



PART 8

## Chapter 62

1098

# Using the Fairlight Page

# Using the Fairlight Page

This chapter covers the basic user interface controls found on the Fairlight page, where they are and what they do, in order to give you an overall orientation of how to work with this integrated audio environment.

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# The Fairlight Page User Interface

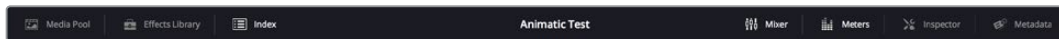
In single monitor mode, the Fairlight page is an optimized look at the audio tracks of your project, with an expanded mixer and custom monitoring controls that make it easy to evaluate and adjust the levels of your program in order to create a smooth and harmonious mix.



Audio page

## The Interface Toolbar

At the very top of the Fairlight page is a toolbar with buttons that let you show and hide different parts of the user interface. These buttons are as follows, from left to right:

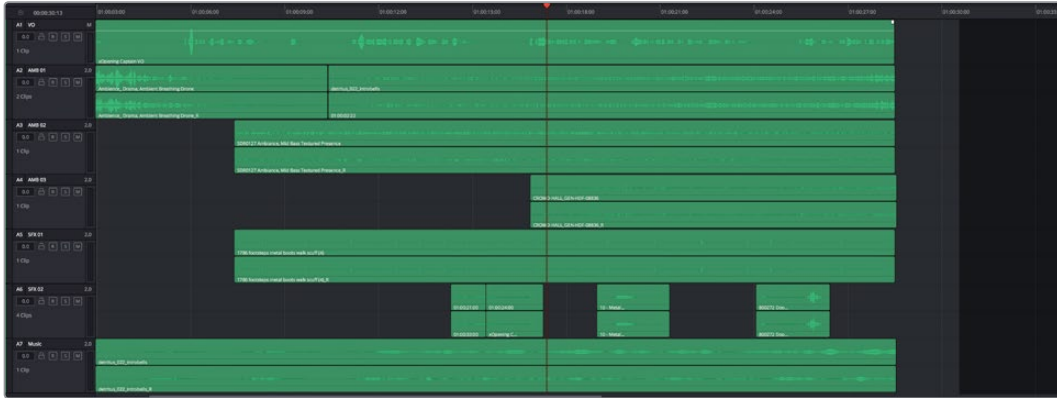


The Interface toolbar

- **Media Pool:** Shows and hides the Media Pool, from which you can edit audio clips into the Fairlight page timeline.
- **Effects Library:** Opens the Audio FX panel of the Effects Library, from which you can apply VST and other audio effects to clips in the timeline.
- **Index:** Shows and hides the Index and its Tracks and Markers panels. The Tracks panel lets you manage the tracks of the timeline, showing and hiding which ones you want to work with. The Markers panel lets you see every marker in the timeline, along with associated data, so that it's easy to browse through your markers all at once to quickly find the information you need.
- **Mixer:** Shows and hides the Mixer, to the right of the timeline, that lets you adjust various effects and levels associated with each track of the timeline in order to create a harmonious mix.
- **Monitoring:** Shows and hides the Monitoring audio meters and viewer at the top of the Fairlight page.
- **Inspector:** Show and hides the Inspector, from which you can edit different clip attributes.
- **Metadata:** Shows and hides the clip metadata inspector, from which you can view.

# The Audio Timeline

The heart of the Fairlight page, the Audio Timeline presents the audio channels and tracks of the currently selected timeline differently than the Edit page does, in a one-channel-per-track format that’s optimized for audio mixing and sweetening. The Audio page timeline cannot be closed.

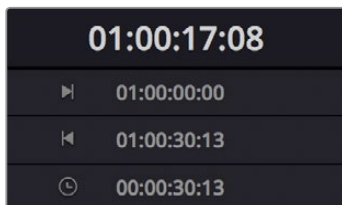


The Audio page timeline

## Controls in the Audio Timeline

The audio timeline has the following controls.

- **Timecode fields and Range buttons:** Four timecode fields show the current timecode value corresponding to the position of the playhead (at the very top), the Range In point, the Range Out point, and the Range duration. Clicking the Range In and Range Out buttons (to the left of the timecode fields) set these points and their corresponding timecode value.



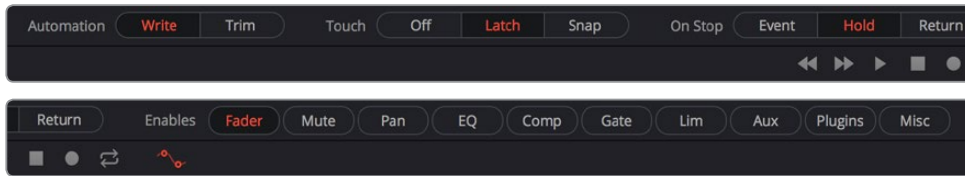
Timecode Fields and Range Buttons in the Fairlight page

- **Transport Controls:** The bar defining the top of the timeline contains the Fairlight page’s audio-specific transport controls, which differ from those found on the Media, Edit, Color, and Deliver pages due to its inclusion of recording capabilities. These include Fast Reverse, Fast Forward, Play Forward, Stop, Record, and Loop.



Fairlight page transport controls

- **Automation Toolbar:** Clicking this button opens a secondary toolbar with all the controls you need to configure the recording of mixer automation.



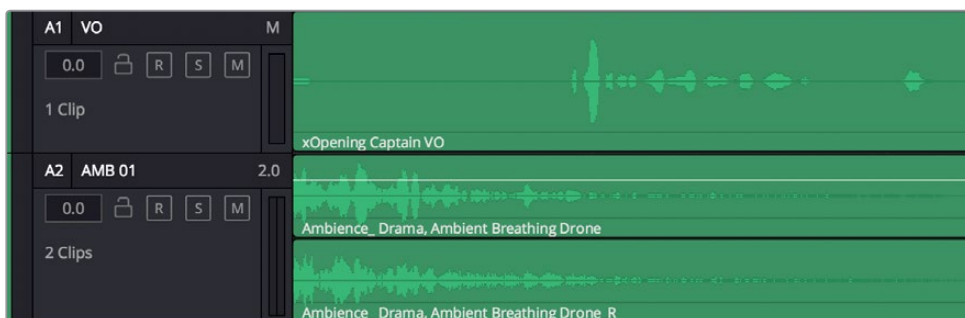
Fairlight page automation toolbar

- **Monitoring Controls:** At the far right of the transport controls, a set of three monitoring controls let you quickly control the output volume of your mix. An audio Enable/Disable button lets you turn audio playback on and off, while a slider lets you change the volume, and a DIM button lets you temporarily duck the monitored volume being output in order to have a quick chat with your client about sports or the state of the world while keeping half an ear on the mix.



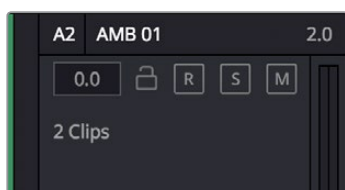
The monitoring controls

- **Timeline Ruler:** The Timeline Ruler shows the program's timecode. The playhead indicates the current frame and sample where you're working in the Timeline, and the playhead has a handle that appears within the Timeline Ruler. Dragging within the Timeline Ruler moves the playhead. When you add markers to the timeline, these markers appear within the Timeline Ruler, as well.
- **Playhead:** Shows the current frame and sample of playback, and provides a visual representation of where you are while playing, shuttling, and jogging through the timeline. Also used as a reference point for editing operations. The largest timecode display at the upper left-hand display shows the position of the playhead.
- **Audio Tracks:** The Fairlight page of DaVinci Resolve supports multiple audio tracks, and each audio track may contain multiple lanes with which to accommodate the audio channels that are contained within multi-channel audio clips using track mappings such as stereo, 5.1, 7.1, or Adaptive (1-24 channels). All audio clips that have been edited into the Timeline appear within each track, with the recorded channels within each clip occupying as many lanes as that clip has available. At the left of each track is a header area that contains a number of controls.



The Fairlight timeline is divided into tracks and lanes, track A1 has a single lane for the mono audio within it, and track A2 has two lanes to accommodate stereo audio

- **Track Header:** The Track Header contains different controls for selecting, locking/unlocking, and soloing/muting tracks. Each track header also lists how many clips appear on that track. The Track Header contains the following five controls, from left to right:



The track header controls of the Fairlight page timeline

**Track Color:** Each track can be color-coded with one of 16 different colors. These color codes correspond to the Edit page Mixer, and to the Fairlight page Mixer and Audio Meters. You can choose a new color for any track by right-clicking the track header and choosing from the Change Track Color submenu. You can set multiple tracks to the same color by Command-clicking in the track header of multiple tracks to select them, and then right-clicking one of the selected track headers and choosing from the Change Track Color submenu.

**Track Number:** Indicates the number of each track.

**Track Name:** Each track has a name that defaults to the track number, such as Track 1, Track 2. However, you can click any track's name and edit it to be whatever you like. For example, you can rename each track with the type of audio you're editing onto it, such as Production, Ambience, SFX, or Music. These track names are also used to identify each track's channel in the Mixer, in the middle of each channel strip (each channel strip's track number is simultaneously displayed at the top).

**Audio channel type indicator:** Audio tracks also show which channel configuration that track uses, listing the number of channels for mono, stereo, 5.1, 7.1, and adaptive.

**Fader Value:** A field displays the current fader setting at the position of the playhead, in dB.

**Lock Track button:** Light gray when turned on, dark gray when turned off. When a track is locked, clips can't be replaced, moved, or otherwise edited, although clips on locked tracks can be graded.

**Arm button:** This button arms recording onto that track.

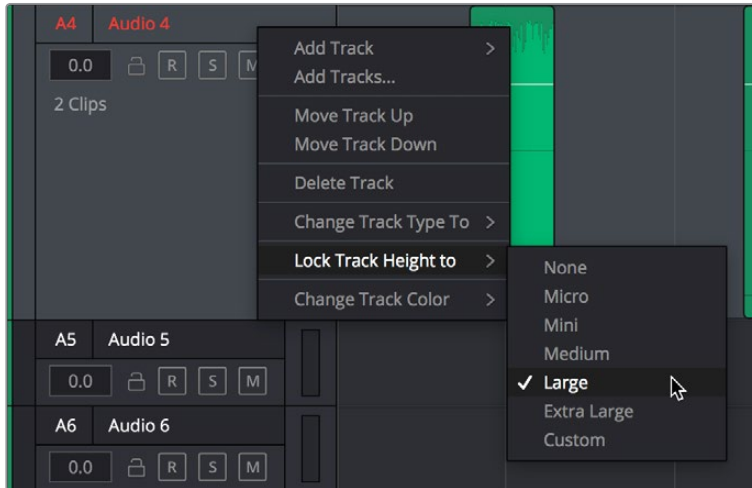
**Solo button:** Disables all other tracks but the current one, enabling you to quickly hear a single track in isolation. This affects rendering, so if one or more tracks are soloed, the muted tracks won't be output or rendered.

**Mute button:** Temporarily disables audio on that track so it's neither monitored nor output. This affects rendering, so if one or more tracks are muted, they won't be output or rendered.

**Audio Meters:** Each track has audio meters in the track header that let you see levels during playback.

- **Toolbar Editing Tools:** The toolbar contains both modal and command buttons to let you work on your projects. More detail on these appears in the following section.
- **Vertical and horizontal scroll bars:** If your project is longer than the current width of the Timeline, or the number of audio tracks is taller than the current height of the Timeline, these scroll bars let you drag to navigate around your program. When you scroll horizontally, you also move the playhead. You may also scroll vertically using the scroll wheel (or other scroll control) of your mouse or other pointing device. You may scroll horizontally by holding the Command key down while using your scroll control.

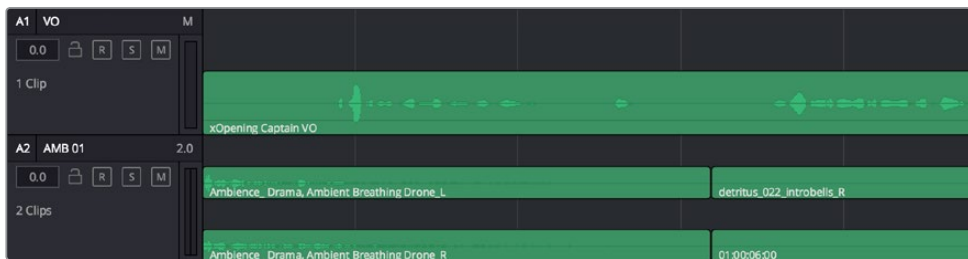
- **Individual Timeline track resizing:** Any track in the Timeline can be individually resized by right-clicking anywhere within that track's header control area and choosing a track height from the Lock Track Height To submenu of the contextual menu. You can choose a fixed size including Micro, Mini, Medium, Large, and Extra Large. When you choose a fixed track height, vertical zooming no longer affects that track until you change that track's Lock Track Height to option back to None.



Resizing an individual Audio timeline track using contextual menu options

## Track Layering

Audio layering is a special audio editing mode that lets you superimpose multiple audio clips in the same track, with audio clips edited into the top layers muting overlapping sections of audio clips appearing on lower layers. With audio layering enabled, superimposed audio clips are treated similarly to superimposed video clips that have opacity set to 100%, with clips on top obscuring (or muting) clips underneath.



Turning on Track Layers opens up space to edit more audio into each track

Audio layering is incredibly useful for any situation where you're combining segments of multiple takes together to create a single voiceover, audio vocal track, or dramatic performance, as you can choose which segments to use via their superimposed position in the stack of clips appearing in that track, while at the same time you're preserving the other takes underneath in case you might want them later.

**TIP:** Track Layering can be enabled for audio tracks on the Edit page as well.



## Switching Among Multiple Timelines

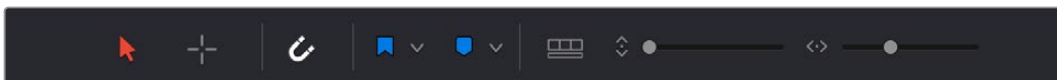
Timelines can be organized like any other clip in the Media Pool. To open or switch among timelines, use the following procedures.

### To switch timelines, do one of the following:

- In the Edit page Media Pool, double-click a timeline.
- In the Edit page Timeline Viewer, choose a timeline from the Timelines pop-up menu at the top of the viewer.
- In the Color page, choose a timeline from the Timelines pop-up menu at the top of the viewer.
- In the Fairlight page, choose a timeline from the Timelines pop-up menu to the left of the transport controls.

## Toolbar

The Toolbar has buttons that let you choose modes of functionality and other buttons that let you execute commands such as placing markers and flags.



Buttons in the Fairlight Page Toolbar

- **Normal Edit Mode:** The default mode in which you can move and resize clips in the Timeline, roll edits, and do other basic editing tasks.
- **Region Selection Mode:** Performs an insert edit to the Timeline with whatever clip is in the Source Viewer.
- **Snapping:** Enables or disables clip snapping. When turned on, clip In and Out points, markers, and the playhead all snap to one another for reference while you're editing. A pop-up menu lets you choose how to use snapping to quantize clip position, to Bars, Beats, Divisions, Tics, or via Smart snapping.
- **Flag Clip/Flag Colors pop-up menu:** Flags identify clips, and indicate all clips that correspond to the same item of media in the Media Pool. Clips can have multiple flags. Clicking the Flag button automatically adds a flag to whichever clip is currently selected in the Timeline. A pop-up menu to the right lets you choose differently colored flags, and clear all flags from the currently selected clip.
- **Add Marker/Marker Colors pop-up menu:** Markers identify specific frames of individual clips. Clicking the Add Marker button adds a marker of the currently displayed color to the clip at the position of the playhead in the Timeline. A pop-up menu to the right lets you choose differently colored markers, and clear all markers from the currently selected clip.
- **Customize Timeline pop-up menu:** Contains a variety of controls with which to customize the display of clips in the Timeline. Zoom View Preset buttons let you choose from one of 7 zoom levels, and checkboxes let you show and hide flags and markers, full waveforms, and waveform borders.

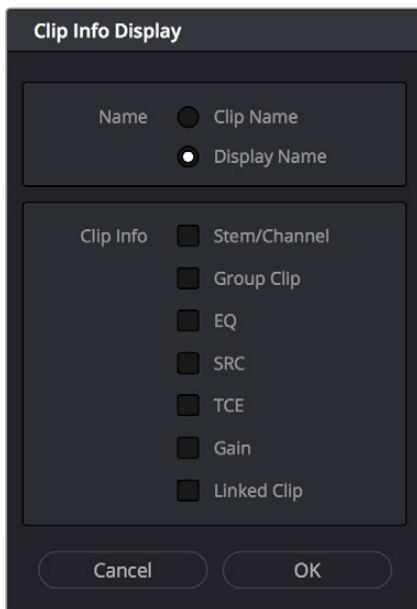


Selecting the Audio Timeline View options

- **Zoom Height slider:** Lets you change the height of all tracks and clips in the Timeline at once. You can also zoom the height of timeline tracks by pressing the Command key while using the scroll control of your pointer, if it has such a control. The scroll wheel of a mouse is most common.
- **Zoom Width slider:** Lets you shrink or expand the width of the contents of the Timeline. You can also control the width of the contents of the timeline using the scroll control of your pointer, if it has such a control. The scroll wheel of a mouse is most common.

## Customizing Clip Display in the Timeline

Choose Fairlight > View Clip Info Display to open a dialog with which you can customize what information is shown at the bottom of each clip in the timeline. This dialog has options for viewing the Clip name vs. the Display Name, and for choosing from among a variety of metadata that you might want available as you work.



Selecting the Audio Clip View options

## Customizing the Timeline's Display

There are a variety of ways you can customize the timeline to better see what you're working on.

- **Zoom View Presets:** Seven buttons let you choose one of seven zoom level presets.
- **Show Flags and Markers:** A checkbox that lets you show or hide all flags and markers in the Fairlight timeline.
- **Show Full Waveforms:** Lets you increase the height of audio waveforms into the space taken by the name bar of each clip.
- **Show Waveform Border:** Enables a border around audio waveforms that make them more visible.

## Mixer

The Audio Mixer provides a set of graphical controls you can use to assign track channels to output channels, adjust EQ and Dynamics, set levels and record automation, pan stereo and surround audio, and mute and solo tracks.

The Audio Mixer exposes two sets of channel strips with controls that correspond to the tracks in the Timeline. The left-most set of channel strips expose one set of controls for each track in the Timeline, while the right-most set of channel strips expose another set of controls for each Main and Sub (submix) you've created to bus the mixed audio tracks to whatever set of output tracks you want to expose.



The Audio Mixer, with channel strips corresponding to the tracks in the Timeline

- **Track Color:** Each track can be differently color-coded, to help you keep organized.
- **Track Number:** The number of the timeline track corresponding to each channel strip appears here.
- **Input:** A pop-up menu that lets you patch inputs, patch buses, and configure the input settings of audio signals routed through Blackmagic hardware interfaces.
- **Effects:** VST and Audio Unit effects that you apply to tracks from the Effects Library appear here, with controls for enabling/disabling each effect, opening an effect's custom controls, and deleting that effect.
- **Insert:** Enables the routing of effects from Blackmagic audio interface hardware to outboard effects boxes and back again. This button can be toggled to enable/disable such routing.
- **EQ:** Double-clicking exposes a four band parametric equalizer with additional Hi and Lo Pass filters, that has both graphical and numeric controls for boosting or attenuating different ranges of frequencies of audio on each track. You can select from among four types of EQ filtering from the Equalizer Type pop-up menu, with options for Earth (the default), Air, Ice, and Fire. Each band has controls for the filter type (Bell, Lo-Shelf, Hi-Shelf, Notch), Frequency, Gain, and Q-factor (sharpness of the band), with the available controls for each band of EQ change depending on the filter type.



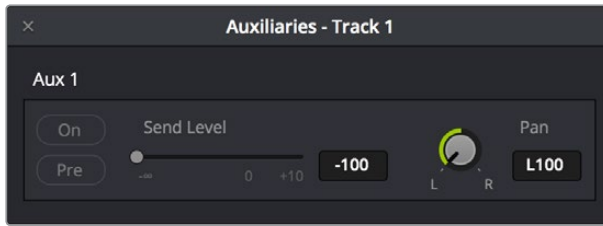
The channel strip EQ window

- **Dynamics:** Double-clicking exposes a set of dynamics controls with three sets of controls corresponding to an Expander or Gate, a Compressor, and a Limiter that can be used separately or in concert to manage the dynamics of the audio on that track.



The channel strip Dynamics control window

- **Aux:** Each Aux bar corresponds to a specific Aux bus that you created. Double-clicking any of these bars opens up the Auxiliaries window, with which you can enable or disable auxiliaries, set each one to be routed Pre the channel strip or Post the channel strip (the default), and set each Aux buses Send level and Pan value.



The Auxiliaries control window

Whatever level you set an Aux bus will be shown in the bar that represents that Aux bus in the Mixer's channel strip.



The Auxiliaries levels shown in the channel strip of the Mixer

- **Pan:** A pan control compatible with stereo and surround panning. You can drag within this control to adjust pan, or you can double-click to expose a pan window. What controls are available in the pan window depend on the mapping of the audio track, but both stereo and surround panning controls are available, with corresponding numeric controls.



The Pan control window

- **Main:** These buttons let you assign a track or Sub's channels to one or more of the main buses.
- **Submix:** These buttons let you assign that track's channels to one or more submix buses.
- **Track Name:** This mirrors the track name found in the header controls of the timeline. If you customize a track's name in the timeline, that name appears here.
- **dB:** Shows you the volume, in decibels, that track is currently set to.
- **Arm, Solo, and Mute buttons:** Identical to the controls found in the track header controls of each timeline audio track. Arm lets you enable a track to be recorded onto. Solo lets you mute all other tracks in order to play that track in isolation (along with any other Soloed tracks). Mute disables audio playback from that track.
- **Fader:** Each track's vertical faders let you adjust the volume of that track, and perform automation recording.

## The Monitoring Panel

The Monitoring panel that runs along the top of the Fairlight page shows all of the audio meters corresponding to the tracks in the timeline, as well as the Master Output meter, control room meters, and a video viewer.



The Monitoring panel

At left, a row of audio meters corresponds to the channel strips of the Mixer, one meter for every audio track in the timeline. Each track displays the number of meters that corresponds to that track's audio mapping, with mono tracks having a single audio meter, stereo tracks having two, 5.1 tracks having six, etcetera. All of these track and bus meters (with the exception of the Loudness meters) display both peak and RMS (root mean square) levels against a dB scale.

To the right of the Track meters are the Bus meters, in which all Mains, Subs, and Aux buses appear, separated by type, and each displaying the number of meters that corresponds to that track's audio mapping. This way you can see the sum of all tracks that have been routed to a particular bus.

The last set of meters, to the right of all others, are the Loudness meters, which consist of two sets of meters and a numerical readout. These meters let you keep track of the integrated loudness of the overall mix, which is the standard to which all contemporary mixing specifications refer when describing the deliverables you're expected to provide to the client.

## Viewer

A small viewer to the left of the Monitoring panel shows the frame of video at the position of the playhead. The only available control is a button in the lower right-hand corner that lets you expand the Viewer into its own floating window.



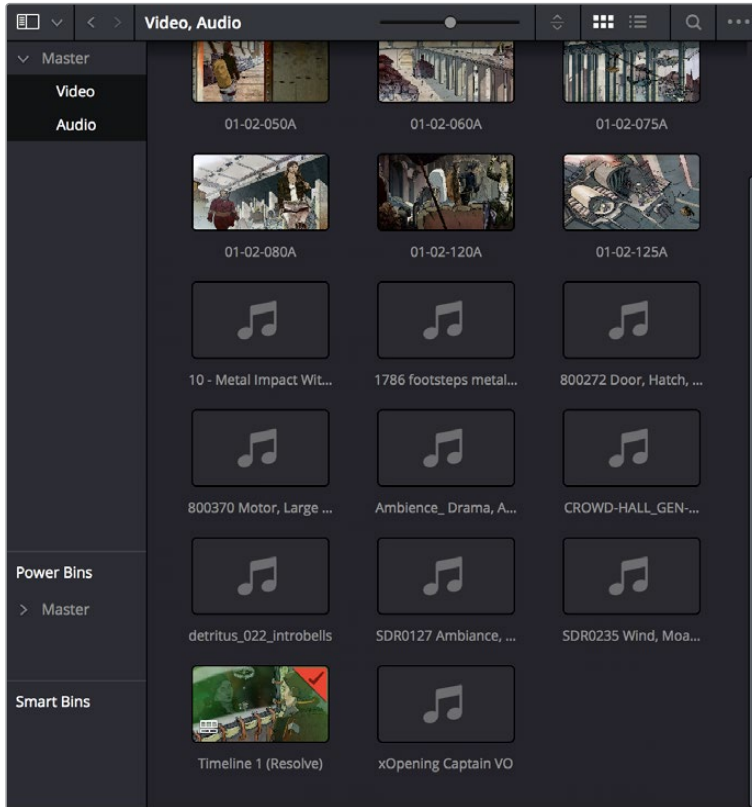
The Monitoring panel.

## The Media Pool

In the Fairlight page, the Media Pool serves as the repository of all audio clips in your project, both clips that appear within the timeline, and clips that you've added to your project but have not yet used. When you record audio into the timeline, the resulting clips are stored in the Media Pool as well, for future use. The Media Pool is also mirrored on the Media and Edit pages, and contains all of the video clips and timelines within that project.

The Bin list at the left shows a hierarchical list of bins used for organizing your media, which is also used to organize your timelines. By default, the Media Pool consists of a single bin, named "Master," but you can add more bins as necessary to organize timelines and clips by right-clicking anywhere in the empty area of the Media Pool and choosing Add Bin. You can rename any bin by double-clicking on its name and typing a new one, or by right-clicking a bin's name and choosing Rename Bin. The Bin list can be hidden or shown via the button at the upper left-hand corner of the Fairlight page toolbar.

The browser area to the right shows the contents of the currently selected bin in the bin list. Every clip you import, every timeline you create, and every AAF, XML, or EDL file you import appears here. You can create or import as many timelines as you need within a single project.



The Media Pool in Thumbnail mode showing audio clips

As elsewhere, the Media Pool can be displayed in either Icon or List view. In List view, you can sort the contents by any one of a subset of the total metadata that's available in the Metadata Editor of the Media page. Of particular interest to audio editors are columns for Name, Reel Name, different timecode streams, Description, Comments, Keyword, Shot, Scene, Take, Angle, Circled, Start KeyCode, Flags, and Usage.

For more information on using the myriad features of the Media Pool, see Chapter 8, "Adding and Organizing Media with the Media Pool." In the sections that follow, some key features of the Media Pool are summarized for your convenience.

