

DAVINCI RESOLVE 17

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The Editor's Guide to

# DaVinci Resolve 17



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Author: Chris Roberts



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## The Editor's Guide to DaVinci Resolve 17

Chris Roberts

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# Foreword

## Welcome to **The Editor's Guide to DaVinci Resolve 17.**

DaVinci Resolve 17 is the only postproduction solution that brings editing, color correction, audio post, and visual effects together in the same software application! The most exciting thing about DaVinci Resolve 17 is the revolutionary new cut page, which is designed specifically for the fastest possible editing when working with tight deadlines. It's an alternative edit page with a newly styled editing interface that eliminates unnecessary steps to edit, plus it's combined with new tools, all designed to help you work faster than ever before.

DaVinci Resolve 17 also includes even more advanced color correction, powerful new editing options on the traditional edit page, vastly improved Fairlight digital audio tools, and even faster 2D and 3D visual effects compositing on the Fusion page. DaVinci Resolve 17 enables you to switch between creative tasks without having to export or translate files between different applications!

Best of all, DaVinci Resolve 17 is absolutely free! Plus, we've made sure that the free version of DaVinci Resolve actually includes more features than any paid editing system. That's because at Blackmagic Design we believe everybody should have the tools to create professional, Hollywood-caliber content without having to spend thousands of dollars.

I hope you'll enjoy using DaVinci Resolve 17, and we can't wait to see the amazing work you produce!

Grant Petty  
Blackmagic Design

# Acknowledgments

We would like to thank the following individuals for their contributions of media used throughout the book:

- Brian J. Terwilliger—Living in the Age of Airplanes
- DISUNITY—Garth de Bruno Austin- Banovich Studios
- Miss Rachel’s Pantry in Philadelphia, PA.
- Miserable Girl—Jitterbug Riot—EditStock ad
- HaZ Dulull for *Sync* footage—*Sync* is a short proof-of-concept film written, produced, and directed by Hasraf “HaZ” Dulull and is property of hazfilm.com.

Hasraf “HaZ” Dulull started his career as a Visual Effects Supervisor/Producer before establishing a reputation from his sci-fi short films—Project Kronos, I.R.I.S, and Sync for depicting grounded sci-fi themes. This lead him to producing, writing, and directing his first feature film, *The Beyond*, released by Gravitas Ventures and currently available on all streaming platforms. Soon after, he directed *Origin Unknown* (based on his original story) starring Katee Sackhoff released by Kew Media in 2018. He is currently in development and production on a slate of TV and feature films.

HaZ is represented in Hollywood by APA & Ground Control Entertainment. HaZ can be found on twitter @hazvfx.

## About the Author

**Chris Roberts** has spent the last 25 years editing everything from online corporate promos to broadcast television and using software from Avid, Apple, Adobe, and Blackmagic Design.

He has provided video editing training since 2003 to university students and staff, broadcast journalists, and sports, factual, and drama editors. As a Blackmagic Certified Master Trainer, he has been responsible for providing DaVinci Resolve training across Europe and the US to end users and other trainers.

Over the years, he has also written articles on video editing techniques and editing software for a variety of magazines and online publications, as well as serving as a technical reviewer for several books.

Chris lives in Worcestershire, UK, with his partner Samantha and, when not working, enjoys reading post-apocalyptic fiction, listening to hard rock and blues music, and binge-watching the TV he has invariably missed.

This book is dedicated to the memory of his dearly loved and sadly missed mum, Maureen.

[www.chrisroberts.info](http://www.chrisroberts.info)

# Getting Started

Welcome to **The Editor's Guide to DaVinci Resolve 17**, an official Blackmagic Design certified training book that teaches professionals and students how to get the most out of editing with DaVinci Resolve 17. All you need is a Mac or Windows computer, DaVinci Resolve 17, and a passion to learn about editing.

This guide blends practical, hands-on exercises with the aesthetics of editing to help you discover new techniques for whatever editing tasks you take on. You will learn new editing functions, trimming styles, and multilayered timeline capabilities. You'll also go deeply into audio editing and mixing in the Fairlight page to explore techniques used by professional audio engineers to enhance the sound design in your projects.

After completing this book, you are encouraged to take the 50-question online proficiency exam to receive a Certificate of Completion from Blackmagic Design. The link is located on the DaVinci Resolve training web page: [www.blackmagicdesign.com/products/davinciresolve/training](http://www.blackmagicdesign.com/products/davinciresolve/training)



## About DaVinci Resolve 17

DaVinci Resolve is the world's fastest growing and most advanced editing software. It also has a long history of being the world's most trusted application for color correction. With DaVinci Resolve 17, Blackmagic Design has added an alternative editing page, called the Cut page. Designed specifically for editors working on commercials, news and other short form, quick turn around projects, the Cut page is all about speed.

## What You'll Learn

In these lessons, you'll work with multiple projects to learn advanced, practical techniques used in several editing genres. You'll acquire real-world skills that you can apply to real-world productions.

### Lesson 1

Covers basic editing techniques in the edit page.

### Lesson 2

Reveals some of the most powerful features in Resolve's media page to help you more efficiently set up and organize projects. One exercise covers the new Proxy Media Workflow.

### Lessons 3 & 4

Use two different film and television genres (a dramatic dialogue scene and a documentary interview) to teach you advanced editing techniques and trimming styles in the edit page.

### Lesson 5

Explores all the tools and techniques for multicamera editing in the edit page.

### Lesson 6

Explores how the cut page enables you to edit faster. This lesson also shows you the power of using the new DaVinci Resolve Speed Editor with the cut page.

### Lesson 7

Focus on motion graphics and visual effects that, as an editor, you will commonly be asked to create. By using a variety of compositing, keying, and tracking tools all inside the edit page, you will produce professional-quality opening graphics and realistic composites.

### Lesson 8

Dive deeper into three ResolveFX that are new to the edit page for motion graphics and visual effects.

### Lesson 9

Takes you through a sound editing, design, and mixing workflow in the edit and Fairlight pages.

### Lesson 10

Shows how to add subtitles and output a project with different sound mixes based on the audio work you did in Lesson 9. This lesson also covers using the Smart Reframe tool (Studio only) to quickly reframe your project for different aspect ratios.

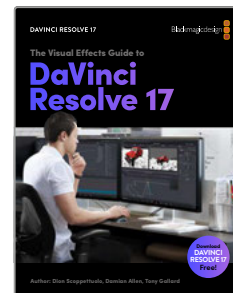
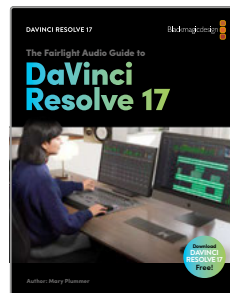
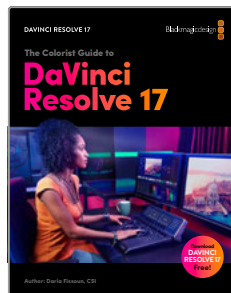
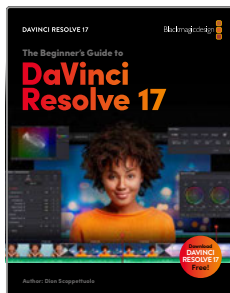
## The Blackmagic Design Training and Certification Program

Blackmagic Design publishes several training books that take your skills farther in DaVinci Resolve 17. They include:

- *The Beginner's Guide to DaVinci Resolve 17*
- *The Colorist Guide to DaVinci Resolve 17*
- *The Editor's Guide to DaVinci Resolve 17*
- *The Fairlight Audio Guide to DaVinci Resolve 17*
- *The Visual Effects Guide to DaVinci Resolve 17*

Whether you want an introductory guide to DaVinci Resolve or you want to learn more advanced editing techniques, color grading, sound mixing, or visual effects, our certified training program includes a learning path for you.

After completing this book, you are encouraged to take a 1-hour, 50-question online proficiency exam to receive a certificate of completion from Blackmagic Design. The link to the online exam can be found on the Blackmagic Design training web page. The web page also provides additional information on our official Training and Certification Program. Please visit [www.blackmagicdesign.com/products/davinciresolve/training](http://www.blackmagicdesign.com/products/davinciresolve/training).



## System Requirements

This book supports DaVinci Resolve 17 for Mac and Windows. If you have an older version of DaVinci Resolve, you must upgrade to the current version to follow along with the lessons.

**NOTE** The exercises in this book refer to file and resource locations that will differ if you are using the version of software from the Apple Mac App Store. For the purposes of this training book, if you are using macOS we recommend downloading the DaVinci Resolve software from the Blackmagic Design website, and not the Mac App store.

## Download DaVinci Resolve

To download the free version of DaVinci Resolve 17 or later from the Blackmagic Design website:

- 1 Open a web browser on your Windows or Mac computer.
- 2 In the address field of your web browser, type:  
**[www.blackmagicdesign.com/products/davinciresolve](http://www.blackmagicdesign.com/products/davinciresolve)**.
- 3 On the DaVinci Resolve landing page, click the Download button.
- 4 On the download page, click the Mac or Windows button, depending on your computer's operating system.
- 5 Follow the installation instructions to complete the installation.

When you have completed the software installation, follow the instructions in the following section, "Copying the Lesson Files," to download the content for this book.

## Copying the Lesson Files

The DaVinci Resolve lesson files must be downloaded to your Mac or Windows computer to perform the exercises in this book. After you save the files to your hard disk, extract the file and copy the folder to your Movies folder (Mac) or Videos folder (Windows).

### To Download and Install the DaVinci Resolve Lesson Files:

When you are ready to download the lesson files, follow these steps:

- 1 Open a web browser on your Windows or Mac computer.
- 2 In the address field of your web browser, type:  
**[www.blackmagicdesign.com/products/davinciresolve/training](http://www.blackmagicdesign.com/products/davinciresolve/training)**.
- 3 Scroll the page until you locate the Editor's Guide to DaVinci Resolve 17.
- 4 Click the link to download the media. The file is roughly 15 GB in size.
- 5 After downloading the zip file to your Mac or Windows computer, open your Downloads folder and double-click the file to unzip it if it doesn't unzip automatically. You'll end up with a folder named R17 Editing that contains all the content for this book.
- 6 From your Downloads folder, drag the R17 Editing folder to your Movies folder (Mac) or Videos folder (Windows). These folders can be found within your User folder on either platform.

You are now ready to begin Lesson 1.

## Getting Certified

After completing this book, you are encouraged to take the one-hour, 50-question online proficiency exam to receive a Certificate of Completion from Blackmagic Design. The link to this exam is located at the end of this book.



# Lesson 1

## Editing in the Edit Page

Editing is so central to cinematic storytelling that director Francis Ford Coppola once said, “The essence of cinema is editing.” This book explores the essence of cinema through the deep and powerful editing features found in DaVinci Resolve as applied to the art and craft of editing and storytelling.

Whether you are working to cut the latest cinematic blockbuster, a fast-turnaround commercial spot, an episodic TV show, or an entire web series, the tools and technology available to you in DaVinci Resolve, together with the techniques discussed and demonstrated throughout this book, will help you achieve your vision.

The Edit page supports the approach to nonlinear editing that has been battle tested by editors around the world for decades. In this lesson, you will learn those techniques so you can apply them to your own editing workflows.

### Time

This lesson takes approximately 70 minutes to complete.

### Goals

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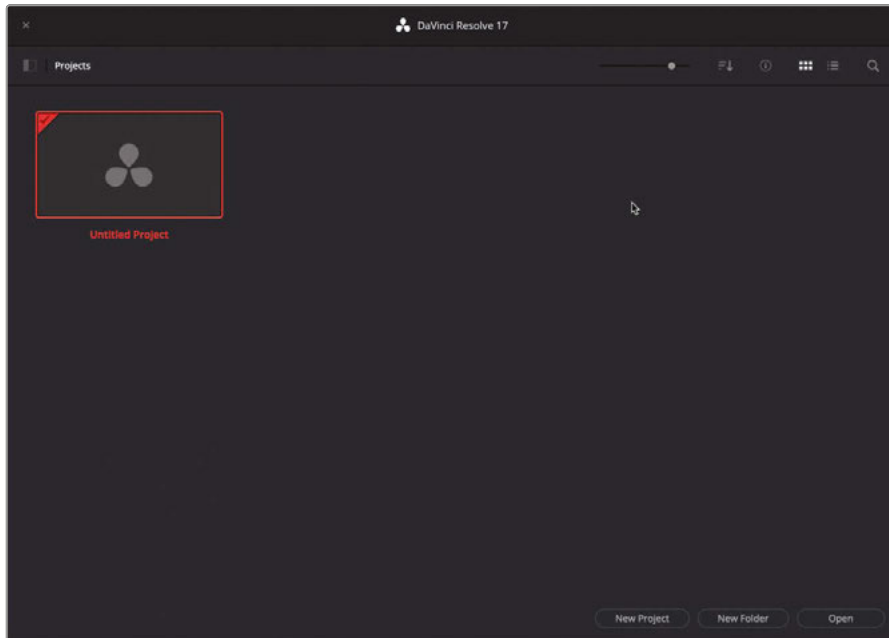
## Setting Up a Project

Editing is often an iterative process that requires you to build a coherent story from disparate pieces of footage. While there are many recognized workflows for putting these sounds and pictures together, unfortunately there is no “magic bullet,” as every cut has its own unique considerations.

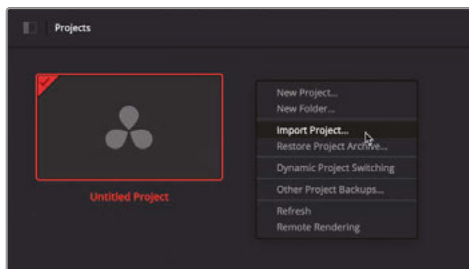
With that said, you will start by editing a short trailer for an upcoming documentary entitled *Age of Airplanes* by Brian J. Terwilliger, so you can appreciate some of the thought processes and happy accidents that often occur in editing suites around the world.

You will begin this lesson by importing a project which already contains the clips needed to edit the trailer.

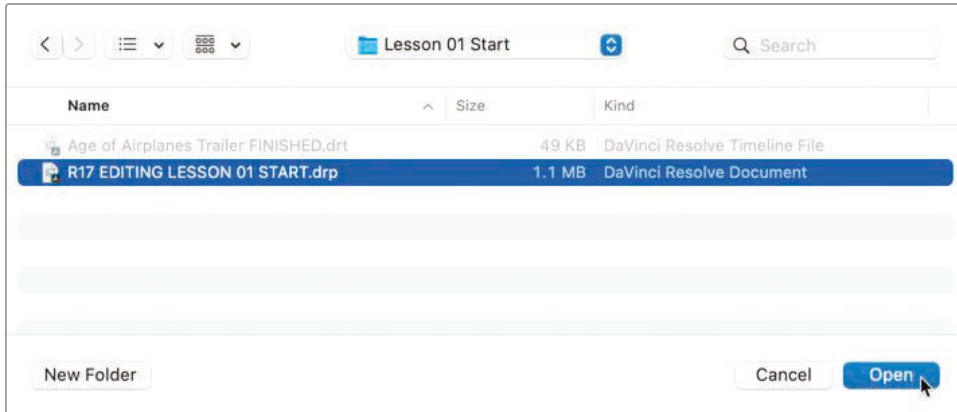
- 1 Open DaVinci Resolve to display the Project Manager.



- 2 Right-click any empty place in the Project Manager and choose Import Project.

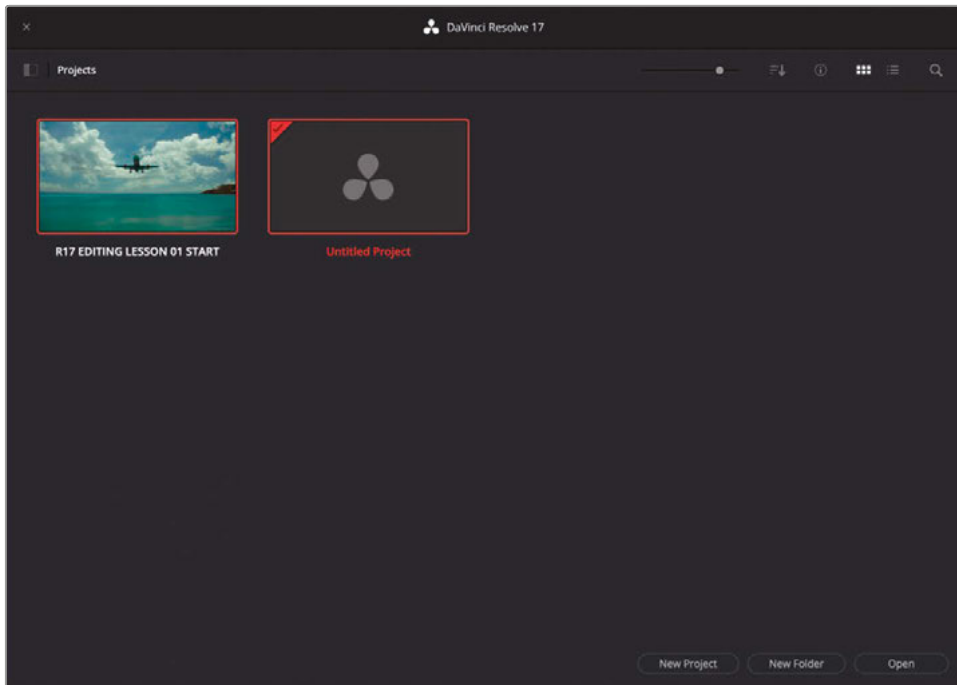


- 3 In the system file window that appears, navigate to R17 Editing/Lessons and select the file **R17 EDITING LESSON 01 START.drp**.



**NOTE** The file extension .drp is used for DaVinci Resolve Project files.

- 4 Click Open.



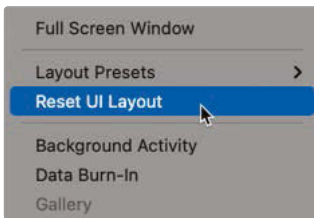
The project is added to the Project Manager.

**NOTE** DaVinci Resolve does not “open” project files directly from your system. Instead, .drp files are imported into the current project database. For more information on creating and managing databases and project files, please refer to *The Beginner’s Guide to DaVinci Resolve 17*.

