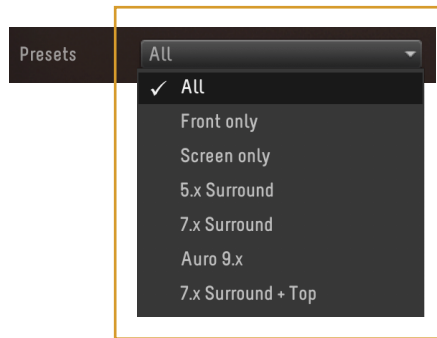
**Figure 3 - 24** | Active Object-Rendering Zones in Auro-Panner

Active Object-Rendering Zones or Zone Control allows users to define whether certain zones can/may be used during the rendering of an object or not.



The Active Object-Rendering Zones option is not accessible if the Export Type is set to ADM-File.

### 3.6.4.1 Zones Presets



**Figure 3 - 25** | Zones Presets

Zones presets allows to restrict the positions of objects by selecting predetermined configurations. If restrictions are set manually, the preset will be defined as “Custom”.

## 3.7 Programs



**Figure 3 - 26** | Programs tab in Auro-Panner Plugin

In the Programs tab in the Auro-Mixing Engine, Programs that correspond to different sets of audio content and interactive features for the audience can be configured. For instance, interactivity can include the ability for listeners to adjust dialogue levels, select different languages or mute certain categories of sound.



The Programs tab is not accessible when using Cinema Auro 3D Mix Profile or Cinema AuroMax Mix Profile in the Mix Settings.

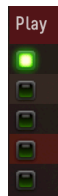
### 3.7.1 Programs Table

Play	Programs +	PL (LUFS)	Main Bus	Dialogues (Sw)	Crowd	Ambience	Music
	Main	0.0					
	Dialogue	0.0					
	Crowd	0.0					
	Ambience	0.0					
	Music	0.0					

**Figure 3 - 27** | Programs Table

The Programs table contains columns and rows. Each row correspond to one specific program. Columns allow to select, examine integrated loudness and configure groups in programs.

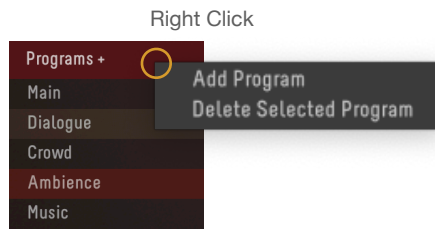
#### 3.7.1.1 Play Column



**Figure 3 - 28** | “Play” Column in Programs Table

The “Play” Column let users select one existing program by activating the corresponding green button.

#### 3.7.1.2 Programs Column



**Figure 3 - 29** | “Programs” Column in Programs Table

The “Programs” Column displays all available programs. It allows users to create, delete and rename programs.

- **Add Program:** Programs can be added by right clicking the Programs header and select “Add Program” in the contextual drop down menu.
- **Delete Program:** To delete Programs, right-click the Programs header and select “Delete Selected Program” in the contextual drop down menu.
- **Rename Program:** Any program can be renamed by double clicking its name in the list.



3.7.1.3 PL (LUFS) Column

PL (LUFS)
-19.9
-22.9
-22.9
-144.0
-144.0

Figure 3 - 30 | “PL (LUFS)” Column in Programs Table

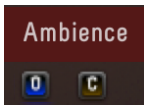
PL (LUFS) stands for “Program Loudness” and displays integrated loudness measurement for each program respectively. All PL can be reseted by pressing the Reset Button in the controls tab of the Auro-Mixing Engine.

3.7.1.4 Groups

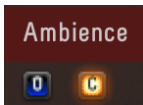
Main Bus	Dialogues (Sw)	Crowd	Ambience	Music

Figure 3 - 31 | Groups in the Programs Table

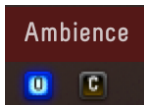
In addition to the default Main Bus, every Auro-Bus is shown in its own column. In the context of Programs, these Auro-Buses become “Groups”. For each Program Objects and channel-based audio elements are added by activating the “O” and “C” buttons.




Silence



Channel-Based  
Only



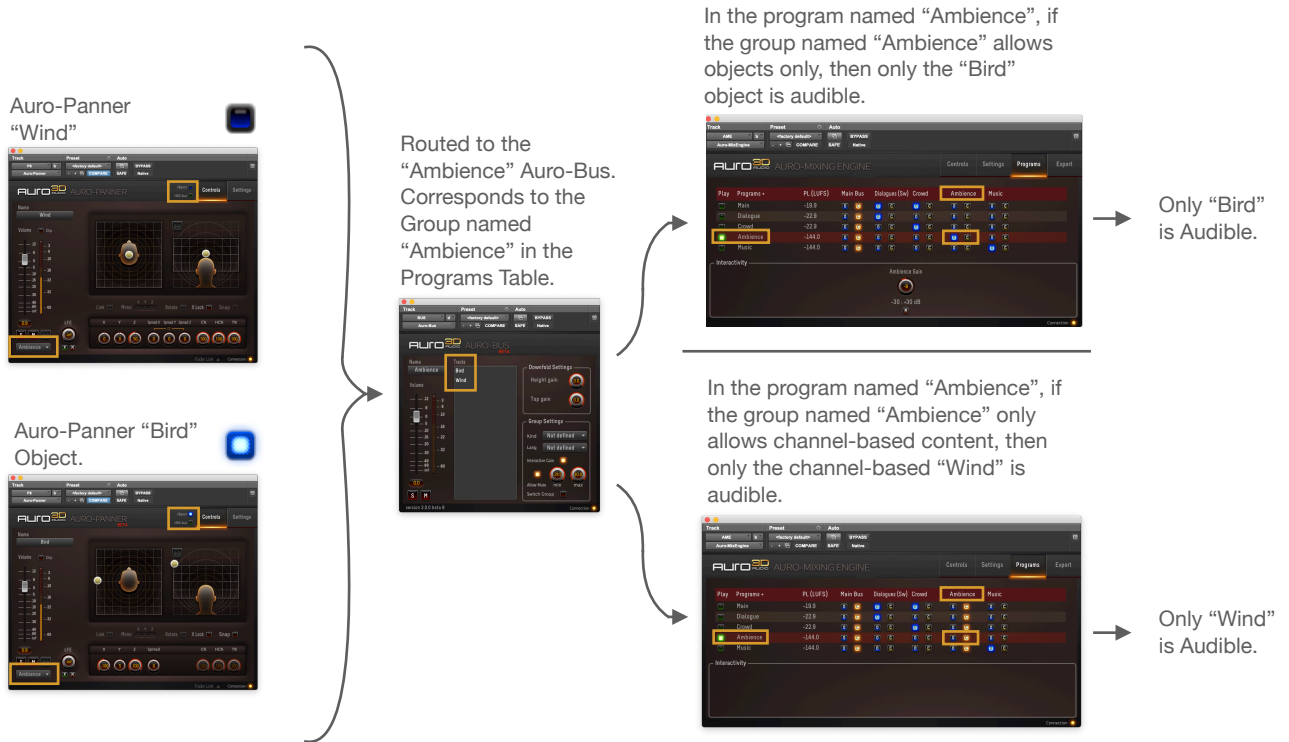
Objects  
Only



Objects and  
Channel-Based

Figure 3 - 32 | Possible Assignments in Groups

For instance, if only the “O” button is activated for the group “Ambience”, only Object Auro-Panners routed to the “Ambience” bus will be audible within the selected Program. If only the “C” button is activated for the group “Ambience”, only Channel-Based Auro-Panners routed to the “Ambience” bus will be audible within the selected Program.