## Importing Media Into the Media Pool on the Fairlight Page

While adding clips to the Media Pool in the Media page provides the most organizational flexibility and features, if you find yourself in the Edit or Fairlight pages and you need to quickly import a few clips for immediate use, you can do so in a couple of different ways.

### To add media by dragging one or more clips from the Finder to the Fairlight page Media Pool (macOS only):

- 1 Select one or more clips in the Finder.
- 2 Drag those clips into the Media Pool of DaVinci Resolve, or to a bin in the Bin list.

Those clips are added to the Media Pool of your project.

### To use the Import Media command in the Fairlight page Media Pool:

- 1 With the Fairlight page open, right-click anywhere in the Media Pool, and choose Import Media.
- 2 Use the Import dialog to select one or more clips to import, and click Open.

Those clips are added to the Media Pool of your project.



For more information on importing media using the myriad features of the Media page, see Chapter 8, “Adding and Organizing Media with the Media Pool.”

## Bins, Power Bins, and Smart Bins

There are actually three kinds of bins in the Media Pool, and each appears in its own section of the Bin list. The Power Bin and Smart Bin areas of the Bin list can be shown or hidden using commands in the View menu (View > Show Smart Bins, View > Show Power Bins). Here are the differences between the different kinds of bins:

- **Bins:** Simple, manually populated bins. Drag and drop anything you like into a bin, and that’s where it lives, until you decide to move it to another bin. Bins may be hierarchically organized, so you can create a Russian dolls nest of bins if you like. Creating new bins is as easy as right-clicking within the bin list and choosing Add Bin from the contextual menu.
- **Power Bins:** Hidden by default. These are also manually populated bins, but these bins are shared among all of the projects in your current database, making them ideal for shared title generators, graphics movies and stills, sound effects library files, music files, and other media that you want to be able to quickly and easily access from any project. To create a new Power Bin, show the Power Bins area of the Bin list, then right-click within it and choose Add Bin.
- **Smart Bins:** These are procedurally populated bins, meaning that custom rules employing metadata are used to dynamically filter the contents of the Media Pool whenever you select a Smart Bin. This makes Smart Bins fast ways of organizing the contents of projects for which you (or an assistant) has taken the time to add metadata to your clips using the Metadata Editor, adding Scene, Shot, and Take information, keywords, comments and description text, and myriad other pieces of information to make it faster to find what you’re looking for when you need it. To create a new Smart Bin, show the Smart Bin area of the Bin list (if necessary), then right-click within it and choose Add Smart Bin. A dialog appears in which you can edit the name of that bin and the rules it uses to filter clips, and click Create Smart Bin.

## Showing Bins in Separate Windows

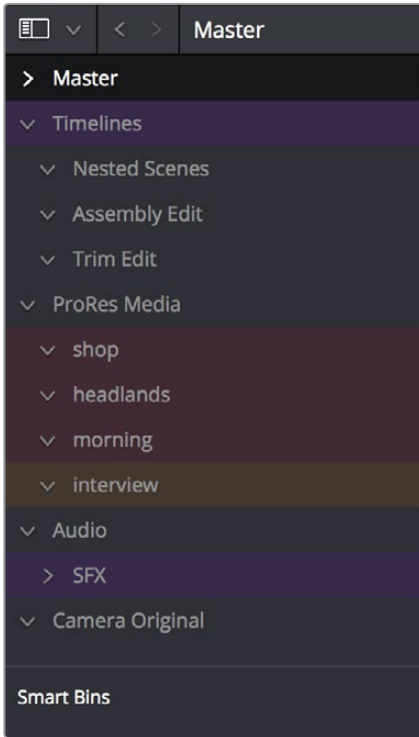
If you right-click a bin in the Bin List, you can choose “Open As New Window” to open that bin into its own window. Each window is its own Media Pool, complete with its own Bin List, Power Bins and Smart Bins lists, and display controls.

This is most useful when you have two displays connected to your workstation, as you can drag these separate bins to the second display while Resolve is in single screen mode. If you hide the bin list, not only do you get more room for clips, but you also prevent accidentally switching bins if you really want to only view a particular bin’s contents in that window. You can as many additional Bin windows open as you care to, in addition to the main Media Pool that’s docked in the primary window interface.

## Filtering Bins Using Color Tags

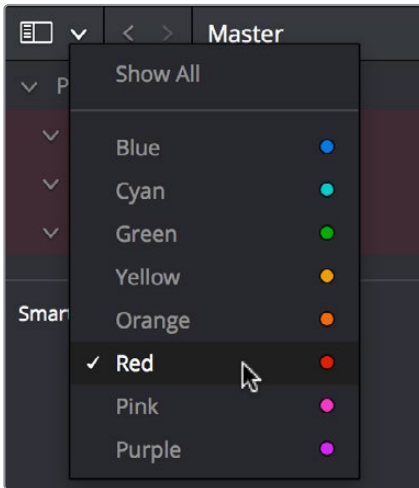
If you’re working on a project that has a lot of bins, you can apply color tags to identify particular bins with one of eight colors. Tagging bins is as easy as right-clicking any bin and choosing the color you want from the Color Tag submenu.

For example, you can identify the bins that have clips you’re using most frequently with a red tag. A bin’s color tag then appears as a colored background behind that bin’s name.



Using Color Tags to identify bins

Once you've tagged one or more Media Pool bins, you can use the Color Tag Filter pop-up menu (the pop-up control to the right of the Bin List button) to filter out all but a single color of bin.



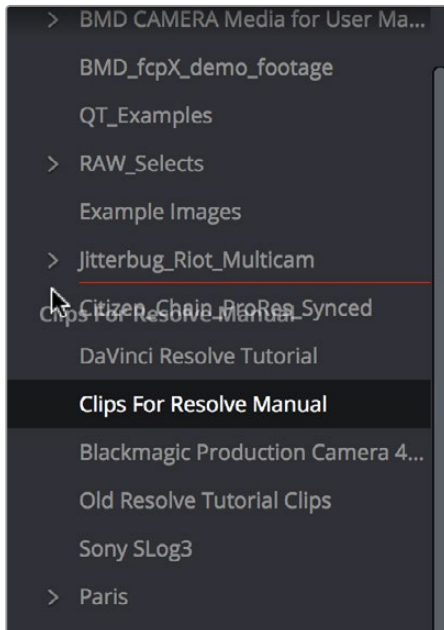
Using Color Tag filtering to isolate the blue bins

To go back to seeing all available bins, choose Show All from the Color Tag Filter pop-up.

### Sorting the Bin List

The Bin list (and Smart Bin list) of the Media Pool can be sorted by bin Name, Date Created, or Date Modified, in either ascending or descending order. Simply right-click anywhere within the Bin list and choose the options you want from the Sort by submenu of the contextual menu.

You can also choose User Sort from the same contextual menu, which lets you manually drag all bins in the Bin list to be in whatever order you like. As you drag bins in this mode, an orange line indicates the new position that bin will occupy when dropped.

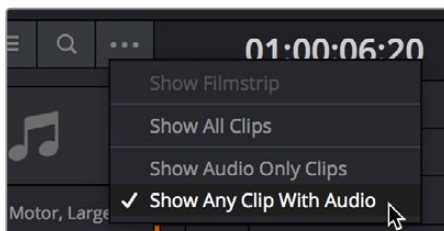


Dragging a bin to a new position in the Bin list in User Sort mode

If you use User Sort in the Bin list to rearrange your bins manually, you can switch back and forth between any of the other sorting methods (Name, Date Created, Date Modified) and User Sort and your manual User Sort order will be remembered, making it easy to use whatever method of bin sorting is most useful at the time, without losing your customized bin organization.

## Filtering Clips With Audio in the Fairlight Page

The Media Pool in the Fairlight page has one additional feature: the ability to filter out audio-only clips, or clips with audio, in the currently selected bin. This makes it easy for you to find audio clips that you're looking for, which are hidden along with lots of video clips in the same bin. To use this feature, click the Option menu of the Media Pool and choose Show All Clips, Show Audio Only Clips, or Show Clips With Audio.



The Media Pool filter options in the option menu

## Searching for Content in the Media Pool

An optional Search field can be opened at the top of the Media Pool that lets you quickly find clips by name, partial name, or any of a wide variety of Media Pool metadata.

**To search for a clip by name:**

- 1 Select which bin or bins you want to search.
- 2 Click the magnifying glass button at the upper right-hand corner of the Media Pool.
- 3 Choose the particular column of information you want to search (or All Fields to search all columns) using the Filter by pop-up menu. Only selected bins will be searched.
- 4 Type your search string into the Search field that appears. A few letters should be enough to isolate only those clips that have that character string within their name. To show all clips again, click the cancel button at the right of the search field.

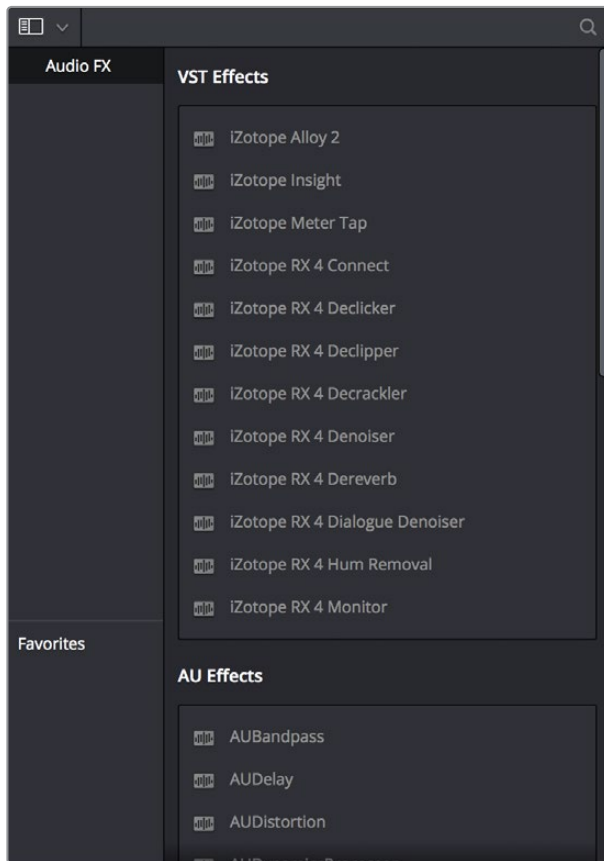
**TIP:** Smart Bins are essentially multi-criteria search operations that scope the entire project at once and are saved for future use.

## Taking Advantage of the Media Pool's Usage Column

In List view, the Usage column does not automatically update to show how many times a particular clip has been used. However, you can manually update this metadata by right-clicking within the Media Pool and choosing Update Usage Data from the contextual menu that appears. Afterwards, each clip will display how many times it's been used in this column. Clips that have not been used yet display an x.

## Effects Library

The Effects Library on the Fairlight page is restricted to displaying only the Audio FX that are available on your workstation. On Mac OS X and Windows, DaVinci Resolve supports the use of third-party VST audio plug-ins. On Mac OS X, DaVinci Resolve supports Audio Unit (AU) audio plug-ins. Once you install these effects on your workstation, they appear in this panel of the Effects Library. Audio plug-ins let you apply effects to audio clips or entire tracks worth of audio, to add creative qualities such as echo or reverb, or to take care of mastering issues using noise reduction, compression, or EQ.

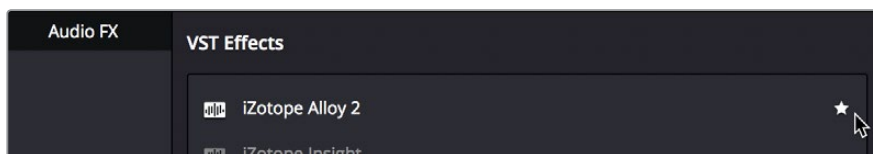


The Effects Library

Similar to the Media Pool, the Effects Library's bin list can be opened or closed using a button at the top left.

## Effects Library Favorites

You can click on the far right of any transition, title, or generator to flag that effect with a star as a favorite effect. When you do so, the favorited effects appear in a separate Favorites area at the bottom of the Effects Library Bin List.



Stars indicate a flagged favorite effect, all favorites are currently filtered

## Index

The Index provides a handy interface for listing all of the clips in the current edit, all the tracks in the current timeline, and all the markers in the current timeline. Using these lists, multiple items can be selected, tracks can be managed, and marker notes can be consulted with ease. Each of these three categories of information is displayed in separate panels:

- **Tracks:** Every track in the currently open timeline corresponds to a row of controls and information in this panel. From left to right, each track has a visibility control, a color control, a number, a name, a format, and a group that it belongs to.

	Color	#	Name	Format	Group
👁	■	1	VO	R	0
👁	■	2	AMB 01	2.0	0
👁	■	3	AMB 02	2.0	0
👁	■	4	AMB 03	2.0	0
👁	■	5	SFX 01	2.0	0
👁	■	6	SFX 02	2.0	0
👁	■	7	Music	2.0	0

The tracks panel shows a row of information for each of the tracks in the timeline

- **Markers:** The markers panel can be displayed in either thumbnail or list mode. In thumbnails mode, each marker in your timeline corresponds to a thumbnail displaying the timecode of its location underneath it, and the color of the marker to the left of the timecode location. In list view, each marker displays a row with the following information; marker number, frame (showing a thumbnail), marker name, start timecode, end timecode, duration, marker color, and notes.

#	Frame	Name	Start TC	End TC	Duration	Color	Notes
0		Blue Marker	01:00:07:17	01:00:07:18	00:00:00:01	■	Fade In
1		Blue Marker	01:00:11:08	01:00:11:09	00:00:00:01	■	Add me
2		Blue Marker	01:00:15:18	01:00:15:19	00:00:00:01	■	Remix
3		Blue Marker	01:00:17:05	01:00:17:06	00:00:00:01	■	Noise re
4		Blue Marker	01:00:19:08	01:00:19:09	00:00:00:01	■	New tak

The markers panel shows a row of information for each of the markers in the timeline

## Inspector

When you add an audio effect to a clip or a track, those effects appear in the Inspector when that clip or track is selected.

# Metadata Editor

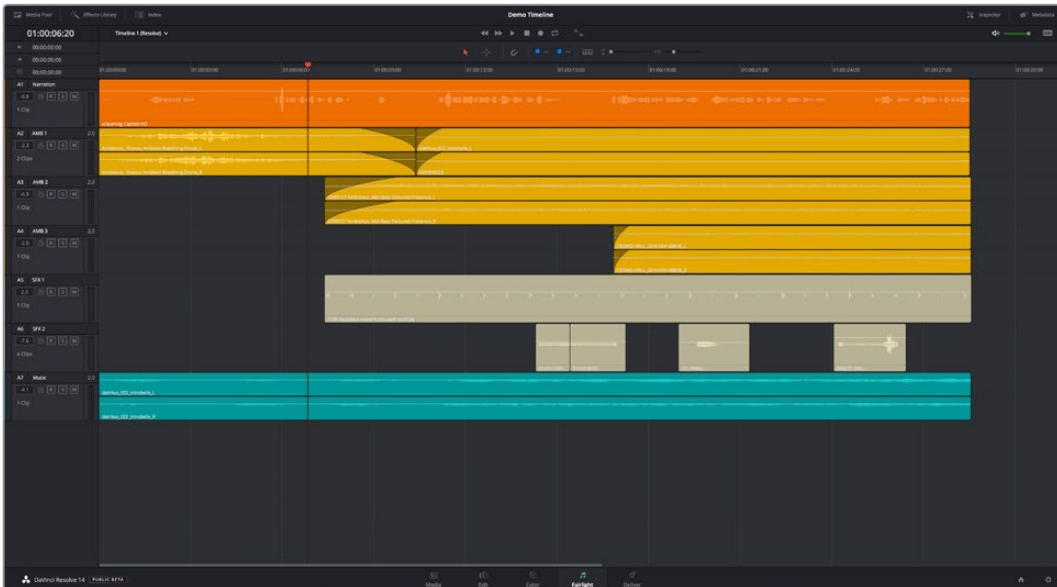
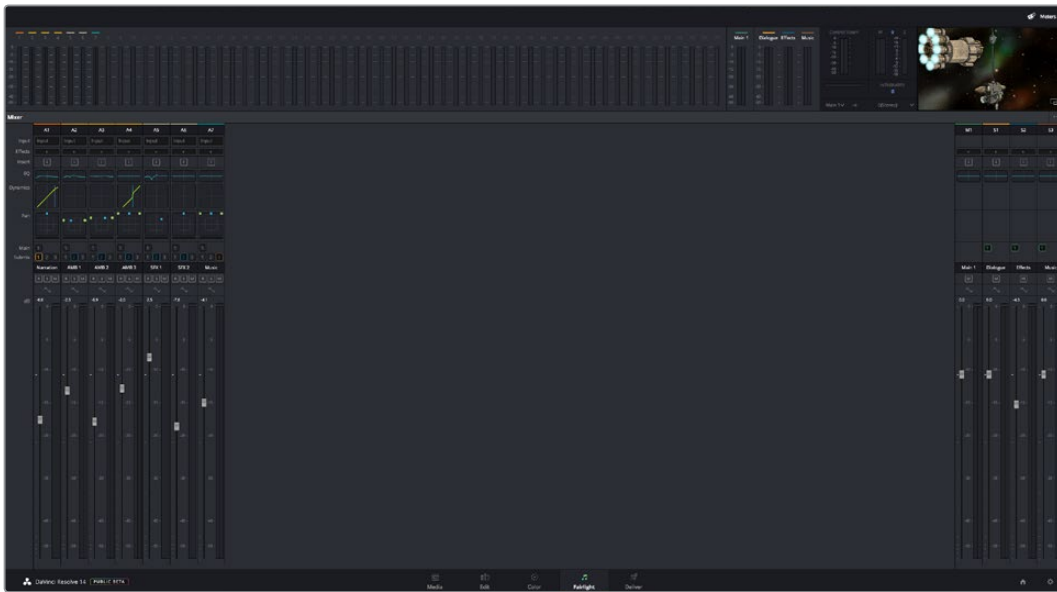
Lets you view and edit the metadata of selected clips in the Fairlight page.

# Dual Monitor Layout

The Audio page has a dual monitor layout that provides maximum space for the mixer and audio meters on one screen and a full-screen timeline on the other.

**To enter dual screen mode:**

Choose Workspace > Dual Screen > On.



The Fairlight page in dual screen mode

**To switch which UI elements appear on which monitors:**

Choose Workspace > Primary Display > Display 1 or Display 2, which reverses the contents of both monitors in dual screen mode.

## Customizing the Fairlight Page

The default layout is quite efficient for a number of tasks on most displays. You can always return to the default layout by choosing Workspace > Reset UI Layout. However, the Fairlight page can be customized to create more room for specific areas of the interface to accommodate different tasks.

### To resize any area of the Fairlight page:

Drag the vertical or horizontal border between any two panels to enlarge one and shrink the other.

### To resize the height of individual audio tracks:

Move the pointer to the bottom border of any audio track header, and when it becomes a resize cursor, drag that border up or down to resize that track. Each track can have an independent size when you do this.

### To resize any column of the Index:

Move your pointer over the divider between any two columns and drag when the horizontal resize cursor appears.

### To rearrange Index columns:

Drag the header of any column to the left and right to move that column.

## Undo and Redo in the Fairlight Page

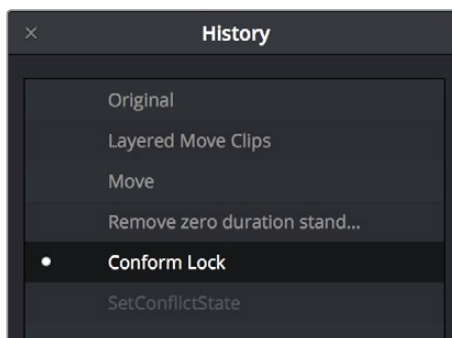
The Fairlight page shares its multiple-undo stack with the Edit page. However, the Fairlight and Edit page undo stack is entirely separate from the multiple-undo stacks maintained for each clip in the Color page, making it easy and reliable to undo edits and other changes you make in the Timeline without disturbing your work in the Color page. There are two ways you can undo.

### To undo and redo:

Press Command-Z to Undo, and Shift-Command-Z to Redo.

### To undo and redo using the Undo list:

- 1 Choose Edit > Undo List.
- 2 When the History dialog appears, click an item on the list to undo back to that point. The most recent thing you've done appears at the bottom of this list.



The Undo List

- 3 When you're done, close the History window.



## Chapter 63

1121

# Setting Up Tracks, Buses, and Patching

# Setting Up Tracks, Buses, and Patching

One of the first things you need to do when you're setting up a new project for mixing in the Fairlight page is to define all of the audio tracks and buses you're going to need, including submixes and mains that route and combine the audio being output. This chapter covers how to create audio tracks, and how to use buses to manage your mixes in the most efficient possible way.

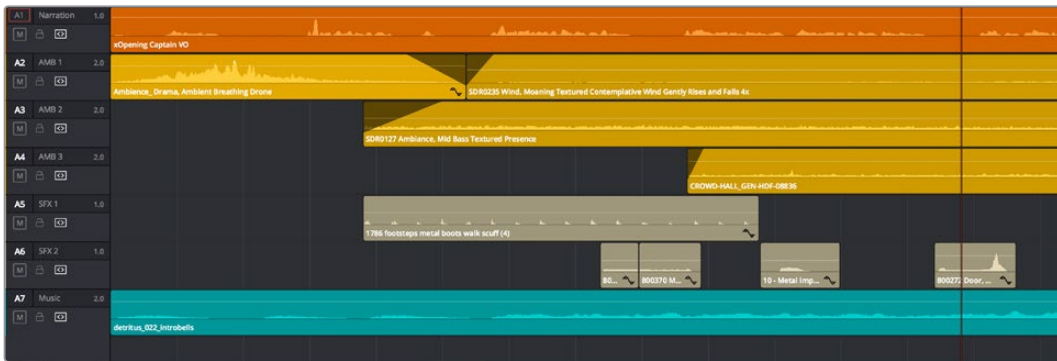
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# Audio Tracks

Each audio track in a Resolve timeline corresponds to a single channel strip on the Mixer’s left side. Depending on how an audio track has been configured, each audio track is assigned a specific audio format such as stereo, LCRS, 5.1 surround, or 7.1 surround, so that multiple audio channels within the clips on that track can be correctly routed to the proper audio output for monitoring and rendering via the lanes that can be seen within each track on the Fairlight timeline.

Audio tracks in DaVinci Resolve have been designed to contain multiple channels of clip audio within a single track, but how those individual audio channels are displayed depends on the page. The Edit page hides these individual audio channels, displaying only a single clip in the timeline to make it easier to edit multi-channel sources without needing to manage a huge number of tracks. However, the Fairlight page has a unique Track and Lane system for displaying audio.

The Fairlight page displays the same number of tracks as the Edit page, but each track on the Fairlight page is divided into lanes, which expose each individual channel of clip audio for editing and mixing.



(Top) Stereo audio in the Edit page represented by a single track (Right) The same stereo audio in the Fairlight page shows the two lanes that correspond to each of the stereo audio tracks

Now that you understand how tracks work on the Fairlight page, the next important concept you need to understand in order to unlock the power of the Fairlight page is the audio bus, which lets you combine multiple audio tracks in different ways.

## What is a Bus?

In audio postproduction, a bus is essentially a destination channel to which you can route multiple audio feeds (typically the audio tracks in the timeline) so they are mixed together into a single signal that can be controlled via a single channel strip.

For example, if you have five audio channels into which have been edited all of the dialog audio clips for a particular program, you can route the output of all five dialog tracks to a Submix bus, which combines them so that all dialog can then be mixed with a single set of controls.

There are multiple levels of busses. For example, individual tracks can be routed to Submix busses, as described above. Additionally, multiple Submixes can be routed to one or more Mains. For example, you could have four submix busses, one for German dialog, one for English dialog, one for Music, and one for Effects. You could route the German, Music, and Effects submix busses to Main 1 for the German version of the program, and route the English, Music, and Effects submix busses to Main 2 for the English language version of the program.

Audio tracks from the timeline are routed to buses via each channel strip's multiformat surround panner, so buses are configured to accommodate specific audio formats such as stereo, LCRS, 5.1 surround, or 7.1 surround.

## Types of Buses

There are four types of busses in DaVinci Resolve.

### Mains

Main busses are typically the primary output of a program; each new project you create starts out with a single Main called M1, to which all tracks are routed by default. You can add additional Mains, and you can use them however you like, as either full or partial mixes of the program you're working on. Mains can be directly output in the deliver page.

### Sub (Submix)

Sub busses are often the means by which multiple tracks of audio that belong to the same category (dialog, music, effects, ambience, etcetera) are combined together so that everything in that category can be mixed as a single audio signal. Multiple Sub busses can be themselves routed to Main busses, or they can be directly output in the deliver page.

### Aux (Auxillary)

Each channel strip includes twelve auxiliary bus sends, which are typically used to route audio to software or hardware effects of some kind. To understand how Aux sends fit into the audio processing path, auxiliary send signals are connected either immediately before or after a channel strip's fader. Each auxiliary bus can also be configured to accommodate specific audio formats such as stereo, LCRS, 5.1 surround, or 7.1 surround.

### Multi Track

Multitrack buses provide bus paths for combining feeds that you want to re-record to disk, or route to other I/O.

## Controlling Signal Flow

The process of setting yourself up for editing and mixing in the Fairlight page involves:

- First, customizing the tracks of the timeline to be organized and configured as required.
- Second, creating the busses you need in order to organize your signal flow.
- Third, patching the tracks to Subs, and the Subs to Mains, in order to create the signal flow you need.

## Managing Audio Tracks

When you're getting ready to record or edit audio clips into the Fairlight Timeline, you need to make sure you've got enough tracks to do the job. The following procedures cover the different methods available for adding, removing, and rearranging tracks as you work. These commands are all available via the contextual menu that appears when you right-click anywhere in the Timeline header area (the header of the Timeline is the area to the left where each track's various buttons and controls are located).

### Defining Timeline Audio Track Channels at Creation

If you decide to create a new audio track, you have to choose what kind of audio track it will be. Right-clicking in the bottom audio portion of the Timeline track header reveals a contextual submenu that lets you create one of three different kinds of audio tracks.

- **Mono:** Holds a single channel with only one lane.
- **Stereo:** Holds stereo left and right channels, with two lanes
- **5.1:** Holds the six channels corresponding to a 5.1 surround mix, for a total of six lanes. For broadcast, SMPTE specifies Left, Center, Right, Left Surround, Right Surround, and LFE. For cinema distribution these tracks are ordered Left, Right, Center, LFE, Surround Left, Surround Right, and LFE.
- **7.1:** Holds the eight channels corresponding to a 7.1 surround mix, for a total of eight lanes. For broadcast, SMPTE specifies Left, Center, Right, Left Surround, Right Surround, LFE, Back Surround Left, and Back Surround Right. For cinema distribution these tracks are ordered Left, Right, Center, LFE, Left Surround, Right Surround, Back Left Surround, and Back Right Surround.
- **Adaptive:** Capable of holding up to 24 audio channels, which would display up to 24 lanes within the track. An adaptive audio track can hold clips with different combinations of channels, up to the maximum number of channels allowed within that track. The number of channels allowable on a particular Adaptive track is user-definable (1–24) at the time that track is created. If you edit a clip with more channels into an Adaptive track that was created to hold fewer channels, the extra clip channels are muted.