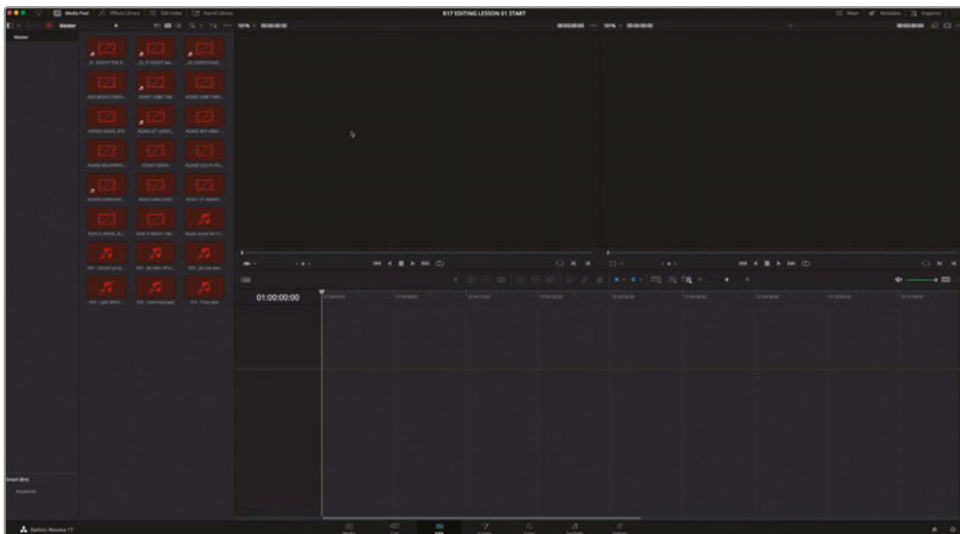
- 5 Double-click the **R17 EDITING LESSON 01 START** project to open it.  
Your new project opens in DaVinci Resolve on the page last used in the application.
- 6 If necessary, click the Edit page button.



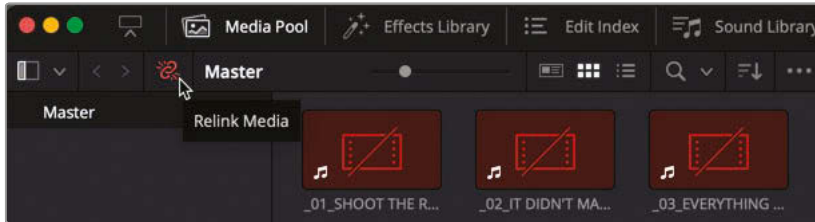
- 7 Select Workspace > Reset UI Layout to reset the Edit page workspace to the default configuration.



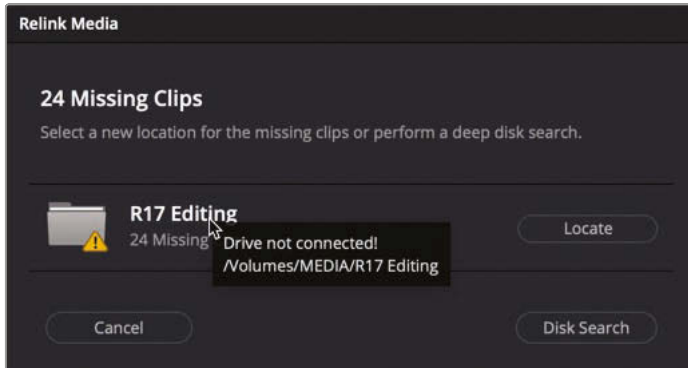
Before you begin editing with the clips in this project, you’ll need to relink the clips in this project to their media files on your computer’s hard drive.



- 8 In the top left of the interface, above the media pool, click the Relink Media button.

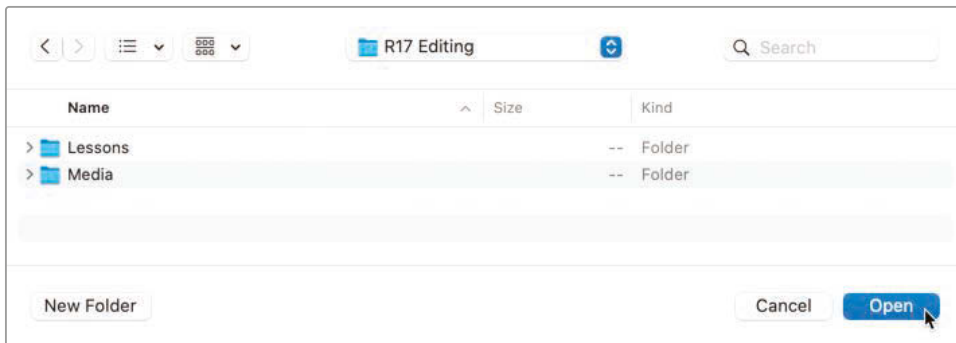


- 9 The Relink Media window appears telling you how many files are currently *offline*.

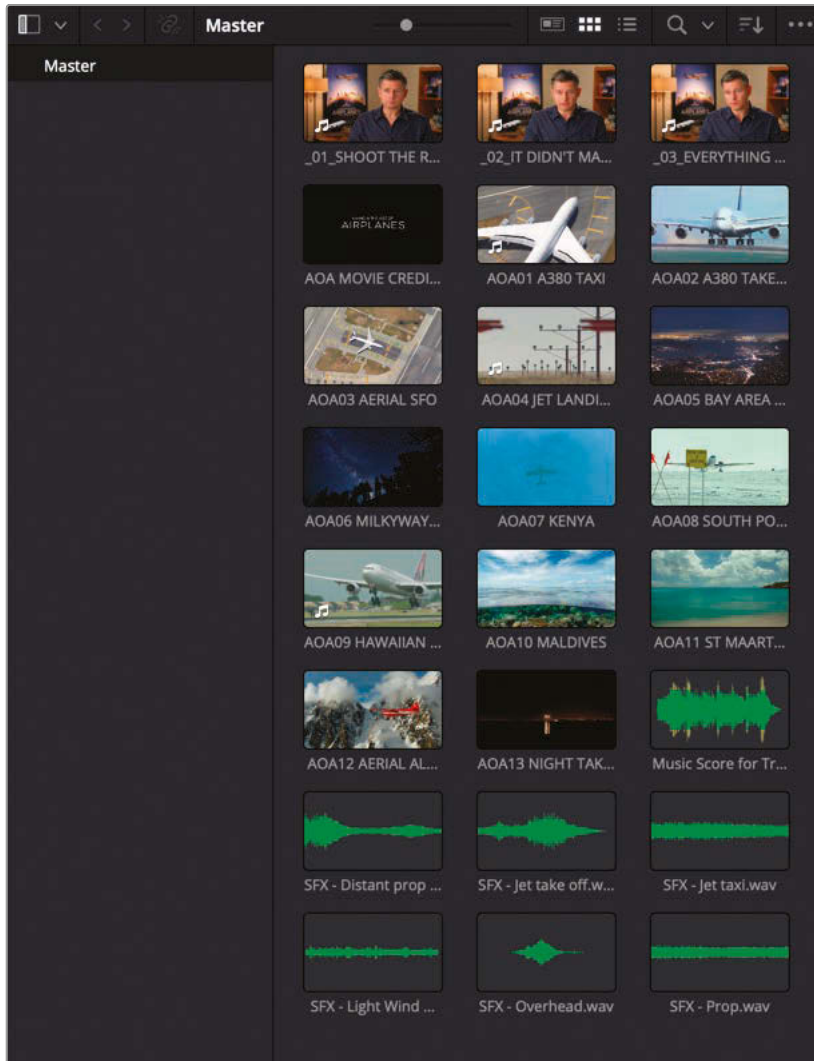


**TIP** Place your mouse over the location where Resolve expected to find the files for more detail as to the location of the files you need.

- 10 Click the Locate button, and in the file window that appears, navigate to the R17 Editing folder and click Open.



Resolve will automatically search and recognize the file structure inside this folder, and then relink the media files for you.



**NOTE** In case Resolve cannot find the appropriate files, you can initiate a more comprehensive search from the Relink Media window using the Disk Search button. Be aware, though, that this search may take much longer if you have very large hard drives with lots of media files to search through!

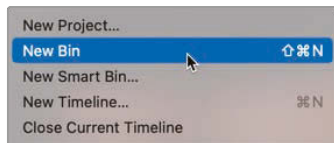
Once the clips have been successfully relinked, you can now start organizing this first project.

# Creating Bins

The most common method of organizing clips within a project is to use *bins*. Bins allow you to place the clips into folders within your project in a similar way you're no doubt organizing files elsewhere on your computer. You will start by creating a few bins to help categorize the clips you have for this project; however, in later lessons you will learn much more sophisticated ways of organizing your projects.

**NOTE** The term *bin* is used in nonlinear editing parlance to refer to a folder because it was derived from the traditional method film editors used of sorting their strips of film by hanging them over a physical bin.

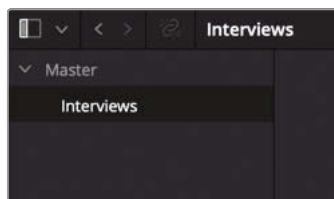
- 1 To create your first bin, select the Master bin in the media pool and choose File > New Bin.



A new bin is created inside the Master bin called Bin 1.

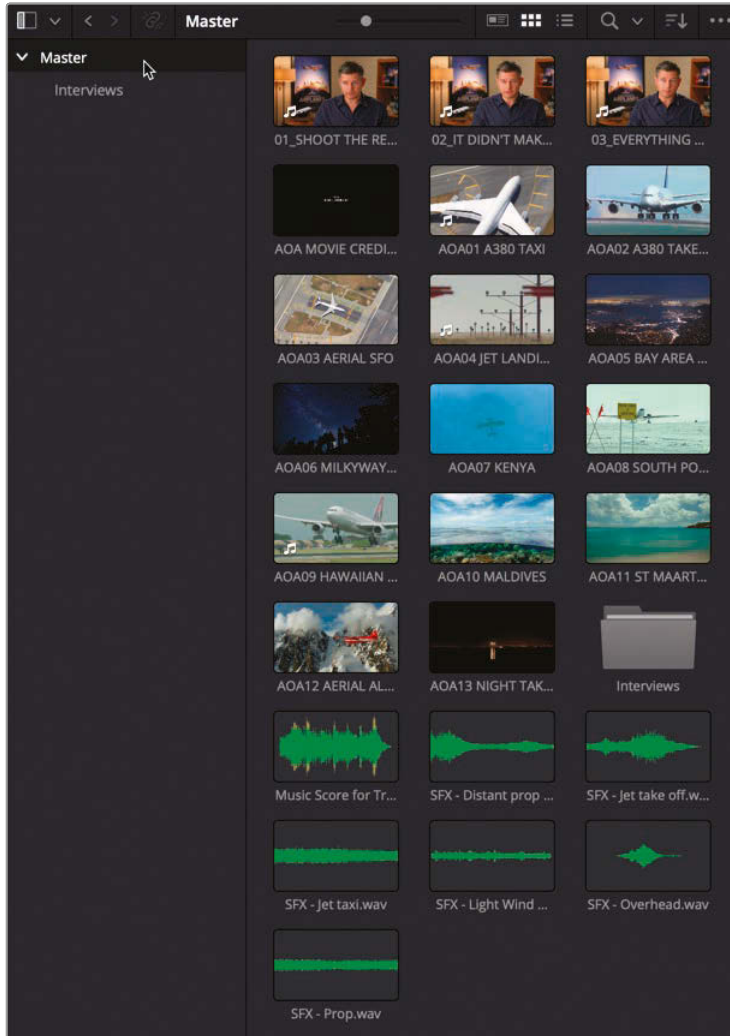


- 2 Click the name for Bin 1 to highlight it and type **Interviews** to rename the bin.



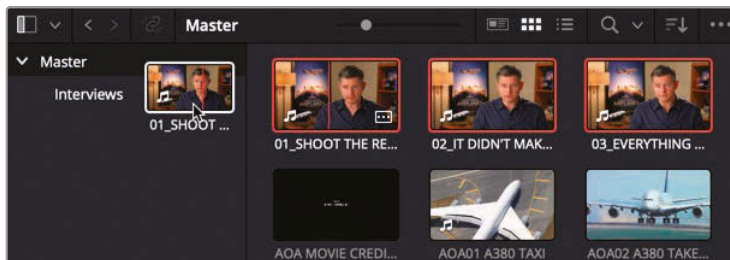
8

3 Reselect the Master bin.



The first three clips are interviews with the director Brian J. Terwilliger.

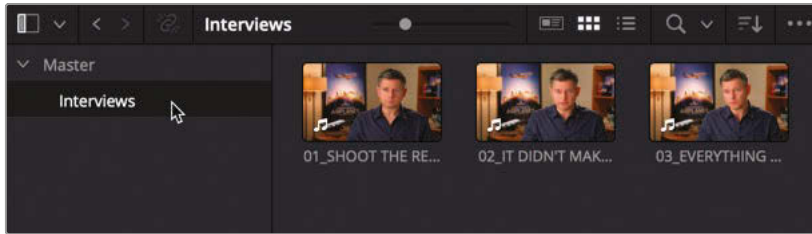
4 Shift-click the three interview clips and then drag them to the Interviews bin.





The selected clips are moved into the Interviews bin.

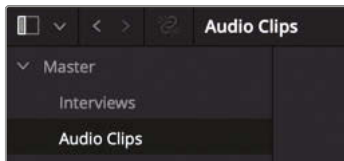
- Click the Interviews bin to see the interview clips.



- Choose File > New Bin or press Shift-Command-N (macOS) or Shift-Ctrl-N (Windows) to create a second new bin, called Bin 2.

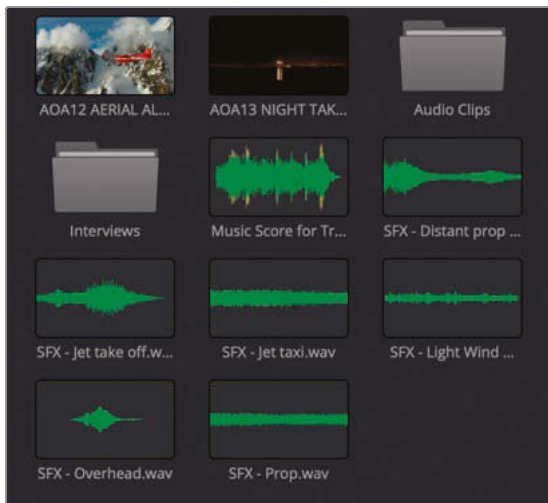


- Rename this bin **Audio Clips**.



- Select the Master bin again.

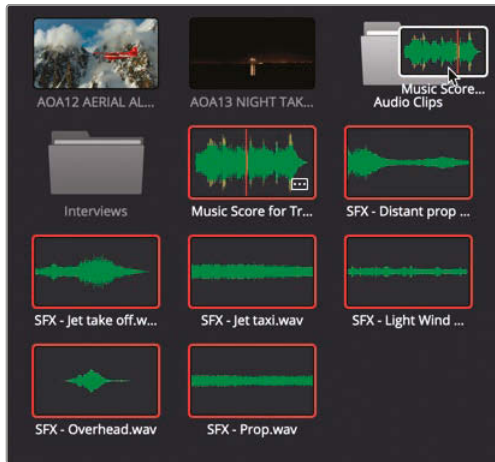
The audio clips in this project are represented by clips that green waveforms.



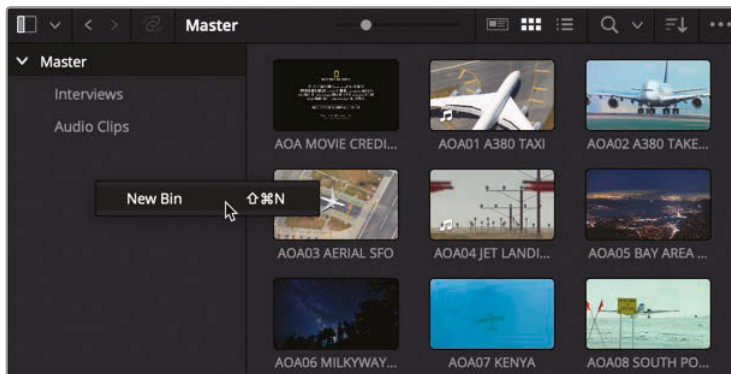
10

- 9 Select all the audio clips in the Master bin and drag them to the Audio Clips bin you just created.

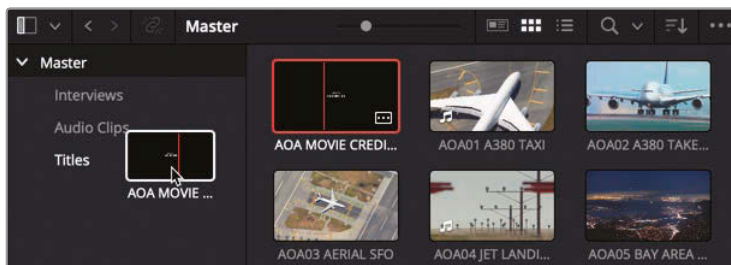
Lesson 1 Editing in the Edit Page



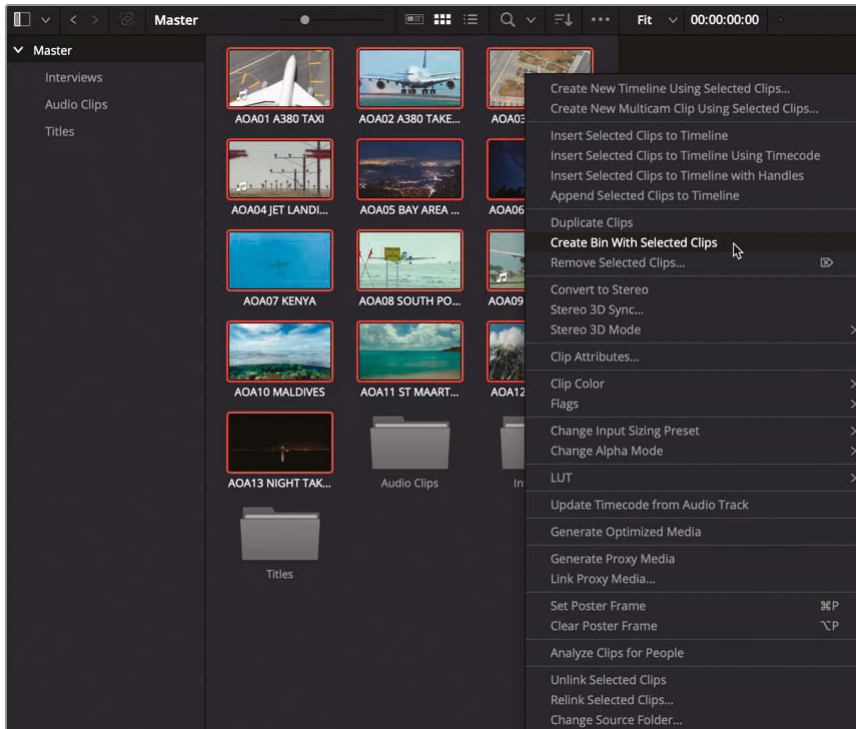
- 10 Right-click an empty space in the bin list sidebar to the left of the main media pool window and choose New Bin.