**Figure 3 - 33** | Example of Program Configuration



As ADM exports only support a single bed, each group must "vertically" share the same channel-based configuration for all programs. Nevertheless, it is still possible to "horizontally" set no channel-based content for all groups in one program. Objects are not affected by this rule.

Supported Bed Distribution:



Channel-based content in all groups.



Channel-based content in certain groups.



No channel-based content in certain programs (Option + Click).

Unsupported Bed Distribution:



Different channel-based content in programs within the same group is not currently possible.

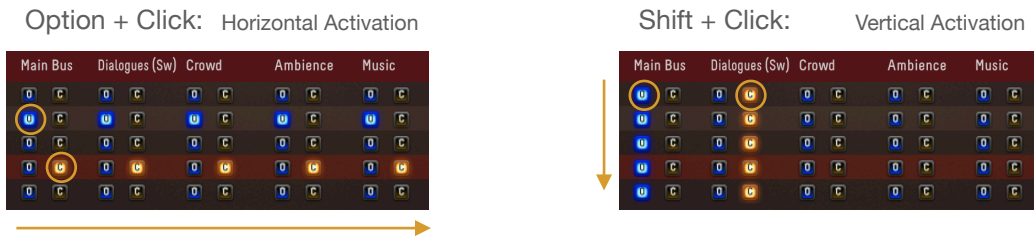


Not Supported.

**Figure 3 - 34** | Supported and Unsupported Bed Distribution

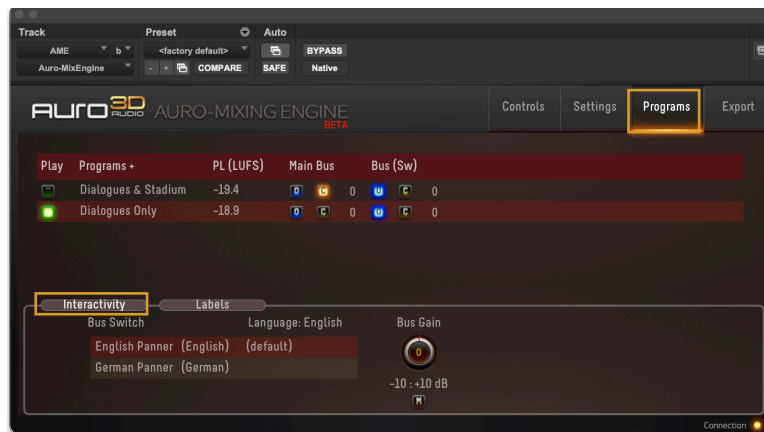


Channel-based and object buttons can be horizontally activated/deactivated using Option + Click.  
Channel-based and object buttons can be vertically activated/deactivated using Shift + Click.



**Figure 3 - 35** | Activation Keyboard Shortcuts in Programs

### 3.7.2 Interactivity Button



**Figure 3 - 36** | Interactivity Button in the Programs Tab of the AURO-MIXING ENGINE Plugin

The interactivity button displays all interactive options that are currently available in the currently selected Program (Interactive Gains, Interactive Gain Offsets, Allow Mute Buttons and Switch Groups). The values of any interactive parameters can be modified by the mixer in real time. This interface does not reflect what the end user will see but rather lets the mixer test the current interactive content of the project before exporting the ADM-File.

Interactive options are present in the interactivity area only if one or several Groups within the selected Program have been previously configured to support them. Any interactive options can be configured via the Group Settings of any AURO-Buses. As a reminder, AURO-Buses become the so-called “Groups” in the context of Programs.

### 3.7.3 Group Settings



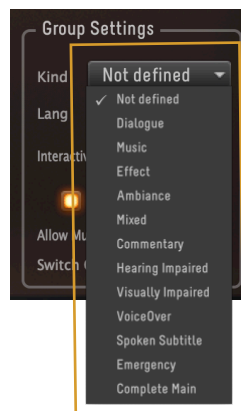
**Figure 3 - 37** | Group Settings in Auro-Bus Plugin

The Group Settings panel is accessible in any Auro-Bus Plugin. It allows users to configure metadata and interactivity for the Group within Programs.



Group Settings are not accessible when using Cinema AURO-3D<sup>®</sup> Mix Profile or Cinema AuroMax Mix Profile in the Mix Settings.

#### 3.7.3.1 Group Kind Drop Down Menu



**Figure 3 - 38** | Group Kind Drop Down Menu

The Group Kind Drop Down Menu allows to select one group's categorisation that will be exported in metadata.

#### 3.7.3.2 Group Language Drop Down Menu



**Figure 3 - 39** | Group Language Drop Down Menu

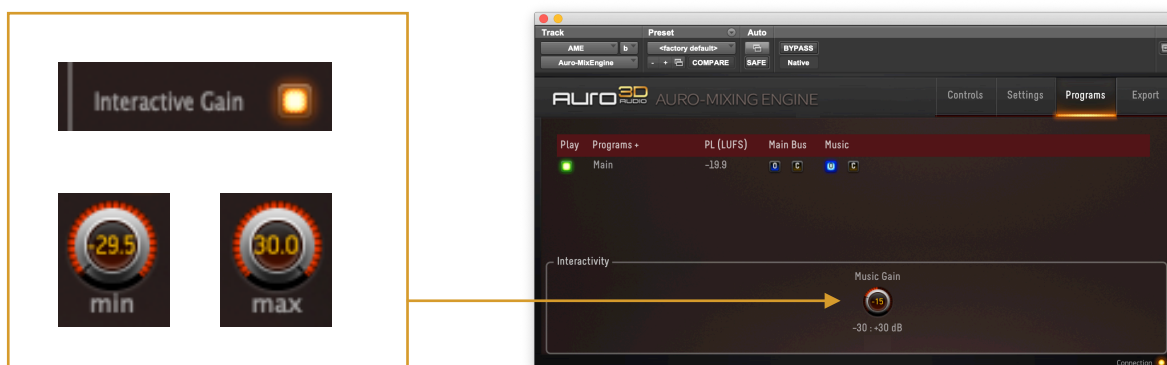
The Language Drop Down Menu allows to assign a language to the group that will be exported in metadata. The list of available languages can be defined in the AURO Language Selector Application (see → [Chapter 2.3](#))

### 3.7.3.3 Interactive Gain Button



**Figure 3 - 40** | Interactive Gain and Gain Parameters

When activated, the Interactive Gain Button makes the volume of the group interactive by creating a dedicated gain parameter. The range of this gain parameter can be set using the “Min” and “Max” parameters. This gain parameter is accessible in the Programs tab of the Auro-Mixing Engine Plugin. Listeners will also benefit from this interactive gain parameter through ADM export.