### Creating Tracks

There are two commands with which to create new audio tracks, and both are in the contextual menu found by right-clicking within any audio track's header controls. Add Track adds a single audio track of the type you choose from a submenu. Add Tracks lets you insert as many tracks as you like, of a type and at a position you designate using the Add Tracks dialog.

## Rearranging Tracks

You can rearrange tracks by right-clicking in a track's header area and choosing either Move Track Up or Move Track Down in the contextual menu that appears.

## Changing How Many Channels an Audio Track Has

If you had set up your timeline with one kind of audio track, but you discover you actually need a different kind, you can change any audio track's type at any time. Just right-click anywhere in that audio track's timeline header, and choose an option from the Change Track Type To submenu of the contextual menu.

## Deleting Tracks

Right-click within a track's Timeline header and choose Delete Track. If there are clips on a track you remove, they are also deleted from the Timeline, but preserved in the Media Pool.

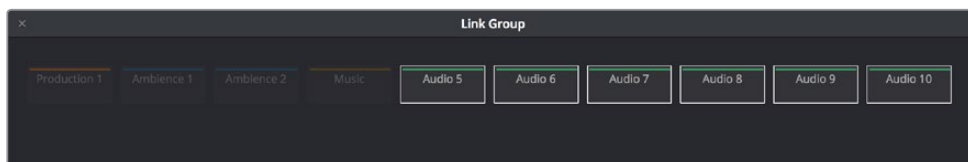
## Linked Group Support for Mono Tracks

Linked Groups are an organizational construct that you can create using mono tracks (other kinds of tracks such as stereo, 5.1, 7.1, or Adaptive cannot be used in a Linked Group). Unlike a multi-channel track with lanes, a Linked Group of mono tracks functions as five independently editable tracks in the Timeline. However, each track is mapped just like an audio channel using one of the standard multi-channel mappings (stereo, 5.1, 7.1, Adaptive), and Linked Groups of mono tracks are mixed using only a single channel strip.

Linked Groups are extremely useful when you've been given a set of six independent audio files that need to be assembled as a single surround mix, or when you have surround channels that need to be specifically re-edited on a channel by channel basis.

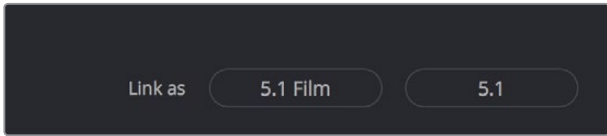
### To create a Linked Group:

- 1 Create two or more Mono audio tracks that you want to group together. If you need to create a Linked Group with a specific channel mapping, such as 5.1, make sure you create enough tracks (in this case, 6).
- 2 Choose Fairlight > Link Group.
- 3 When the Link Group dialog appears, Mono audio tracks are represented by active buttons (all other channel mapped tracks are disabled, since they can't be linked). Click to enable the button of every track you want to include in the group you're about to create. Which mappings are available to use for creating your group depends on how many tracks you've selected.



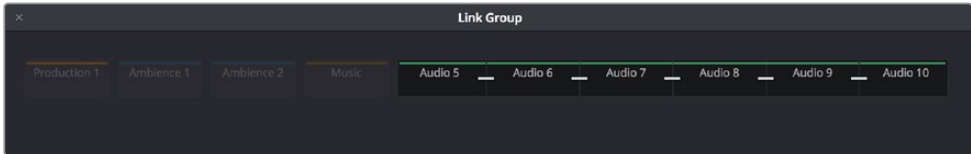
Selecting six tracks to use for creating a Link Group

- 4 After you've selected all the tracks you need to, click one of the available "Link as" buttons below. In this example, six tracks have been selected, so you could click 5.1 Film or 5.1.



When you select enough tracks, you can create groups linked as specific surround mappings

Afterwards, the tracks you selected should turn into a single block, showing they've been linked.



When you select enough tracks, you can create groups linked as specific surround mappings

- 5 Close the Link Group window when you're finished.

Once you've created a Linked Group, the mono tracks in the timeline that you linked appear with a bar to the left in the track header that spans every track that's linked. If the tracks are tall enough, they'll also be labeled to identify which track corresponds to which surround channel, L, R, C, Lfe, Ls, Rs, etcetera.



Tracks in a linked group are labeled to identify which track corresponds to which surround channel

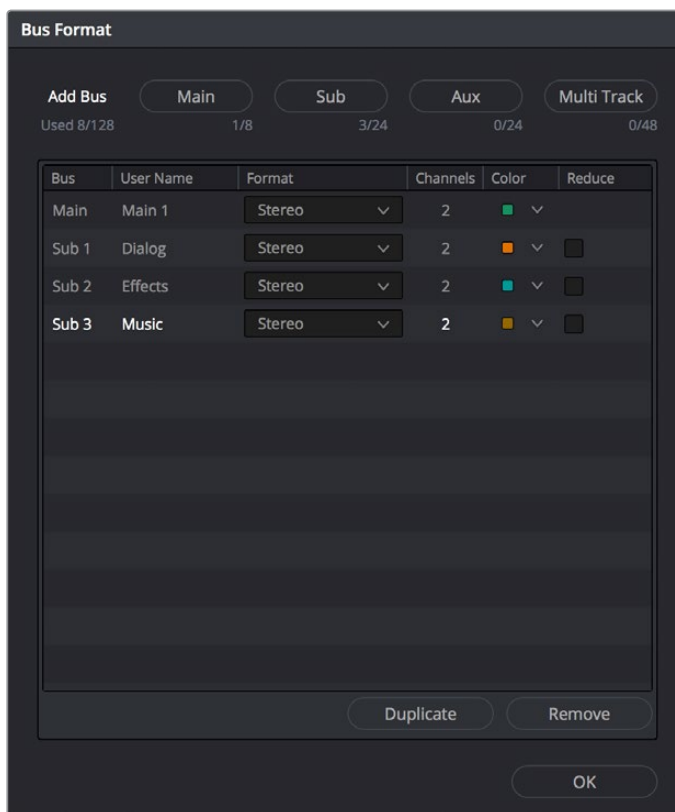
If necessary, you can also unlink a linked group to turn it back into independent mono tracks.

**To unlink a linked group:**

- 1 Choose Fairlight > Link Group.
- 2 When the Link Group dialog appears, select the linked group you want to unlink.
- 3 Click Unlink.
- 4 Close the Link Group window when you're finished.

## Creating Buses

Choosing Fairlight > Bus Format opens the Bus Format window, which lets you create as many busses as you need (up to the limitations of your system) to organize the tracks and channels of your program.



The Bus Format window lets you add busses to the mixer

Four buttons at the top of the window let you create any type of bus Fairlight supports. Creating a new bus, whether it's a Main, Sub, Aux, or Multi Track, adds the new bus to the list that appears below.

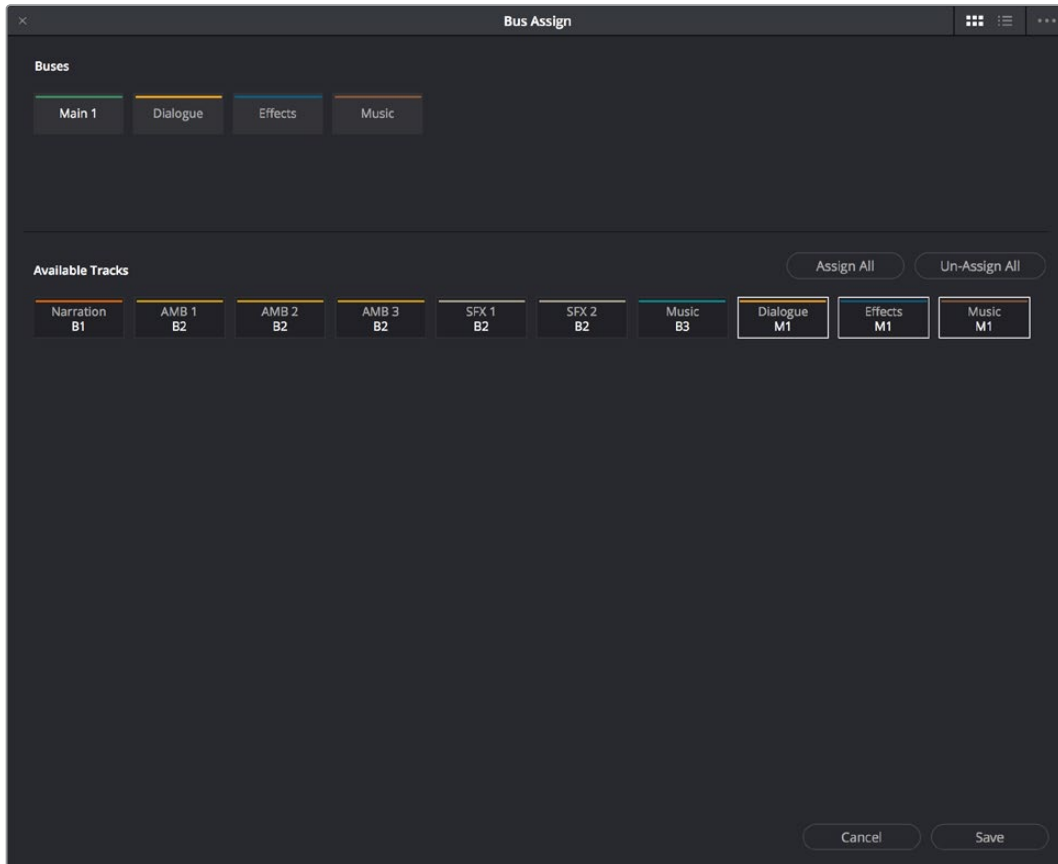
The Bus list lets you rename the bus, choose the format of each bus (a pop-up menu appears in the Format column of each entry of the list), and color-code each bus (a Color pop-up lets you choose that bus's color). Simply click any item on the Bus list to select it, and choose different options from the Format and Color pop-up menus, or click on the User Name of any bus to select it, and type a custom name.

At the bottom of the list are two additional buttons that let you Duplicate or Remove selected Buses. When you're done modifying the available busses, you can click OK to accept the change and close the Bus Format window, Cancel to close the window (although any busses you've made remain in place, or Bus Assign to open the Bus Assign window,).



# Assigning Buses

Once you've created one or more busses, you'll want to assign different tracks to specific busses, and different Subs to specific Mains. This is accomplished in the Bus Assign window, which you can open by choosing Fairlight > Bus Assign, or by clicking the Bus Assign button in the Bus Format window.



The Bus Assign window lets you choose which tracks are connected to which busses, and which busses are connected to which mains

The top shows all of the available Main, Sub, and Multi Track busses, while the bottom shows all available tracks, Sub busses, and Aux busses. The Bus Assign window defaults to icon view, in which each Bus and Track is shown as a button, but it can be switched to list view, in which the Available Tracks section is shown as a list.

## Methods of making bus assignments:

- **To assign specific tracks to a bus:** Click a button in the Buses section to select that bus, and then either click or drag a bounding box over all the available tracks that you want to assign to that bus. Once assigned, the Available Tracks buttons display which Bus they've been assigned to.



Assigning multiple tracks to a bus by dragging a bounding box

- **To assign every track, Sub, and Aux to a bus:** Click a button in the Buses section to select that bus, and then click Assign All.
- **To clear all track assignments from a particular bus:** Click a button in the Buses section to select that bus, and then click Un-Assign All.

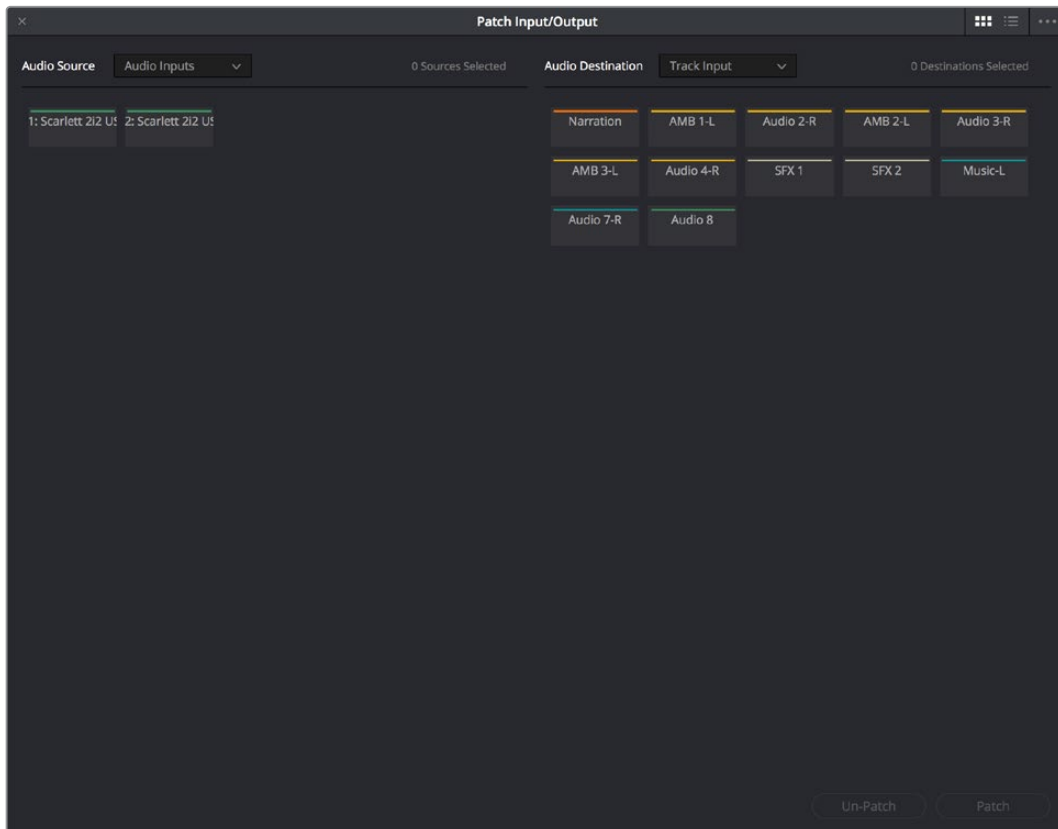
When you're done making bus assignments, click Save.

## Patching Signal Paths

While bus creation and assignment is a straightforward way of creating a cascade of routing from tracks to Subs to Mains, sometimes you need to create more specific signal paths. For example, if you need to record audio to a track, you need to patch the audio input you want to record from to the track you want to record to. This, and many other scenarios, are accomplished using the Patch Input/Output window.

Using the Patch Input/Output Window

Choosing Fairlight > Patch Input/Output opens the Patch Input/Output window, which can be displayed in either icon or list view. This window is split into two halves, with the left half containing whichever Audio Source controls you choose, and the right half containing whichever Audio Destinations you choose. In the following screenshot, the Audio Inputs from a Scarlett2i2 USB audio interface are shown, while the available Track Inputs are shown to the right.



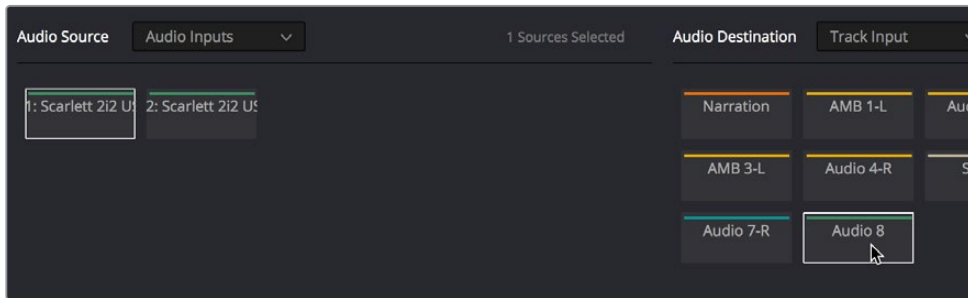
The Patch Input/Output Window showing Audio Inputs and Track Inputs

## Creating a Patch

By default, the Patch Input/Output window shows the available Audio Inputs as the Source, and the Track Inputs as the Destination. This makes it easy to patch whatever audio source (such as a microphone connected to a USB audio interface) to a specific audio track of the timeline to prepare for recording. Patching and Un-Patching a source to a destination is straightforward.

### To patch a source to a destination:

- 1 Click the button or list item of the source you want to patch on the left side of the Patch Input/Output window.
- 2 Click the button or list item of the destination you want to patch on the right side.



A selected Audio Source and Audio Destination pair

- 3 Click the Patch button at the bottom right of the window. The Source and Destination will both display the connection they're patched to.

### To un-patch a source and destination pair:

- 1 Click the button or list item of a source or destination you want to un-patch.
- 2 Click Un-Patch.

## Choosing Audio Source and Destination Controls

The Audio Source and Destination pop-up menus let you choose different categories of source and destination controls to patch together.

### The following Audio Source options are available:

- **Audio Inputs:** The available physical audio inputs on your workstation, for example SX-36, MADI, or system audio. Useful when patching to record audio.
- **Track Repr:** Short for Reproduction, this is the signal from the track playback, before any processing
- **Track Send:** Track Insert send
- **Track Direct:** Track Direct Out, can be pre- or post the track fader, with an offset
- **MT-Bus Dir:** Multitrack Bus Direct Out, can be pre- or post the multitrack bus master fader, with an offset
- **MT-Bus Out:** Multitrack Bus Out, always post the Multitrack bus master fader
- **Aux-Bus Send:** Aux bus master insert send
- **Aux-Bus Dir:** Aux Bus Direct Out, can be pre- or post the Aux bus master fader, with an offset
- **Aux-Bus Out:** Aux Bus Out, always post the Aux bus master fader
- **Sub-Bus Send:** Sub bus master insert send
- **Sub-Bus Dir:** Sub Bus Direct Out, can be pre- or post the Sub bus master fader, with an offset

- **Sub-Bus Out:** Sub Bus Out, always post the Sub bus master fader
- **CR-Mon Dir:** Monitor system Direct out. Post fold up/down matrix, pre the Monitor VolumeLevel/Dim/Mute
- **CR-Mon Out:** Monitor system output. Post fold up/down matrix and Monitor VolumeLevel/Dim/Mute
- **Main Send:** Main bus master insert send
- **Main Dir:** Main Bus Direct Out, can be pre- or post the Main bus master fader, with an offset
- **Main Out:** Main Bus Out, always post the Main bus master fader
- **Osc:** Oscillator outputs. Sine, Pink noise, White noise
- **Solo Out:** AFL and PFL Solo Bus Out, always post the respective bus master fader

**The following Audio Destination options are available:**

- **Track Input:** Input to the Record and Thru path; simply put, the available audio tracks in the current timeline
- **Track Return:** Track Insert Return
- **Aux-Bus Return:** Aux Bus master insert return
- **Sub-Bus Return:** Sub Bus master insert return
- **Main Return:** Main Bus master insert return
- **CR-Mon In:** Input to the Monitor system's fold up/down matrices
- **Talk Back:** The Talkback system, showing Comm1 and Comm2
- **Audio Outputs:** The available physical audio outputs on your workstation, for example SX-36, MADI, or system audio

## Using a Channel Strip's Input Menu

The Input pop-up menu at the top of each track's channel strip in the mixer provides some shortcuts for patching different inputs and buses to the tracks of your mix. Each option in this menu makes the Patch Input/Output window appear with different Audio Source and Audio Destination selections automatically set up.

### Input

The Patch Input/Output window appears set up to let you patch different inputs (such as the system audio input) to the tracks of the timeline. This makes it fast for setting up audio inputs in preparation for recording.

### Aux Bus

The Patch Input/Output window appears set up to let you patch different Aux buses to specific submix and timeline track channels.

### Sub Bus

The Patch Input/Output window appears set up to let you patch different Sub (submix) bus channels to specific timeline track channels.

### Main Bus

The Patch Input/Output window appears set up to let you patch different Main bus channels to specific timeline track channels.

## Input Settings

Choosing Input Settings opens the Path Settings window for that track. This window contains controls for adjusting the input level of audio signals being input via a BMD input/output device.



The Patch Input/Output Window showing Audio Inputs and Track Inputs

### These parameters control the following:

- Mic/Instr.:** Adjusts the Mic/Instrument level for this source, from 0 to 100 dB.
  - On:** Enables Microphone/Instrument level for this source.
  - 48V:** Enables phantom power for that input.
- Record Level:** Controls the level going to the Disk before recording. It does not affect the track when in Thru mode.
  - Rec:** Enabling this button makes this track ready to record. Only turn this on if there is an audio source patched to the current track.
  - Thru:** When on, this makes the affected track into the equivalent to a Live Feed. When enabled, this track will monitor its input, but will not respond to a record command. Only turn this on if there is an audio source patched to the current track.
- Trim:** This parameter controls the level as the channel enters the mixer. For timeline tracks, this controls the signal coming from disk, and does not affect any current levels being recorded.
- Direct Output:** Controls the level going from this channel to the Direct Output.
  - On:** Toggles direct output on and off.
  - Pre:** Toggles the Direct Output to connect either pre or post the main channel fader.
- Insert:** Controls the Insert Return only. When enabled, the channel connects to its Insert Return, otherwise the Channel connects to the straight-through path. The Insert Send, on the other hand, is always active (though it must be patched somewhere before it can be heard).

**NOTE:** Insert sends and returns are only audible if patched to physical outputs or inputs, or to other paths. Sends can be sent to the input of any path in the system, and returns can come from the output or send of any path. This is done in the Patch I/O screen (press the Patch I/O button).

Transport  
Controls, Timeline  
Navigation,  
and Markers

# Transport Controls, Timeline Navigation, and Markers

The Fairlight page has unique transport control, zooming, and scrolling options not found in the other pages of DaVinci Resolve that help you to work with audio more efficiently. This chapter covers how to get around the Fairlight version of the timeline.

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# Transport Controls and JKL Navigation

Because of the Fairlight page's audio-focused workflow, the transport and playback controls differ from those found in the Media, Edit, Color, and Deliver pages.

## Transport Controls



Fairlight page transport controls

The Fairlight transport controls are also designed to mirror their counterparts on the Fairlight control panels. They include the following functions:

- **Rewind and Fast Forward:** Initiates accelerated playback through the timeline in either direction. Pressing either of these buttons multiple times speeds up this motion, cycling through 8x, 24x, 60x, 150x, and 360x play speeds.
- **Play:** Plays forward. Identical to pressing the Space bar or L keys while playback is stopped.
- **Stop:** Stops playback. Identical to pressing the Space bar or K keys while playback is engaged.
- **Record:** Initiates recording if you have an audio source patched to a track, and if that track is enabled for recording. For more information about recording, see Chapter 65, “Recording.”
- **Loop:** Toggles looped playback off and on. While looped playback is on, playback will loop at the end of the Timeline, and will also loop when you use the Play In to Out command, and will continue to loop automatically until you stop playback.
- **Automation Controls:** This button exposes the automation toolbar. For more information about recording automation, see Chapter 69, “Automation Recording.”

## Using JKL to Control Playback

The JKL keyboard shortcuts are common to many editing applications, and experienced editors know these to be some of the most useful controls for playback and editing there are. Here's a list of the many different ways you can use these three keyboard shortcuts to play through clips and timelines as you work.

<b>J</b>	Plays 100% backward.
<b>K</b>	Stops playback.
<b>L</b>	Plays 100% forward
<b>Press J repeatedly</b>	Increases backward play speed each time you press J, for a range of fast-reverse speeds.
<b>Press L repeatedly</b>	Increases forward play speed each time you press L, for a range of fast-forward speeds.
<b>Shift-J</b>	Plays in fast reverse.
<b>Shift-L</b>	Plays in fast forward.
<b>K+J</b>	Plays backward at slow motion (with slow motion audio playback).
<b>K+L</b>	Plays forward at slow motion (with pitch-corrected audio playback on OS X).
<b>Pressing K while tapping J</b>	Moves the playhead back one frame.
<b>Pressing K while tapping L</b>	Moves the playhead forward one frame.



If you're using Fairlight with the keyboard, then this will probably become one of the main ways you move the playhead around in Resolve.

## Dragging the Playhead to Scrub

You can also drag the playhead left and right to scrub through the visible area of the timeline by clicking and dragging anywhere within the timeline ruler at the top of the timeline, directly below the toolbar. If you're zoomed in at a reasonable level for editing, scrubbing the playhead using your pointer will result in smooth, tape-like slow and fast audio playback, giving you a great deal of precision while trimming audio.

## Looping Playback

Two controls govern looping on the Fairlight page, similarly to how looping works on the Edit page.

- **Loop:** Command-Forward Slash (/). Toggles looped playback off and on. While looped playback is on, playback initiated with any of the following commands will loop automatically until you stop playback.
- **Play In to Out:** Option-Forward Slash (/). If you've marked a section of a clip or timeline with In and Out points, this command lets you preview how it will play.

# Clip, Marker, and Track Navigation

The Arrow keys are used to navigate among clips, markers, and tracks in the Fairlight page, but they're used very differently than they are in the other pages of Resolve. This section covers the basics.

## Selecting Tracks

Which tracks are selected determine the behavior of the arrow keys.

- **In Selection mode:** You can select tracks by clicking or Command-clicking (to select multiple tracks) anywhere in the background area or on the track number of the track headers. If you click-and-drag, you can use a bounding box to select multiple tracks.
- **In Range Selection mode:** You can select tracks by clicking or Command-clicking anywhere either in the background area or on the track number of the track header, or in any unused area of the track itself in the timeline. If you click-and-drag, you can use a bounding box to select multiple tracks.

## Left and Right Arrow Keys

In general, the Left and Right Arrow keys are used to move the playhead left and right in the timeline, navigating from clip to clip or marker to marker. How these keys function depends on whether or not one or more tracks is selected in the timeline.

- **If no tracks are selected:** The Left and Right Arrow keys will jump the playhead from timeline marker to timeline marker. Clip markers will be ignored.
- **If one or more tracks are selected:** The Left/Right Arrow keys will jump the playhead among clip In points, clip Out points, and timeline markers.

## Up and Down Arrow Keys

The Up and Down Arrow keys are used to move selected tracks up and down in the timeline. By changing which tracks are selected, you can alter which clip's In and Out points are used to jump the playhead around the timeline.

If no tracks are selected, then nothing happens.

## Zooming and Scrolling

The Fairlight page has several methods of zooming into and out of the timeline, and scrolling when you're zoomed to the point where your edited sequence of clips extends past the left and right edge of the visible timeline.