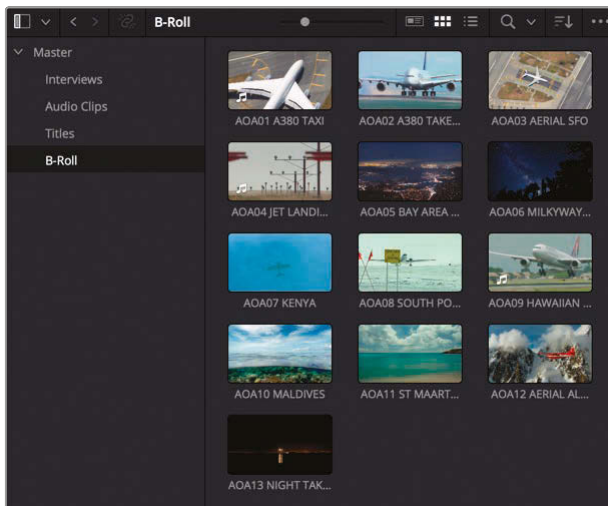
- 11 Rename this new bin **Titles**.
- 12 From the Master bin, select the titles clip **AOA Movie Credits** and move it to the Titles bin.



- 13 Next, select all the remaining video clips in the Master bin, right-click the selected clips, and choose Create Bin With Selected Clips.

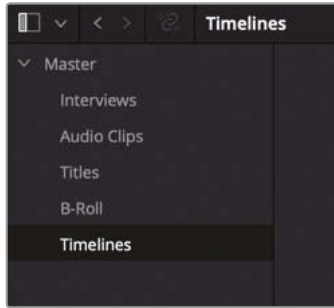


- 14 Rename the new bin **B-Roll**.



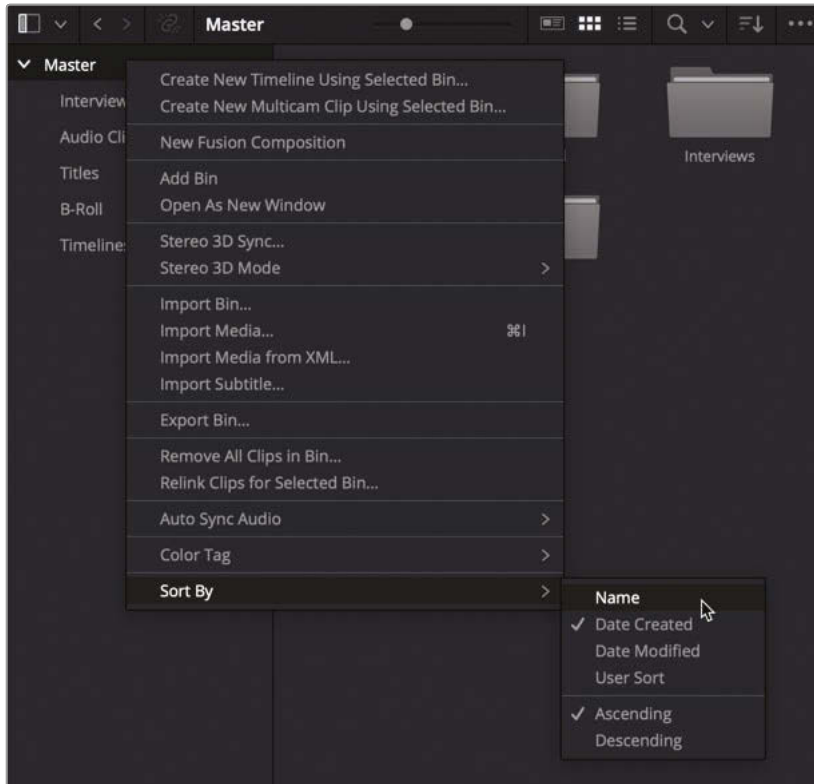
You will need just one further bin for this project, although you'll leave it empty for the moment.

- 15 Create a fifth bin called **Timelines**.



Finally, you can choose a sort order for the bins in your project.

- 16 Right-click any of the bins in the bin list and choose Sort By > Name.



The bins are placed into ascending alphabetical order in the bin list.



**NOTE** The main media pool window has its own sorting options you will look at next.

## Exploring Viewing Options

You have several ways you can view clips in the media pool depending on your preference. Currently the clips are being displayed as thumbnails. This view gives a nice reference image you can use to locate a clip visually.

- 1 Select the B-Roll bin.

This bin contains a number of different clips of airplanes in various locations around the world.

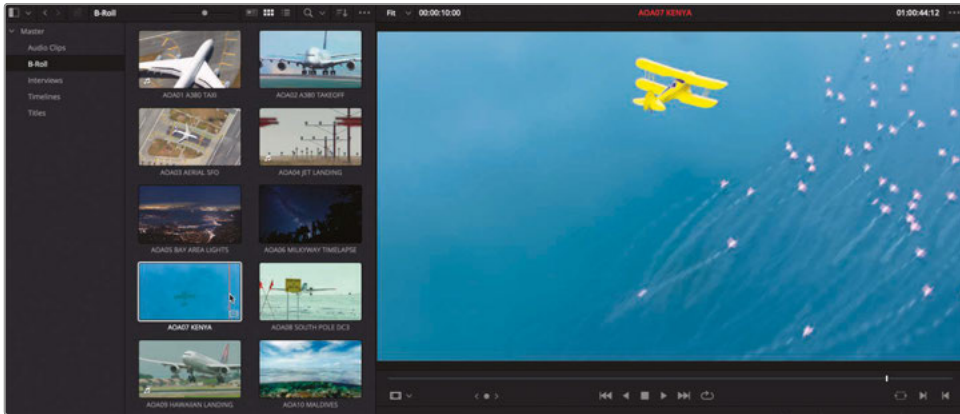
- 2 Use the slider at the top of the media pool to resize the thumbnail images.

**TIP** Resizing the thumbnails also gives more room to display longer clip names.

- 3 Place your mouse pointer (no need to click) over the clip called **AOA07 Kenya**.

The clip under your mouse pointer is automatically opened in the source viewer.

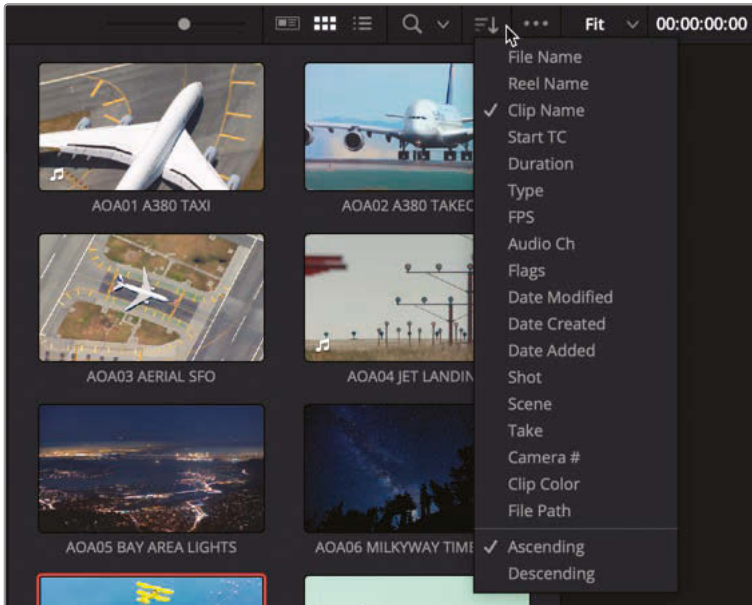
- 4 Move your mouse pointer right and left across the **AOA07 Kenya** clip to live preview the clip in the source viewer.



The main advantage of using the thumbnail view is that you can use the Live Media Preview function to quickly scrub through the clips in the media pool to find the clip that you want.

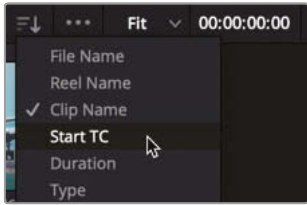
You can also change the order in which the clips are arranged.

- 5 Click the Sort menu at the top of the media pool.

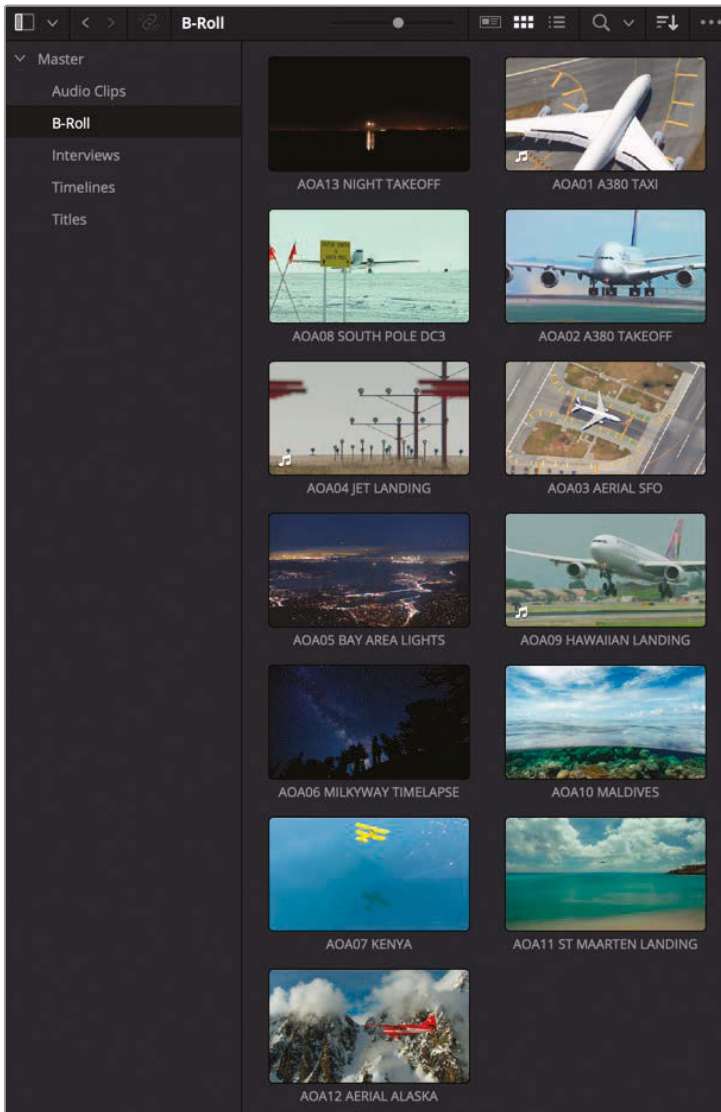


By default, the clips in this bin are arranged in ascending alphabetical order by clip name.

6 Click Start TC from the Sort menu.



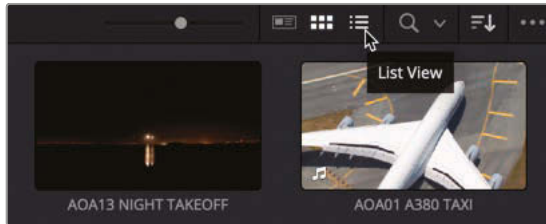
Now the clips are being arranged by their starting timecodes; clips with the earliest starting timecodes are displayed higher in the order than clips with a later starting timecode.



## List View

List View is another way you may choose to display clips in the media pool.

- 1 Click the List View button at the top of the media pool.



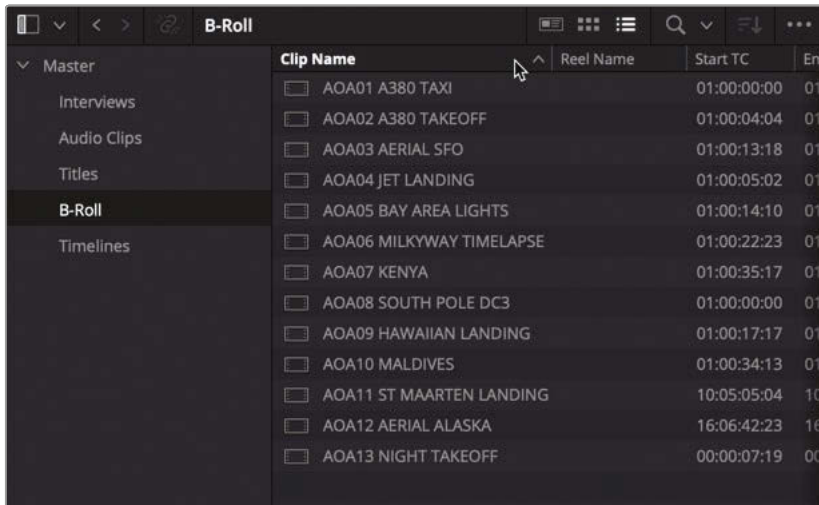
The clips in the media pool are now displayed as a list of clips, with additional columns to the right of the clip name displaying additional metadata about each clip.

	Clip Name	Reel Name	Start TC	End TC
Master				
Interviews				
Audio Clips				
Titles				
<b>B-Roll</b>				
Timelines				
	AOA13 NIGHT TAKEOFF		00:00:07:19	00:00:07:19
	AOA01 A380 TAXI		01:00:00:00	01:00:00:00
	AOA08 SOUTH POLE DC3		01:00:00:00	01:00:00:00
	AOA02 A380 TAKEOFF		01:00:04:04	01:00:04:04
	AOA04 JET LANDING		01:00:05:02	01:00:05:02
	AOA03 AERIAL SFO		01:00:13:18	01:00:13:18
	AOA05 BAY AREA LIGHTS		01:00:14:10	01:00:14:10
	AOA09 HAWAIIAN LANDING		01:00:17:17	01:00:17:17
	AOA06 MILKYWAY TIMELAPSE		01:00:22:23	01:00:22:23
	AOA10 MALDIVES		01:00:34:13	01:00:34:13
	AOA07 KENYA		01:00:35:17	01:00:35:17
	AOA11 ST MAARTEN LANDING		10:05:05:04	10:05:05:04
	AOA12 AERIAL ALASKA		16:06:42:23	16:06:42:23

Notice the Start TC column's name is highlighted, and a small upward arrow is also displayed in the column header. This indicates that the clips are still ordered by ascending starting timecodes.



- 2 Click the header at the top of the Clip Name column.



Now the clips are arranged in B-Roll back into ascending alphabetical order of clip names.

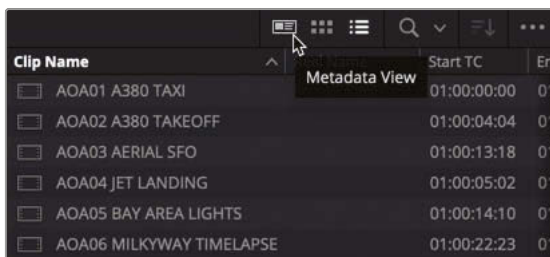
**NOTE** In List view, the Sort menu is not available. This is because you use the column names to choose the order in which the clips are listed.

The main advantage of using the List view is that you can see much more information about each of the clips within your media pool, allowing you to compare clips together rather than individually. However, this view often requires much more horizontal space for the media pool.

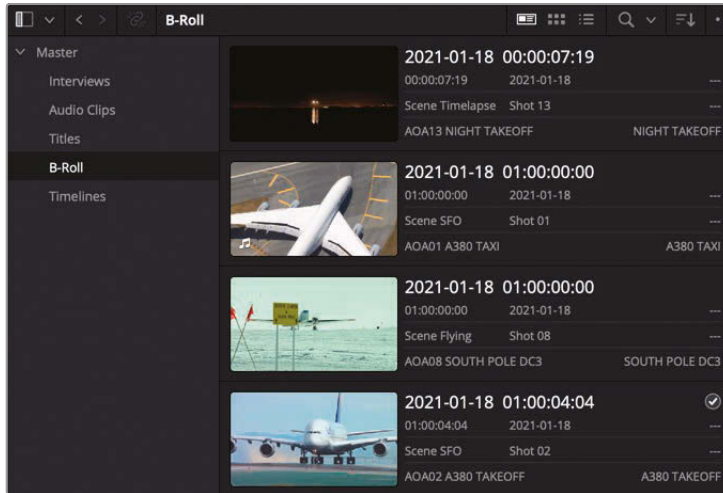
## Metadata View

DaVinci Resolve 17 introduces a third way of viewing clips in the media pool. The new Metadata view is a cross between the Thumbnail and List views.

- 1 Click the Metadata View button at the top of the media pool.

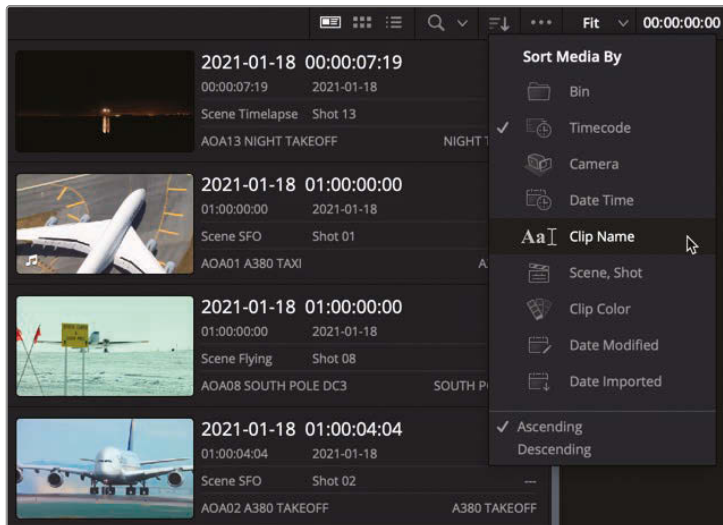


The clips are now displayed with a thumbnail and commonly used metadata information.



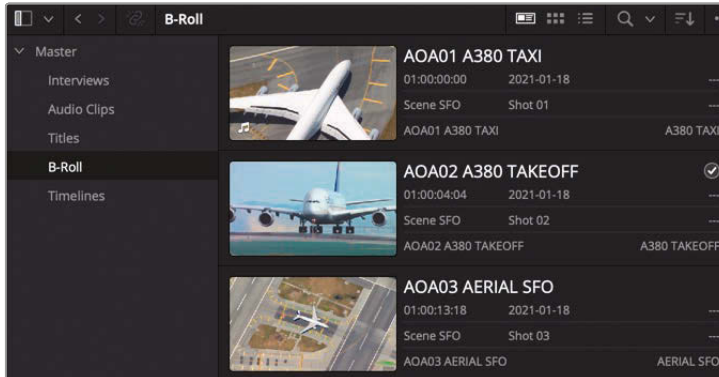
**NOTE** As in the Thumbnail view, the thumbnail image in Metadata view can be live previewed; however, audio clips are not displayed in the Metadata view display, being grouped instead at the top of the media pool as thumbnails.

- 2 Click the Sort menu.



The Metadata view has its own, targeted Sort menu based on the viewable metadata.

- Choose Clip Name from the Sort menu.

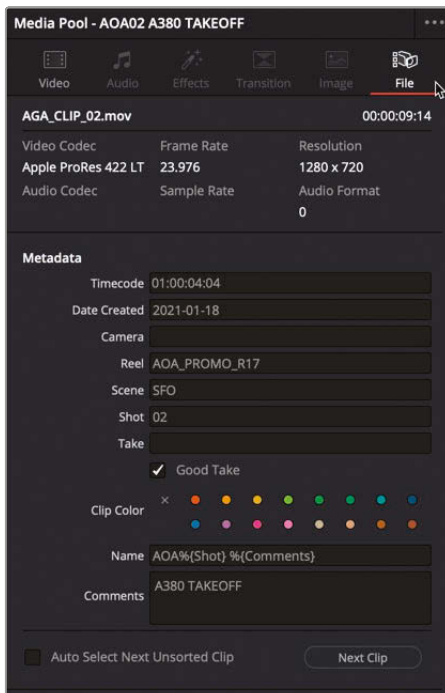


The clips are reordered based on their clip names, which now become the dominant part of the displayed metadata.