**Figure 3 - 41** | Interactive Gain in Auro-Mixing Engine

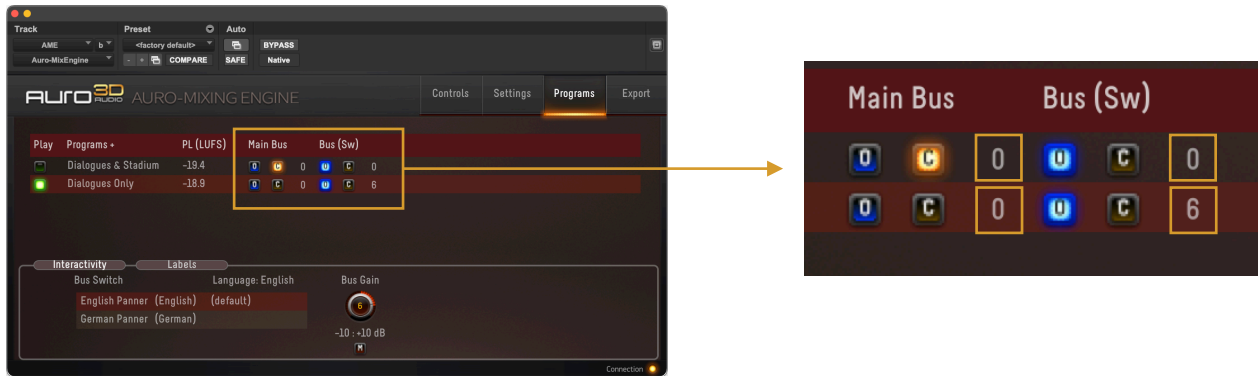


Only 4 Gain Parameters can be displayed in the programs tab at the same time. Only objects can benefit from Interactive options.

### 3.7.3.4 Interactive Gain Offset

The Interactive Gain Offset allows to set a default value for the active Interactive Gain of any Group within any Program respectively. As a result, the end user will automatically hear the corresponding volume offsets when selecting any Program where such values have been configured.

The current values of the Gain offsets are accessible next to each Group from the Programs Table in the Programs tab of the Auro-Mixing Engine. They correspond to the coefficients that are set to “0” by default.

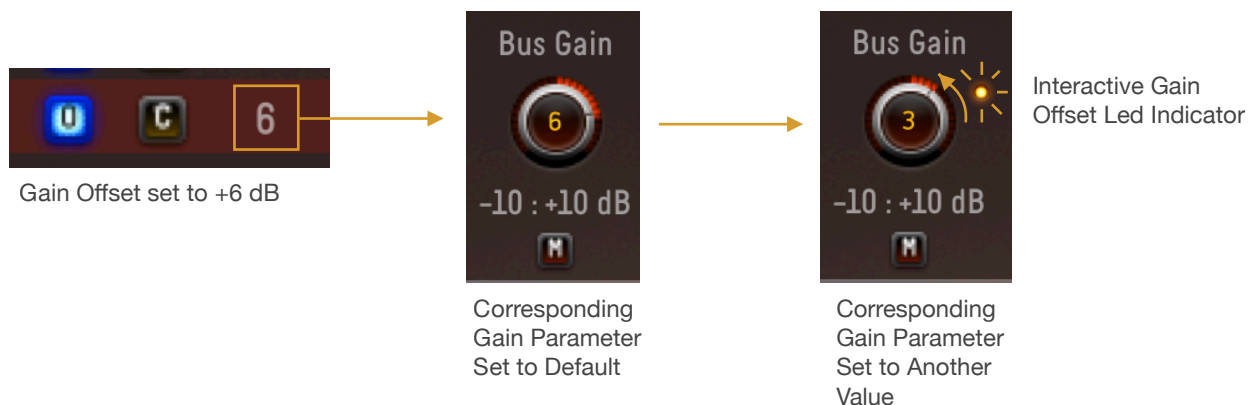


**Figure 3 - 42** | Interactive Gain Offsets in the Programs Table of the Auro-Mixing Engine

The Interactive Gain Offset can be modified only if the targeted Group supports the Interactive Gain option (that can be activated via the Group Settings of the corresponding Auro-Bus), only if the range of the corresponding Gain parameter has been configured to any values greater than zero (range that can also be configured via the Group Settings of the corresponding Auro-Bus), and only if the blue Object Button “O” is activated within the targeted group (button that is directly accessible via the content distribution of the Programs Table in the Auro-Mixing Engine).

If all these conditions are respected, a default value for each Interactive Gain can be set by double clicking the “0” coefficient next to one group, typing the desired value and eventually confirming by pressing the “Enter” key.

Once an Interactive Gain Offset has been configured and if the value of the corresponding Gain Parameter is modified during playback, the flashing Interactive Gain Offset Led Indicator lets the mixer know that the current value of the Interactive Gain Parameter is not equal to the Interactive Gain Offset value.



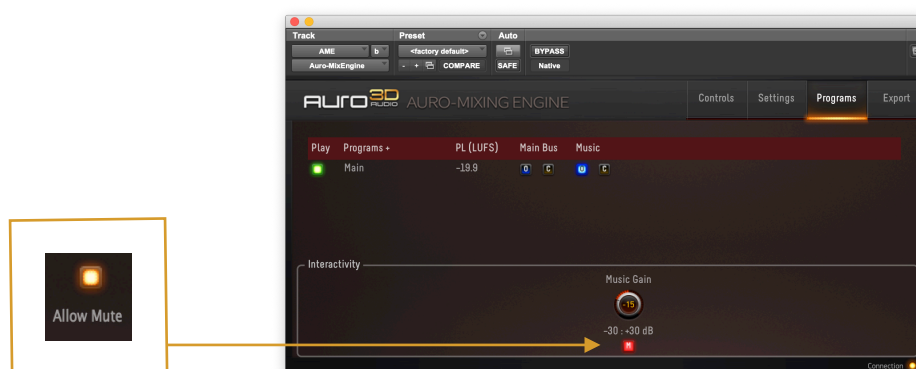
**Figure 3 - 43** | Interactive Gain Offsets Led Indicator in the Auro-Mixing Engine

### 3.7.3.5 Allow Mute Button



**Figure 3 - 44** | Allow Mute Button in Group Settings

When activated, the Allow Mute Button creates a new interactive button that can mute the group. Listeners will also benefit from this interactive Mute Button through ADM export.



**Figure 3 - 45** | Allow Mute Button in Aero-Mixing Engine

### 3.7.3.6 Switch Group Button



**Figure 3 - 46** | Switch Group Button in Group Settings

When activated, the Switch Group Button turns the selected Bus into a Switch Group. As a consequence, the name of this group is followed by the label “(Sw)” in the Programs tab of the Aero-Mixing Engine.