### Setting the Zoom Level of the Timeline

Depending on how you like to work, there are several methods of zooming into and out of the timeline.

- **Using the Vertical Zoom Slider:** A pair of sliders at the right of the toolbar let you zoom vertically and horizontally. The first one lets you scroll vertically in order to see more detail in the height of your waveforms. If no tracks are selected, then zooming is centered on the top audio track in the timeline. If one or more tracks are selected, then zooming is centered on the topmost selected audio track.
- **Using the Vertical Zoom Slider:** A pair of sliders at the right of the toolbar let you zoom vertically and horizontally. The second one lets you zoom horizontally in order to see more detail in the width of your waveforms. Zooming is always centered on the position of the playhead.
- **Pressing Command = and Command – (minus):** Command-Equals (also referred to as Command-Plus) and Command-Minus let you zoom horizontally into the timeline. Zooming is always centered on the position of the playhead.
- **Using scroll controls of your pointing device to scroll horizontally:** Holding the Option key down and using the scroll wheel (or scroll control) of your pointing device will zoom horizontally into the timeline. Zooming is centered on the position of the playhead.
- **Using scroll controls of your pointing device to scroll vertically:** Holding the Shift key down and using the scroll wheel (or scroll control) lets you zoom vertically in the timeline. In this case, if no tracks are selected, then zooming is centered on the top audio track in the timeline. If one or more tracks are selected, then zooming is centered on the topmost selected audio track.
- **Using the Fairlight panel's Jog/Edit Wheel:** If you have a Fairlight panel, you can hold the ZOOM button down while turning the Jog/Edit wheel to zoom into the timeline at the position of the playhead.

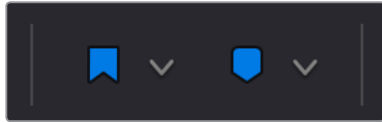
### Scrolling Through the Timeline

However closely you're zoomed into the timeline, if you're zoomed enough so that clips extend past the visible area of the timeline, scroll bars appear below. If the playhead is offscreen, a small orange tic mark indicates its position relative to the entire timeline, which is represented by the total width of the scroll bar's background.

If you drag the playhead, or otherwise use any of the transport controls or playback key shortcuts to move through the timeline, the contents of the timeline refresh every time the playhead hits the left or right edge of what's visible.

## Using Flags

Flags are meant to mark an entire clip, and they also flag every other clip in the Timeline that shares the same Media Pool source clip, making this a handy way of quickly identifying which clips in a given timeline come from the same Media Pool source. Flags are visible in every page of DaVinci Resolve, making them an excellent method of tracking media from page to page.



The Flag and Marker buttons and pop-ups.

You can apply multiple flags to clips, with a variety of colors to choose from. In addition to flagging specific media files, flags can be useful for sorting by column in the Media Pool, as well as a variety of other operations.

### Methods for flagging clips in the Fairlight page:

- **To flag a clip:** Select one or more clips, and either click the Flag button to flag that clip with the current color, or click the Flag pop-up in the toolbar to choose a different color and then click the Flag button. In the Edit page, flags appear in the Timeline superimposed in the name bar of each clip.
- **To remove all flags from a clip:** Select one or more clips with flags you want to remove, then click the Flag pop-up in the toolbar, and choose the top “Clear All” option.

## Using Markers

Markers are used to call attention to a particular frame within a specific clip. Markers can be individually colored, and can have customized name and note text. Whenever you enter text into a marker, that marker displays a small dot that indicates there’s more information inside of it. Once placed, markers snap to In and Out points, edit points, the playhead, and other markers whenever snapping is enabled, making it easy to use markers to “measure” edits and trims that you make in the Timeline. Markers are visible in every page of DaVinci Resolve, making them an excellent method of tracking frames in clips and specific moments in the timeline from page to page.

You can add markers to the timeline (in the timeline ruler) or to clips. The full procedures for placing and editing markers in the Fairlight page’s on-screen interface are identical to those for the Edit page, so for more information, see Chapter 20, “Marking and Finding Clips in the Timeline.” For now, here’s a summary.

### Adding Markers to Clips

The following procedures describe how to add markers to clips in the timeline of the Media Page.

**To mark a clip in the Timeline, do one of the following:**

- Select one or more clips you want to mark, then move the playhead to the frame of a selected clip in the Timeline, and click the Marker button in the toolbar (or press M) to place a marker at that frame, using the current color (if multiple overlapping clips are selected, you'll add a marker to all clips).
- To place a marker during playback and immediately open the marker dialog to enter a name or note within it, select one or more clips you want to mark, play through the selection until you want to place a mark, then press Command-M. Playback pauses until you enter some text and close the marker dialog again, at which point playback continues.
- Select one or more clips you want to mark, and then click the Marker pop-up to choose a different color, and click the Marker button.

## Adding Markers to Timelines

You can also place markers of any color into the Timeline ruler to denote specific times for future reference, or add notes about issues you want to keep track of. You should note that all markers placed on clips or in the Timeline also appear within the Mini-Timeline of the Color page, making it easy to place notes to reference particular audio cues that might be valuable when editing or grading.

**To mark the Timeline itself, make sure all clips are deselected, and do one of the following:**

- Click the Marker button (or press M) to place a marker of the currently selected color in the Timeline ruler.
- To place a marker during playback and immediately open the marker dialog to enter a name or note within it, select one or more clips you want to mark, then press Command-M. Playback pauses until you enter some text and close the marker dialog again, at which point playback continues.
- Click the Marker pop-up to choose a different color, and click the Marker button.
- Right-click in the Timeline ruler and choose a marker color from the Add Marker submenu of the contextual menu.

## Chapter 65

# Recording

# Recording

It's possible to record to one or more tracks on the Fairlight page, accommodating workflows as varied as editors recording scratch voice over or temp sound effects, recording engineers recording narration, ADR, or foley as part of the audio finishing process, music studios recording orchestras for the music score, or garage bands recording their latest magnum opus. While DaVinci Resolve is a comprehensive postproduction environment for cinema and video, the Fairlight page can be used for any audio recording application you might have, from books-on-tape to live music to feature films and television.

This chapter covers the somewhat brief basics of audio recording in the Fairlight page. Keep in mind that this is a work in progress, and that the comprehensive recording capabilities of earlier versions of Fairlight will be migrating into DaVinci Resolve as time passes.

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## Setting Up to Record

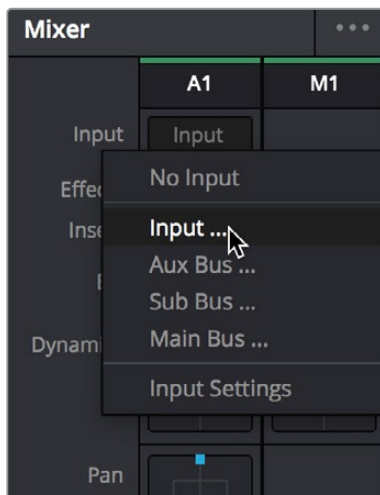
Depending on how your workstation is set up, it's possible to simultaneously record to multiple tracks in the Fairlight page at once. How many tracks you can record to depend entirely on what hardware you have available. This section describes the process of recording to tracks in the Fairlight page.

### Patching Inputs

Before you can record anything, you need to use the Patch Input/Output window to patch an available Audio Input to a track. If your computer has nothing else, the inputs of your workstation are available to connect whatever audio device is set up as the default audio input on your system to the track you want to record to.

**To open the Patch Input/Output window, do one of the following:**

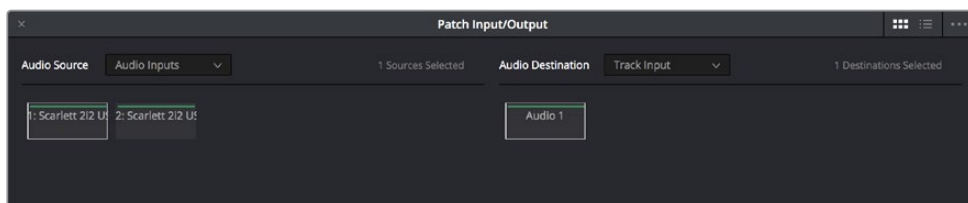
- Choose Fairlight > Patch Input/Output
- Click the Input menu at the top of the channel strip of the track you want to record to, and choose Input...



The Input pop-up menu lets you open the Patch Input/Output window with that track selected

**To patch an audio source to an audio destination:**

- 1 Make sure that the Audio Source menu is set to Audio Inputs, and the Audio Destination menu is set to Track Input.
- 2 On the right, click the audio input that you want to patch so it's highlighted.
- 3 On the left, click the audio destination that you want to patch so it's highlighted also, if it's not already. In this simplified example, channel 1 of the Scarlett 2i2 is being connected to Audio 1, which is the only track in the timeline.

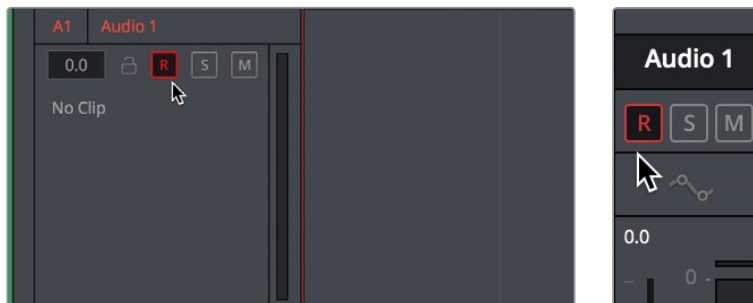


Selecting a source and a destination to patch

- 4 Click the Patch button at the bottom of the window, and your recording setup will be patched.
- 5 Continue steps 2 and 3 until you've patched all the inputs you want to record from to all of the tracks that you want to record onto. You can patch as many inputs to as many tracks as your system is set up to accommodate. In this example, there are two available audio sources, but there's only a microphone connected to the first channel, so that's the only one being connected.
- 6 When you're finished, close the window.

## Arming Tracks

To record on a track, it must be armed. You should note that it's impossible to arm a track that hasn't been patched first, so make sure you've patched the audio source you want to record from to the track you want to record to first. Then arming that track is as simple as clicking the R button in the track header controls, or in the channel strip for that track in the Mixer.



(Left) The arm button turned on in the track header,  
(Right) the arm button turned on in the channel strip

Once a track has been armed, you're ready to record.

## Choosing Where to Record Audio Clips To

The process of recording in the Fairlight page creates new clips and generates additional media on disk. You can specify the location on disk you want to save these recordings by opening the Capture and Playback panel of the Project Settings and using the Browse button, found underneath the "Save clips to" field, to choose a new location (a folder named "Capture" on your scratch disk is the default location).

To choose where the new clips that are created are placed in the Media Pool, simply open the Media Pool and select any bin in the Bin List, or create a new bin and select it if you want to put your recordings in their own location.

## Recording Using the Onscreen Controls

You can record anywhere you want on the currently armed track or tracks by placing the playhead where you want recording to begin. In this way, you can record to specific areas of your program as you record voiceover, sound effects, foley, or other timed performances that need to fit into a particular region of the edit.

### To begin recording:

- 1 Position the playhead where you want recording to begin.
- 2 Click the Record button in the Transport Controls. Recording immediately begins, and a red bar indicates where on the currently armed track material is being recorded.



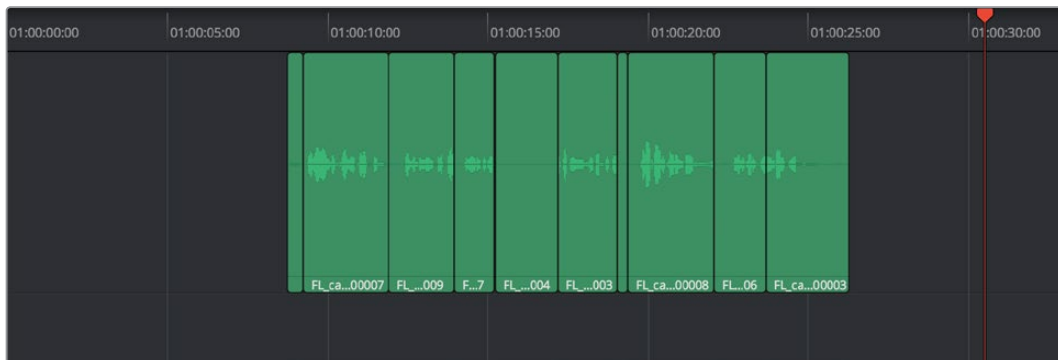
To stop recording, do one of the following:

- Click the Stop button in the Transport Controls
- Press the Space Bar

## Recording and Editing Multiple Takes Using Layering

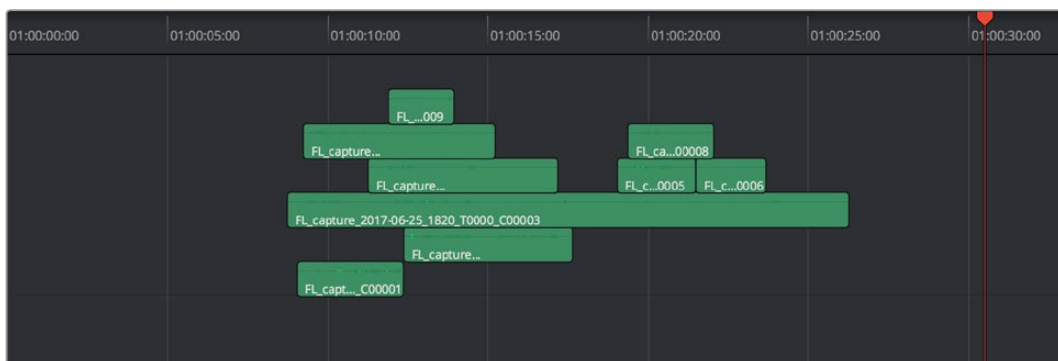
There are two ways you can record multiple takes. You can either record them one after the other, sequentially, and then edit them later. However, you also have the ability to record multiple takes to the same region of the timeline, one on top of another, while at the same time preserving every take using track layering.

In the following screenshot, multiple takes have been recorded over the same section of the timeline, including some partial takes to correct specific phrases in the voiceover being recorded. When you do this, the result looks like a series of cuts and overwritten clips, with the most recently recorded segments being the ones that play back over the previously recorded segments.



Overlapping recordings with Audio Track Layers turned off

However, if you choose View > Audio Track Layers, you'll see that all your recordings have actually been preserved via a vertical stack of overlapping audio clips.



Overlapping recordings with Audio Track Layers turned on, showing layering within the same track

The layering of audio clips in DaVinci Resolve means that the topmost superimposed clips in a layered stack like this mutes the audio of overlapping clips that are lower in the stack.

Using layering, it's easy to edit the best segments of the best takes, while preserving all other takes, simply by adding edits and rearranging clips in the stack so the best parts are on top.

For more information about audio layering, see Chapter 66, "Editing Basics in the Fairlight Page."

# Editing Basics in the Fairlight Page

# Editing Basics in the Fairlight Page

1147

You can use the Fairlight page to refine the editing of audio that was initially assembled in the Edit page, or you can use the Fairlight page to both record and edit audio programs from scratch. Because audio clips have properties that video clips do not, audio editing encompasses additional procedures that are not available in the Edit page. This chapter takes you through the fundamental steps of editing audio the Fairlight way.

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## Compatible Audio Formats

DaVinci Resolve is compatible with WAVE, Broadcast WAVE, AIFF, MP3, AAC (M4A), CAF (macOS only), MTS and QuickTime containers using the AC3 audio format, and Enhanced AC-3 (macOS and Windows) at sample rates including 32, 44.1, 48, 88.2, 96, and 192 kHz.

## Adding Audio Clips to the Timeline

The Fairlight page offers a complete audio editing environment that lets you either record and assemble clips from scratch, or refine tracks full of audio clips that have been edited together in different ways. There are four ways of adding media to the timeline in the Fairlight page, depending on the type of work you do:

- Recording new audio into one or more tracks (for more information, see Chapter 65, “Recording”)
- By dragging and dropping new audio clips from the Media Pool into the Fairlight timeline
- By editing audio clips into audio tracks on the Edit page
- By importing a project with audio clips

However audio clips come to be in your timeline, the rest of this chapter covers the myriad methods available to edit and sweeten the contents.

### Overwriting vs. Layering Clips that Overlap

When you add clips to the Timeline, what happens when you add a clip that overlaps another clip that’s already in the track you’re editing to depends on the Timeline > Layered Audio Editing setting. By default, with Layered Audio Editing turned off, overwriting one audio clip with another results in the overlapping part of the overwritten clip being non-destructively deleted from the Timeline by the incoming clip.

However, if you turn Layered Audio Editing on, then incoming clips do not overwrite overlapping clips in the Timeline; instead, they’re layered within that track, such that the incoming audio clip takes precedence over what was previously there, but overlapping audio segments that were previously in the Timeline are preserved, which can be seen when you choose View > Show Audio Track Layers.

In this way, you can choose whether you want to overwrite previously edited clips, or layer newly edited clips, as your needs require, regardless of whether or not Audio Track Layers are visible. Audio layering can be enabled in both the Edit and Fairlight pages.

For more information about audio layering, see the section later in this chapter.

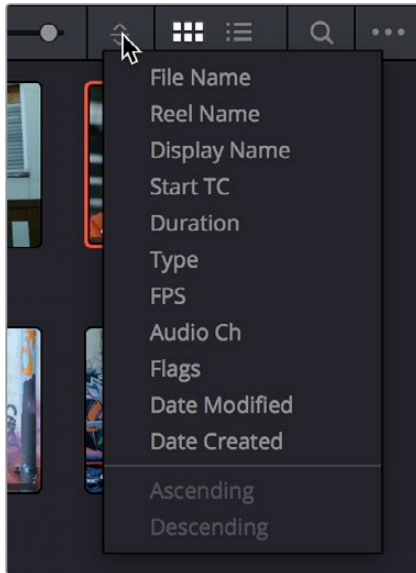
### Dragging Individual Audio Clips Into the Timeline

You can show the Media Pool in the Fairlight page, and edit audio clips into the timeline in their entirety by dragging and dropping individual clips onto whichever audio track you want them to appear.

### Drag and Drop Editing of Several Clips Into the Timeline At Once

If you want to edit several clips into the Timeline at once by dragging them from the Media Pool, you’ll probably want to do a bit of preparation to make sure they’re edited in the right order.

- 1 Change the sort order of the Media Pool's browser area to put the clips into the order in which you want them to appear. In Thumbnail view you can use the Sort Order menu, but in List view you can click the header of any metadata column to sort by that column's data.



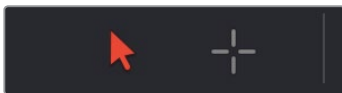
Using the Sort Order menu to change the sort order of clips in the Media Pool

- 2 Use the Media Pool thumbnails, the Media Pool List view Filmstrip, or the Source Viewer to set In and Out points to define the part of each clip that you want to edit into the Timeline.
- 3 Select the the Media Pool clips you want to edit into the Timeline by dragging a bounding box, Command-dragging multiple bounding boxes over different sets of clips, by Shift-clicking a range of clips, or by Command-clicking individual non-contiguous clips.
- 4 Drag any of the selected clips to the desired position in the Timeline to perform an overwrite edit.

The clip(s) you drag overwrite whatever other clips they overlap in the Timeline. Multiple clips dragged from the Media Pool will be edited in the order in which they're sorted in the Media Pool, using each clip's In and Out points.

## Making Audio Clip Selections in the Timeline

Nearly every editing operation described in this chapter and others requires you to make a selection to define which clips will be affected. The two main editing modes in the Fairlight page are the Selection tool and the Range Selection tool. Which mode you choose determines how clips and clip segments are selected in the timeline in preparation for all manner of editorial operations.



The Selection and Range Selection tools seen in the Toolbar

In selection mode, the process of making selections and working in the Fairlight page resembles that of the Edit page, although there are still key differences in terms of automatic behaviors that take place when you select tracks you want to work on.

**To choose Selection Mode:**

- Click the Selection tool (the arrow) in the toolbar
- Choose Trim > Selection Mode
- Press A

In Range Selection mode, the process of making selections and selecting tracks works more similarly to traditional Fairlight editing systems. This unlocks more of the power of Fairlight editing, enabling the easier selection of tracks and partial selection of clips for purposes of fast audio editing. However, these operations are very different from similar operations found on the Edit page.

**To choose Range Selection Mode:**

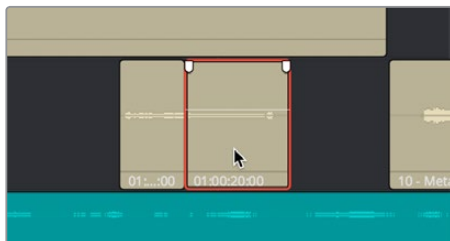
- Click the Range Selection tool (the crosshairs) in the toolbar
- Choose Trim > Range Selection Mode
- Press R

## Clip Selection

If you're doing simple operations to entire clips, you can select clips in the timeline of the Fairlight page in most of the same ways you select them in the Edit page.

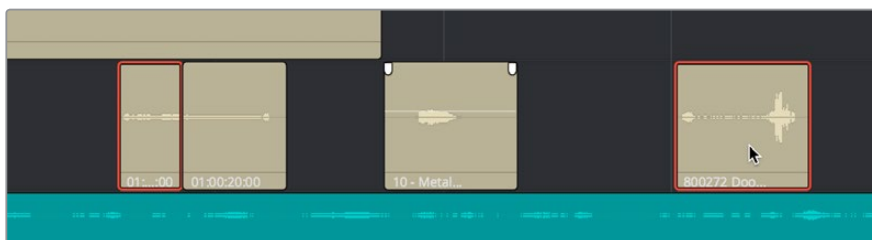
**Methods of selecting clips:**

- Click any clip to select it



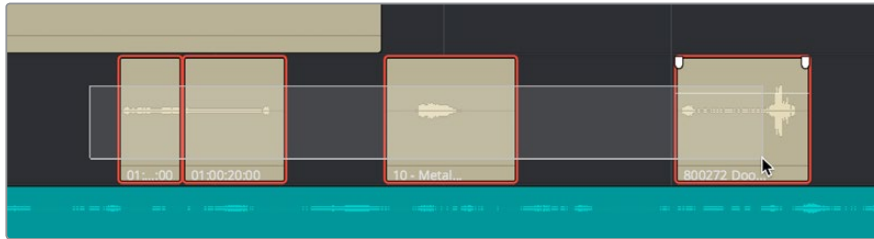
Click a clip to select it

- Command-Clicking multiple clips to select them all at once



Command-clicking multiple track headers selects those tracks

- Click anywhere in the background of the timeline and drag a bounding box over multiple clips



Command-clicking multiple track headers selects those tracks

## Track Selection

The timeline on the Fairlight page lets you select entire tracks, in order to simplify the process of choosing which clips on which tracks you want to be included in a particular operation, as well as to facilitate the automatic selection of clips that intersect the playhead for easy operation with keyboard shortcuts and the Fairlight Editing panel.

For example, if you want to copy clips on tracks A3 and A5, then you'll want to start by doing one of the following things:

- **In Selection mode:** You can select tracks by clicking or Command-clicking anywhere in the background area or on the track number of the track headers.
- **In Range Selection mode:** You can select tracks by clicking or Command-clicking anywhere either in the background area or on the track number of the track header, or in any unused area of the track itself in the timeline.



Command-clicking multiple track headers selects those tracks

Were you to select tracks A3 and A5, then moving the playhead over the two clips you want to copy automatically selects them, and gets you ready for any operation you need to perform on both clips together, as seen in the previous screenshot. This is analogous to the use of the Auto Select controls on the Edit page, which define which clips and clip segments are automatically affected whenever you set In and Out points in the Timeline.

### Methods of selecting and de-selecting tracks in the Fairlight page timeline:

- **To select a single track:** Click anywhere in the background or on the track number of that track's header (not on a button). In Range Selection mode you can also click in any unused area of the track itself.
- **To de-select a single track:** Click anywhere in the background or on the track number of a previously selected track's header (not on a button). In Range Selection mode you can also click in any unused area of the track itself. If multiple tracks are selected, Command-clicking one will remove just that track from the selection.
- **To select multiple tracks:** Command-click in the track header background of every track you want to select. In Range Selection mode you can also Command-click in any unused area of the tracks themselves. Command-clicking an already selected track will de-select it.
- **To select multiple continuous tracks:** Click anywhere in the background or on the track number of a track header, and then drag a bounding box up or down over all other tracks you want to select. In Range Selection mode you can also drag a bounding box over any part of the tracks themselves, while also defining a range in which you want to work.
- **To move the selection to higher or lower tracks:** Press the Up or Down Arrow keys to move the selection state to the next track higher (Up Arrow) or lower (Down Arrow). If multiple tracks are selected, then the multi-selection will be moved as a block; for example, selecting tracks A2 and A3 and then then pressing Down Arrow will result in tracks A3 and A4 being selected.

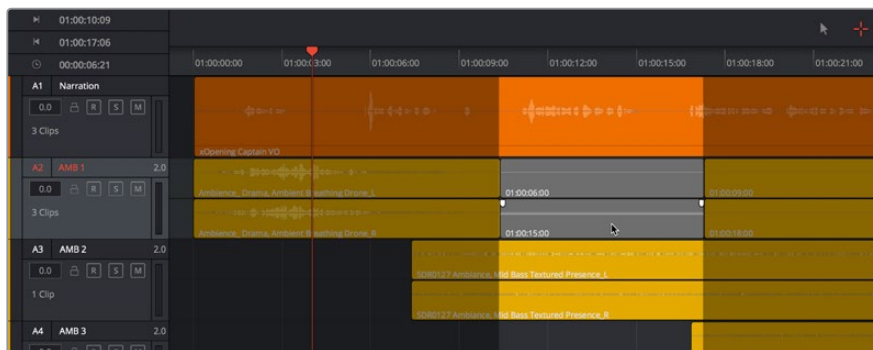
## Range Selection

Pressing the R key enables Range Selection mode, in which you can create ranged selections with which to perform an operation to segments of one or more clips. Using the methods shown in this section, it's easy to select specific segments of larger clips so that you can move, delete, cut, copy, or paste words, phrases, musical bars, or sounds that you want to edit somehow.

For a range to act as a selection, it must also encompass the selection of one or more tracks in addition to one or more clip segments on those tracks. Ranges can also be defined by setting In and Out points on the timeline. If you set In and Out points on the timeline without selecting one or more tracks, then the range you define doesn't actually select anything; in this situation the range can be used for other purposes such as recording, but you'll be unable to make any editorial changes to clips falling within this range.