- Select the second clip, AOA02 A380 Takeoff and click the Inspector button in the top-right corner of the main interface window to open the Inspector.

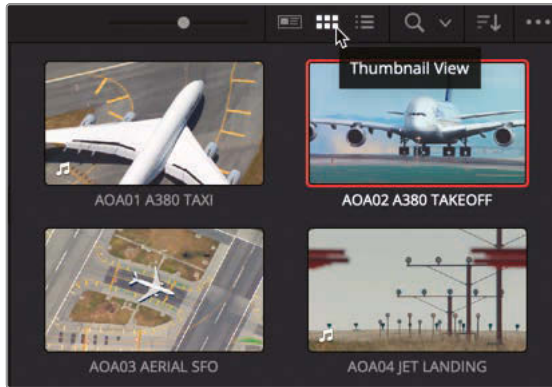


- Click the File tab in the Inspector.



The File Inspector lists useful information about the clip and a number of commonly used metadata fields. This metadata can be adjusted using the File Inspector to affect the sorting and searching of the clips in the media pool and timeline and even the displayed clip name.

- 6 Close the Inspector and return the media pool to Thumbnail view (or your preferred view) and sort the clips by Clip Name.



**TIP** A quick way to reset the whole interface is to choose Workspace > Reset UI Layout.

You are now ready to begin your first edit.

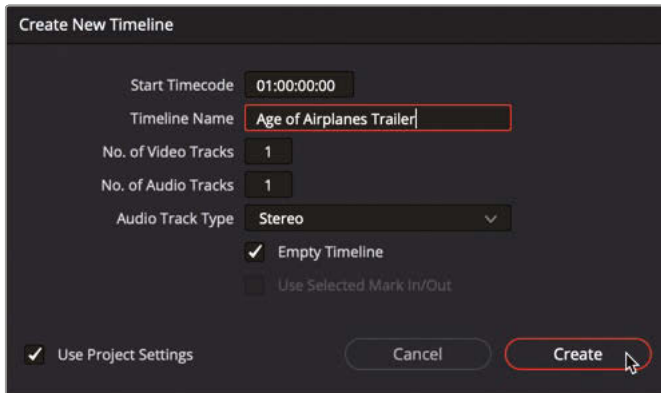
## Creating the First Assemble

Someone once said that the hardest part of writing a book is starting the first chapter. Indeed, the same is true for editing but with sounds and moving pictures rather than words on a page. Placing those first few clips into an empty timeline can be quite daunting. However, once you have begun assembling the footage you can begin to see what's working, what doesn't work, and what might be coaxed into working with a bit of effort on your part as the editor.

To start this process, you'll need a timeline.

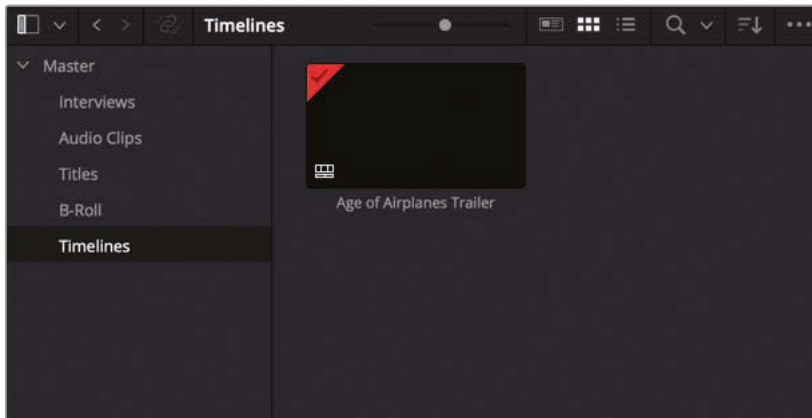
- 1 Select the Timelines bin, and choose File > New Timeline or press Command-N (macOS) or Ctrl-N (Windows)

- 2 In the Timeline Name field in the New Timeline window, type **Age of Airplanes Trailer**.



- 3 Leave all other options set to their defaults and click Create.

A new timeline is created in the selected bin, and additional controls appear in the timeline window.



**NOTE** You can set the default starting timecode, number of video and audio tracks, and audio track type for new timelines in DaVinci Resolve > Preferences > User > Editing.

- 4 Select the Interviews bin and sort the clips by Clip Name.



- 5 Double-click the clip **01\_SHOOT THE REAL WORLD** to open it in the source viewer.
- 6 Play the clip from the beginning to the end.



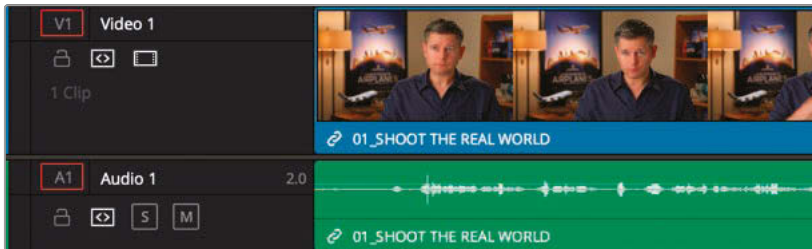
You probably don't want to use the entire clip, but you can choose to remove the unwanted parts later. There are never any right or wrong ways to edit, just more efficient or less efficient ways.

- 7 Drag the clip from the source viewer to the timeline viewer.

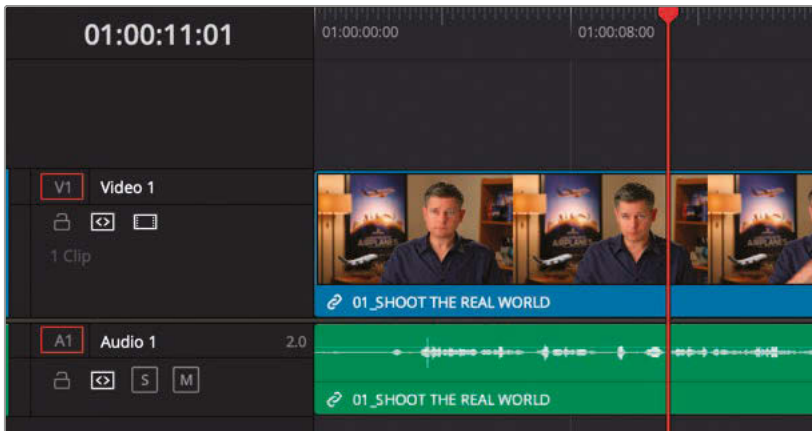


A series of editing overlays appear, detailing the different types of edits available to you in DaVinci Resolve. Seasoned editors probably recognize many of these options from other NLEs, though some are specific to DaVinci Resolve. The default is Overwrite.

- 8 With the Overwrite edit overlay highlighted, release the mouse button. Your first clip is edited into the timeline.



- 9 Play the clip back in the timeline and stop after Brian says the line "...shoot the real world."



This is where you'll make your next edit.

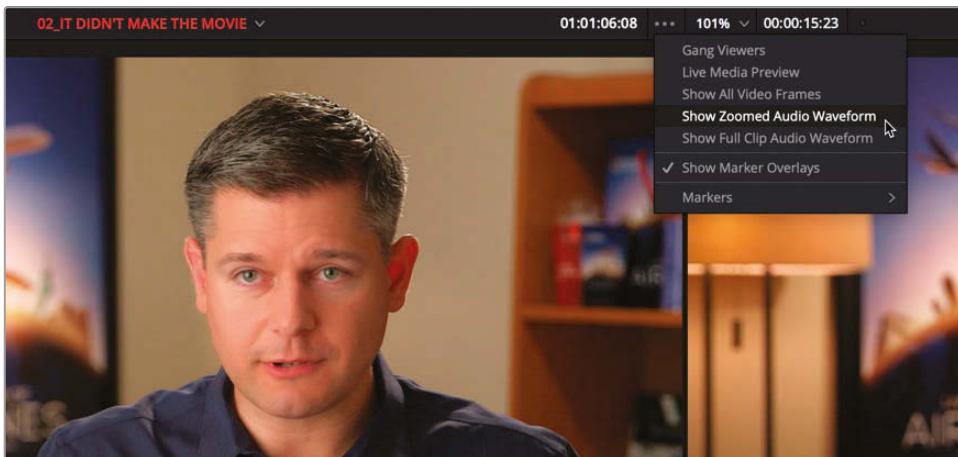
## Controlling Playback

An important part of learning to edit is effectively controlling the playback of your video. While you could use the transport controls underneath the source or timeline viewers, keyboard shortcuts are much more efficient. DaVinci Resolve's default keyboard layout supports all the usual shortcuts for playback that professional editors around the world recognize. For example, you can use the Spacebar to start and stop playback and the Left and Right Arrow keys to move forward and back one frame at a time. More experienced users will be happy to know that the J, K, and L keys also control playback at different speeds. To explore DaVinci Resolve's keyboard layout in more detail, you can choose DaVinci Resolve > Keyboard Customization.

- 10 In the Interviews bin, double-click **02\_IF IT DIDN'T MAKE THE MOVIE** to open it in the source monitor.

Play this clip through from the start. You only want to use a part of this clip. When working with clips with audio like this, it's useful to see a representation of the audio waveform along with the video in the source viewer.

- 11 In the source viewer's Options menu, select Show Zoomed Audio Waveform.





An audio waveform is displayed in the source viewer.



How cool is that? Now as you scrub or play through this clip, you can see from the waveform where he starts and stops speaking. Nice!

- 12 Play the clip from the start once more and then stop playback just before Brian says, "If it was possible to shoot it, we wanted to go shoot it." (at around 01:01:11:00).



**NOTE** Throughout this book, timecode references are used as general guidelines for where the author believes the edits work best. However, please feel free to explore the footage and use different locations if you feel there are better choices. Editing is, after all, a subjective as much as a creative endeavor.

- 13 Press I to set an In point at this location.



- 14 Play the clip through and stop after Brian says "...everything was real" (at about 01:01:23:20).

- 15 Press O to set an Out point at this location.

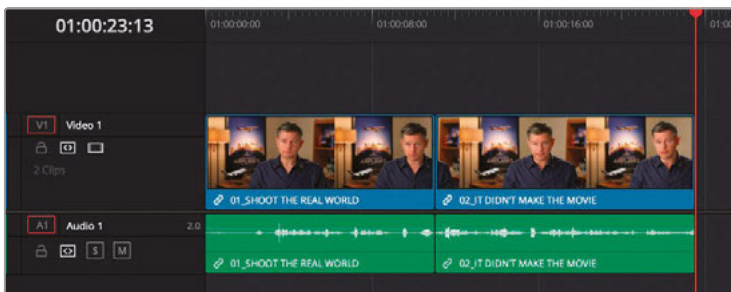


- 16 In the timeline toolbar, click the Overwrite Clip button, or press F10.



**NOTE** If you're using DaVinci Resolve on macOS, you may need to configure your keyboard settings in System Preferences to "Use F1, F2, etc. keys as standard function keys" to use the default editing shortcuts. Alternatively, you can use the fn key with any F-key to override the macOS shortcuts.

The second interview clip is edited into the timeline starting at the position of the timeline playhead and using only the portion marked between the In and Out points in the source. The end of the first clip has been overwritten by the new clip.



- 17 Press the Up Arrow on your keyboard to move your timeline playhead back to the edit between the two interview clips.
- 18 Choose Playback > Play Around/To > Play Around Current Selection or press / (slash) to review the edit.

**TIP** The Play Around Current Selection command is very useful, as it allows you to quickly review a portion of your timeline. In this case, because you had no clips selected, the current “selection” you’re playing around is the playhead location.

If you had a clip or several clips selected, then Resolve would have played around that selection. The amount of time Resolve plays before the selection and after the selection is set in DaVinci Resolve > Preferences, User tab, Editing panel in the Pre-roll time and Post-roll time fields, respectively.

The edit is successful enough, but it’s a pretty nasty jump cut. You’ll need to add some more footage around this interview to flesh out the story.

### Three-Point Editing

With a few notable exceptions, every edit you perform is generally referred to as a *three-point edit*. This means that DaVinci Resolve is calculating what you want to be edited and where you want it edited. In the previous example, the In and Out points you marked in the source were the first two points required; the third point was the position of the playhead in the timeline. When you edited the first interview clip into the timeline, you were also using three-point editing, even though you hadn’t set any In or Out points; Resolve used the clip in the source viewer from the beginning (the implied In point) to the end (the implied Out point) and placed it at the beginning of the timeline, not because it was the first clip but because that was where the playhead was. Throughout the exercises in this lesson, try to work out the rules of three-point editing that Resolve is following and how the In and Out points (real or implied) are being used to complete the edits. In later lessons, you’ll also make some four-point edits and edits that use In and Out points in different ways!

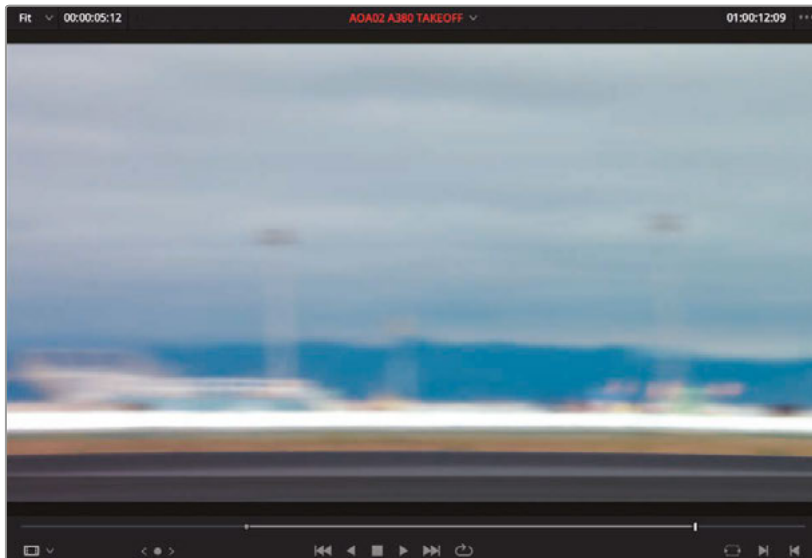
## Insert Edits

It's time to add some B-Roll footage to bring Brian's passion for airplanes alive.

- 1 In the B-Roll bin, double-click the **AOA02 A380 TAKEOFF** clip to open it in the source viewer. Play the clip from the start to review the footage.
- 2 Press I to set an In point a second or so before the plane's wheels begin to lift off the runway (around 01:00:07:00).



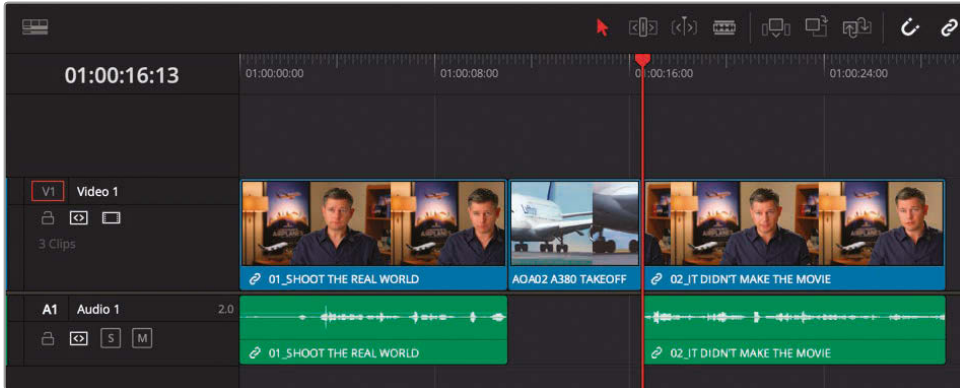
- 3 Press O to set an Out point once the tail of the plane has left the frame.



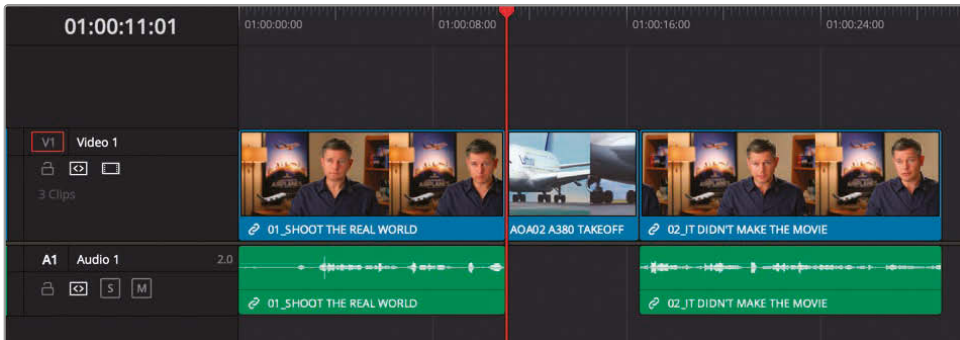
- 4 Ensure your timeline playhead is still on the edit point between the two interview clips and drag the clip to the Insert overlay in the timeline viewer.



The clip is added in between the two interview clips in the timeline but has been inserted between them rather than overwriting the clip after the playhead.

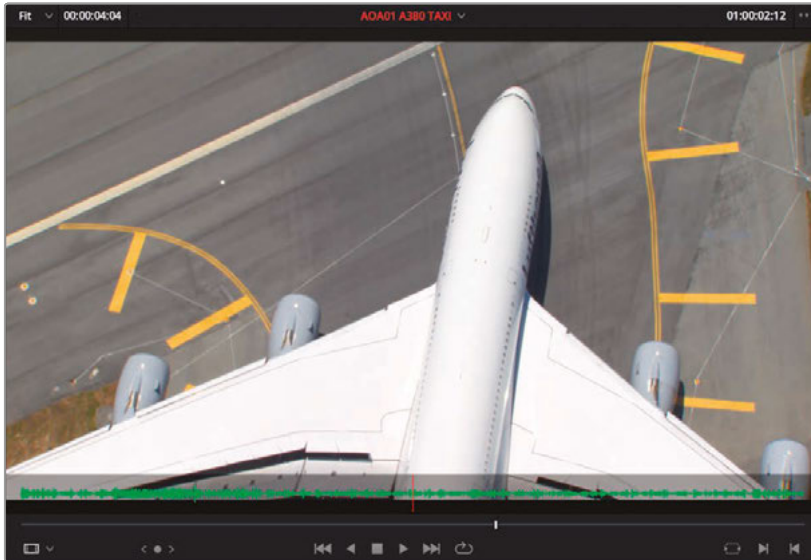


- 5 Move the timeline playhead back to the edit between **01\_SHOOT THE REAL WORLD** and **AOA02 A380 TAKEOFF**. This will be the location for your next edit.