**Figure 3 - 47** | Switch Group Label in Programs Table



Only one switch group is supported per program.

If at least one Object Panner is connected to the Switch Group and If this Switch Group accepts objects (“O” button), the Programs tab in the Auro-Mixing Engine displays a Switch List where users can select different audio sources. Here is an example for dialogue switch:

Object Panner (English).  
Routed to the Dialogues Bus.



Object Panner (Dutch).  
Routed to the Dialogues Bus.



Object Panner (Chinese).  
Routed to the Dialogues Bus.



Object Metadata in the  
Settings tab (English).



Object Metadata in the  
Settings tab (Dutch).



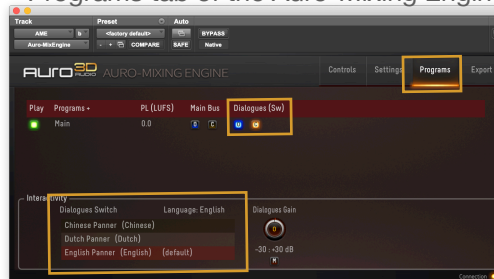
Object Metadata in the  
Settings tab (Chinese).



Dialogues Auro-Bus.  
Switch Group Activated.



Switch List of the Switch Group in the  
Programs tab of the Auro-Mixing Engine.



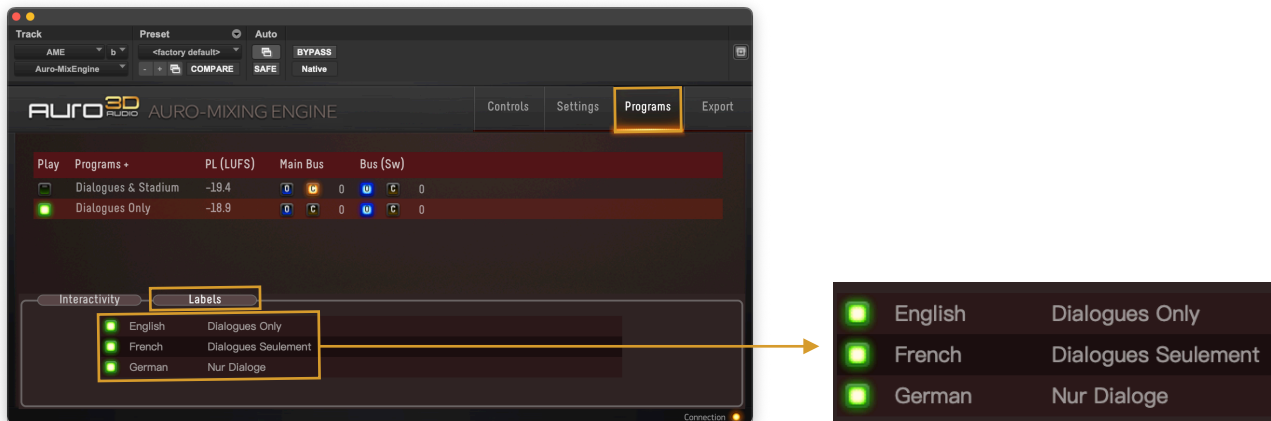
**Figure 3 - 48** | Example of Switch Group



**Default** audio source in a Switch Group can be set using “**Option + Click**”.



### 3.7.4 Program Labels Button

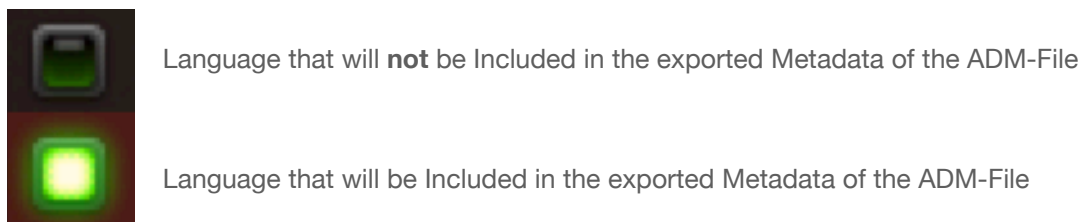


**Figure 3 - 49** | Program Labels Button

The Program Labels Button is accessible from the Programs tab of the Auro-Mixing Engine. Program Labels allow to optionally name each program in different languages. The available languages can be configured thanks to the Auro Language Selector standalone application that is accessible from the Auro-Settings menu bar application. This feature ultimately gives the end user application the ability to choose in which language he wants to read the names of each program (e.g., following a set-top box' default Language setting).

After selecting one Program in the Programs Table, this Program becomes highlighted in red. Therefore, each default Program Label of the selected Program is displayed in the Labels area. These Labels can be modified by double clicking them, renaming them for each available language and eventually pressing the "Enter" key to confirm.

Each language for the Program Labels that will be exported in the metadata of the ADM-File can be included or not thanks to the green checkboxes.



**Figure 3 - 50** | Green Checkboxes for Each Language of the Program Labels

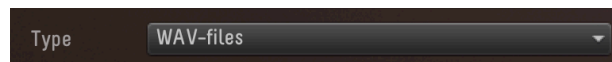
## 3.8 Exports



**Figure 3 - 51** | Export Tab in Auro-Mixing Engine

The Auro-Mixing Engine contains an Export Tab to where users can export the project and select a desired export format.

### 3.8.1 Type Drop Down Menu



**Figure 3 - 52** | Type Drop Down Menu in the Export Tab

The Creative Tools Suite version 3.0 introduces three new export types:

- **WAV-Files:** Bed export in Waveform Audio File Format.
- **ADM-File (ITU-R Rec. BS.2076):** Audio Definition Model (recommend for broadcasting service).
- **AuroMax (SMPTE ST2098-2):** AuroMax (standard for immersive audio).



The features from the former "Encoder" tab from the previous versions are now available in the new "Export" tab in version 3.0 ("Auro-Codec encoded" type).