### Methods of selecting clips via clicking and dragging:

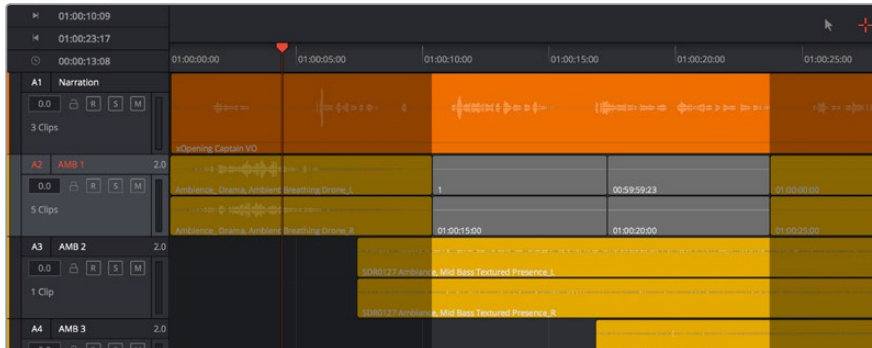
- **To select a single clip:** Click any clip to select both it and the track it's on, and define a range in the timeline that matches the duration of that clip.



Command-clicking multiple track headers selects those tracks

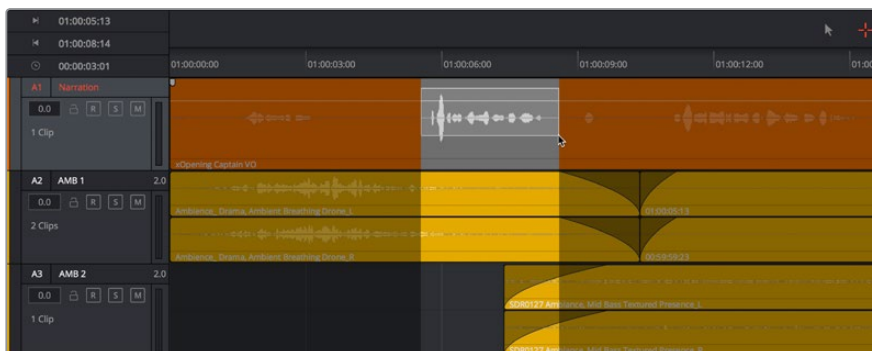


- **To select multiple clips:** Command-Clicking multiple clips to select them all at once defines a range in the timeline that matches the total overlapping duration of all clips in the selection, from the beginning of the first selected clip to the end of the last selected clip.



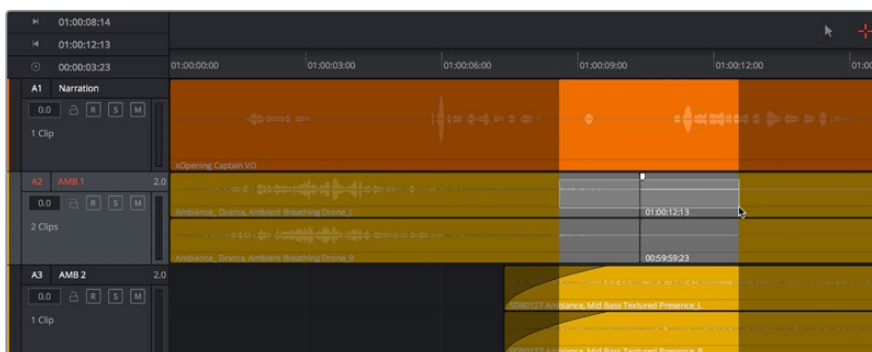
Range selection by Command-clicking multiple clips

- **To drag to select a range within a single clip:** With the Range Selection tool selected, drag anywhere on top of a clip to drag a bounding box over whatever segment of that clip (or of one or more clips) to select both that clip segment and the track it appears on. This is a good way of selecting part of a recording you want to move or delete.



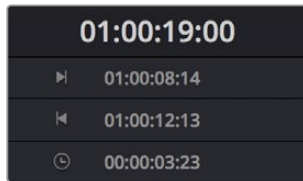
Ranged selection within a clip using a bounding box

- **To drag to select a range within multiple clips:** Click-and-drag a bounding box over whatever segment of one or more clips you want to select to select both those clip segments and the tracks they appear on. Or, Command-click-and-drag anywhere on top of any clip to drag a bounding box over whatever region of clips and tracks you like.



Ranged selection across multiple clips using a bounding box

In range selection mode, whenever you make a selection, the In and Out point fields update with the range that you've created.



The range fields showing you the In and Out point values that define the current range

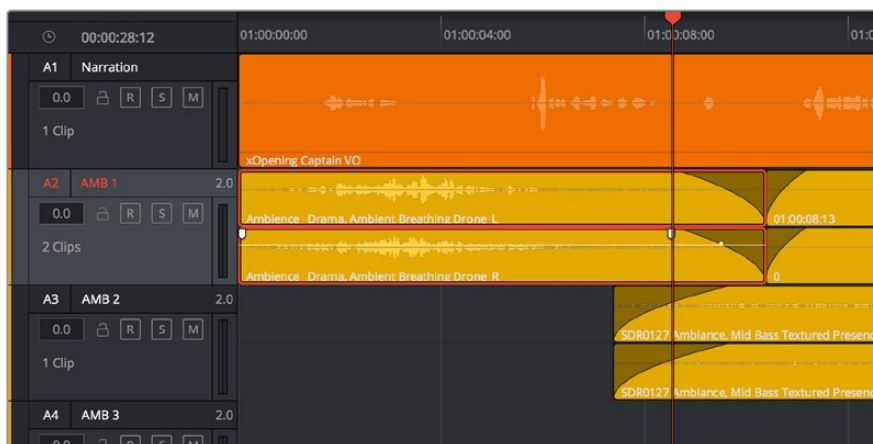
These ranges can be cleared if necessary.

#### Methods of clearing In and Out points to clear the current range:

- Press Option-I to clear the current In point
- Press Option-O to clear the current Out point
- Press Option-X to clear both the In and Out points

## Automatic Selections In Selection Mode With Selected Tracks

In Range Selection mode (press R), all clips that intersect the playhead on selected tracks of the timeline define a range in the timeline that matches the total overlapping duration of all clips in the selection, from the beginning of the first selected clip to the end of the last selected clip.



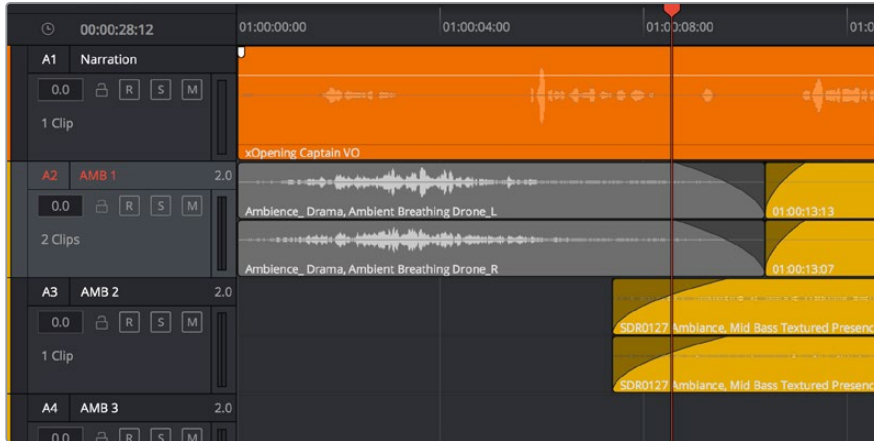
Clips intersecting the playhead in selection mode are automatically selected with orange highlights

In this mode, the resulting selection allows whatever operation you perform to affect the entirety of whichever clips intersect the playhead. For example, pressing the Delete key will delete all selected clips in their entirety, and copying will copy the whole of each selected clip.

If you use the I (Mark In) and O (Mark Out) keys to define a range while in Selection mode, a range will be selected, suitable for various non-editing operations such as recording, but no clips or clips segments will be selected.

## Automatic Selections In Range Selection Mode With Selected Tracks

In Range Selection mode (press R), all clips that intersect the playhead on selected tracks of the timeline define a range in the timeline that matches the total overlapping duration of all clips in the selection, from the beginning of the first selected clip to the end of the last selected clip Z.



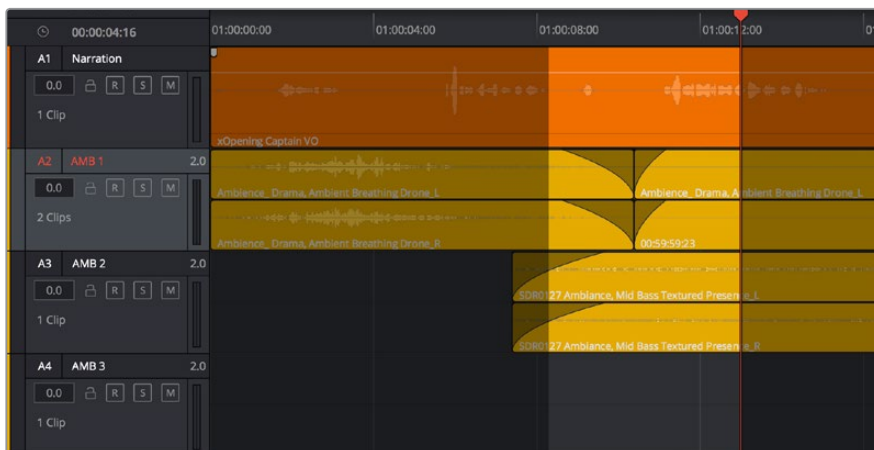
Clips intersecting the playhead in selection mode are automatically selected with orange highlights

In this mode, the resulting selection allows whatever operation you perform to affect the entirety of whichever clips intersect the playhead. For example, pressing the Delete key will delete all selected clips in their entirety, and copying will copy the whole of each selected clip.

However, in this mode you can use the I (Mark In) and O (Mark Out) keys to define a range, and all clip segments falling into this range on selected tracks will be selected.

### To automatically select clip ranges on multiple selected tracks:

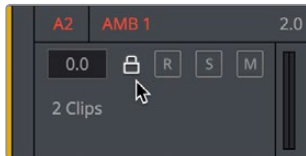
Use the I (Mark In) and O (Mark Out) keys to define a range in the Timeline, and all clip segments falling within this range on selected tracks will be selected



Selecting a range using In and Out points in the timeline

## Locking Audio Tracks You Don't Want to Change

Another step you can take to prepare before performing any kind of editorial operation is to lock tracks with media that you don't want to be affected by whatever it is you're about to do. For example, if you have a complex set of music edits on track A3 that you don't want to be affected by operations that will delete media that overlaps it, you can lock track A3 so those clips remain unaffected.



Locking an audio track

Clips on locked tracks cannot be moved, deleted, cut, or otherwise affected by editorial operations. Furthermore, parameters of locked clips cannot be edited in the Inspector. However, clips on locked tracks can be played back and mixed like any other audio clips.

**To toggle the lock or unlock state of audio tracks in the Fairlight page, do one of the following:**

- Click any track's lock control to toggle lock on and off.
- Click any track's lock control and drag over the lock controls of other tracks in the timeline to quickly lock or unlock several adjacent clips.

## Splitting and Joining Clips

In many situations you may find yourself splitting audio clips in order to separate multiple rolling takes.

**To split one or more clips in either Selection or Range Selection mode:**

- 1 Select each track that has a clip you want to split.
- 2 Move the playhead to intersect the clips you want to split at the frame where you want the split to happen.
- 3 Do one of the following:
  - a Choose Timeline > Split Clip or press Command-\ (backslash).
  - b Choose Timeline > Razor or press Command-B.

When you split a clip, a through edit appears to show that you currently have an edit with continuous timecode running from the outgoing to the incoming half. This is called a Through Edit, and is displayed with a dotted line running along its edge so you know that it's special.

Clips cannot be joined as of the time of this writing.

# Trimming Clips Without Rippling the Timeline

Most basic adjustments in the Fairlight page only affect the selected clip or region of the timeline. Clips to the right of the adjusted area of the timeline are generally left alone so as not to inadvertently change sync when you don't expect it. This section covers the most basic parts of the Fairlight page's "seven point editing" paradigm.

## Seven Point Editing

Each clip in the timeline has seven draggable handles that affect audio editing.

- **In point:** The left edge of the clip, used to resize the beginning of the clip.
- **Out point:** The right edge of the clip, used to resize the end of the clip.
- **Fade In handle:** A handle at the upper left-hand corner of the clip that only appears when the mouse is positioned over that clip, used to fade the audio in, or as part of a crossfade between two audio clips. Fades can be reset (eliminated) by double-clicking the fade handle.
- **Fade In curve:** A handle at the center of the Fade In curve that only appears when the curve is exposed, used to adjust the power of the fade in. This handle can be dragged vertically to change the X-Level of the fade, and horizontally to change the X-Point of the fade. Fade curves can be reset by double-clicking the curve handle.
- **Fade Out handle:** A handle at the upper right-hand corner of the clip that only appears when the mouse is positioned over that clip, used to fade the audio out, or as part of a crossfade between two audio clips. Fades can be reset (eliminated) by double-clicking the fade handle.
- **Fade Out curve:** A handle at the center of the Fade Out curve that only appears when the curve is exposed, used to adjust the power of the fade out. This handle can be dragged vertically to change the X-Level of the fade, and horizontally to change the X-Point of the fade. Fade curves can be reset by double-clicking the curve handle.
- **Level:** Considered an editorial characteristic, the level of any given audio clip can be adjusted via a level overlay running across each clip. The level of any clip can be reset to the default 0.0 dB by double-clicking the level overlay.

## Resizing the In and Out Points of a Clip

Trimming the Head or Tail of a clip in the Fairlight page means to resize the In or Out point of that clip, making it shorter or longer accordingly.

**To resize the beginning or end of a clip:**

- **To shorten or lengthen clips:** Move the pointer over the beginning or end of a clip, and when it turns into the Resize cursor, drag the In or Out point to the left or right to change the clip's length. As you drag the In or Out point of an audio clip in the Fairlight page, an overlay appears showing the waveform of all available media at the head (if you're dragging the In point) or tail (if you're dragging the out point) of the clip you're resizing.



The overlay seen when resizing the In point of an audio clip in the Fairlight page

**To quickly resize the beginning or end of a clip to the very beginning or end of available media:**

- Double-click the In point of the clip to move the In point to the very beginning of that clip's media.
- Double-click the Out point of the clip to move the Out point to the very end of that clip's media.

If you resize a clip's In or Out point to overlap one or more neighboring clips in the timeline, the overlapping parts of the neighboring clips will be overwritten by the clip you've resized.

## Moving (Sliding) and Overwriting Clips

Formerly called Slipping in previous versions of Fairlight, sliding refers to moving a clip to the left or right in the Timeline, changing the timing of that clip's position in the edit.

**To move or slide clips in the timeline, do one of the following:**

- **To move one or more selected clips in the Timeline:** Drag any clip in the Timeline to any other position. If you drag a clip to overlap another clip, the clip you're dragging overwrites the clip you're moving it over.
- **To nudge one or more selected clips in the Timeline using the keyboard:** Press the Comma key (nudge 1 frame left) or Period key (nudge 1 frame right) to roll the selected edit to the left or right. Shift-Comma and Shift-Period nudges by 5 frames.
- **To move one or more selected clips up or down to other tracks at the same time:** Hold the Shift key down while dragging clips up or down in the Timeline to lock their position in time while moving them to other tracks. Or, you can hold the Option key down and press Up or Down Arrow.

## Slipping

Formerly called Resyncing, Slipping an audio clip keeps that clip in the same place in the Timeline while changing the range of media that appears in that spot. Slip edits do not change the duration of the overall Timeline, and they don't move the clip's position relative to the other clips in the timeline. Slipping simply changes the range of media that clip represents.

Slipping is not available at the time of this writing.

## Disabling and Re-Enabling Clips in the Timeline

Sometimes there's one or more audio clips in the timeline that you don't want to play along with the rest of the edited sequence, but you don't want to remove from the timeline either, in case you change your mind later. For this reason, it's possible to Disable clips, effectively turning them off without removing them. Previous versions of Fairlight referred to this operation as Mute clip.

Disabled clips appear dimmed in the timeline. They don't play back, they're not rendered, and they're not output to video. However, their position is preserved in the timeline, so you can always re-enable them at a later time if you change your mind and decide you want to use them.

**To disable or re-enable one or more selected clips:**

- Right-click part of the selection and choose Enable Clip from the contextual menu
- Choose Clip > Enable Clip
- Press D

## Deleting Audio Clips and Regions

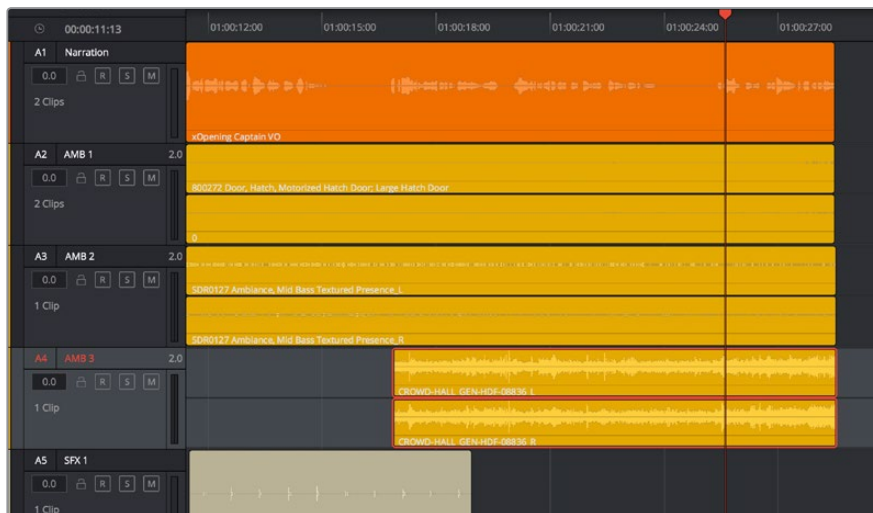
You can delete any clip(s) or clip region(s) that you can select, in either Selection or Ranged Selection modes by pressing the Delete or Forward Delete keys, or by right-clicking a clip and choosing Delete Selected from the contextual menu. In the Fairlight page, deleting anything leaves a gap. You can not ripple delete anything.

## Cut, Copy, and Paste

The Fairlight page has a unique copy and paste methodology that takes advantage of the “ghost” overlays that are used for the waveforms of selected audio clips. This method makes it easy to copy and paste clips using keyboard shortcuts and the JKL keys.

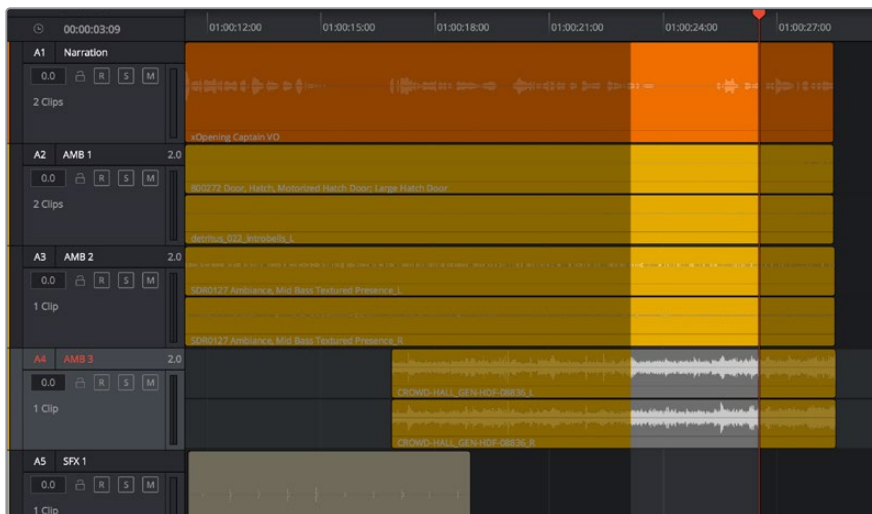
**To cut or copy and paste either all or part of a clip:**

- 1 If you’re cutting or copying a whole clip, then choose either the Selection (press A) or Range Selection (press T) mode. If you’re cutting or copying part of a clip, then make sure you’re in Range Selection mode (press T).
- 2 To use the playhead to make a clip selection, select the track that contains the clip you want to copy or cut. If one or more tracks are already selected, you can use the Up and Down Arrow keys to move the track selection state up or down to the tracks with the clip you want to cut or copy.



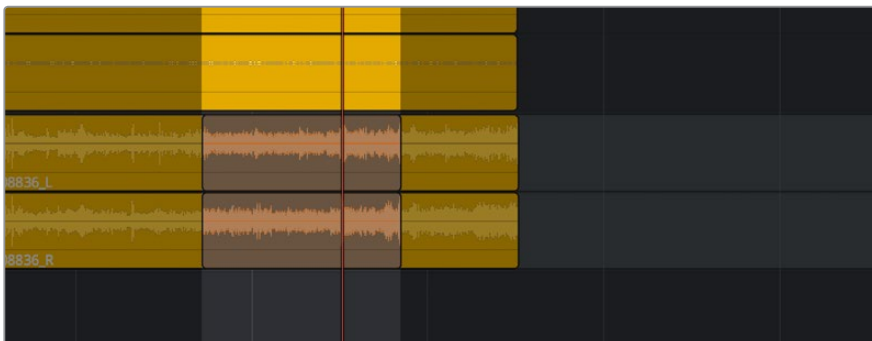
Selecting the track with a clip you need to cut

- 3 Do one of the following:
- To cut or copy a whole clip, move the playhead so that it intersects the clip you want to cut or copy. If the playhead intersects a clip on a selected track, that clip should become selected. You should note that even if you use the mouse to select a clip without selecting a track first, you should still move the playhead to intersect the clip you're copying or pasting, as this sets up an important reference point for the operation.
  - To cut or copy segment of a clip, move the playhead so that it intersects the clip you want to cut or copy. If the playhead intersects a clip on a selected track, that clip should become selected. Then, using JKL and the I (In) and O (Out) keys, mark a range in the timeline that includes the segment of the clip you want. That segment should appear highlighted as a result.



Cutting or copying a segment of a clip using In and Out points

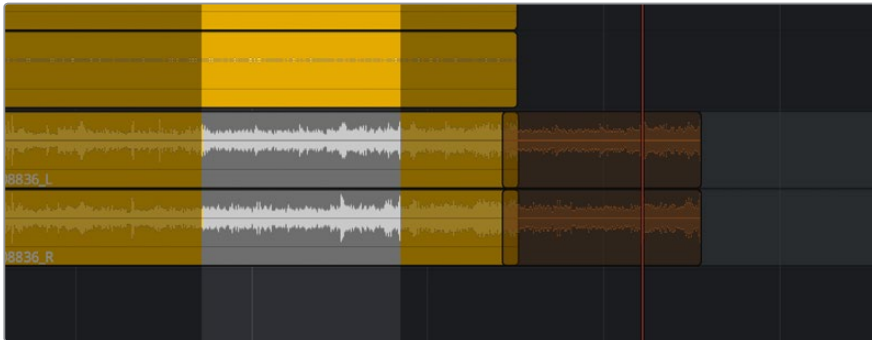
- 4 Making sure the playhead is over the section of the waveform that you want to use as the frame to move the clip by, press Command-X to cut or Command-C to copy that clip (you can also right-click a clip and choose Copy or Cut). That clip will immediately become highlighted.



Cutting or copying a clip at the position of the playhead



- 5 At this point, there are two things you can do to position the cut or copied clip to the position in the timeline at which you want to paste it:
  - a Moving the playhead will now also move the clip you cut or copied, shown as a ghost clip with waveform that’s “attached” to the playhead at the frame you chose. Whether you drag the playhead with your mouse or use JKL to move the playhead through the timeline, the cut or copied clip will move along with it, so that moving the playhead repositions the cut or copied clip on that track.
  - b If you want to move the cut or copied clip to another track, use the Up or Down Arrow keys to change the selected track; the ghost clip will move along with change in track selection.



Positioning the cut or copied clip before you paste it

This way, you can use the playhead to align the ghost waveform with other audio clips surrounding it in preparation for pasting it.

- 6 When the clip is positioned where you want it, press Command-V to paste the clip at the position you’ve chosen (you can also right-click a track and choose Paste from the contextual menu). The clip becomes solid, and you’re finished.

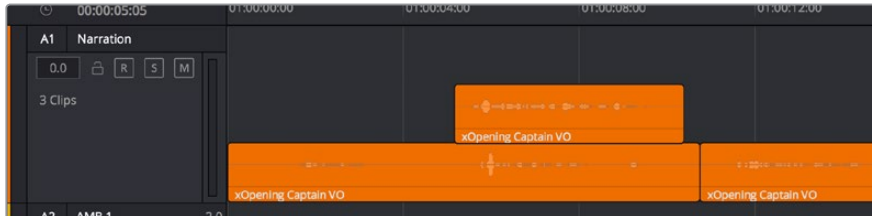


The pasted clip

Using this method of cutting and pasting makes it quick to cut or copy clips using only keyboard commands, with the clip’s ghost overlay making it easy to precisely align the clip you’re pasting to fit exactly where you need it to, perfectly in sync.

# Audio Clip Layering

Audio layering is a special audio editing mode that lets you superimpose multiple audio clips in the same track, with audio clips edited into the top layers muting overlapping sections of audio clips appearing on lower layers. With audio layering enabled, superimposed audio clips are treated similarly to superimposed video clips that have opacity set to 100%, with clips on top obscuring (or muting) clips underneath.



An example of multiple audio performances editing using layers, where the top layer mute overlapping sections of audio clips in lower layers

Audio layering is incredibly useful for any situation where you're combining segments of multiple takes together to create a single voiceover, audio vocal track, or dramatic performance, as you can choose which segments to use via their superimposed position in the stack of clips appearing in that track, while at the same time you're preserving the other takes underneath in case you might want them later.

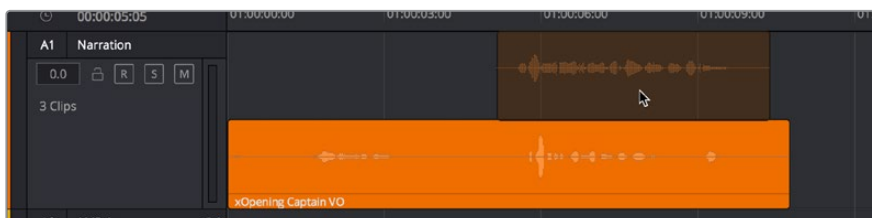
**TIP:** Track Layering can be used on the Edit page as well.

## To enable audio layering:

Choose Timeline > Layered Audio Editing so that a check mark appears by the command. All overlapping audio will be layered in instead of overwritten from that point forward.