**NOTE** Using the Up and Down Arrow keys are fast ways of moving between the different edit points in your timeline. If you prefer, you can always drag the timeline playhead, and it will snap to the nearest edit point as long as your Snapping option is enabled. Press N to toggle snapping on or off.

- 6 Double-click **AOA01 A380 TAXI** from the B-Roll bin in the media pool.



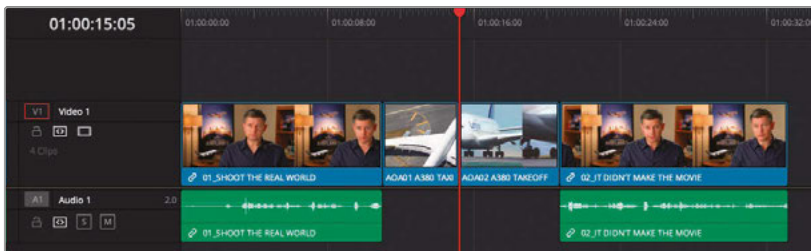
Play the clip through in the source viewer to review. This is a nice overhead shot of the same type of plane as you've just edited into the timeline, but the audio is a little distracting.

- 7 In the timeline, click the red outlined A1 Destination Control for the track Audio 1.



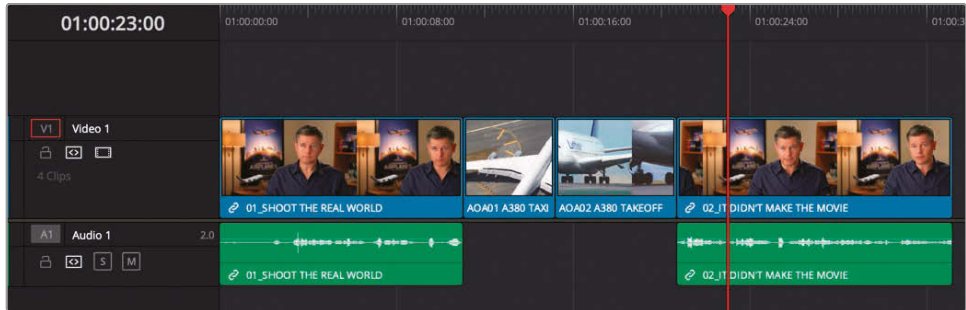
These destination controls allow you to specify which parts of the source audio or video will be edited into the timeline. By disabling the A1 control, you will no longer automatically edit the audio from the source clip.

- 8 Click the Insert Clip button in the timeline toolbar or press F9 to insert the new clip (sans audio) into the timeline.



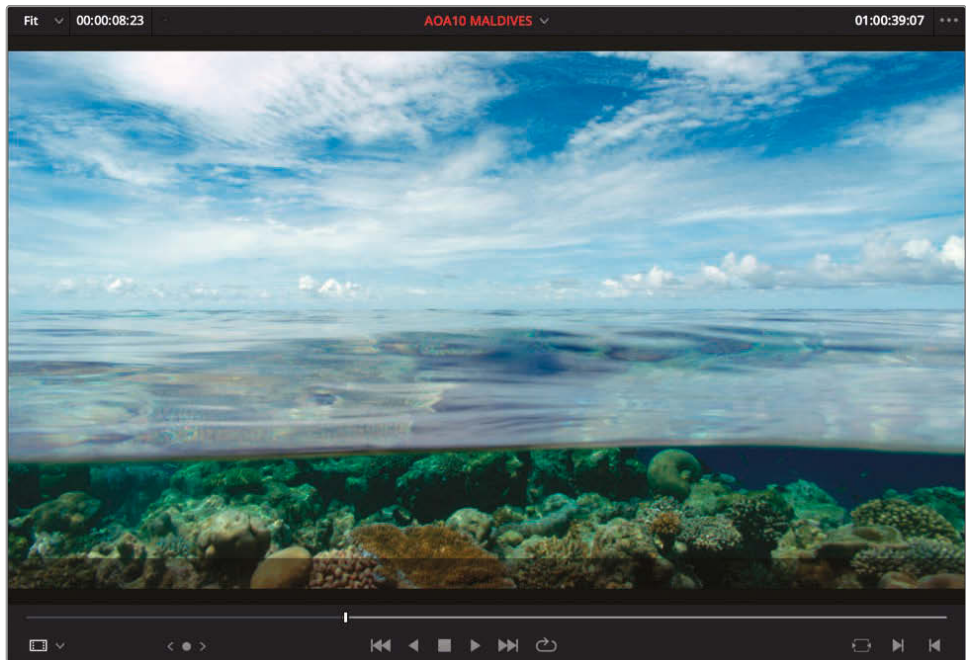
Cool. That's looking a little more interesting. You'll now insert a clip to split an existing clip.

- 9 In the timeline, play through the second interview clip and stop after Brian says, “If it was possible to shoot it, we wanted to go shoot it.”

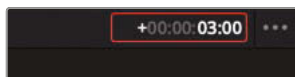


This will be the location for your next edit.

- 10 In the media pool, double-click **AOA10 MALDIVES** and review the clip in the source viewer.
- 11 Set an In point as you see the shadow of the plane begin to pass across the coral.



- 12 In the source viewer, type **+300** and press Enter to jump the playhead forward 3 seconds.





- 13 Press O to set the Out point.



- 14 Press F9 to insert the clip into the timeline at the playhead position.

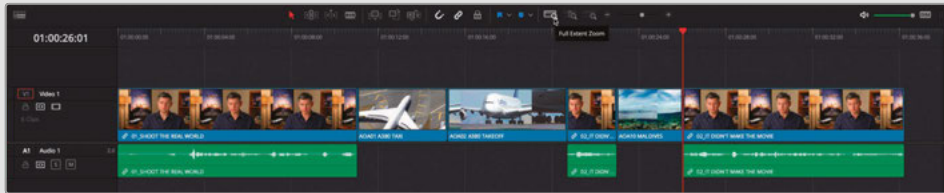


Did you see how this edit has inserted the marked source clip by splitting the existing interview clip's audio and video, even though we only had video to edit? This happened because the Auto Track Selector control for the Audio 1 track is automatically enabled and in this case is acting as a sync lock, helping to keep audio and video clips in sync later in the timeline. You'll learn more about the Auto Track Selector controls in later lessons.

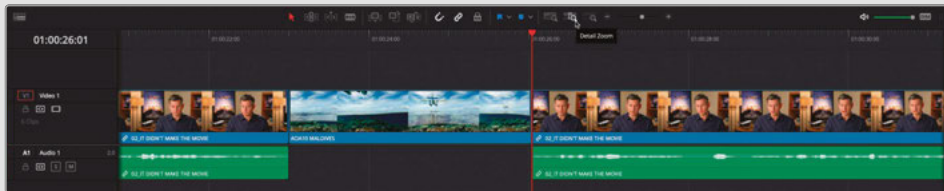
## Controlling Timeline Zoom

Resolve provides three options for controlling the zoom level for clips in the timeline: Full Extent Zoom, Detail Zoom, and Custom Zoom.

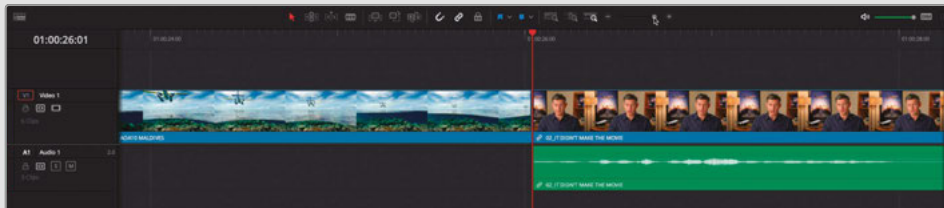
**Full Extent Zoom** will always display the whole duration of your timeline in the timeline window, automatically adjusting the zoom to keep everything in sight. This is most useful for seeing a birds-eye view of your edit.



**Detail Zoom** scales the timeline to a closer view, centered on the playhead. This option is most useful when you want to step into the timeline to select a clip or edit point to make some fine adjustment.



**Custom Zoom** allows you to set your own zoom scale in the timeline. You can use the slider to zoom in and out of the playhead location.



Useful keyboard shortcuts for zooming the timeline include Command+= (equals) and Command- (minus) in macOS or Ctrl+= (equals) and Ctrl- (minus) in Windows to zoom in and out, respectively.

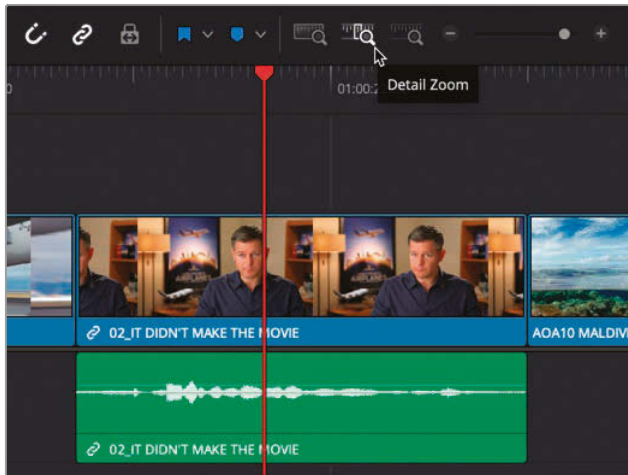
Shift-Z toggles between fitting the timeline to the timeline window and returning you to the previous zoom level.

Timeline track heights can be adjusted using the Timeline View options menu or by holding Shift and using the mouse scroll wheel in either the audio or video areas of the timeline.

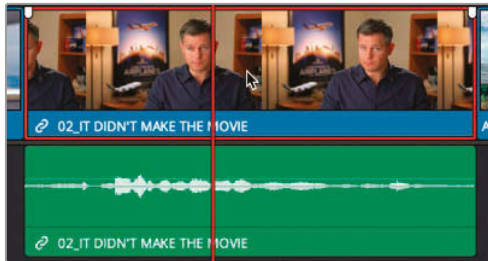
## Removing Excess

OK, your edit is looking pretty good, and you're now at the stage where you're probably thinking it may benefit from a little bit of trimming to remove some of the unwanted portions of the footage.

- 1 Move the timeline playhead to the start of the middle interview clip and click the Detail Zoom button.



- 2 Option-click (macOS) or Alt-click (Windows) the video portion of the clip **02\_IF IT DIDN'T MAKE THE MOVIE** in the timeline.

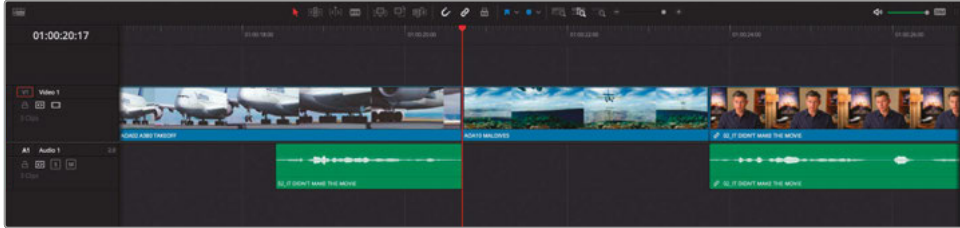


Do you notice the small chain icons on the video and audio of this clip? That means the two parts of this clip are linked. This can be useful if you wanted to remove or move both parts of this clip (meaning it would be quite difficult to move them out of sync with each other, for example). By using the Option key (macOS) or Alt key (Windows) you're momentarily overriding the linking to select just the video portion of the clip.

**NOTE** If you're selecting both parts of the clip with the Option key (macOS) or the Alt key (Windows), make sure the Link Selection function is currently active.

- 3 Right-click the selected video clip and select Ripple Delete from the shortcut menu or press Shift-Delete (Backspace).

The video portion of the clip is removed, and the remaining audio tucks nicely under the preceding shot of the A380 taking off.



Did you notice what else happened in the timeline? Because you performed a ripple delete, it meant you didn't leave a gap and the rest of the footage in the timeline moved up. More to the point, the audio and video in the last interview clip remained in sync. Again, this is due to the Auto Select control being enabled on all tracks by default.

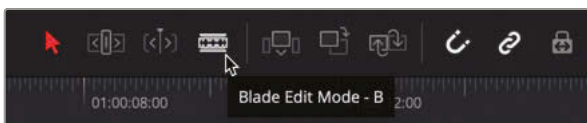
**NOTE** If you want to see what would happen with the Auto Select control looking out for you, undo the last step and disable the Auto Select control for the Audio 1 track and repeat the last few steps. Remember to re-enable Auto Select for Audio 1 afterward.

Another way to remove sections of clips from your timeline is by using Blade Edit Mode.

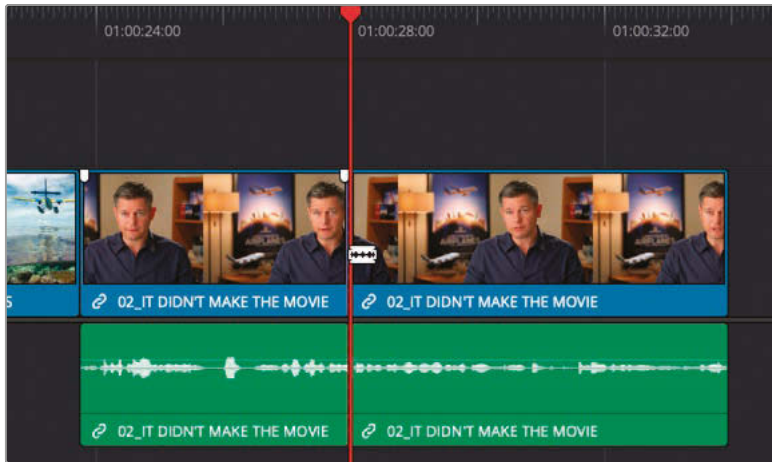
- 4 Click the Full Extent Zoom button and play through the last clip on the timeline. You will remove the line "...stay at that location longer..." as it's a little repetitive and unnecessary.
- 5 Play through the last clip on the timeline and set an In point just before Brian says "... stay..." (around 01:00:28:00).



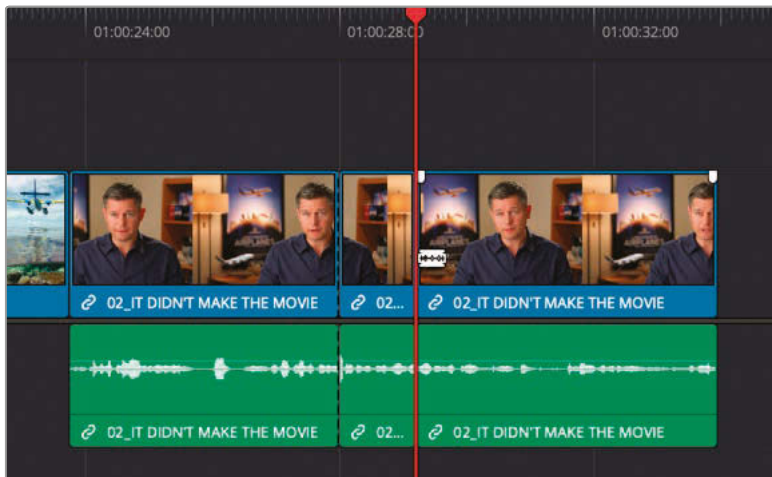
- 6 From the timeline toolbar, click the Blade Edit mode button or press B.



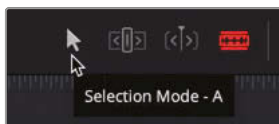
- 7 With Blade Edit mode selected, position your mouse at the playhead location and click the **02\_IT DOESN'T MAKE THE MOVIE** clip to add an edit point.



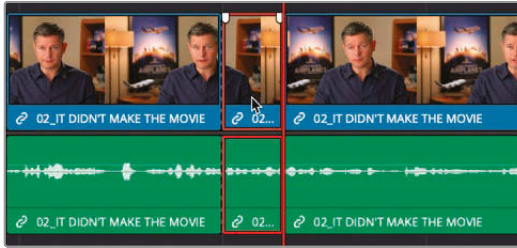
- 8 Play forward and stop before he says "...or it didn't make the movie" (around 01:00:29:05).
- 9 Add another edit point by clicking at the playhead location on the clip.



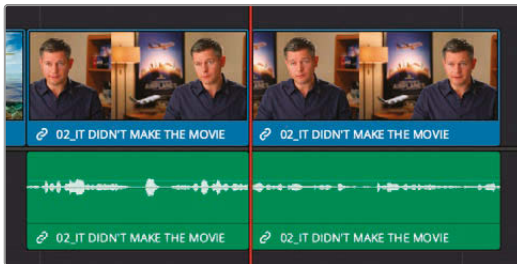
- 10 In the timeline toolbar, click the Selection mode button or press A.



- With Selection mode enabled, click the unwanted middle portion of the interview clip you have just added the edit points to.



- Press Shift-Delete (Backspace) to ripple delete the portion between the In and Out points.



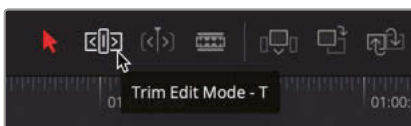
- Press / (slash) to preview the new edit.

Great. That's tidied up that part of the timeline; now you'll turn your attention to the first clip.

## Trim Edit Mode

The Blade Edit mode isn't the only mode you have in your timeline for helping you trim the clips. For the next exercise, you'll use the Trim Edit mode.

- Press the Home key to move the playhead back to the beginning of the timeline.
- Play through the first clip.  
Obviously, there's some unwanted portion of his interview we need to trim off at the beginning.
- Place your timeline playhead just before Brian says, "In this film..." (at about 01:00:03:00).
- In the timeline toolbar, click the Trim Edit mode button or press T .



- 5 Click the beginning of the first clip and drag the edit to the right until it snaps to your playhead.



**TIP** If snapping isn't enabled, just press N to quickly enable it during the trimming operation.

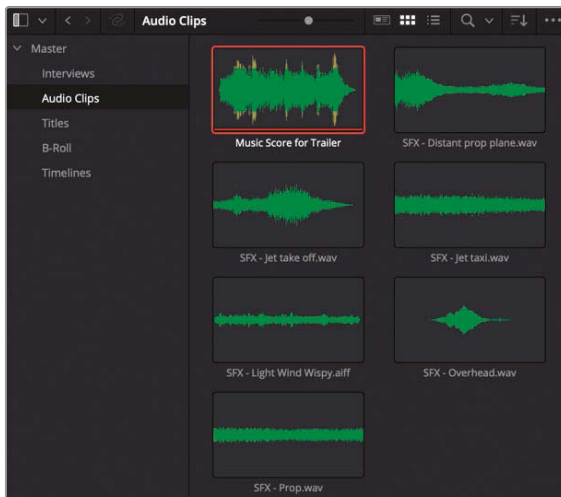
- 6 Press A to return to Selection Edit mode.