For more detailed information about the standard features of the Auro Encoder, please refer to chapter 8.3.2 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

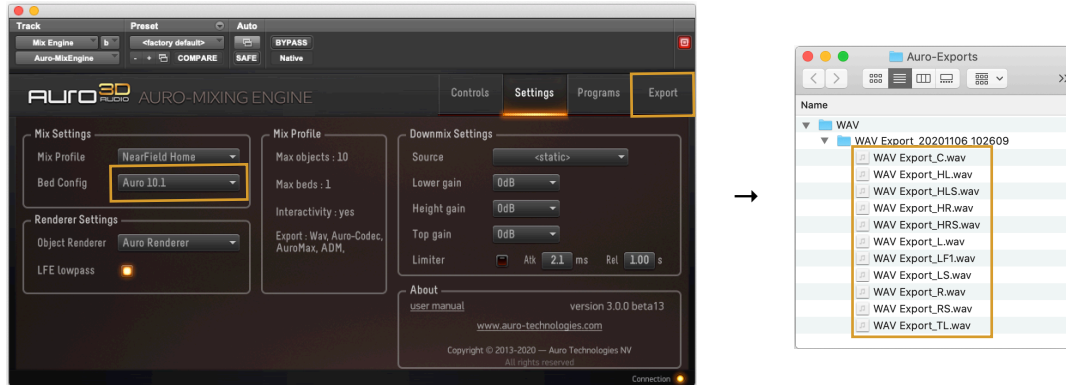
#### 3.8.1.1 WAV-Files



**Figure 3 - 53** | WAV-Files Type in the Export Tab

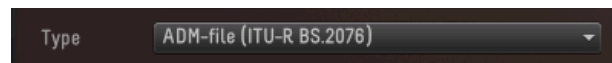
The WAV-Files Export Type allows to export the current mix into Waveform Audio Files Format. Each resulting file correspond to one distinct channel. The number of exported channels is defined by the selected Bed Configuration. In addition to write the regular channel-based content, this process also write and sum Objects mixes into the channel-based content.

If using Interactive Programs, only the audio elements that are activated in the selected program will be exported.



**Figure 3 - 54** | Exported Bed Configuration in Waveform Audio Format

### 3.8.1.2 ADM-File



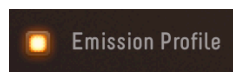
**Figure 3 - 55** | ADM-File Type in the Export Tab

Audio Definition Model (ADM) is a format based on BWF-files and intended for broadcasting services. The exported file is designed to describe audio content and carries all information related to programs configuration.



ADM format does not support Active Object-Rendering Zones and Snap options in the Auro-Panner plugins.

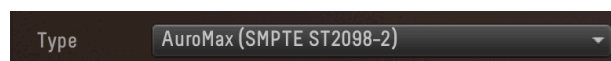
#### 3.8.1.2.1 Emission Profile Button



**Figure 3 - 56** | Emission Profile Button

The ADM Broadcast Emission profile defines a complete subset of the Audio Definition Model which limits the scope of ITU-R BS.2076 to features typically used in low-bitrate audio codecs for Next Generation Audio. When activated, the Emission Profile Button set restrictions for the ADM-file export to ensure its compatibility.

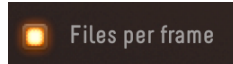
### 3.8.1.3 AuroMax



**Figure 3 - 57** | AuroMax Type in the Export Tab

The AuroMax export defines a bitstream to carry immersive audio. It results in an IAB file (Immersive Audio Bitstream). The maximum number of objects is limited to 118.

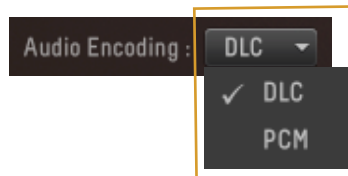
#### 3.8.1.3.1 Files per Frame Button



**Figure 3 - 58** | Files per Frame Button

The SMPTE ST2098-2 encodes audio and metadata into synchronisation blocks called “frames”. Each frame corresponds to a video frame as defined in the selected Frame Rate from the corresponding Drop Down Menu (→ Chapter 3.8.1.3.3). Activating the Files per Frame button results in the selected generating one file per frame.

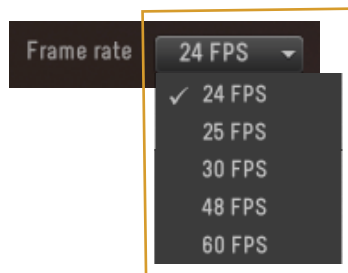
#### 3.8.1.3.2 Audio Encoding Drop Down Menu



**Figure 3 - 59** | Audio Encoding Drop Down Menu

The audio in the IAB bitstream can be encoded as uncompressed PCM or losslessly compressed in the DLC-format.

#### 3.8.1.3.3 Frame Rate Drop Down Menu



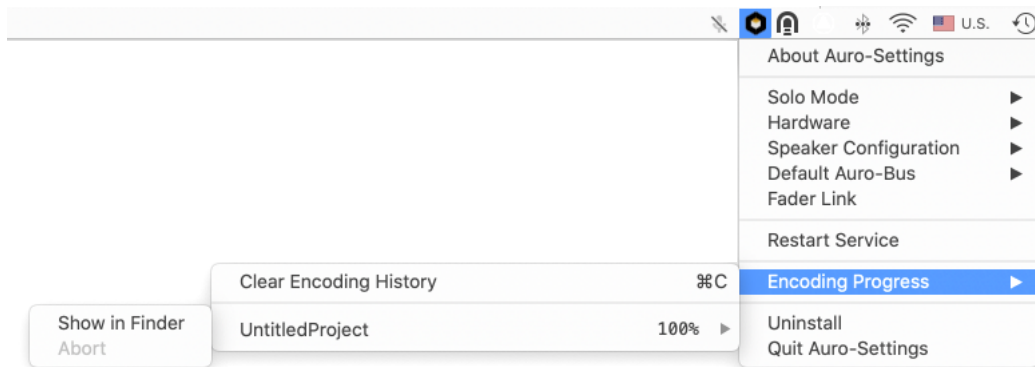
**Figure 3 - 60** | Frame Rate Drop Down Menu

The Frame Rate Drop Down Menu allows to specify the frame rate for AuroMax Export. It is therefore possible to export the mix with different frame rates.

### 3.8.1.4 Auro-Codec Encoded

The Auro-Codec Encoded export type let users create Auro-Encoded files, for example to encode an Auro 11.1 mix into a Auro-Encoded 5.1 carrier with the Pro Tools mix session as the source. For more detailed information about the standard features of the Auro Encoder, please refer to chapter 4 and chapter 8.3.2 in the AURO-3D<sup>®</sup> Authoring Tools - Reference Manual (→ [Link to AURO-3D<sup>®</sup> Authoring Tools Documentation](#)).

#### 3.8.1.4.1 Encoding Progress



**Figure 3 - 61** | Encoding Progress in the Auro-Settings Menu Bar Application

The Encoding Progress feature is accessible from the Auro-Settings menu bar application.

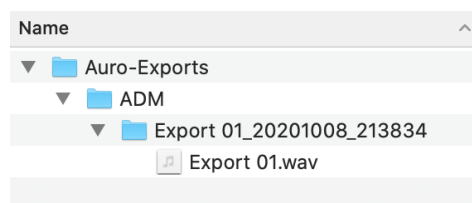
- **Encoding Progress List:** Each Auro-Codec Encoded export is listed in the Encoding Progress list. After exporting the mix, this menu monitors the progress of each encoding process in real time from 0% to 100%.
- **Clear Encoding History Option:** It is possible to clear the Encoding Progress list by clicking the Clear Encoding History Option or by using the keyboard shortcut CMD + C.
- **Show in Finder Option:** Each Auro-Codec Encoded export can be revealed in the finder by clicking the Show in Finder Option.
- **Abort Option:** It is possible to abort any encoding process in progress by clicking the Abort Option.