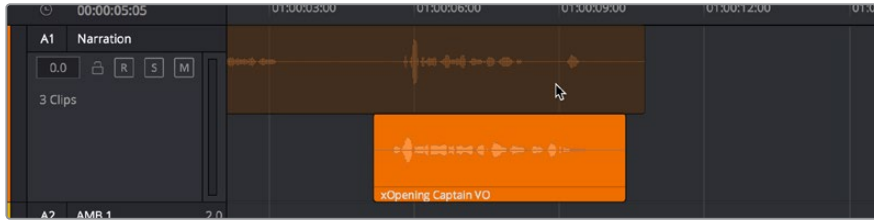
## To view audio layering:

- 1 Choose View > Show Audio Track Layers to reveal track layers for each audio track (and each lane within a given audio track) in the timeline. When layering is on, space appears at the top of each track in the timeline which provides a region into which you can edit layered audio clips.
- 2 To edit an audio clip or segment as a layer within a particular audio track, drag it from elsewhere in the timeline or from the Media Pool, and drop it into the empty area above whatever audio is already in that track.



Dragging an audio clip to become layered above another clip

- 3 Edit the different superimposed layers of audio such that the segments of each take that you like are on top. Only the topmost clip segments will be audible. Audio segments that overlap underneath are silent. To put another layer on top, drag it from its current position to the empty area at the top of the track.



Dragging a bottom audio layer to appear on top

- 4 When you're finished editing clips in track layers, choose View > Show Audio Track Layers again to hide the individual layers, so that only the topmost clips appear as a flat sequence in each track and lane.



Hiding layers makes all audio layers appear on a single track, as if the top clips are overwriting what's underneath, except the muted material underneath is preserved

## Fades and Crossfades

Part of audio editing in the Fairlight page is the use of fades and crossfades. This section shows you how to create these effects for smoothly segueing from one audio clip to another.

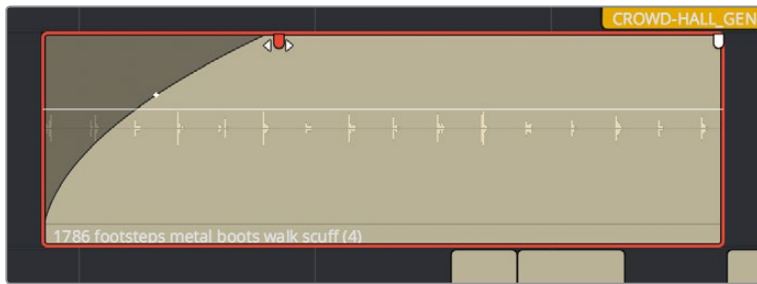
### Using Fades

Like the Edit page, each audio clip has fader handles that appear at the upper right and left corners of a clip you're hovering the pointer over.



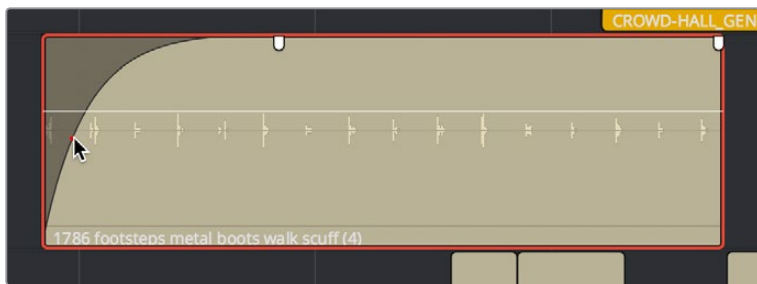
Fader handles appear when you hover the pointer over a clip

Pulling these handles out creates a fade effect with a duration equal to the length you extended the handle.



Creating a fade effect by pulling out one of the fader handles

Once you've created a fade effect, you can adjust the curve of the fade by dragging the handle that appears right on top of the fader curve. Dragging the handle up and down affects the angle of the curve, and dragging the handle left and right affects the shape of the curve. In this way, you can create all manner of fade effects.



Adjusting the curve of the fade

## Creating Crossfades With Overlapping Fades

While a fade gradually fades a single track of audio up, a crossfade fades one clip up at the same time as fading another clip down, for the aural equivalent of a cross dissolve. There are currently two ways of creating a crossfade in the Fairlight page. Both depend on clip layering to allow you to have overlapping fades over overlapping clips.

**To create a crossfade by overlapping two clips together:**

- 1 Add a fade out to the end of one clip, and a fade in to the beginning of another clip.



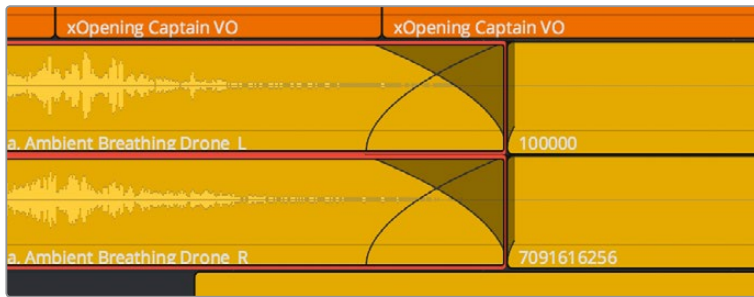
Adding fades to adjacent clips

- 2 Drag the first clip to overlap the second clip by the length of the fade you've created.



Dragging the clips to overlap, the overlapping parts will be preserved via Clip Layering

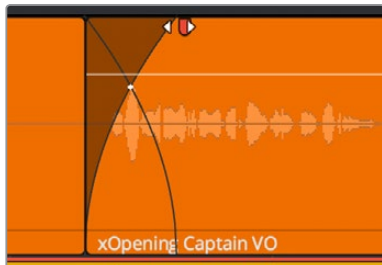
- 3 Drop the clip, the overlapping fades will both be preserved thanks to clip layering, and a crossfade will appear in the timeline.



The resulting crossfade

**To create a crossfade over two clips that are already layered:**

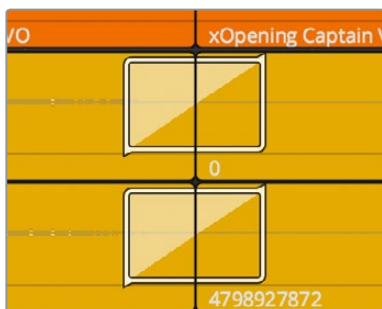
Drag a fader handle at the beginning or end of a clip that's layered, and a crossfade will automatically appear.



Creating a crossfade by adjusting the fader handle of a layered clip

### Using Crossfades From the Edit Page

You can also add crossfades in the Edit page, but they appear in the Fairlight page as transitions in the Edit page style.



The resulting crossfade Finding Clips in the Media Pool

## Finding Clips in the Media Pool

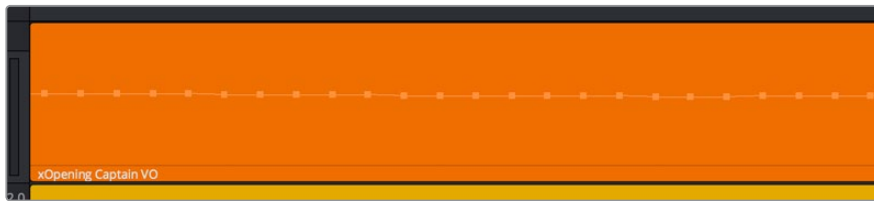
You can right-click any clip in the Timeline and choose Find in Media Pool to automatically select that clip in the Media Pool, for instances where you might want to edit another copy of that clip somewhere else in the Timeline, or re-edit another segment from that clip into the same area.

## Changing Clip Color in the Timeline

You can right-click one or more clips in the Timeline to change the clip color, to be more organized.

## Sample Editing

You can zoom quite far into audio clips on the Fairlight page timeline, until you see the individual samples that comprise the audio waveform of each clip. Samples are represented by control points once you've zoomed in far enough.



When you zoom in far enough, you can see the individual samples of an audio clip as control points

You can non-destructively edit these control points to eliminate clicks and pops, and to effect other fixes to problem audio clips.

### Methods of editing audio samples:

- **To see the editable audio samples:** Zoom all the way into an audio clip until you see the sample control points, using either Command-Plus or Command-Minus, the scroll wheel of your pointing device, or by holding down the ZOOM button of your Fairlight Editing Panel and turning the JOG/EDITING wheel.
- **To edit a single audio sample:** Click and drag that audio sample up or down to change its height.
- **To edit a section of samples:** Click and drag horizontally left or right across the samples you want to edit to “redraw” the waveform any way you’d like.



Black points show the previous levels when samples have been edited in a clip

Sample Editing can be undone, just like any other editing procedure, as the edited sample points are stored non-destructively within the Resolve project.

## Chapter 67

1167

# Clip Levels, Crossfades, Equalization, and Gating

# Clip Levels, Crossfades, Equalization, and Gating

Each audio clip in a track has individual settings that can be adjusted that are specific to that clip. This makes it easy to adjust the levels of several clips to match one another, while reserving the track level for your overall mix. This chapter describes how to use these clip-specific controls.

<b>Audio Settings in the Inspector</b>	1169
<b>Adjusting Audio in the Inspector</b>	1169
<b>Adjusting Audio in the Timeline</b>	1170
How to Add and Adjust Audio Keyframes	1170
<b>Clip EQ</b>	1171
Master EQ Controls	1171
Graphical EQ controls	1171
Bands 1 and 4	1172
Bands 2-3	1172



## Audio Settings in the Inspector

Each clip has some simple audio-related parameters in the Audio panel of the Inspector.

- **Volume:** Each clip has a single volume control, that corresponds to the volume overlay over each audio clip.
- **Equalizer:** Each clip also has a four-band EQ, complete with low-pass, high-pass, and parametric settings for fine tuning and problem-solving audio issues at the clip level.

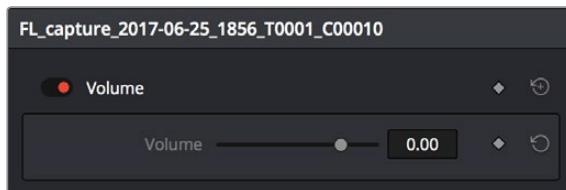
Additionally, when you apply other audio plug-ins from the Audio FX panel of the Effects Library, additional parameters and controls are exposed (covered towards the end of this chapter).

### Setting Clip Levels

Each audio clip, or audio item in the case of audio clips with linked audio on multiple tracks, has its own Volume level. This means that audio clips with multiple channels share a common Volume setting. There are several ways you can adjust these levels simply.

## Adjusting Audio in the Inspector

Each clip has individual Level parameters that are accessible in the Audio panel of the Inspector when one or more audio clips are selected.



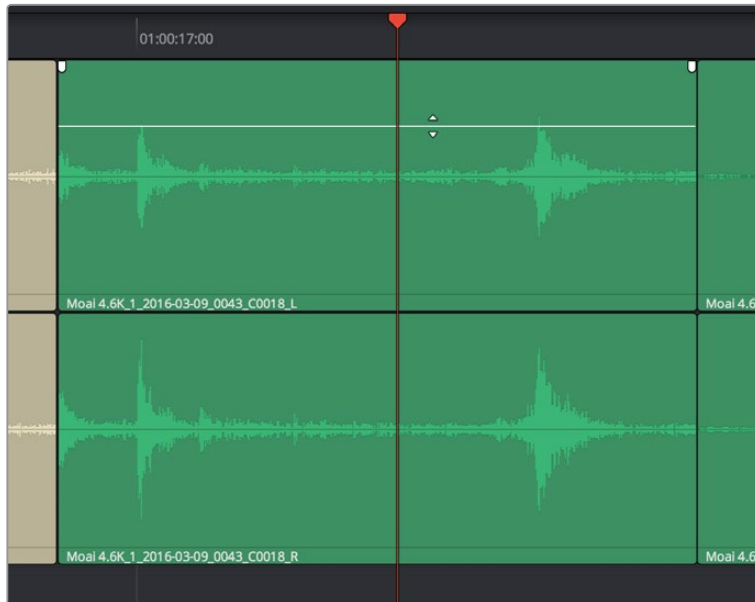
The Volume and Pan parameters available for audio clips in the Inspector

Selecting an audio clip in the Timeline and adjusting its Volume or Pan only alters that clip, which lets you set basic levels for individual clips in your program. The Volume control affects every channel within that clip simultaneously.

If you select multiple clips in the Timeline, then adjusting the Volume or Pan sliders or virtual sliders for all of them simultaneously will make a relative adjustment to all of the clips, preserving their offsets from one another. If you want to set all clips to the same level, then making a numeric adjustment will set all selected clips to the same absolute level.

## Adjusting Audio in the Timeline

Each clip (or item) of audio in the Timeline has a Volume overlay that lets you set that clip's level by simply dragging it up or down with the pointer. This overlay corresponds to the Volume parameter in the Inspector.



Dragging a Volume overlay to adjust the clip level

Additionally, you can click any clip's Audio Curve Editor button, at the bottom right-hand corner of each audio clip, to open an audio-specific Curve Editor with which you can keyframe not just Volume, but Pan, and the parameters of any audio filters you might have applied to that clip.

### How to Add and Adjust Audio Keyframes

Mixing audio by adding and adjusting individual keyframes can be a fast and effective way of balancing clip levels with one another and of fixing clip-specific dynamic level problems. When manually editing any audio parameter curve, you can use the following procedures.

#### Methods of adjusting different audio curves using the pointer:

- **To adjust any curve segment:** Position the pointer between any two keyframes, directly on top of the curve segment you want to raise or lower, and when the move cursor is displayed, click and drag up to raise the level, or down to reduce the level.
- **To add keyframes to the level curve:** Hold the Option key down and click the curve to place a keyframe at that frame. You must add at least two keyframes to create an automated change in volume.
- **To adjust any keyframe:** Move the pointer over a keyframe so that the four-way cursor appears, and then click and drag in the intended direction of adjustment, either vertically to change the volume of the clip at that frame, or horizontally to move the keyframe to a different point in time. Once you start dragging a keyframe into a particular direction, keyframe movement is constrained in that direction until you release that keyframe.

**NOTE:** At the time of this writing, keyframes cannot be deleted, and there are no bezier curves for clip keyframes.

## Clip EQ

Each audio clip in the timeline has a four band equalizer that has both graphical and numeric controls for boosting or attenuating different ranges of frequencies within that clip, before it even gets to the EQ built into the mixer. Each band has controls for the filter type (Bell, Lo-Shelf, Hi-Shelf, Notch), Frequency, Gain, and Q-factor (sharpness of the band), with the available controls for each band of EQ changing depending on the filter type.

When a channel strip's EQ is enabled, the EQ button displays the equalization curve that's being applied. This indicator cannot be adjusted, you must open the EQ window to make modifications.



The channel strip's EQ indicator, (Left) EQ is at detente, (Right) EQ is adjusted

## Master EQ Controls

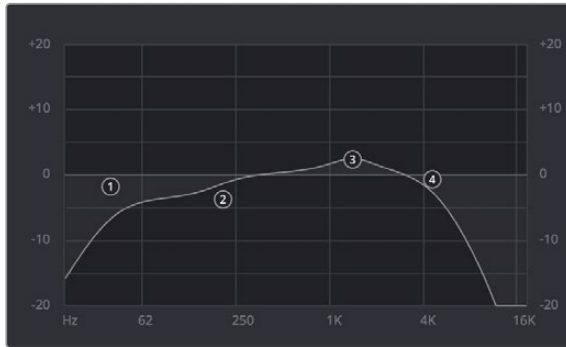
The Equalizer window has the following overall controls:

- **Enable button:** Turns the overall EQ effect off and on, without resetting the controls.
- **Reset button:** Resets all controls of the EQ window to their defaults.

## Graphical EQ controls

A graph at the top shows a curve with handles that correspond to each of the enabled EQ bands listed below. You can drag any numbered handle to boost or attenuate the range of frequencies governed by that band, using whatever type of equalization that band has been set to.

Dragging the numbered handles on this graph in turn modifies the parameters of the corresponding band, and changing each band's parameters will also alter the EQ graph, which serves the additional purpose of providing a graphical representation of the equalization being applied to that track.



The EQ graph with user-draggable handles

## Bands 1 and 4

The outer two sets of band controls let you make high-pass and low-pass adjustments, if necessary.

- **Band enable button:** Turns each band of EQ on and off.
- **Band filter type:** Bands 1 and 6 can be switched among four specific filtering options for processing the lowest or highest frequencies in the signal. These include (from top to bottom) Hi-Shelf, Hi-Pass, Lo-Pass, and Lo-Shelf.
- **Freq:** Adjusts the center frequency of the EQ adjustment
- **Gain:** Adjusts the amount by which the affected frequencies are affected. Negative values attenuate those frequencies, while positive values boost those frequencies.

## Bands 2-3

The middle two sets of band controls let you make a wide variety of equalization adjustments.

- **Band enable button:** Turns each band of EQ on and off.
- **Band filter type:** Bands 2–5 can be switched among four different filtering options (from top to bottom) Lo-Shelf, Bell, Notch, and Hi-Shelf
- **Frequency:** Adjusts the center frequency of the EQ adjustment
- **Gain:** Adjusts the amount by which the affected frequencies are affected. Negative values attenuate those frequencies, while positive values boost those frequencies.
- **Q Factor:** Adjusts the width of affected frequencies. Lower values include a wider range of frequencies, higher values include a narrower range of frequencies

## Chapter 68

1173

# Mixing in the Fairlight Page

# Mixing in the Fairlight Page

The mixer is the spider at the center of the web that is the Fairlight page, and provides the primary tools you'll use to mix the various audio tracks of your program in to a harmonious whole using EQ, Dynamics, Panning, level control, and VST and Audio Units audio effects of all kinds, all with full automation, to hone your sound and balance each track's elements with the others. This chapter focuses on explaining the various functions of the mixer so you can harness its power for yourself.

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# Introduction to Mixing

This chapter describes the use of the mixer to adjust the levels and fine-tune the audio of each track in the timeline. It's focused on the function of the channel strip controls, with the following exceptions:

For more information about Busing, see Chapter 63, "Setting Up Tracks, Buses, and Patching"

For more information about recording audio, see Chapter 65, "Recording"

For more information about recording automation, see Chapter 69, "Automation Recording"

# The Mixer

The Audio Mixer provides a set of graphical controls you can use to assign track channels to output channels, adjust EQ and Dynamics, set levels and record automation, pan stereo and surround audio, and mute and solo tracks. At its most basic, each audio track in your timeline corresponds to an individual channel strip in the Mixer, and by default there's a single Main bus labeled M1 that combines all these tracks into an overall mix.



The Audio Mixer, with channel strips corresponding to the tracks in the Timeline

## Tracks and Buses

Once you start creating buses, the Audio Mixer exposes two sets of channel strips. The left-most set of channel strips correspond to the audio tracks in the Timeline, while the right-most set of channel strips expose sets of controls for each Main, Sub (submix), and Aux (auxiliary) bus that you've created.



The Audio Mixer is divided into two sections, one for tracks (at left) and one for buses (at right)

If you have more tracks and buses than can be displayed all at once given the width of your computer display, then each half of the mixer has independent scroll bars so you can choose which tracks and which buses you want to see next to one another.

Each audio track's channel strip has a set of Main and Sub bus buttons that let you assign the audio output by that channel strip to a Sub (typically used to combine different subsets of tracks into submixes) or to a Main (typically used to output or render overall mixes). Each Sub and Aux's channel strip has a set of Main buttons so that different combinations of Subs can be assigned to each Main. Main channel strips have no buttons because, from a busing perspective, they're the final output.



Main and Submix buttons let you assign tracks to buses, and buses to other buses

### Third Party Mixing Control Panel Support

DaVinci Resolve supports HUI- and MCU-compatible third party mixing control panels with up to 8 faders, such as the Mackie MCU Pro Control Surface, connected via USB MIDI, and selectable in the Control Panels panel of the Resolve System Preferences.

Support at the time of this writing includes Mute, Solo, double-press for track selection, Fader control and Level display, Rotary control, Rotary Value display, and Rotary touch, Record, Track Name display, Channel and Bank scroll, double-press Bank Left for Home, double-press Bank Right for Masters, Transport controls including REW, FF, Play, double-press Play for play again, Stop, double-press Stop for Home, Marker, Marker+Stop to set Home, Marker+FF/REW to Jump, and Jog control. Additional controls include Master Solo clear/restore, Undo, Undo+Option to Redo, arrows, zoom horizontal and vertical, Automation On/Off with Write/Trim/Touch/Latch switches, Nudge, Cut, Copy, and Paste. Monitoring controls include Level control, Dim, Mute, and Alt Speaker.

For more information on third party mixing control panel support, see the Blackmagic Support site on the web at <https://www.blackmagicdesign.com/support/family/davinci-resolve-and-fusion>.



# Customizing the Mixer Controls

The Option menu at the upper right-hand corner of the Mixer provides a number of different options for customizing the look of the Mixer, as well as which controls are shown or hidden.

First, you have the options of showing the Full Track Mixer or the Small Track Mixer. While the Full Track Mixer provides more room for buttons and controls that are large enough you don't have to squint to see them, the Small Track Mixer lets you have many more channel strips onscreen at one time, for those times where you're doing incredibly ambitious mixes.



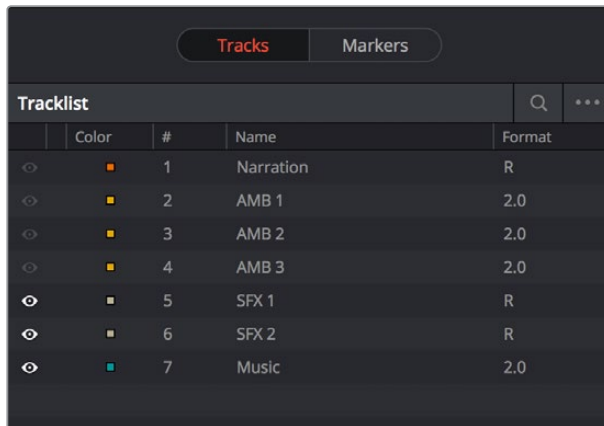
The Small Track Mixer view

Second, there's an option to Show Labels, which are the control names listed in a column to the left of the mixer channel strip area. If you're first getting started, these Labels are useful, but once you've gotten used to the layout of the Mixer, hiding these will give you a bit more room to work with for another channel strip or two.

Third, there's a set of options that let you toggle the visibility of specific channel strip controls, so you can hide controls you know you're not going to be using, or that you've used but no longer need to adjust or want to protect from accidental adjustment by a wandering mouse or pen.

## Showing and Hiding Channel Strips Using the Index

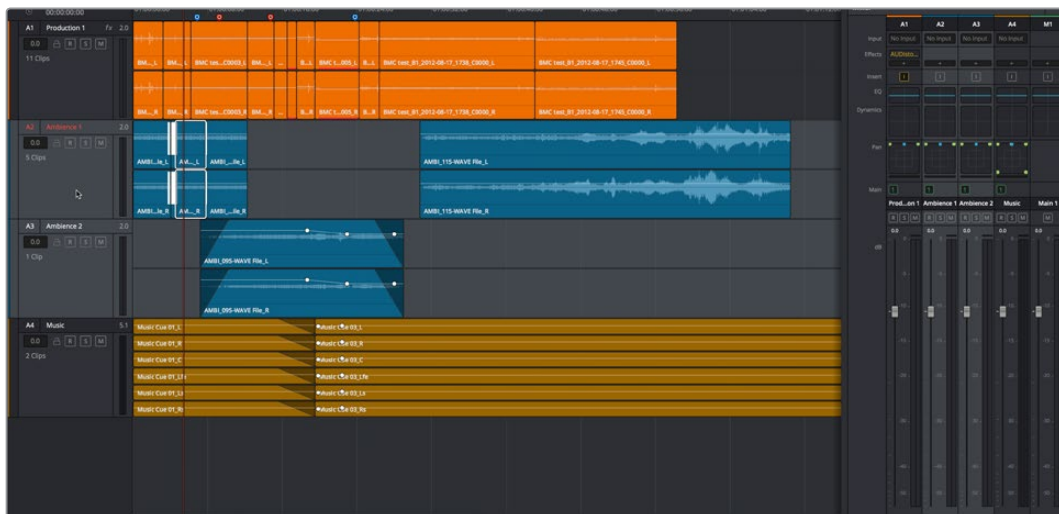
You can use the Tracks panel of the Index to hide tracks you don't need to work on in order to create more room for tracks you need to see. To quickly show or hid a number of tracks, you can click and drag over those tracks to reverse the visibility of every track you drag over.



The Tracks panel of the Index hiding tracks 1–4 on both the Timeline and the Mixer

## Selecting Channel Strips and Tracks

When you select a track in the Timeline, you also select that track's accompanying channel strip, and vice versa. It's possible to select multiple tracks in the Timeline and thereby select multiple channel strips, but you can also Command-click to select multiple channel strips in order to select multiple tracks.

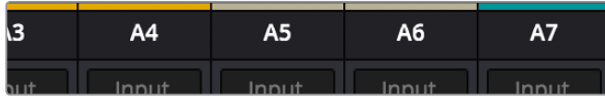


Selecting multiple channel strips results in the selection of multiple tracks

# Track Organization

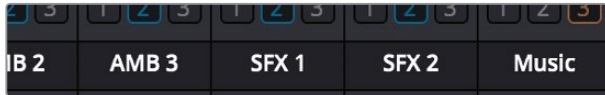
Each channel strip has three organizational properties that let you keep track of which channel strip is responsible for which part of the mix.

- **Track Color:** Each track can be differently color-coded, to help you keep organized. These colors appear in the timeline track header, the mixer, and the meters to help you keep track of which track corresponds to which channel strip and meter.
- **Track Number:** The number of the timeline audio track corresponding to each channel strip appears here.



The track color and track number appear at the top of each channel strip

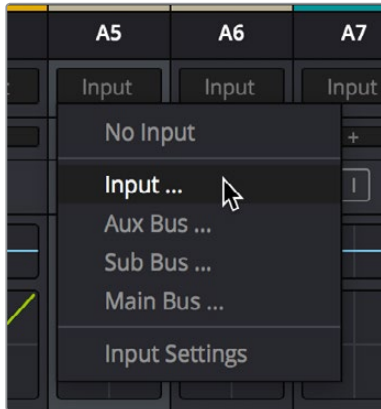
- **Track Name:** This mirrors the track name found in the header controls of the timeline. If you customize an audio track's name in the timeline, that name appears here.



Each track's name appears between the assignment buttons and the arm/solo/mute buttons

# Input

A pop-up menu that lets you patch inputs, patch buses, and configure the input settings of audio signals routed through Blackmagic hardware interfaces.



The Input pop-up menu provides shortcuts for patching different buses using the Patch Input/Output window

For more information on using the options of the insert menu, see Chapter 63, "Setting Up Tracks, Buses, and Patching."

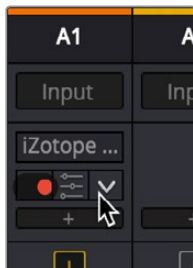
## Effects

When you apply VST or Audio Unit effects to a track from the Effects Library, those effects appear here. Clicking the Plus button opens a pop-up menu with which you can apply any VST or AU effects installed on your machine to that track.