Notice that because the audio and video of this clip are linked, you're trimming both parts of the clip together, and because you are in Trim Edit mode you're automatically *rippling* the timeline; all clips in the timeline on all Auto Select-enabled tracks after the selected edit are rippled to maintain their sync'd relationships.

## Adding Music

Now that you've started refining the timeline more, you'll possibly want to add the music and then build in the final pictures.

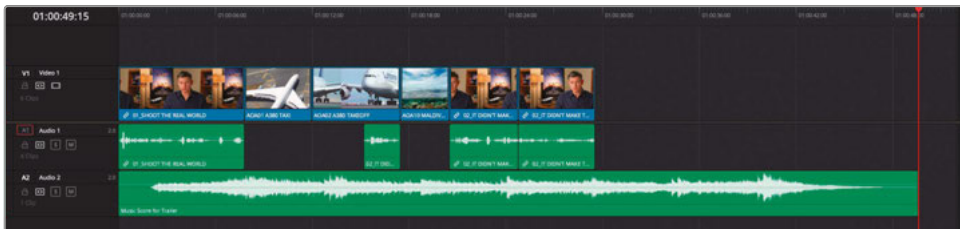
- 1 Move your playhead back to the beginning of the timeline.
- 2 Select the Audio bin and locate the clip **Music Score for Trailer**.



- 3 Drag this clip directly from the bin to the Place on Top overlay in the timeline viewer.



Despite its name, in this case the Place on Top edit has actually added a new audio track *below* your existing audio tracks. The Place on Top edit will actually place the edited clip into the first available empty track in your timeline, working its way upward through the video tracks or downward through the audio tracks. If it can't find an empty timeline track for the duration of the source clip, then a new track is created to accommodate the new clip. Place on Top is useful for adding B-Roll to interviews or titles as you will see later.



**NOTE** Notice that when you added this stereo music clip to your timeline, it automatically created a stereo audio track (denoted by the 2.0 in the track header next to the track name).

When using audio clips to automatically create audio tracks as you have just done, Resolve will automatically match the track type to the audio clip you're using.

To change an existing audio track to a different type (for instance stereo to mono or vice versa), right-click the track header and choose Change Track Type To.

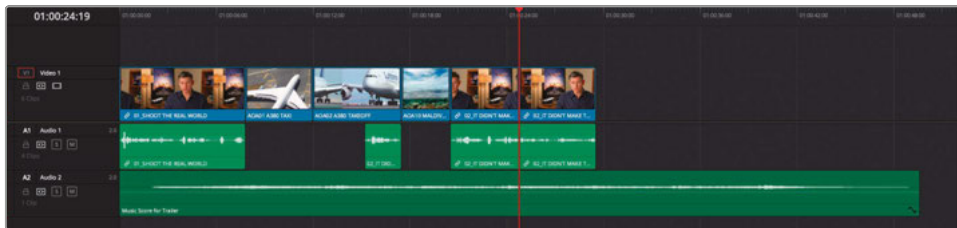


You'll need to attenuate (lower) the level of the music clip; otherwise, you won't hear the interview audio.

- 4 Use the volume overlay line on the **Music Score for Trailer** audio clip to lower the clip's volume by about -18 dB.



- 5 Move your timeline playhead to the edit point between the last two interview clips.



- 6 From the Master bin, double click the clip **AOA8 SOUTH POLE DC3** to open it in the source viewer.

This clip is a video-only clip, so no audio destination controls are active.



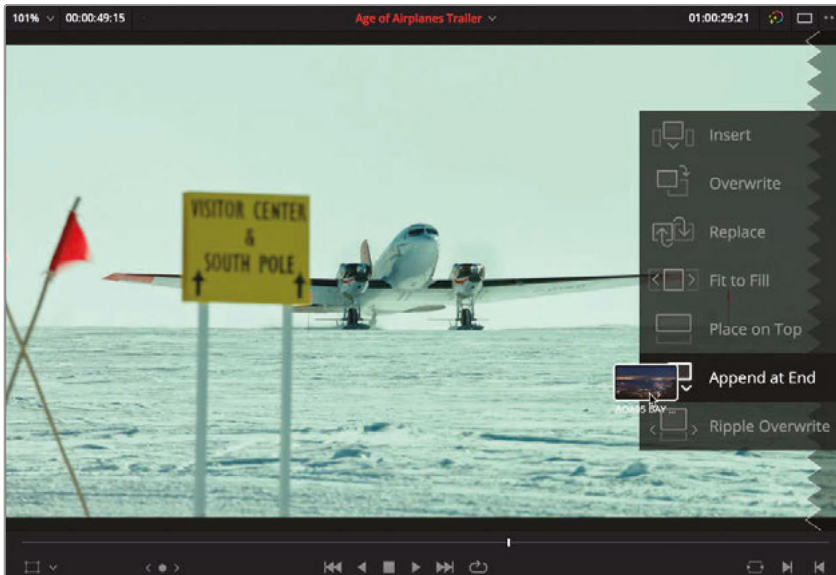
- Press F10 to overwrite the entire clip at the playhead position, overwriting the video of Brian's final interview clip in the process and neatly solving the problem of that jump cut at the same time.



- From the B-Roll bin, select the clips **AOA05 Bay Area Lights**, **AOA06 Milkyway**, and **AOA07 KENYA**.



- Click and hold on any of these selected clips and drag across to the Append at End overlay in the timeline viewer.



The Append at End edit will use the end of the last clip on the targeted track as the implied In point in the timeline, irrespective of where the timeline's playhead is. It may not seem like it, but this is still a three-point edit.



The three clips have been edited into the timeline sequentially based on their sort order in the bin in the media pool. Unfortunately, they need rearranging slightly to make more sense to the story you're trying to convey.

## Shuffle Insert Edits

To quickly change the order of these three clips in the timeline, you will use a Shuffle Insert edit (or Swap Insert edit).

You will start by Shuffle Inserting the **AOA07 Kenya** clip backward.

- 1 Ensure that Snapping is enabled for your timeline.
- 2 Select **AOA07 Kenya** in the timeline.
- 3 Hold down Shift-Command (macOS) or Shift-Ctrl (Windows).
- 4 Drag **AOA07 Kenya** back so the start of the clip snaps to the edit point between **AOA08 South\_Pole** and **AOA05 Bay Area Lights**, and then release the mouse.



**AOA07 Kenya** is moved back, and the other clips in the timeline have been shuffled out of the way (hence the name of this technique). The Shuffle Insert edit is a useful option to have up your sleeve to quickly try out different clip arrangements in the timeline.

You'll need to repeat the last few steps to change the order of the final two clips in the timeline: **AOA05 Bay Area Lights** and **AOA06 Milkway**.

- 5 In the timeline, select **AOA05 Bay Area Lights**.

- 6 Hold Shift-Command (macOS) or Shift-Ctrl (Windows).
- 7 Drag the clip to the end of **AOA06 Milkway**.

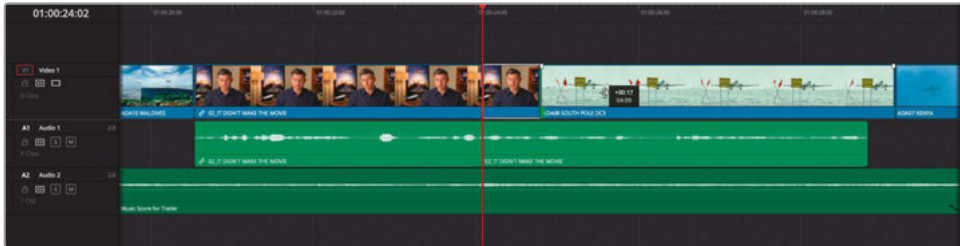


Excellent. Now that you have these clips in the correct order, it's time to trim these clips so the whole timeline is the correct duration.

## Trimming to Duration

You now need to trim the extra pictures to bring your edit to the correct time.

- 1 Place your timeline playhead at the start of **AOA08 South Pole DC3** and press the Detail Zoom button.
- 2 Press T to enter Trim Edit mode.
- 3 Select the beginning of the **AOA08 South Pole DC3** clip and begin to drag to the right to trim the clip.

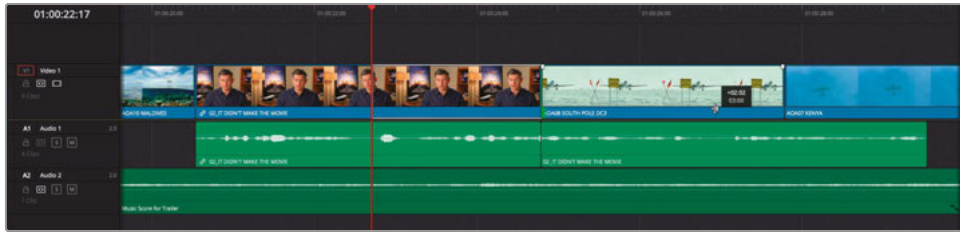


Whoa! Do you see what's happening? You're trimming the beginning of the clip forward, but the interview audio is being rippled backward, overwriting the previous audio clip in the process!

- 4 Press Command-Z (macOS) or Ctrl-Z (Windows) to undo the last step.
- 5 Click the Auto Track Selector for the Audio 1 track to deselect it.

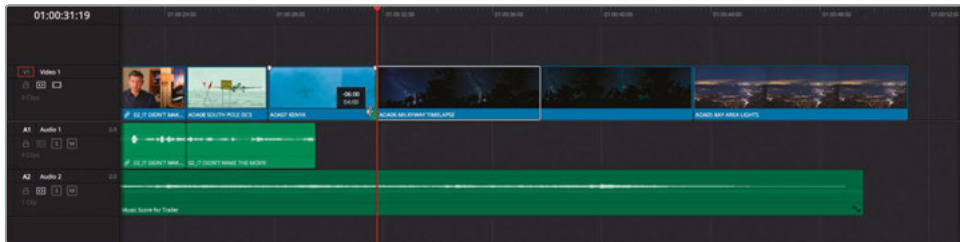


- 6 Repeat the trim operation in Step 3 to trim the clip but not move the Interview audio. Trim the clip so the gray duration tooltip reads 3:00 (3 secs).



**TIP** The upper white numbers in the trimming tooltip tell you by how much time you have trimmed the selected edit, while the gray tooltip tells you the new duration of the trimmed clip.

- 7 Press the Down Arrow key to move to the next edit at the start of the **07\_KENYA.mov** clip.



## Track Lock or Auto Select?

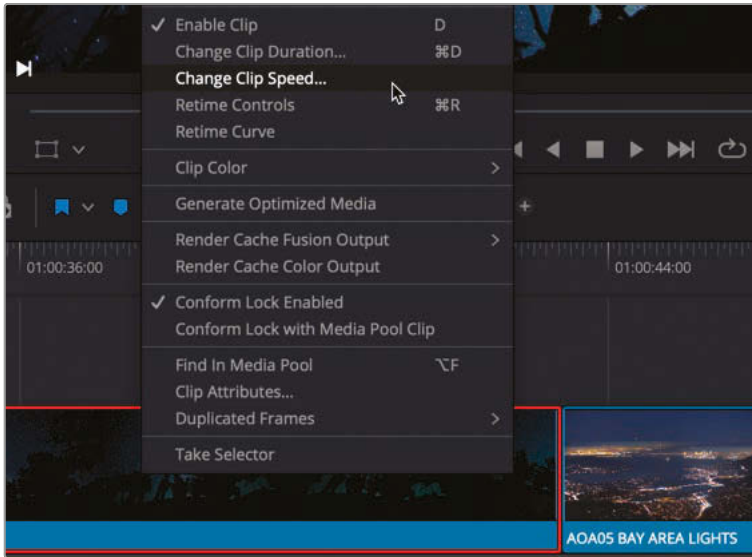
In the previous step, you used the Auto Track Selector to remove a specific track from the timeline operation. Why not just lock the track? The simple answer is, in this particular case, you can. But you should think of the track lock as a single-use tool and the Auto Track Selector as a Swiss Army knife that will help you accomplish so much more.

Up until now, Auto Track Selector has been your friend in this lesson, as it has ensured that any clips in the timeline starting after the point you're editing with all move together, in sync. However, sometimes you need to change this, as in this case. Disabling Auto Track Selector for the Audio 1 track means that any clips on that track after the selected edit will no longer be included in the trim. In this example, the Auto Track Selector is functioning as a sync lock control, but it does so much more than this, as you will discover throughout this book.

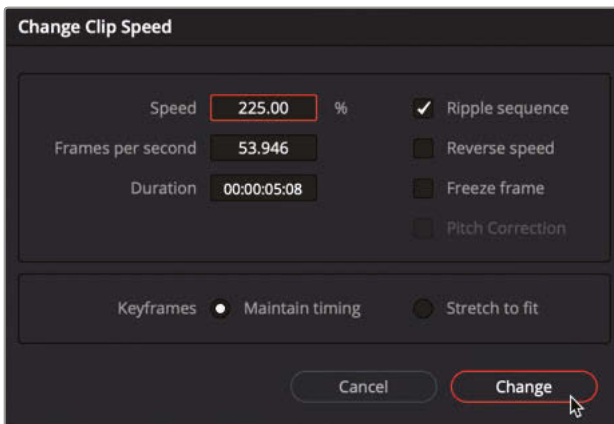
- 8 Trim the end of this shot until the clip is about 4 seconds long and focuses on the reflection of the yellow plane in the water.

Another way to change the duration of clips and make them visually more interesting is to adjust the speed at which the clip plays back.

- 9 Right-click the **06\_MILKYWAY.mov** clip and choose Change Clip Speed.



- 10 In the Change Clip Speed dialog box, type **225** in the Speed % box and select the Ripple Sequence option.



The **06\_MILKYWAY.mov** clip is sped up, and the trailing shot is rippled back in the timeline with its change of duration.



- 11 Play through the rest of the timeline until the final beat of the music.
- 12 Place the timeline playhead on the final beat of the music score (at 01:00:40:00).



- 13 In the Titles bin, double-click the **11\_MOVIE\_CREDITS.mov** clip to open it in the source viewer.



- 14 Press F10 to perform an Overwrite edit.

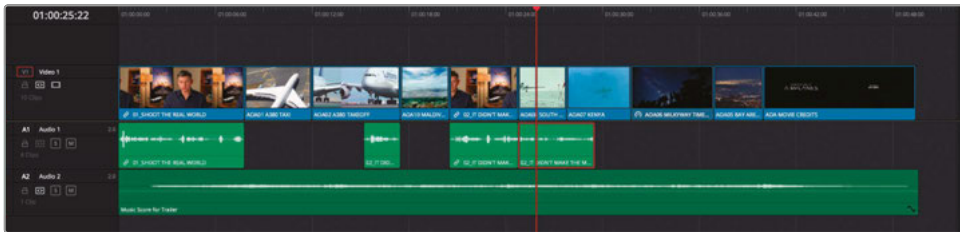


- 15 Press Home and play your timeline to review your edit so far.

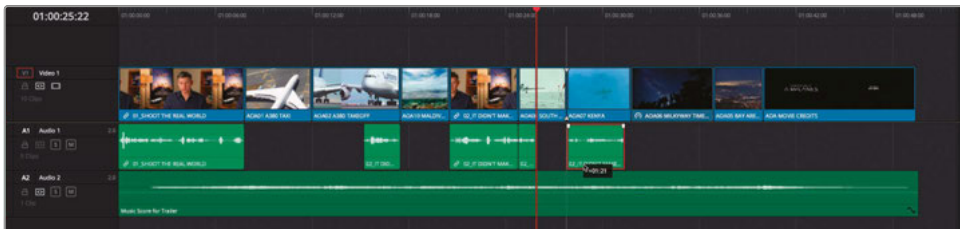
## Adjusting Pacing

One final change you'll make to this edit is to adjust the pacing of Brian's interview slightly. Many times, as an editor you will want to subtly introduce gaps between clips to provide emphasis to an action, sound, or in this case, a line of dialogue.

- 1 Move your playhead to the start of the clip **08\_SOUTH\_POLE\_DC3\_.mov**.
- 2 Play through Brian's last audio clip and stop just after he says "...it didn't make the movie" and select the clip.



- 3 Press Command-B (macOS) or Ctrl-B (Windows) to add an edit to the selected clip at the position of the playhead.
- 4 Select the second of the newly-cut clips in the timeline and drag it to the right until it snaps to the beginning of **07\_Kenya\_.mov**



Moving the clip forward a second or so in this manner has created a short space in Brian's interview that wasn't there originally. This gives Brian's thoughts room to breathe and, together with the picture of the yellow plane's reflection, an added emphasis to the line about everything being "real."

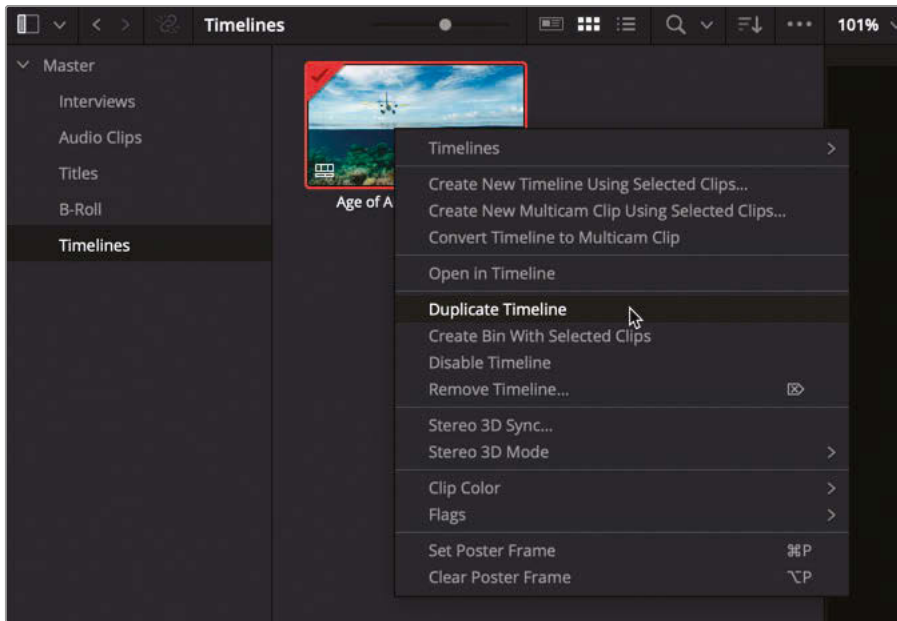


Excellent. You've built a fairly sophisticated trailer. However, there's still a few things to do before the director will be happy.