### 3.8.2 Export Button



**Figure 3 - 62** | Export Button in the Export Tab

After defining an Export Path, typing an Export Name and selecting the desired format in the Type Drop Down Menu, users can export the project using the Export Button. When activated, the button's colour turns yellow to indicate that the project is ready to be exported. Playing and stopping the playhead executes the export in real time.

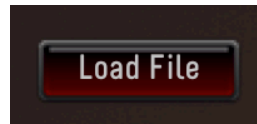


**Figure 3 - 63** | Exported File in Finder

### 3.8.3 Quality Control

The Creative Tools Suite version 3.0 introduces a new Quality Control system. This can be used to check exports in the ADM and IAB formats.

#### 3.8.3.1 Load File Button



**Figure 3 - 64** | Load Button in the Export Tab

The Load Button allows to import one external file. When loaded, the name of the file is displayed above the Load File button.



**Figure 3 - 65** | Imported File in the Export Tab



The content of the file is not imported into the Pro Tools session! Nevertheless, the loaded file can be rendered using the Render Button (see next chapter → Chapter 3.8.1.3.2)

### 3.8.3.2 Render Button



**Figure 3 - 66** | Render Button in the Export Tab

The Render Button operates as a quality control. Loaded files can be rendered in order to examine their content. If an imported file that contains programs is rendered, the name of the file is displayed above the Programs Table where its available programs can be selected and read. Pressing the yellow Render Button again stops the rendering process of the imported file.

Programs Before Exporting an ADM File.

Rendered ADM File in Programs Tab.



**Figure 3 - 67** | Rendered File in Programs Tab



The rendered file is always starting at timecode 00:00:00:00.



It is recommended to render imported files in a brand new DAW session dedicated for quality control.

## 3.9 Auro-Return

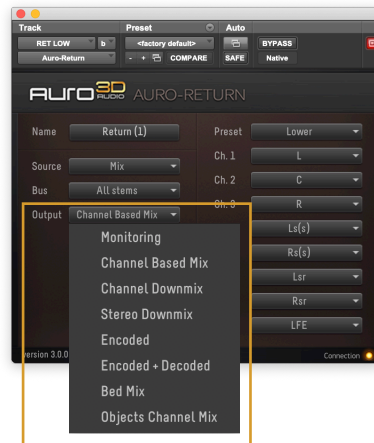
The Creative Tools Suite version 3.0 introduces new outputs in the Auro-Return plugin.

- **Monitoring.**
- **Bed Mix**
- **Objects Mix.**



"Mix" option from previous versions is now renamed "Channel Based Mix" in CTS version 3.0 !  
"Down-mix" option from previous is now renamed "Channel Down-mix" in CTS version 3.0 !

### 3.9.1 Output Drop Down Menu



**Figure 3 - 68** | Output Drop Down Menu in Auro-Return Plugin

The Output Drop Down Menu is accessible from the Auro-Return plugin.



The “Encoded” and “Encoded + Decoded” outputs are only available when the Export Type is set to “Auro-Codec encoded” in the Export tab of the Auro-Mixing Engine.

#### 3.9.1.1 Monitoring

The “Monitoring” Output let users listen to the selected monitoring configuration. The Monitoring Configuration Drop Down Menu is accessible from the Controls tab in the Auro-Mixing Engine

#### 3.9.1.2 Bed Mix

The “Bed Mix” Output filters objects and only outputs audio content from the bed.

#### 3.9.1.3 Object Mix

The “Object Mix” Output filters content from the bed and only outputs audio objects.

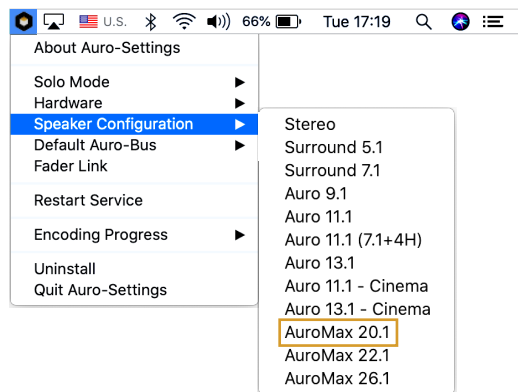


## 3.10 AuroMax Setup Guides

These additional guides provide steps to follow in order to use AuroMax configurations. Please refer to the AuroMax Specifications for more details on these speaker configurations. → [www.AURO-3D.com](http://www.AURO-3D.com)

### 3.10.1 AuroMax 20.1

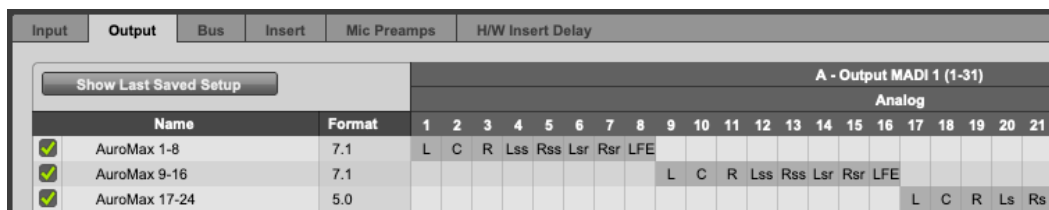
To work with the AuroMax 20.1 configuration, the Speaker Configuration Drop Down Menu in the Auro-Settings menu bar application must be set to “AuroMax 20.1”.



**Figure 3 - 69** | AuroMax 20.1 in the Speaker Configuration Drop Down Menu

In Pro Tools, the Output tab in the I/O Setup window must contain three output paths that are correctly assigned to the corresponding outputs of the audio interface (Pro Tools > Setup > I/O...):

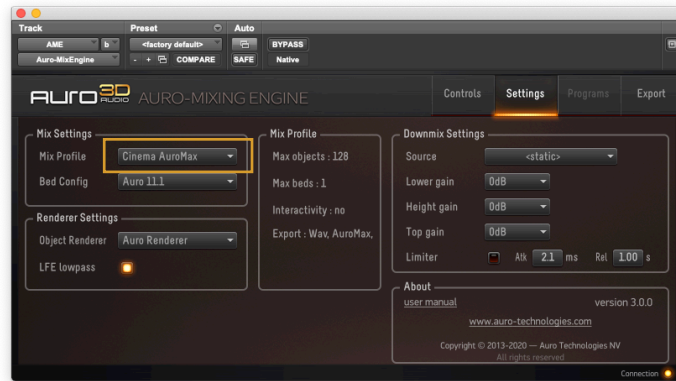
- **AuroMax 1-8:** 7.1 Format.
- **AuroMax 9-16:** 7.1 Format.
- **AuroMax 17-24:** 5.0 Format.



**Figure 3 - 70** | AuroMax 20.1 in I/O Setup

New Virtual buses must be mapped to these output paths in the Bus tab. These virtual buses must share the same format. It is also recommended to use identical names to avoid potential confusion.