Moving the pointer over the plus to add effects

Hovering the mouse over any listed effect reveals controls for enabling/disabling each effect, opening an effect's custom controls, and deleting that effect.



Moving the pointer over an effect reveals controls for that effect

For more information on using audio effects, see Chapter 70, “Audio Effects.”

## Insert

Enables the routing of effects from Blackmagic audio interface hardware to outboard effects boxes and back again. This button can be toggled to enable/disable such routing.

## EQ

Double-clicking exposes a four band parametric equalizer with additional Hi and Lo Pass filters, that has both graphical and numeric controls for boosting or attenuating different ranges of frequencies of audio on each track. You can select from among four types of EQ filtering from the Equalizer Type pop-up menu, with options for Earth (the default), Air, Ice, and Fire. Each band has controls for the filter type (Bell, Lo-Shelf, Hi-Shelf, Notch), Frequency, Gain, and Q-factor (sharpness of the band), with the available controls for each band of EQ changing depending on the filter type.



The channel strip EQ window

When a channel strip's EQ is enabled, the EQ button displays the equalization curve that's being applied. This indicator cannot be adjusted, you must open the EQ window to make modifications.



The channel strip's EQ indicator, (Left) EQ is adjusted, (Right) EQ is detente

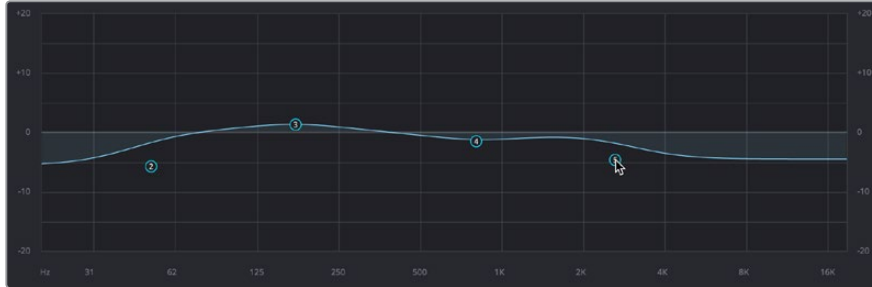
## Master EQ Controls

The Equalizer window has the following overall controls:

- **Enable button:** Turns the overall EQ effect off and on, without resetting the controls.
- **Reset button:** Resets all controls of the EQ window to their defaults.
- **Equalizer Type:** Changes the EQ control functionality to emulate different EQ characteristics from “classic” mixing consoles. There are four options:
  - Earth:** (Default) Native Fairlight controls
  - Air:** Emulates the SSL 4K
  - Ice:** Emulates the Neve V
  - Fire:** Emulates the Focusrite
- **Gain fader:** A post-EQ level control that lets you boost or attenuate the signal to compensate for the EQ adjustment you're making raising or lowering the level.

## Graphical EQ controls

A graph at the top shows a curve with handles that correspond to each of the enabled EQ bands listed below. You can drag any numbered handle to boost or attenuate the range of frequencies governed by that band, using whatever type of equalization that band has been set to.

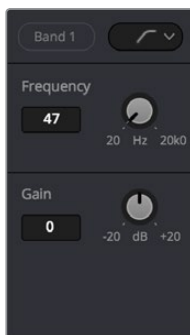


The EQ graph with user-draggable handles

Dragging the numbered handles on this graph in turn modifies the parameters of the corresponding band, and changing each band's parameters will also alter the EQ graph, which serves the additional purpose of providing a graphical representation of the equalization being applied to that track.

## Bands 1 and 6

The outer two sets of band controls let you make high-pass and low-pass adjustments, if necessary. They're off by default.

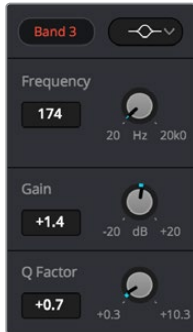


The Band 1 and 6 controls

- **Band enable button:** Turns each band of EQ on and off.
- **Band filter type:** Bands 1 and 6 can be switched among four specific filtering options for processing the lowest or highest frequencies in the signal. These include (from top to bottom) Hi-Shelf, Hi-Pass, Lo-Pass, and Lo-Shelf.
- **Frequency:** Adjusts the center frequency of the EQ adjustment
- **Gain:** Adjusts the amount by which the affected frequencies are affected. Negative values attenuate those frequencies, while positive values boost those frequencies.

## Bands 2-5

The middle four sets of band controls let you make a wide variety of equalization adjustments. They're on by default, to make it easy to begin making adjustments.



The Band 1 and 6 controls

- **Band enable button:** Turns each band of EQ on and off.
- **Band filter type:** Bands 2–5 can be switched among four different filtering options (from top to bottom) Lo-Shelf, Bell, Notch, and Hi-Shelf
- **Frequency:** Adjusts the center frequency of the EQ adjustment
- **Gain:** Adjusts the amount by which the affected frequencies are affected. Negative values attenuate those frequencies, while positive values boost those frequencies.
- **Q Factor:** Adjusts the width of affected frequencies. Lower values include a wider range of frequencies, higher values include a narrower range of frequencies

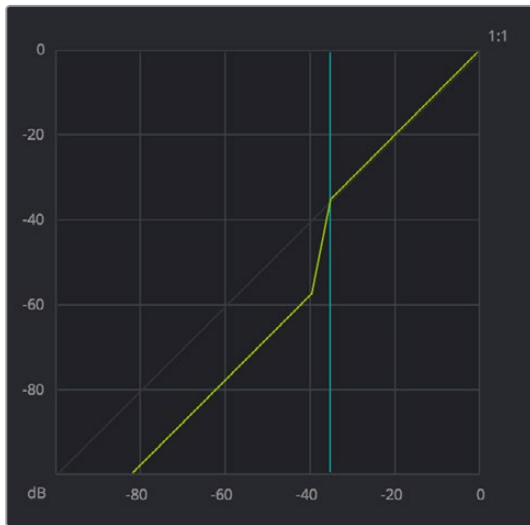
## Dynamics

Double-clicking exposes a set of dynamics controls with three sets of controls corresponding to an Expander or Gate, a Compressor, and a Limiter that can be used separately or in concert to manage the dynamics of the audio on that track.



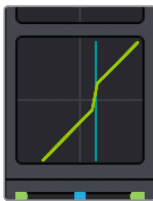
The channel strip Dynamics control window

When you enable whatever combination of dynamics controls you need for that track, the dynamics graph updates with curves that show you how the signal is being affected by the Expander or Gate, Compressor, and/or Limiter settings that are being applied.



The dynamics graph shows how the signal is being affected by the current settings

With these dynamics enabled, the Dynamics button on the channel strip displays these curves, so you know what's happening to that channel. This indicator cannot be adjusted, you must open the Dynamics window to make modifications.



The channel strip's Dynamics indicator, (Left) Dynamics at detente, (Right) Dynamics adjusted

## Master Dynamics Controls

The Dynamics window contains the following overall controls at the top of the window:

- **Reset button:** Resets all controls of the EQ window to their defaults.
- **Side Chain:** Enabling this checkbox sets the compressor to use a separate input to control the amount of compression that's applied. The effect is that when there's a loud level in the controlling input, the level of the track is reduced.
- **Link Channels:** When disabled, each channel is compressed independently. When enabled, all channels are compressed based on the same controlling input used for Side Chain compression.
- **Make Up fader:** A post-Dynamics level control that lets you boost the signal to compensate for dynamics settings that have lowered the level.



## Expander/Gate

The first of three sets of dynamics parameters can be switched between Expansion and Gating. Expansion emphasizes differences in volume by lowering the level of soft parts of the signal relative to the level of louder parts. Can be used to minimize noise while increasing the dynamic range of a signal. Gating reduces the level or even silences parts of a signal that fall below a certain level in order to reduce or eliminate noise in quiet parts of a recording.

- **Expander:** A button that lets you enable these controls and switch them to perform Expansion.
  - Threshold:** Sets the signal level below which gain reduction occurs. Defaults to -35dB. The range is from -50 to 0dB.
  - Range:** Unused for expansion.
  - Ratio:** Sets the gain reduction ratio (input to output) that's applied to signals which fall below the threshold level. Defaults to 1:1.1. The range is 1.0:1 to 10:1.
  - Attack:** Adjusts how quickly the sidechain detector applies expansion when a signal exceeds the threshold. Defaults to 1.4mS. The range is 0 to 100mS.
  - Hold:** Keeps dynamics from being triggered again until a certain amount of time has passed, in mS (milliseconds). Defaults to 0mS. The range is from 0 to 4000mS.
  - Release:** Adjusts how quickly the sidechain detector stops applying dynamics when a signal goes back below the threshold. Defaults to 93mS. The range is 0.03 to 4.03mS.
  
- **Gate:** A button that lets you enable these controls and switch them to perform Gating.
  - Threshold:** Sets the signal level below which gain reduction occurs. The range is from -50 to 0 dB.
  - Range:** Sets the maximum amount of gain reduction that will be applied when the signal falls below the gate threshold. Once the signal has fallen below the level determined by the gate threshold minus the gate range, no gain reduction is applied. The default is 18. The range is from 0 to 60.2dB.
  - Ratio:** Unused for gate.
  - Attack:** Adjusts how quickly the sidechain detector applies gating when a signal exceeds the threshold. Defaults to 1.4mS. The range is 0 to 100mS.
  - Hold:** Keeps dynamics from being triggered again until a certain amount of time has passed, in mS (milliseconds). Defaults to 0mS. The range is from 0 to 4000mS.
  - Release:** Adjusts how quickly the sidechain detector stops applying dynamics when a signal goes back below the threshold. Defaults to 93mS. The range is 0.03 to 4.03mS.

## Compressor

The second set of dynamics parameters let you apply compression, which detects the envelope of an audio signal in order to automatically change its level. Typically used to detect and reduce the peaks of an audio signal so that the overall level can be boosted without clipping, reducing the dynamic range of a given signal. Compression is often used to allow voices to have more presence within a mix, and to smooth out changes in the levels of tracks with too much dynamic range for the task at hand.

- **Compressor:** A button that lets you enable Compression.

**Threshold:** Sets the signal level above which compression is applied. The default is -15dB. The range is -50 to 0dB.

**Ratio:** Adjusts the compression ratio. This sets the gain reduction ratio (input to output) applied to signals which rise above the threshold level. The default is 2.0:1. The range is 1.0:1 to 10:1.

**Attack:** Adjusts how quickly the sidechain detector applies compression when a signal exceeds the threshold. The default is 1.4mS. The range is 0 to 100mS.

**Hold:** Keeps dynamics from being triggered again until a certain amount of time has passed, in mS (milliseconds). Defaults to 0mS. The range is from 0 to 4000mS.

**Release:** Adjusts how quickly the sidechain detector stops applying dynamics when a signal goes back below the threshold. The default is 93mS. The range is 0.03 to 4.03mS.

## Limiter

The third set of dynamics parameters let you apply limiting, which imposes a hard limit on the maximum level allowed for a particular signal.

- **Limiter:** A button that lets you enable Limiting.

**Threshold:** Sets the maximum allowable output level. The default is -21dB. The range is from -50 to 0dB.

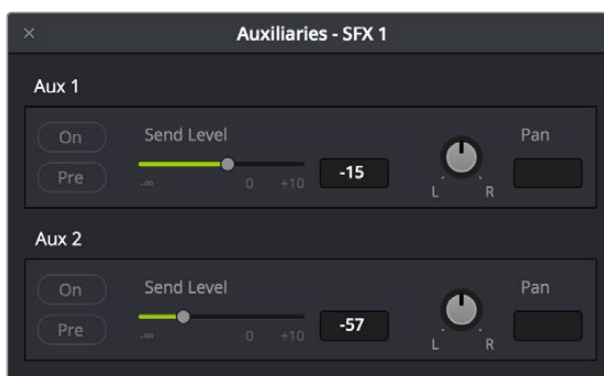
**Attack:** Adjusts the attack rate time constant of the sidechain detector. The default is .71mS. The range is 0 to 100mS.

**Hold:** Keeps dynamics from being triggered again until a certain amount of time has passed, in mS (milliseconds). Defaults to 0mS. The range is from 0 to 4000mS.

**Release:** Adjusts how quickly the sidechain detector stops applying dynamics when a signal goes back below the threshold. The default is 90mS. The range is 0.03 to 4.03mS.

## Aux

Lets you route that track's channels through an Aux send bus. Each Aux bar corresponds to a specific Aux bus that you created. Double-clicking any of these bars opens up the Auxiliaries window, with which you can enable or disable auxiliaries, set each one to be routed Pre the channel strip or post the channel strip (the default), and set each Aux buses send level and pan value.



The Auxiliaries control window

Each Aux bus you create exposes the following controls in the Auxiliaries window:

- **On:** Turns that Aux send on or off.
- **Pre:** Switches aux sends to be either pre or post fader.
- **Send Level:** Adjusts the amount of signal sent from the selected feed to the auxiliary bus. The range is OFF to +10dB.
- **Pan:** Provides panning across stereo aux bus destinations.

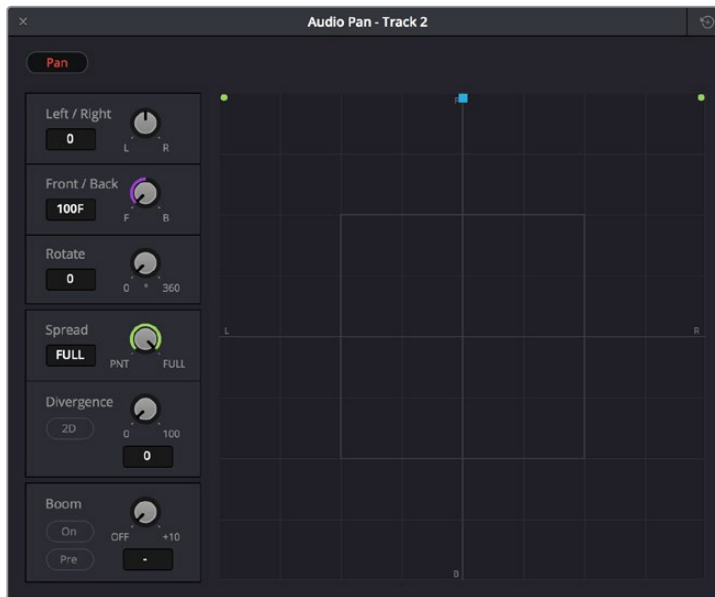
The level to which you set an Aux bus will be shown within the bar that represents that Aux bus in the Mixer's channel strip.



The Auxiliaries levels shown in the channel strip of the Mixer

# Pan

A Pan control compatible with stereo and surround panning. You can drag the panning handle within this control to adjust panning for stereo or surround mixing, or you can double-click this control to expose a large pan window. What controls are available in the pan window depend on the mapping of the audio track, but both stereo and surround panning controls are available, with corresponding numeric controls. You can either adjust panning using the graphical Pan control, or you can adjust specific panner characteristics using the controls to the left.



The Pan control window

When a channel strip's Pan control is enabled, the Pan area displays the panning that's being applied. Unlike the EQ or Dynamics controls, you can adjust a channel's panning by dragging the handles that appear within this small area of the channel strip.



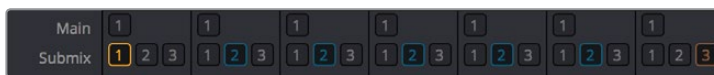
The channel strip's Pan indicator

The Audio Pan window contains the following controls:

- **Left/Right:** Changes the balance of signal between the left and right side speakers you're outputting to, depending on what speaker format you're mixing to. At its simplest, accommodates stereo output.
- **Front/Back:** Changes the balance of signal between the front and back sets of speakers you're outputting to, depending on what speaker format you're mixing to.
- **Rotate:** Simultaneously adjusts the left/right and front/back pan controls in order to rotate a surround mix about the centre of the room.
- **Spread:** Only available when a linked group is selected (feature not available at the time of this writing). Spread adjusts the perceived size of a surround mix.
- **Divergence:** Spreads the signal for an individual feed across more of the adjacent loudspeakers, making the perceived size of the sound source larger.
- **2D:** more
- **Boom:** The send level of that track to the LFE part of the mix.
- **On:** Enables this functionality.
- **Pre:** Lets you adjust the "dry" part of the signal separately from the "wet" part of the signal when effects are applied.

## Bus Assignment Buttons

Two sets of buttons let you route audio from one channel strip's output to Sub and Main buses that you've set up for your mix.

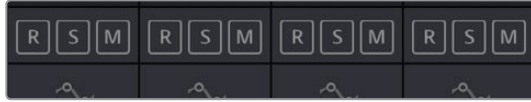


The channel strip's bus assignment buttons

- **Main:** These buttons let you assign a track or Sub's channels to one or more of the main busses.
- **Submix:** These buttons let you assign that track's channels to one or more submix buses.

# Arm, Solo, and Mute Buttons

Identical to the controls found in the track header controls of each timeline audio track.



The channel strip's Arm, Solo, and Mute buttons

- **Arm:** (Labeled R) Lets you enable a track to be recorded onto.
- **Solo:** Lets you mute all other tracks in order to play a track you need to focus on in isolation. If solo is enabled for multiple tracks, all soloed tracks will play, and all non-soloed tracks will be muted. This affects rendering, so if one or more tracks are soloed, the muted tracks won't be output or rendered.
- **Mute:** Disables audio playback from that track. This affects rendering, so if one or more tracks are muted, they won't be output or rendered.

**TIP:** You can click a button and drag across multiple channel strips to turn that button on or off for multiple tracks easily.

# Fader Controls

Each track's vertical fader lets you control the level that's output by that track, either using your mouse, or using the physical fader of your Fairlight console. If you're working with a console, then the onscreen faders serve as a visual reference of what levels are set.



The fader area

- **dB:** Shows you the volume, in decibels, that track is currently set to.
- **Fader:** Each track's vertical fader can be dragged with your mouse or other pointing device to adjust the volume of that track and perform automation recording. Dragging up increases volume, dragging down decreases volume. Fader handles turn red while you record levels automation, and they turn green when automation has been recorded for that track.

**Methods of adjusting channel faders:**

- **To change the level of that channel with the mouse:** Click and drag any fader up or down.
- **To reset the level of that channel to 0 dB:** Double-click a fader's handle. This does not work after you've recorded automation for a track.

## Chapter 69

# Automation Recording

# Automation Recording

The Fairlight page provides simple, flexible and comprehensive facilities for recording and editing mix automation data. Once recorded, all feed and bus mix parameter automation can be played back in perfect synchronization with the audio, including channel parameters, bus assignments, inserts, and direct outs.

The Fairlight page is designed to allow the operator to record every static and dynamic parameter change you make in the process of balancing the mix of tracks in the timeline. Mixer adjustments may be recorded for one or multiple parameters or channels at a time. Additionally, more adjustments may be added with each automation recording pass, which lets you create complex and detailed mixes that can be frame-accurately replayed at will.

This chapter covers automation mixing using the combined controls of the onscreen mixer and timeline. For more information on basic mixing operations, see Chapter 68, “Track Level Mixing.”

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<b>How to Record Automation</b>	1194
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# Automation Recording

While the recording of keyframe automation is most commonly associated with either the on-screen mixer or the Fairlight console, you can also record automation using controls found in the Inspector, or using the controls of the EQ, Dynamics, and Pan windows, thereby enabling you to record automation for the various audio effects that you've applied to a track.

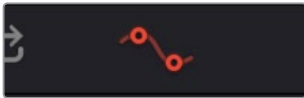
Recording automation refers to creating high-fidelity data that records changes you make to onscreen controls and/or Fairlight console controls, in real time as the Timeline plays, that will then control how those parameters will play back. In this way, you can create a dynamic mix where different audio level, pan, and EQ, dynamics, and other audio filter settings change over time to fade swells of music up and down, pan the sound effect of a car driving by from the left to the right speaker, or slowly increase the strength of a reverb effect applied to foley footsteps as a character walks into a long, dark cavern.

## What Can You Automate

You can record automation for nearly every control in the mixer for channel strips corresponding to individual tracks, track groups, or busses, including fader. Additionally, you can record automation for controls found in audio plugins that you use in your mix.

## Automation Controls

The automation button, to the right of the transport controls, lets you show and hide the automation toolbar.



Clicking the Automation button displays the automation toolbar

The automation toolbar has buttons for each option that's available for preparing to record automation in your mix.



Options found in the automation toolbar

The automation toolbar displays the following options:

- **Automation:** Controls how automation data is recorded.
  - Write:** Records absolute changes to control automation.
  - Trim:** Records relative changes to control automation in order to increase or reduce levels that have already been recorded.
- **Touch:** Defines what happens when you first adjust an automatable control.
  - Off:** No automation is recorded.
  - Latch:** Automation is recorded once you begin moving a control, continues recording after you release the control.
  - Snap:** Automation is recorded once you begin moving a control, stops recording after you release the control; there is a brief interpolation from the last level you set to the prior recorded level.

- **On Stop:** Defines what happens when you release an automatable control.
  - Event:** The last recorded automation value overwrites previous levels to the start of the next available recorded automation data (or event) in that track.
  - Hold:** Deletes all previously recorded mixing data after what you've just recorded, to hold the last recorded level for the rest of that track.
  - Return:** The last recorded automation value is interpolated to ramp back to the previously recorded automation values on that track.
- **Enables:** The following buttons let you enable or disable different controls for recording automation.
  - Fader:** Automates track and bus volume.
  - Mute:** Automates the mute button.
  - Pan:** Automates all pan controls.
  - EQ:** Automates all EQ controls.
  - Comp:** Automates just the Compressor controls in the Dynamics window.
  - Gate:** Automates just the Gate controls in the Dynamics window.
  - Lim:** Automates just the Limiter controls in the Dynamics window.
  - Aux:** Automates the Auxiliary controls in the Auxiliaries window.
  - Plugins:** Automates all plugins.
  - Misc:** Automates the parameters of VST and Audio Unit plugins.

## How to Record Automation

There are two different ways you can set up the recording of automation for levels, panning, EQ, Dynamics, and other audio controls in the mixer.

### Recording Automation for Multiple Tracks

You can use the following steps to record automated changes to any audio control in any control strip:

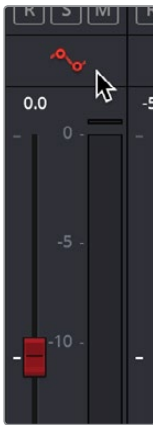
- 1 Open the Automation toolbar, and do the following three preparatory steps:
  - a Choose whether you're going to Write new automation, or Trim automation that's already recorded. Write mode is appropriate when you're recording automation for the first time, or when you're overwriting previous automation with brand new values. Trim mode is appropriate when you're making incremental changes to previously recorded automation.
  - b Next, choose Touch and On Stop behaviors that are appropriate for the kind of automation recording you need to do.
- 2 Move the playhead to the beginning of the section of the timeline you want to record automation for.
- 3 Next, initiate playback using any method (Spacebar, L, Play button, third party or Fairlight audio control panel), and make whatever adjustments you want to the controls for which you've enabled automation recording. As you make adjustments, the affected fader control turns red to let you know you're recording automation.
- 4 When you're finished, stop playback using any method (Spacebar, K, Stop button, third party or Fairlight audio control panel). Automation recording stops as well.

Once you've recorded automation keyframes for a particular parameter appear in an automation graph. This graph is not available as of the time of this writing.

## Recording Automation for Specific Individual Tracks

You can use the following steps to record automated changes to controls in specifically armed control strips:

- 1 Open the Automation toolbar, and do the following three preparatory steps:
  - a. Choose whether you're going to Write new automation, or Trim automation that's already recorded. Write mode is appropriate when you're recording automation for the first time, or when you're overwriting previous automation with brand new values. Trim mode is appropriate when you're making incremental changes to previously recorded automation.
  - b. Next, set Touch to Off, which disables across-the-board automation recording and requires you to arm specific tracks that you want to automate.
- 2 Click the automation arm button above the fader of any Mixer track to which you want to record automation. Even though the Touch control is set to off, moving a control on an armed channel strip will record automation in Latch mode.

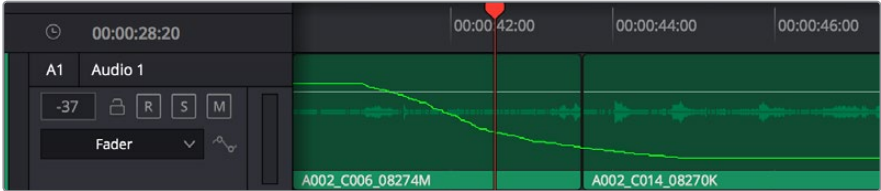


The automation arming button above a fader in the Mixer

- 3 Move the playhead to the beginning of the section of the timeline you want to record automation for.
- 4 Next, initiate playback using any method (Spacebar, L, Play button, third party or Fairlight audio control panel), and make whatever adjustments you want to the controls for which you've enabled automation recording. While you make adjustments, the affected fader control turns red to let you know you're recording automation.
- 5 When you're finished, stop playback using any method (Spacebar, K, Stop button, third party or Fairlight audio control panel). Automation recording stops as well.

# Viewing Automation

Once you've recorded automation keyframes for a particular parameter, they can be made visible in an automation graph in the Timeline. While the automation controls are visible, an additional pair of controls appear in the header of each audio track. A pop-up lets you choose which automation waveform to view, with options for Fader, Mute, Pan, EQ, Compressor, limiter, Aux, and Plugins controls.

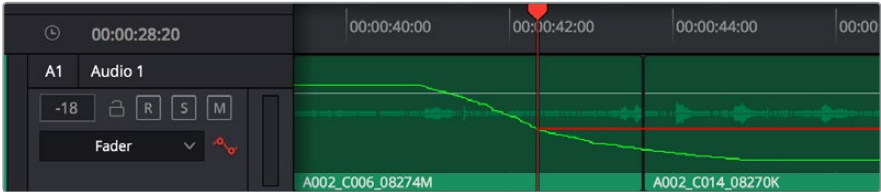


Mixing automation for the Fader shown in the Timeline

At the time of this writing, automation data cannot be deleted, edited, copied, or pasted. However, you can use the undo command to undo automation recording immediately after it's been recorded, and you can always overwrite previously written automation.

# Overwriting Automation

Once you've recorded automation for a particular clip, you can overwrite that automation in subsequent passes. Using either of the previously described methods of recording automation, adjusting the levels of a track control with previously recorded automation displays a red line that shows the new level relative to the previously recorded level.