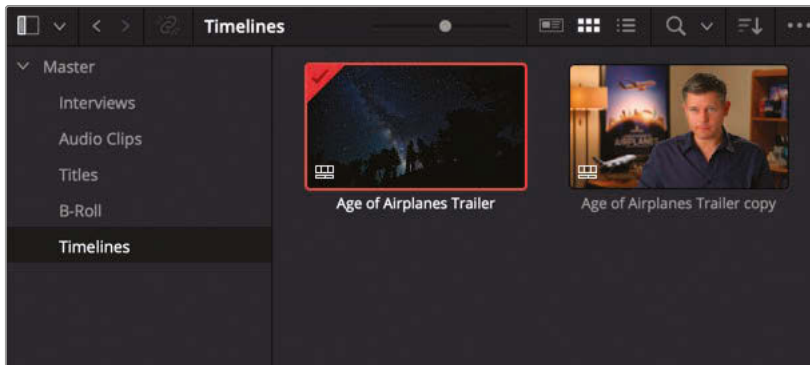
## Finishing the Edit

Before going much further, it's always a good idea to periodically save a copy of the timeline you're currently working on.

- 1 In the Timelines bin, right-click the **Age of Airplanes Trailer** timeline you're working on and choose Duplicate Timeline.



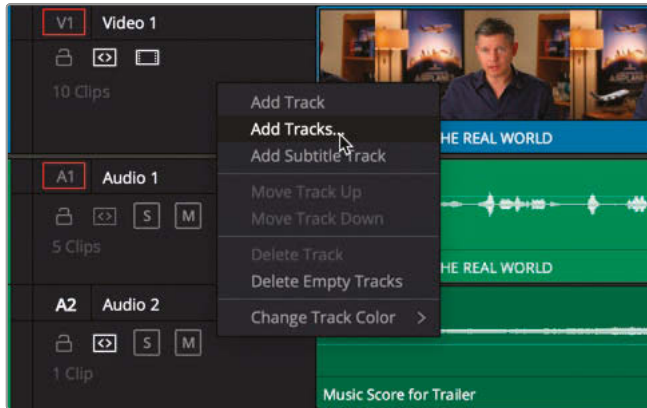
A copy of your timeline appears in the same bin.



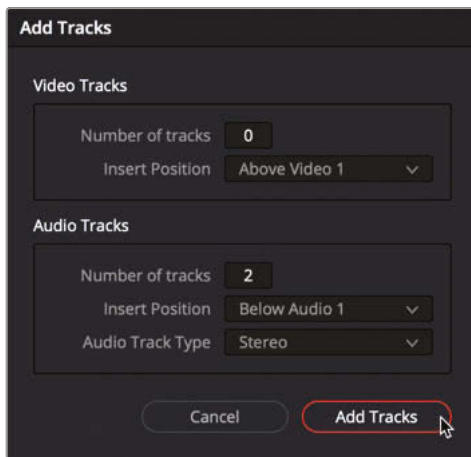
**NOTE** You can now continue working on the currently loaded timeline, knowing that you have a backup of your work to this point. Many editors often like to rename the duplicated timeline, so they know what they are looking at in the bin.

With a backup copy of your timeline in your bin, it's now time to start finessing the edit further. You'll begin by adding some sound effects to the B-roll footage to give it more of an impact.

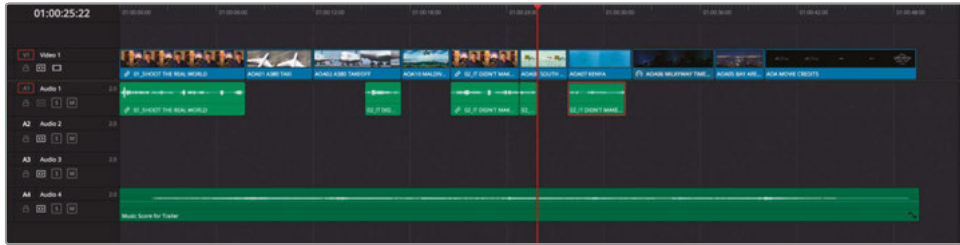
- 2 Right-click anywhere in the timeline track headers and choose Add Tracks.



- 3 In the Add Tracks dialog box, change the number of video tracks to 0 and the number of audio tracks to 2. Ensure that the Insert Position for the new audio tracks is set to Below Audio 1 and set the Track Type to Stereo. Click Add Tracks.



The additional audio tracks are added as specified.



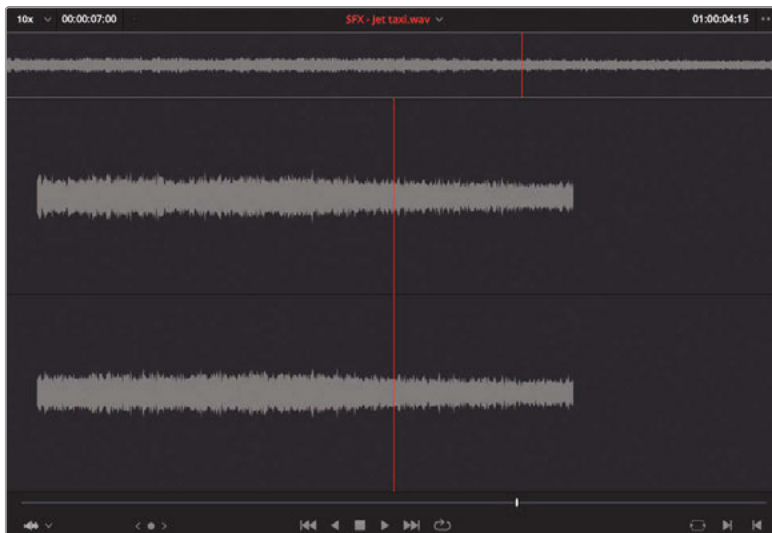
- 4 Position your timeline playhead anywhere over the second clip **01\_A380\_TAXI.mov** and press X.



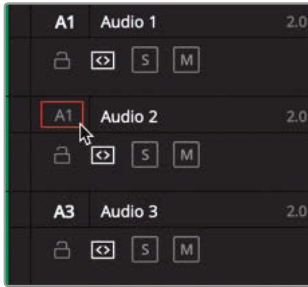
In DaVinci Resolve, X does not mark the spot but rather marks the timeline clip under the playhead on the lowest active auto selected track.

**TIP** If you want to mark a selected clip or clips in the timeline, press Shift-A.

- 5 In the Audio bin, double-click **SFX – jet taxi.wav** to open it in the source viewer.



- 6 In the destination controls in the timeline, drag the red outlined A1 control to A2.



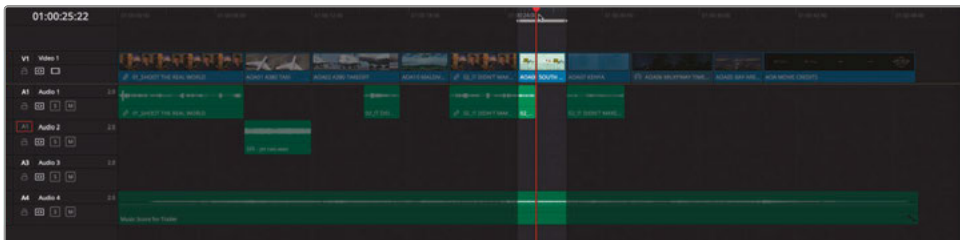
This tells Resolve you want to edit the next clip into this track.

- 7 Press F10 to perform an Overwrite edit.



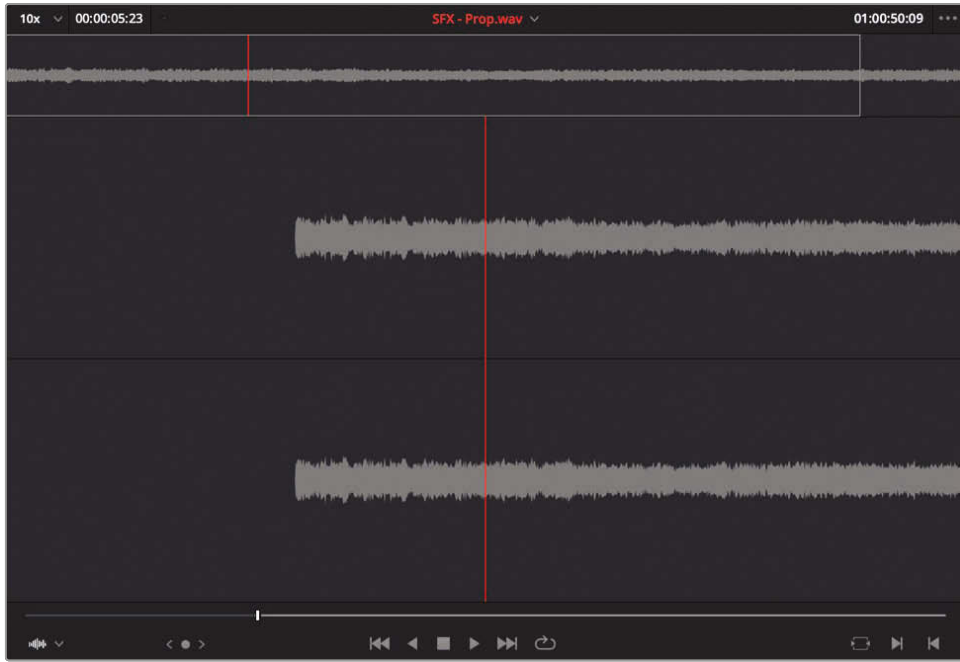
You have just completed a three-point edit, but this time you set the duration of the edit by using In and Out points in the timeline. Because you hadn't set any In or Out points in the source, the *implied In point* was used—that is, from the start of the clip.

- 8 Move the timeline playhead over the clip **08\_SOUTH\_POLE\_DC3\_.mov** and press X to mark the clip.

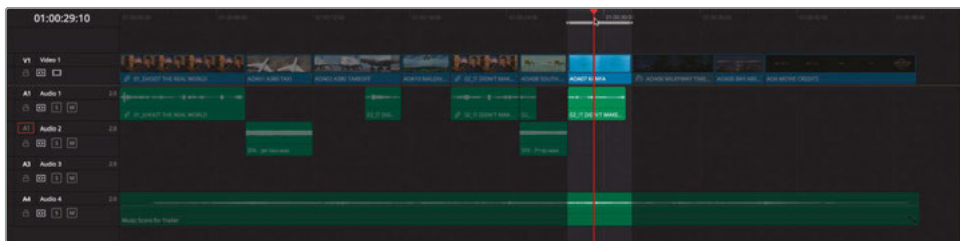


- 9 Open **SFX-Prop.wav** in the source viewer from the Audio bin in the media pool.

- 10 With the source viewer playhead at the start of this clip, type **+200** to move the playhead forward by 2 seconds and press **I** to set an In point.



- 11 Press **F10** to perform an Overwrite edit.  
This time, because you added an In point to the source clip, Resolve used this as the start when editing the clip into the timeline.
- 12 Ensure that your playhead is over the next clip in the timeline, **07\_KENYA.mov**.
- 13 Press **X** to mark the clip.



- 14 In the Audio bin, open **SFX – Distant prop plane.wav** into the source viewer.

- 15 Set an In point roughly 3 seconds from the start of this clip.



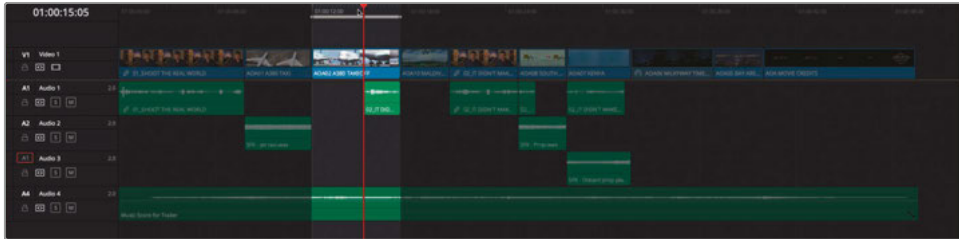
- 16 Click the A3 destination control in the timeline track controls to tell Resolve you want to edit this on to a different track.
- 17 Press F10 to perform an Overwrite edit.



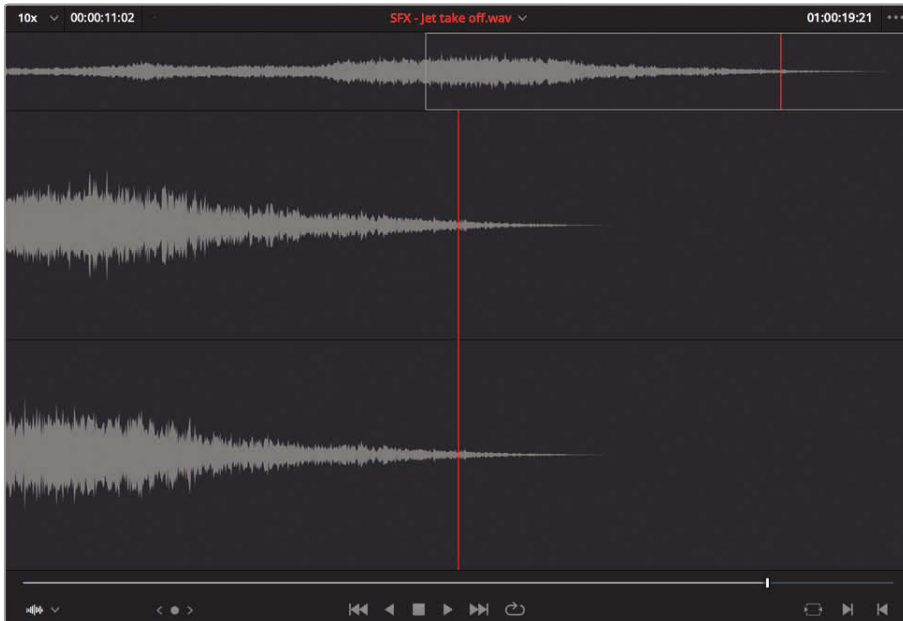
## Backtiming Edits

Another editing technique that's often used and builds on the concept of the three-point edit is the *backtimed* edit. Backtiming an edit means you specify where you want a shot to end by just adding an Out point rather than an In point.

- 1 Place your timeline playhead over the third clip **02\_A380\_TAKEOFF.mov** and press X to mark the clip.

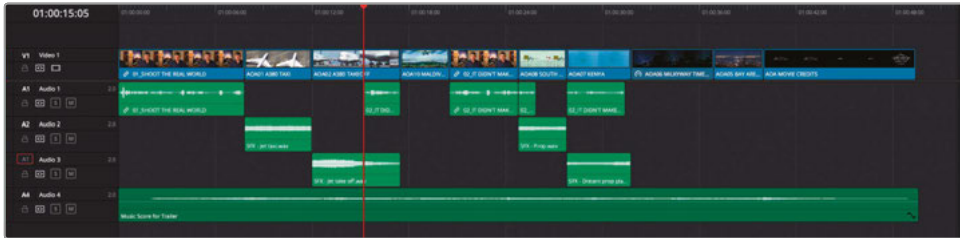


- 2 In the Audio bin, open the **SFX – Jet take off.wav** clip into the source viewer.
- 3 Play through the clip until the sound of the jet starts to fade away (around 01:00:19:00).
- 4 Press O to add an Out point.



**NOTE** For backtimed edits to work, you only need an Out point. If necessary, you can remove an In point by pressing Option-I (macOS) or Alt-I (Windows).

- 5 Press F10 to make an Overwrite edit.



This time the Out point you set in the source viewer has specified where the new clip should stop. Pretty neat, huh?

## Using Replace Edits

Another technique you can use to your advantage very effectively is the Replace edit. The Replace edit is slightly different from the three-point edits you've been using throughout this lesson in that you're not required to set any In or Out points. Instead, the Replace edit uses the position of the timeline and source playheads to align the edits.

- 1 Move the timeline playhead over the clip **10\_MALDIVES.mov** just before you see the wings come into shot.



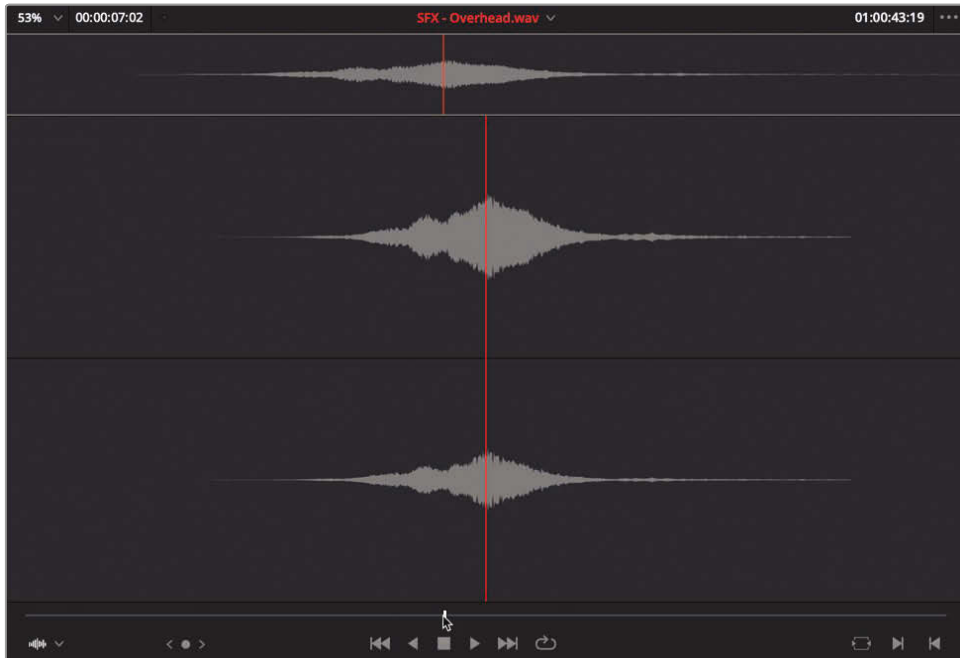


- 2 Open the clip **SFX – Overhead.wav** in the Audio bin.

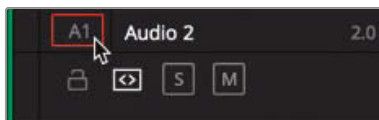


This is a simple sound effect file with a prominent waveform.

- 3 In the source viewer, position the playhead over the highest point of the waveform.



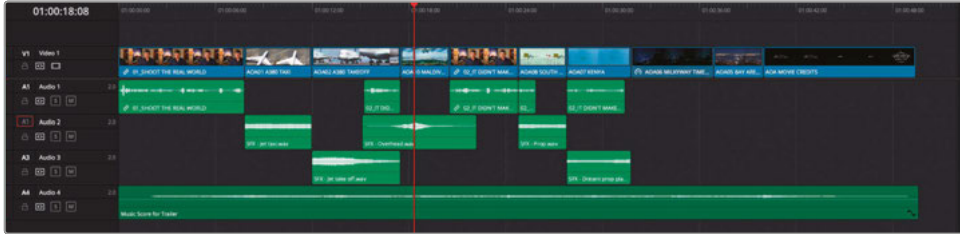
- 4 In the timeline, click the destination control to A2.



- 5 Click the Replace Clip button or press F11.



- 6 Press / (slash) to preview the edit.



Quite effective, isn't it? You'll use a Replace edit again, in combination with a feature called Match Frame, in the next exercise.