The Mix Profile must be set to “Cinema AuroMax” In the Settings tab of the Auro-Mixing Engine. One desired Bed configuration must be selected as well.



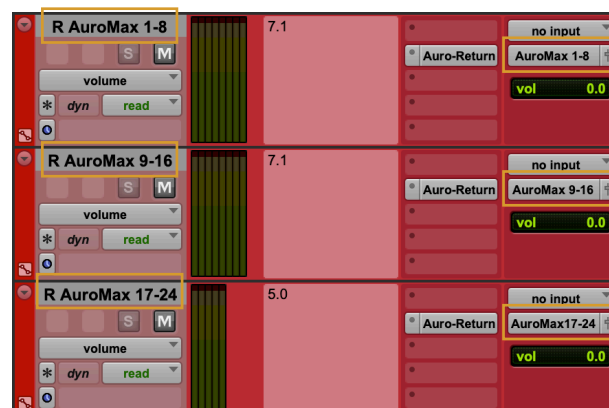
**Figure 3 - 71** | Cinema AutoMax Mix Profile using AutoMax 20.1

In the Controls tab of the Auto-Mixing engine, the Monitoring Configuration Drop Down Menu must be set to “AutoMax 20.1”.



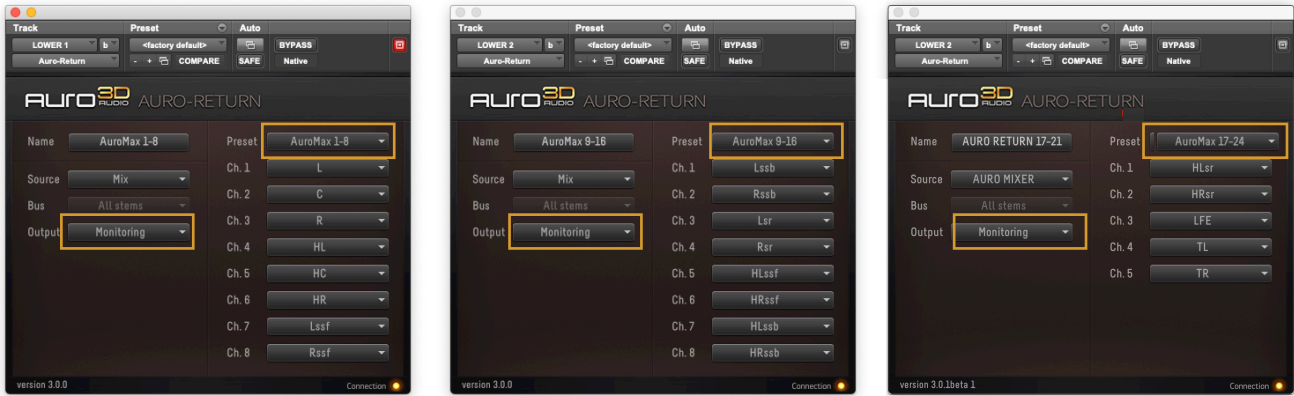
**Figure 3 - 72** | AutoMax 20.1 Monitoring Configuration

In the Edit window of Pro Tools, three auxiliary input tracks must be created following the same format than the output paths. After routing each track appropriately, It is recommended to rename the tracks according to their respective output path.



**Figure 3 - 73** | Auto-Return Tracks for AutoMax 20.1 Configuration

An Auto-Return plugin must be inserted on each track. It is recommended to rename the Auto-Return plugins according to their respective track names using the Name fields. The Output Drop Down Menu of each Auto-Return plugin must be set to “Monitoring”. The Preset Drop Down Menu must be set to the corresponding group of channels.



**Figure 3 - 74** | AURO-Return Plugins for AUROMax 20.1 Configuration



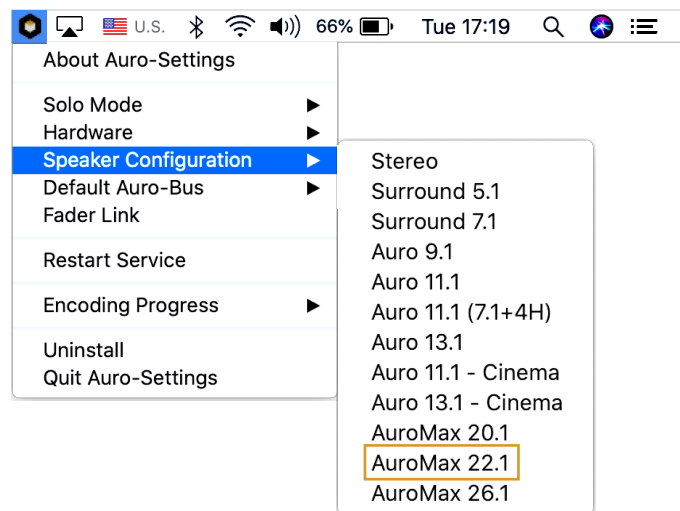
If using HD or HDX Audio Systems, a DSP plug-in must be inserted on the first Insert slot of every track that contains an AURO-3D<sup>®</sup> plug-in.



Inserting a (multi)-mono DSP version of the Trim plug-in reduces the DSP-overhead to a minimum and leaves the audio unaffected if the initial settings remain unchanged.

### 3.10.2 AUROMax 22.1

To work with the AUROMax 22.1 configuration, the Speaker Configuration Drop Down Menu in the AURO-Settings menu bar application must be set to “AUROMax 22.1”.



**Figure 3 - 75** | AUROMax 22.1 in the Speaker Configuration Drop Down Menu

In Pro Tools, the Output tab in the I/O Setup window must contain three output paths that are correctly assigned to the corresponding outputs of the audio interface (Pro Tools > Setup > I/O...):

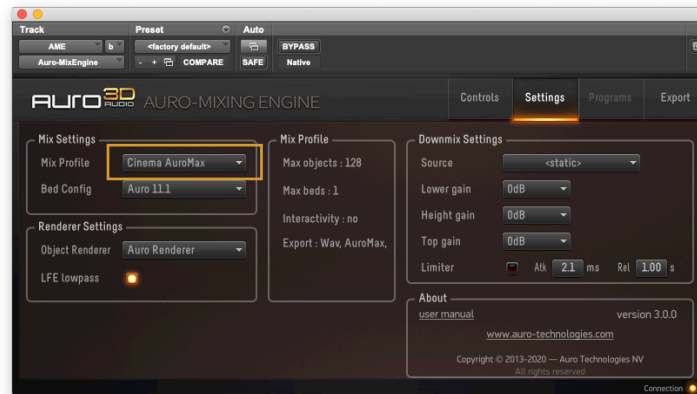
- **AUROMax 1-8:** 7.1 Format.
- **AUROMax 9-16:** 7.1 Format.
- **AUROMax 17-24:** 7.0 Format.