Setting new levels to overwrite previously recorded automation displays a red line

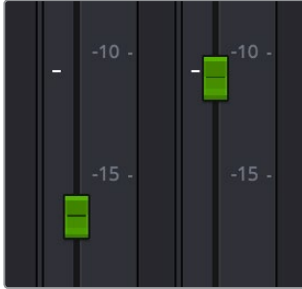
Pressing play to actually record this new automation will overwrite the previous levels at this new value.



Setting new levels to overwrite previously recorded automation displays a red line

# Playing Automation

After you've automated a mix, playing it back is as simple as moving the playhead to an area of the timeline prior to the recorded automation, and initiating playback. As the timeline plays, the onscreen controls for each automated parameter are shown in green, and move and update to show the recorded levels for those controls.



Green controls show which ones have recorded automation during playback

## Chapter 70

# Audio Effects

# Audio Effects

Audio plug-ins let you apply effects to the audio clips in your mix, such as echo or reverb, noise reduction, aural enhancement, click and pop removal, and so on. DaVinci Resolve is compatible with a wide variety of third party VST and Audio Unit effects for audio processing, and these can then be used either in the Edit or Fairlight pages. This chapter goes through the different methods available for applying and customizing effects for clips and for tracks.

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Audio Units	1200
<b>Using Audio Filters</b>	1201
<b>Applying Audio Filters to Main and Sub Buses</b>	1204

## About Audio Plug-Ins

Single or multiple plug-ins can be applied to clips and to tracks. A total of 96 mono channels of plug-ins can be applied (a stereo plug-in uses two of these channels, a 5.1 aware plugin six channels, etcetera). Plugins are accessed via each track's control strip, or via the Inspector which provides access to both Clip and Track plugins.

### VST and VSTi

VST (Virtual Studio Technology) is an audio plug-in standard created by Steinberg. The VST standard allows third party developers to create VST plug-ins for use within VST host applications, or to create VST host applications themselves. The VST plug-in standard is the most widespread audio plug-in standard in use today, with thousands of available plug-ins spanning the gamut from EQ and compression to reverb, denoising, de-essing, aural exciting, and much more.

The Fairlight page supports VST effects from Mono to 7.1 – and beyond. These effects can be inserted on mono channels or Link Groups. If a stereo VST Effect is inserted on a LCR, LCRS, or 5.1 Link Group, the left and right channels will be allocated to left and right Link Group channels automatically.

As of this writing, DaVinci Resolve uses Version 2.4 of the VST SDK (Software Development Kit). VST effects are available on macOS and Windows workstations.

### VST Effects versus VST Instruments (VSTi)

A VST effect is a type of VST plug-in that is used to process audio. A VST effect might be a Reverb, Compressor or EQ. VST Instruments are typically used to synthesize sound or play back sampled audio. VSTis have rapidly replaced hardware synthesizers and dedicated samplers due to their flexibility, repeatability and low cost.

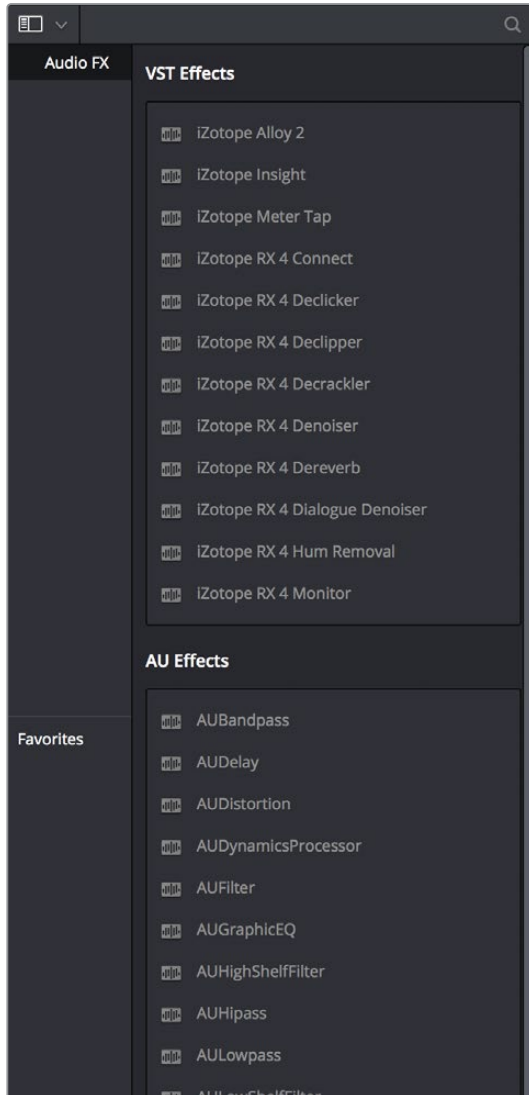
### Audio Units

Audio Units are an audio plugin API created by Apple. Similarly to VST, Audio Units (AU) can either process audio, or work as instruments. Audio Units are only available on macOS workstations.



# Using Audio Filters

Once you install VST or Audio Unit effects on your workstation, they appear in the Audio FX panel of the Effects Library, organized in separate categories.



Audio filters in the Effects Library

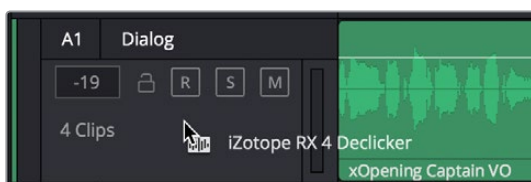
Audio plug-ins let you apply effects to individual audio clips or entire tracks worth of audio, to add creative qualities such as echo or reverb, or to take care of mastering issues using noise reduction, compression, or EQ.

## Methods of applying Audio Filters to clips on the Fairlight Page:

- **To apply an audio filter to a clip:** Drag any filter from the Audio FX panel of the Effects Library onto the clip in the Timeline you want to apply it to.
- **To apply an audio filter to multiple clips:** Select all of the clips you want to apply an audio filter to, then drag any filter from the Audio FX panel of the Effects Library onto any of the selected clips.

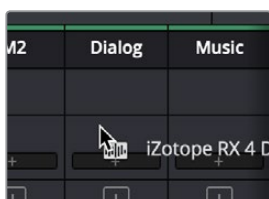
### Methods of applying Audio Filters to tracks on the Fairlight Page:

- **To apply an audio filter to an entire track in the Timeline:** Drag any filter from the Effects Library onto the track header.



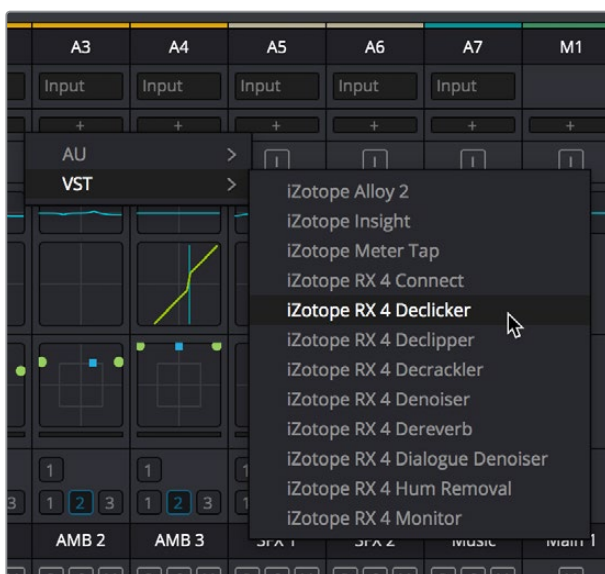
Applying an audio filter to a whole track via the Timeline

- **To apply an audio filter to a track or bus in the Mixer:** Drag any filter from the Audio FX panel of the Effects Library onto the clip in the Timeline you want to apply it to.



Applying an audio filter to a whole track via drag and drop to the Mixer

- **To apply an audio filter to a track or bus using the Mixer controls:** Click the plus button in the channel strip of the track you want to apply an effect to, and then choose a filter from the pop-up menu that appears.



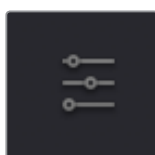
Applying an audio filter to a whole track via the Mixer's own controls

### To edit a clip's audio filters:

Select that clip and open the Inspector. All audio filters applied to that clip appear under the volume and pan controls, with that filter's controls appearing directly in the inspector.

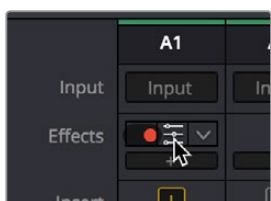
### To edit a track's audio filters, do one of the following:

- Click in the background of the Timeline header to select that track, and then open the Inspector. Click the custom UI button for that filter to open its controls.



The custom UI button for audio plug-ins in the Inspector

- Move the pointer over the plugin's name in the Effects area of the Mixer, and click on the custom UI button to open its controls.



The custom UI button for audio plug-ins in the Mixer

Nearly all VST and Audio Unit audio filters have a custom user interface that makes it much easier to manipulate that filter's controls. These can be opened from within DaVinci Resolve.



The custom audio filter interface for Izotope RX4

### Methods of working with audio filters in the Inspector:

- **To rearrange the order of multiple video filters applied to a clip:** Click the move up or move down buttons in any filter's title bar, to the left of each filter's Trash Can button.
- **To disable or re-enable a filter:** Click the toggle button at the far left of each filter's title bar.
- **To remove a filter:** Click the Trash Can button.
- **To reset a filter:** Click the Reset button at the far right of the filter's title bar.
- **To open or collapse a filter's parameters:** Double-click the title bar.
- **To open or collapse the parameters of all filters:** Option-click the title bar.

Once applied to a clip or track, audio filters can also be keyframed or automated just like volume and pan settings, to create dynamic audio effects that change over time.

## Applying Audio Filters to Main and Sub Buses

You can apply Audio Filters to Main and Sub Buses just like any other track, with which to apply any audio mastering effects operations you require to individual submixes, or even to an entire main.

# Audio Meters and Audio Monitoring

# Audio Meters and Audio Monitoring

The Meters panel, which appears at the top of the Fairlight page when it's enabled, provides a visual reference of the levels of each track in your mix, along with specialized meters showing the buses, monitoring mix, loudness, and a Viewer for seeing the video of the current project as you work. This chapter describes the use of these meters, and provides information about the different options that are available.

<b>The Monitoring Panel</b>	1207
<b>Track Meters and Monitoring Controls</b>	1207
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Graphical Loudness Meters	1211
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Using the Loudness Meters	1212
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## The Monitoring Panel

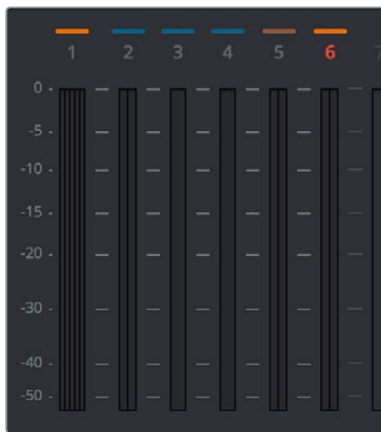
Turning on the Meters in the UI toolbar displays the Monitoring panel that runs along the top of the Fairlight page, which shows all of the audio meters that correspond to the tracks in the Timeline, as well as the Bus meters that correspond to the Mains, Subs, and Aux buses of your mix, the Control Room meters, and a video viewer.



The Monitoring panel

## Track Meters and Monitoring Controls

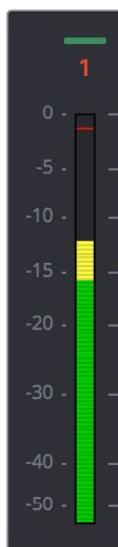
At left, a row of audio meters corresponds to the channel strips of the Mixer, one meter for every audio track in the timeline. Each track displays the number of meters that corresponds to that track's audio mapping, with mono tracks having a single audio meter, stereo tracks having two, 5.1 tracks having six, etcetera.



Track audio meters with different numbers of meters depending on that track's audio mapping

Each track and bus meter (with the exception of the Loudness meters) display RMS (root mean square) levels against a dB scale. A single line indicating the maximum value at any given moment in time is held briefly just above the current RMS levels, which appear as a solid bar extending from the bottom of the meter. RMS meters display a weighted "average" representation of the audio level that's closer to the way audio is actually perceived, although not as accurate as the loudness meters discussed later in this section.

Each meter bar is color coded to indicate two different thresholds of sound level, from low (green) to high (yellow) to very high (red).



The peak meter at top

Each meter is identified by the track number it represents (track names are not shown over track meters) as well as the color of that track.

## Using Post Fader or Track Source Meters

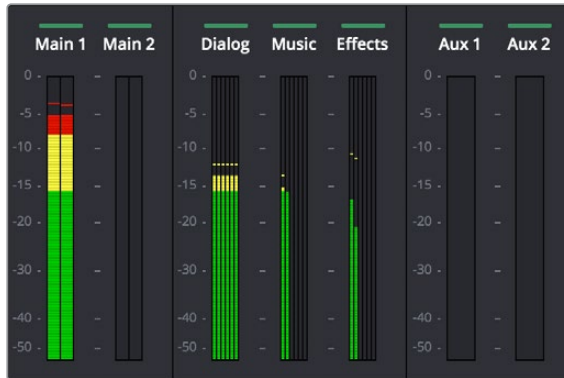
The Track Meters setting in the General Options of the Project Settings lets you choose how meters in the Fairlight page display their audio analysis. There are two options:

- **Post Fader:** Meters always display the level of each clip's signal after whatever fader adjustments have taken place. Fading a track's level down diminishes the visible level of that audio signal in the meter. This setting is good if you prefer a visual indication of the relative levels you've set your various audio tracks to, which is a very NLE-oriented behavior.
- **Track Source:** Meters always use the volume levels of the audio clips in that track, even if you've lowered the level using the sliders. If you've keyframed a clip's volume, that change will be reflected by the audio meters, even though fader changes are not. Viewing meters this way means you can always see how much level is available to clips in your mix regardless of what the current fader levels are set to, in the event you want to keep track of audio you want to bring back into the mix later on. This is a very DAW-oriented behavior.



## Bus Meters

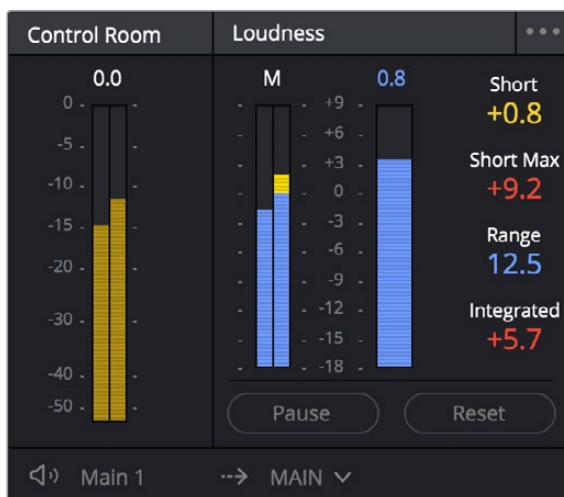
To the right of the Track Meters are the bus meters, in which all Mains, Subs, and Aux buses appear, separated by type, and each displaying the number of meters that corresponds to that track's audio mapping. This way you can see the sum of all tracks that have been routed to a particular bus.



Bus meters for the Mains, Subs, and Aux buses

## Compound Meters and Output Bus Selection Menu

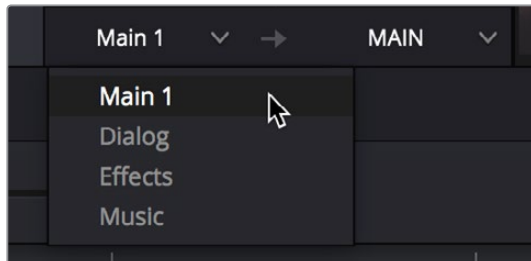
The Compound Meters, to the right of the Bus meters, consist of Control Room meters and Loudness meters, shown side-by-side to provide a comprehensive analysis of your overall audio mix. Below, pop-up menus let you choose which bus you want to monitor, as well as which set of speakers you want to use to do the monitoring.



The Control Room meters (at left),and Loudness meters (at right)

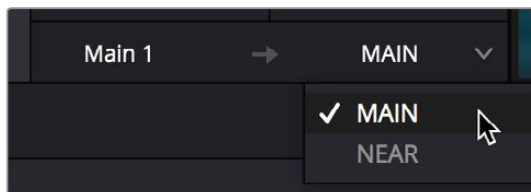
## Monitoring Menus

The Monitoring Menus determine which bus gets analyzed by the Compound Meters. When the Compound Meters are displayed, the Monitoring pop-up menu that otherwise appears to the left of the monitoring controls in the Transport toolbar instead moves to a position underneath the Loudness meters.



The monitoring menu lets you choose which bus you want to monitor while working

The next pop-up menu to the right lets you choose one of the available sets of speakers once you've configured them in the Video and Audio I/O panel of the System Preferences. This gives you the flexibility to quickly listen to your mix on a variety of speakers and configurations to see how it holds up in different situations. For more information on configuring different speaker setups, see Chapter 3, "Project Settings and Preferences."



The monitoring menu lets you choose which bus you want to monitor while working

## Control Room Meters

The mustard colored Control Room audio meters show the sum of all audio channels that are routed to the currently selected bus being monitored (as selected in the pop-up menu below). These are peak meters measured in dBFS.

## Loudness Meters

The set of meters all the way to the right are the Loudness meters, which consist of a set of two graphical meters and a numerical readout. These meters let you analyze the "integrated loudness" of the overall mix, which is the standard to which all contemporary mixing specifications refer when describing the deliverables you're expected to provide to the client. Unlike the RMS audio meters found in the Timeline or mixer which measure audio in dB, loudness meters do a different kind of analysis, measured in LU (loudness units).

### What is LU?

A value of 1 LU (loudness unit) represents the smallest difference in audio levels that humans can actually perceive. Human hearing naturally sums all channels that reach the ear, so the summed channel meter to the right in the Compound Meters is an analysis of the loudness you actually hear.

## Loudness Meter Options

Two options in the General Options of the Project Settings let you customize the Loudness Meters.

- **Target Loudness level:** Lets you set the LUFS value that's used as a reference level for loudness metering. Defaults to  $-23$  LUFS which conveniently makes the display of these meters scale similarly to traditional audio meters that you're already used to.
- **Loudness Scale:** Lets you choose which scale you want to use with which to measure the meters. Options currently include the default of EBU +9 Scale ( $-18$  to  $+9$ ), and EBU +18 Scale ( $-36$  to  $+18$ ).

## Graphical Loudness Meters

Two separate meters give you a dynamic graphical measurement of the Loudness of the selected bus being monitored according to the ITU-R BS.1770-3 and EBU R128 standards, which describe how to analyze the subjective loudness of a given audio mix for purposes of compliance with required quality control (QC) standards.

- A steel-blue meter labeled M (for momentary) has as many channels as the selected bus you're monitoring, excluding the LFE channel(s) of surround formats, which aren't factored into loudness metering. This meter measures LEQ (equivalent sound level), within a 400ms window following the playhead as measured every 100ms. This lets you evaluate the LUFS (Loudness Units Full Scale) level of the mix at the current frame as you play. This discrete-channel analysis is used to calculate all other values of the loudness metering system.
- A second steel-blue mono meter to the right displays the sum of all channels in the M meter, displayed in LU (loudness units). The numeric value displayed at the top of this meter is the maximum LU value that's been analyzed during any stretch of timeline playback. This value is held until it's reset, either by stopping and initiating playback a second time while Link to Playhead is enabled, or when you click the Reset button at the bottom of the loudness meter area.

## Numeric Loudness Meters

A set of values to the right of the meters give running reports on the audio level of your mix. While the graphical meters are useful for analyzing your mix as you work, these numeric readouts are particularly valuable for providing the strict information you need to adhere to written QC standards. Their meaning is as follows:

- **Short:** Measures the average LU level over a 30 second window following the playhead.
- **Short Max:** Shows the maximum level over the same 30 second window. This analysis is required by EBU R128.
- **Range:** Measures the dynamic range of the Loudness of your mix (in LU), which is the difference between the average soft and average loud parts of your mix. Analyzes the overall loudness over a played range of the mix, discounts the lowest 10% and highest 5%, and then gives a standardized expression of the difference between the remaining soft and loud levels that were analyzed. The window of analysis is as long as you've been playing. This analysis is required by most QC specifications.
- **Integrated:** Measures the LUFS value of the portion of the range of the mix you've played through. As you play, this integrated value accumulates. This analysis is required by most QC specifications.

## Using the Loudness Meters

When using the Loudness Meters to do a structured analysis of your mix to determine QC adherence, a group of controls let you determine when analysis begins and ends.

- **Lock Metering to Transport:** This setting is found in the Compound Meter option menu. When enabled, all Loudness Metering analysis is automatically reset whenever you move the playhead to another location in the Timeline. This is useful when you're spot-checking different parts of your mix, or working on a particular scene.
- **Pause and Reset buttons:** When you're doing a formal analysis of your mix, the Reset button lets you reset all currently accumulated analyses, and the Start button initiates loudness value accumulation. If you need to stop playback briefly to do something else, you can click Pause, and then click Resume when you're ready to continue the analysis.

## Viewer

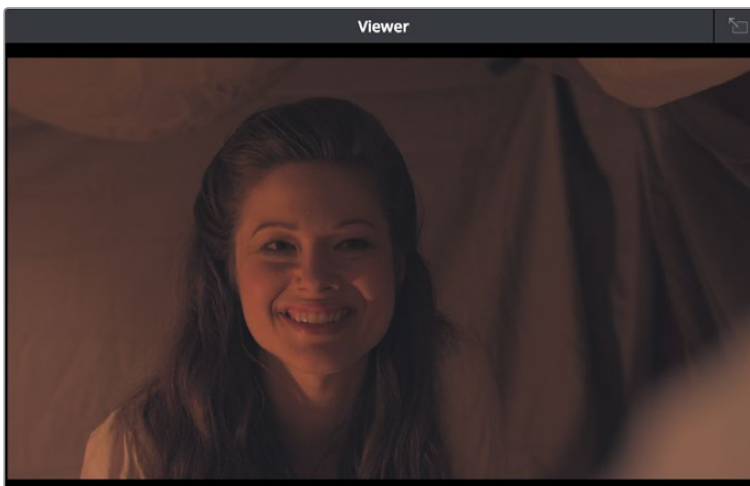
A small viewer to the left of the Monitoring panel shows the frame of video at the position of the playhead. This is the same image that's output to the external broadcast display of your workstation if you have one connected.



The Viewer lets you see the picture you're mixing to

Clicking the Expand Viewer button at the bottom right-hand corner lets you open the Viewer into a floating window, which you can then position anywhere you want.

To close the floating Viewer, click the Dock Viewer button at the upper right-hand corner of the floating viewer window.



Click this button at the upper right-hand corner to dock the Viewer again

## Chapter 72

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# Signal Flow Diagrams

# Signal Flow Diagrams

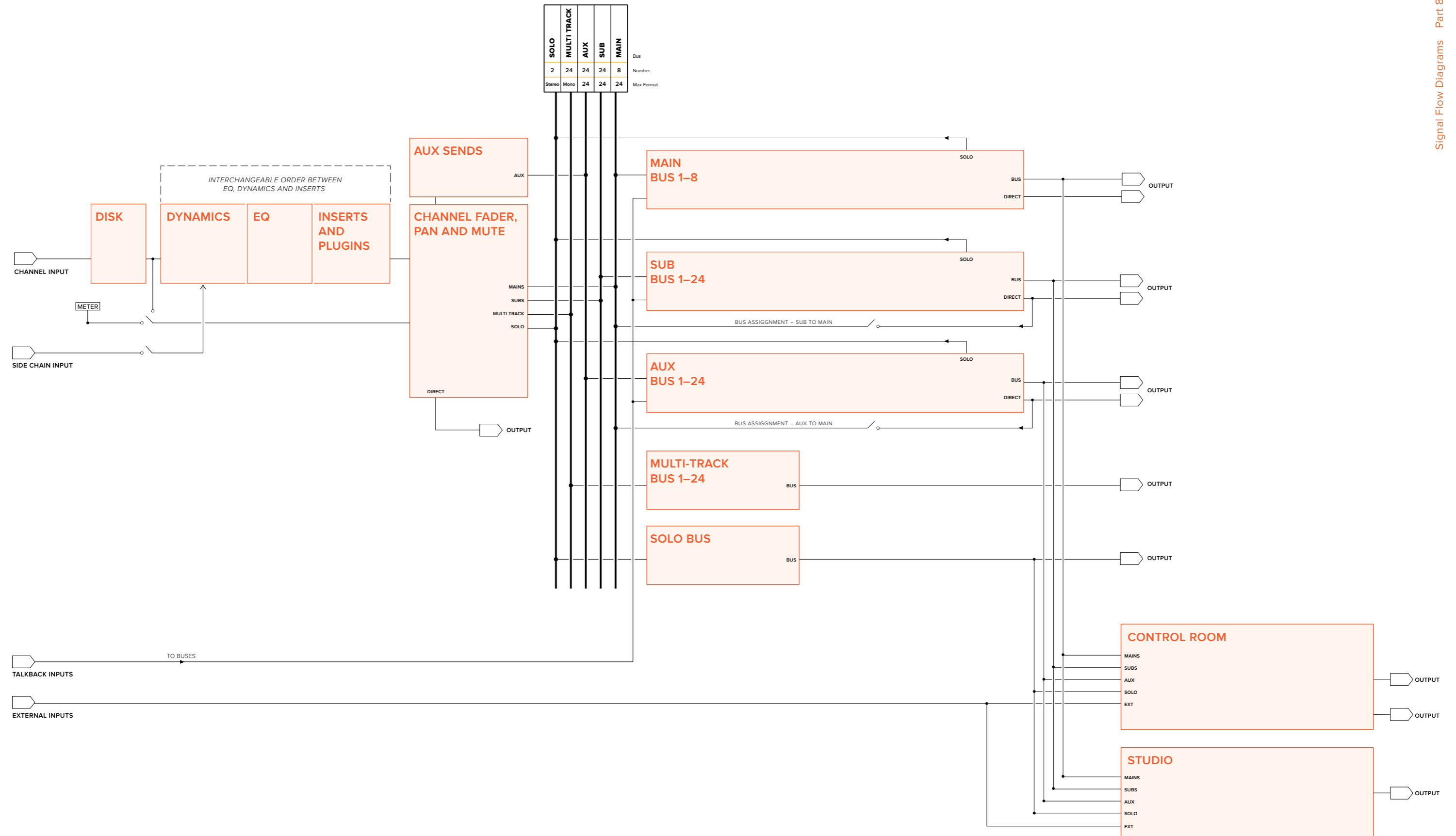
1214

The diagrams in this chapter describe the audio signal flow that takes place within the Fairlight audio processing used by DaVinci Resolve. They're intended for people who want an in-depth understanding of how audio is processed.

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# Signal Flow Overview

The following simplified flow diagram describes Fairlight audio processing overall.



# Audio Processing Path