Input	Output	Bus	Insert	Mic Preamps	H/W Insert Delay																												
<div>Show Last Saved Setup</div>						A - Output MADI 1 (1-31)																											
Name			Format	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
	AuroMax 1-8	7.1	L	C	R	Lss	Rss	Lsr	Rsr	LFE																							
	AuroMax 9-16	7.1										L	C	R	Lss	Rss	Lsr	Rsr	LFE														
	AuroMax 17-24	7.0																		L	C	R	Lss	Rss	Lsr	Rsr							

**Figure 3 - 76** | Auromax 22.1 in I/O Setup

New Virtual buses must be mapped to these output paths in the Bus tab. These virtual buses must share the same format. It is also recommended to use identical names to avoid potential confusion.

The Mix Profile must be set to “Cinema Auromax” In the Settings tab of the Auromixing Engine. One desired Bed configuration must be selected as well.



**Figure 3 - 77** | Cinema Auromax Mix Profile using Auromax 22.1

In the Controls tab of the Auromixing engine, the Monitoring Configuration Drop Down Menu must be set to “Auromax 22.1”.



**Figure 3 - 78** | Auromax 22.1 Monitoring Configuration

In the Edit window of Pro Tools, three auxiliary input tracks must be created following the same format than the output paths. After routing each track appropriately, It is recommended to rename the tracks according to their respective output path.



**Figure 3 - 79** | Auromax 22.1 Configuration

An Auromax plugin must be inserted on each track. It is recommended to rename the Auromax plugins according to their respective track names using the Name fields. The Output Drop Down Menu of each Auromax plugin must be set to “Monitoring”. The Preset Drop Down Menu must be set to the corresponding group of channels.



**Figure 3 - 80** | Auromax 22.1 Configuration



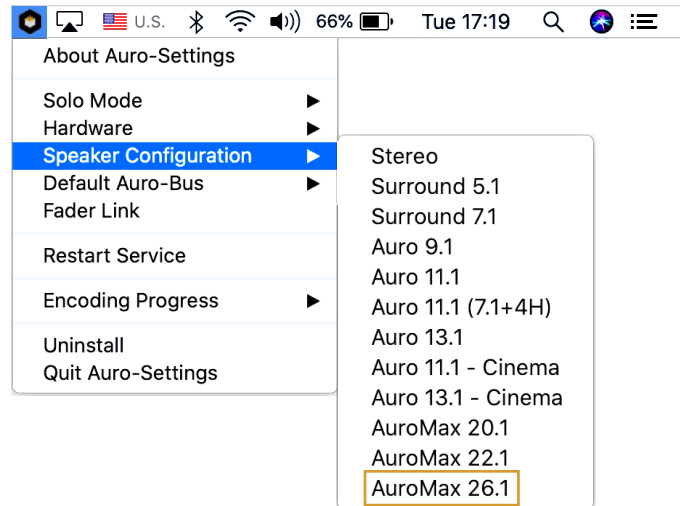
If using HD or HDX Audio Systems, a DSP plug-in must be inserted on the first Insert slot of every track that contains an AURO-3D<sup>®</sup> plug-in.



Inserting a (multi)-mono DSP version of the Trim plug-in reduces the DSP-overhead to a minimum and leaves the audio unaffected if the initial settings remain unchanged.

### 3.10.3 AuroMax 26.1

To work with the AuroMax 26.1 configuration, the Speaker Configuration Drop Down Menu in the Auro-Settings menu bar application must be set to “AuroMax 26.1”.



**Figure 3 - 81** | AuroMax 26.1 in the Speaker Configuration Drop Down Menu

In Pro Tools, the Output tab in the I/O Setup window must contain four output paths that are correctly assigned to the corresponding outputs of the audio interface (Pro Tools > Setup > I/O...):

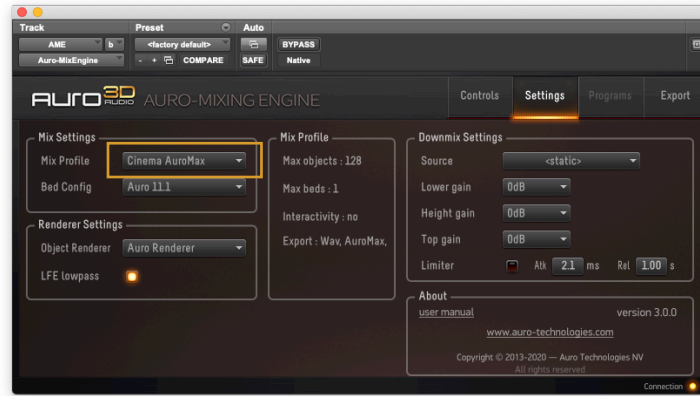
- **AuroMax 1-8:** 7.1 Format.
- **AuroMax 9-16:** 7.1 Format.
- **AuroMax 17-24:** 7.0 Format.
- **AuroMax 25-32:** Quad Format.

Input	Output	Bus	Insert	Mic Preamps	H/W Insert Delay																								
<div>Show Last Saved Setup</div>		A - Output MADI 1 (1-31)																											
Name	Format	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
AuroMax 1-8	7.1	L	C	R	Lss	Rss	Lsr	Rsr	LFE																				
AuroMax 9-16	7.1									L	C	R	Lss	Rss	Lsr	Rsr	LFE												
AuroMax 17-24	7.0																	L	C	R	Lss	Rss	Lsr	Rsr					
AuroMax 25-32	Quad																									L	R	Ls	Rs

**Figure 3 - 82** | AuroMax 26.1 in I/O Setup

New Virtual buses must be mapped to these output paths in the Bus tab. These virtual buses must share the same format. It is also recommended to use identical names to avoid potential confusion.

The Mix Profile must be set to “Cinema AuroMax” In the Settings tab of the Auro-Mixing Engine. One desired Bed configuration must be selected as well.



**Figure 3 - 83** | Cinema AUroMax Mix Profile using AUroMax 26.1

In the Controls tab of the AUro-Mixing engine, the Monitoring Configuration Drop Down Menu must be set to “AUroMax 26.1”.



**Figure 3 - 84** | AUroMax 26.1 Monitoring Configuration

In the Edit window of Pro Tools, four auxiliary input tracks must be created following the same format than the output paths. After routing each track appropriately, It is recommended to rename the tracks according to their respective output path.



**Figure 3 - 85** | AUro-Return Tracks for AUroMax 26.1 Configuration

An Auro-Return plugin must be inserted on each track. It is recommended to rename the Auro-Return plugins according to their respective track names using the Name fields. The Output Drop Down Menu of each Auro-Return plugin must be set to “Monitoring”. The Preset Drop Down Menu must be set to the corresponding group of channels.



**Figure 3 - 86** | Auro-Return Plugins for AuroMax 26.1 Configuration



If using HD or HDX Audio Systems, a DSP plug-in must be inserted on the first Insert slot of every track that contains an AURO-3D<sup>®</sup> plug-in.



Inserting a (multi)-mono DSP version of the Trim plug-in reduces the DSP-overhead to a minimum and leaves the audio unaffected if the initial settings remain unchanged.