## Match Frame

Sometimes, rather than searching through bins to find a clip you want to use, it's easier to use a portion from a clip that's already in the timeline. This is a technique called a *Match Frame*, as it brings up the source clip for a clip you've already edited.

- 1 In the timeline, place your playhead over the last frame of **07\_KENYA.mov** and select the clip.



- 2 In the bottom right of the timeline viewer, click the Match Frame button or press F.

The original source clip **07\_KENYA.mov** automatically opens in the source viewer with the playhead on the same frame and In and Out points as the clip in the timeline.



- 3 In the source viewer, move the playhead toward the end of the clip where you can see the yellow plane flying over the flamingoes.



- 4 Press F11 to perform a Replace edit.



**TIP** You can also use the Match Frame button in the bottom right of the source viewer. This will move the timeline playhead to the same frame (if it's used). This technique is often referred to as a *Reverse Match Frame*.

Using the combination of Match Frame and Replace edit means it's quick and easy to use different parts of the same shots in the timeline without having to worry about setting different In and Out points.

## Audio Mixing

Now that you've got some sound effects in your edit, the whole timeline seems to come alive and just goes to show the importance of sound. You'll work with audio much more throughout later lessons; however, even at this stage it's likely that you'll need to take on some basic audio duties, at the very least so the director gets a sense of what the edit will eventually sound like.

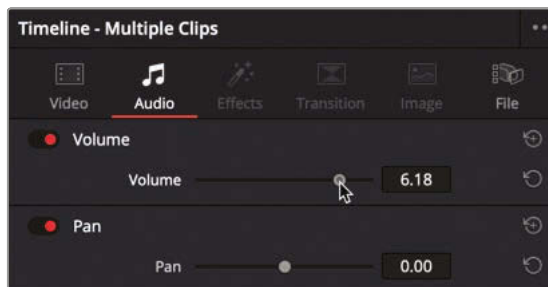
- 1 Press A to ensure you're working in Selection mode and then select all the interview clips on the Audio 1 track.



- 2 Click the Inspector button in the upper-right corner of the interface to open the Audio Inspector.



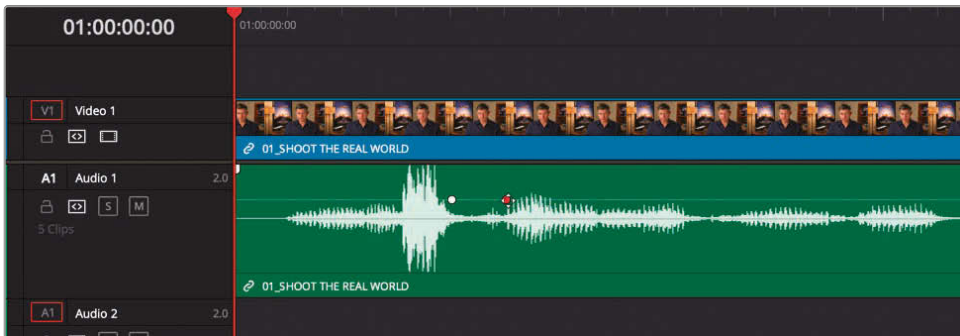
- 3 Drag the Clip Volume slider to raise the level of all these clips by about 6 dB.



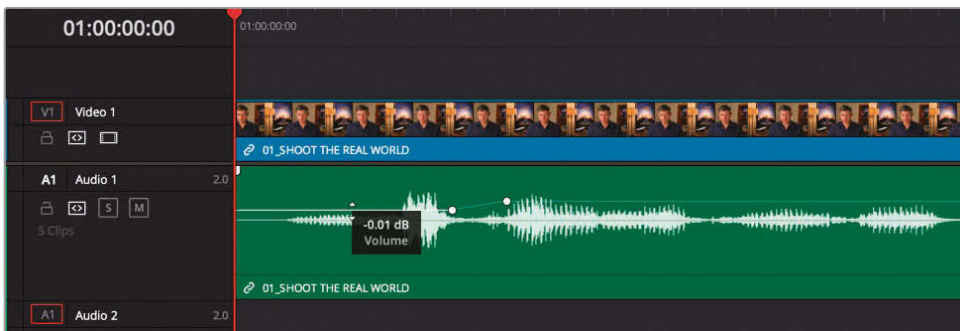
That sorts out the main levels for Brian's dialogue clips, but there's a bit of a spike at the beginning of the first clip.



- 4 Place your playhead at the first clip in the timeline and click the Detail Zoom button.
- 5 Option-click (macOS) or Alt-click (Windows) the volume curve line to add a keyframe after the spike. Repeat to add a second keyframe just after the first.



- 6 Lower the part of the audio curve before the first keyframe so the peak is about the same height as the other peaks in the clip.



- 7 Click the Full Extent Zoom button see the whole timeline.

## Displaying the Audio Meters

You can see your audio levels in the Edit page by clicking the Mixer button in the upper-right corner of the interface. You can then choose to show just the meters by clicking in the Mixer's Options menu (the button with three dots) and choosing Meters. Doing so displays the combined levels for the timeline's currently selected main bus. You'll learn more about setting mains and other buses in the audio mixing lesson.

## Mixing the Sound Effects

Now it's time to turn your attention to the sound effects that you added earlier. First, you'll want to adjust the levels and then apply fades to the beginnings and ends of each clip. Fortunately, DaVinci Resolve has a quick way to bypass such repetitive tasks.

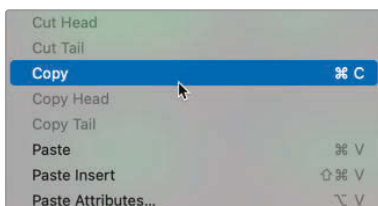
- 1 Adjust the level of the first audio clip on the Audio 2 track, the **SFX – Jet Taxi.wav** clip, by about -8 dB.



- 2 Use the fade controls at the head and tail of the clip to apply a short fade in and out to the clip.



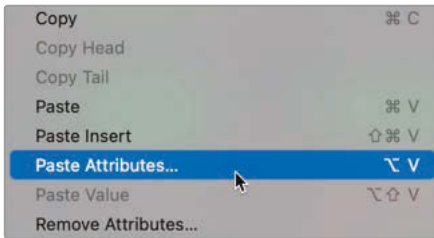
- 3 Select the clip in the timeline and choose Edit > Copy or press Command-C (macOS) or Ctrl-C (Windows).



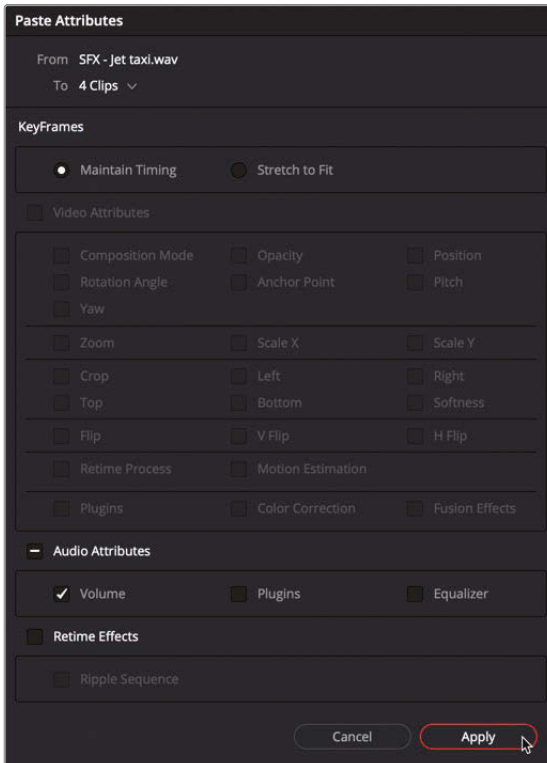
- 4 Select all the other audio clips on the Audio 2 and Audio 3 tracks.



- 5 Choose Edit > Paste Attributes or Press Option-V (macOS) or Alt-V (Windows).

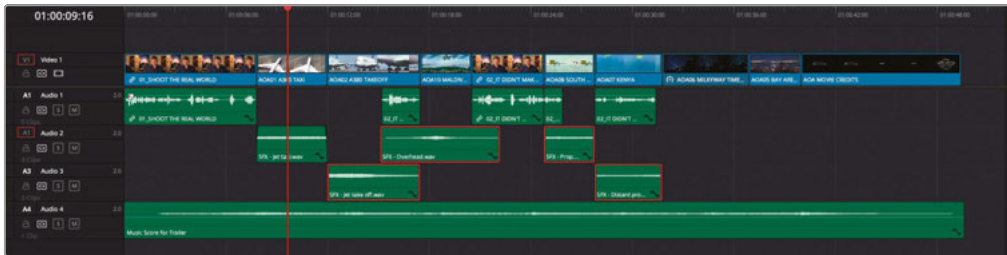


- 6 In the Paste Attributes dialog box, select the box for Volume in the Audio Attributes, and click Apply.





The Paste Attributes command pastes the volume settings, including the fade handles, to each of the selected clips. You may still want to go through the clips yourself later to check that they are the right level, but this is a great timesaver.



## Adding Transitions

You should always add transitions to your projects with great care. Transitions must be inserted with a consideration of the story you are telling and not used if they detract from that story. As a wise man once said, “With great power comes great responsibility.”

That said, transitions are a good way to show a change of location or time that might be a bit too abrupt for your audience if left with just a straight cut.

- 1 Select the edit point between **02\_A380\_TAKEOFF.mov** and **10\_MALDIVES.mov**.

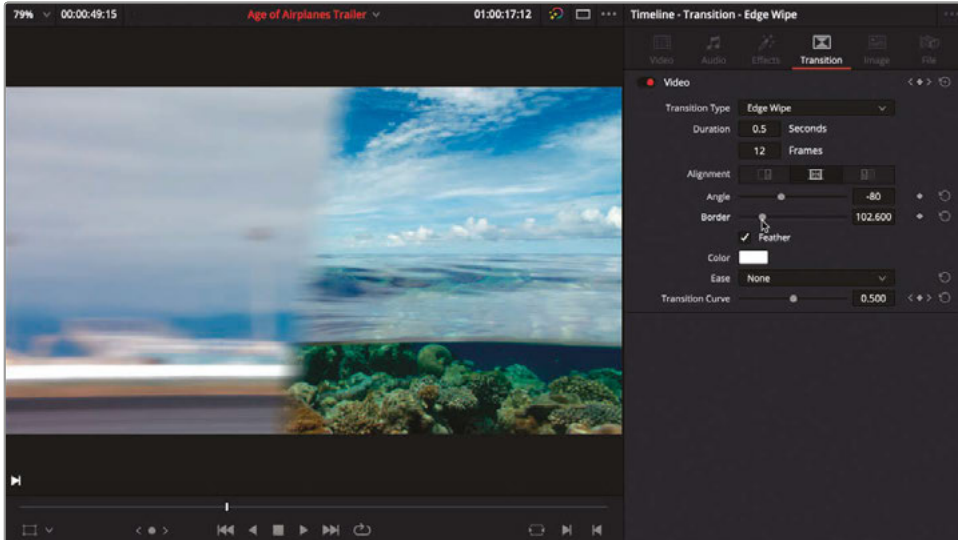


- 2 Press Command-T (macOS) or Ctrl-T (Windows) to add the default cross dissolve transition.



- 3 Press / (slash) to preview the transition.

- 4 Select the transition in the timeline, and in the Inspector, change the Video Transition Style to Edge Wipe, change the Angle to about -80, and change the Duration to 12 frames.
- 5 Check the Feather box and increase the border to around 100.
- 6 Finally, press / (slash) to preview the transition and channel your inner George Lucas.

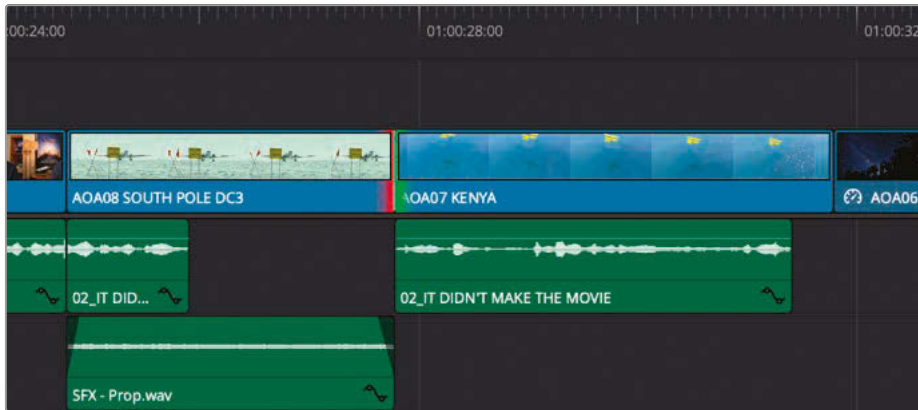


**NOTE** You can access more transition presets by clicking the Effects Library button from the upper-left corner of the interface and selecting the Video Transitions category.

## Problems Applying Transitions

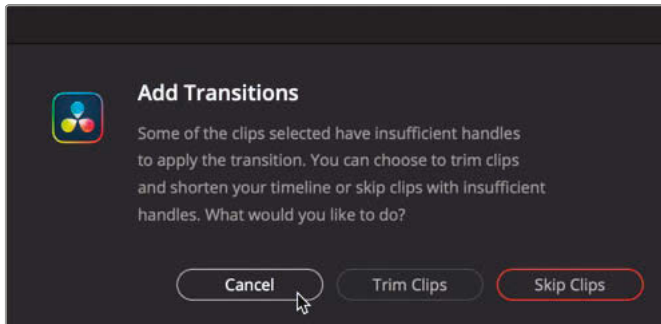
Occasionally you may have a problem applying transitions, but it's good to know that you can use Resolve's flexible Trim Edit mode to help overcome these.

- 1 Select the edit point between **08\_SOUTH\_POLE\_DC3\_.mov** and **07\_KENYA.mov**.



Notice the red bars on one side of the selected edit? This tells you that there are no handles or available media on the south pole shot.

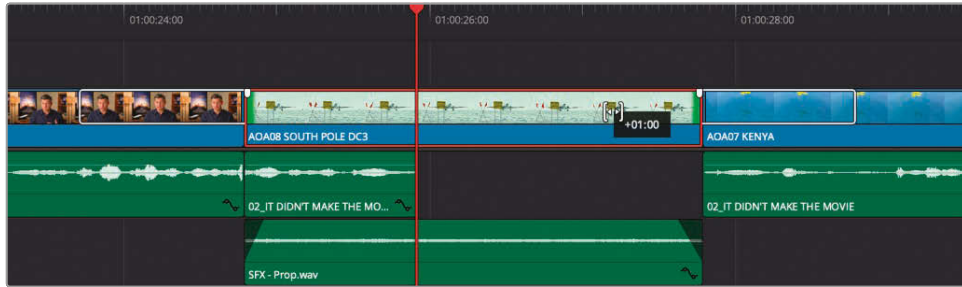
- 2 Press Command-T (macOS) or Ctrl-T (Windows) to apply a cross dissolve transition.



The above dialog appears, warning you that there are insufficient handles. As trimming clips to create the handles will shorten your timeline, this probably isn't something you want to happen. Instead, you'll fix this issue using a slip trim.

- 3 Click Cancel.
- 4 Press T to enter Trim Edit mode.
- 5 In the timeline, zoom in on clip **08\_SOUTH\_POLE.mov** so you can see the clip comfortably.
- 6 Move your mouse cursor over the upper part of the clip (not the name bar). It will automatically become the slip trim icon.

- Click and drag the clip to the right by about 1 second to slip the footage within the clip.



- Reselect the edit point between **08\_SOUTH\_POLE.mov** and **07\_KENYA.mov** and press Command-T (macOS) or Ctrl-T (Windows) to apply the cross dissolve.

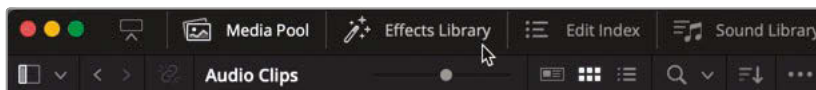


- Press A to return to the Selection mode.

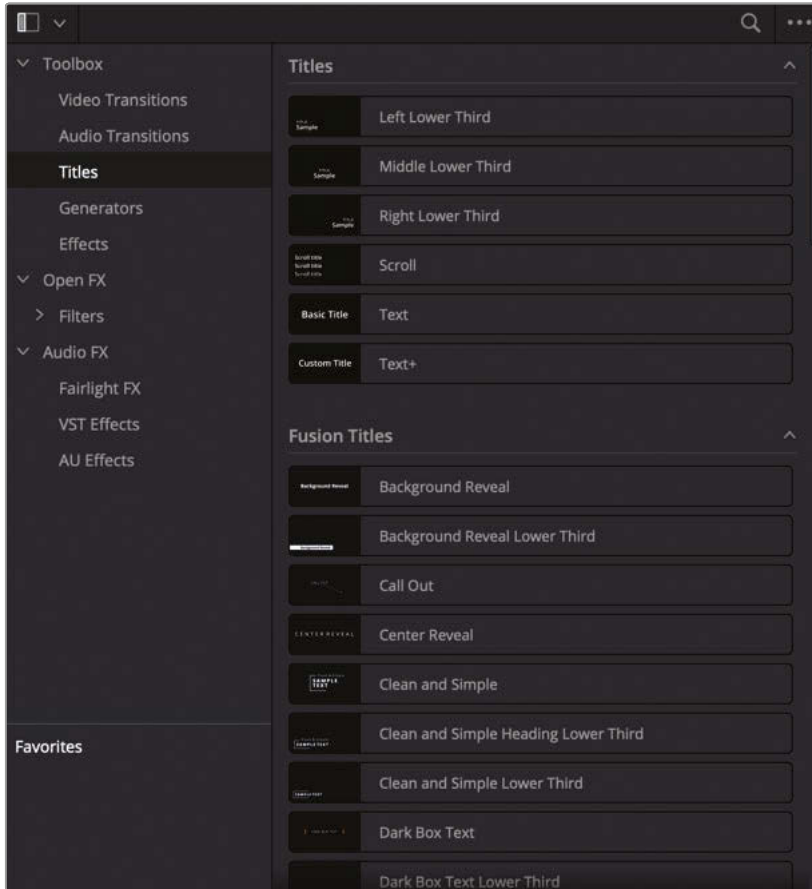
## Adding Fusion Titles

The last step for this edit is to add a title so everyone knows who Brian is. DaVinci Resolve comes bundled with a series of templates that have been created for your use in the Fusion page. That doesn't mean you must be a compositing expert to use them, but it does mean that you can customize them further in DaVinci Resolve's Fusion page without needing any additional software.

- Click the Full Extent Zoom button and move your playhead to the beginning of the timeline.
- Click the Effects Library button in the top-left corner of the edit page to open the Effects Library.



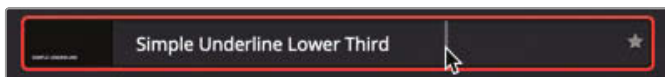
- 3 In the Effects Library, select the Titles category.



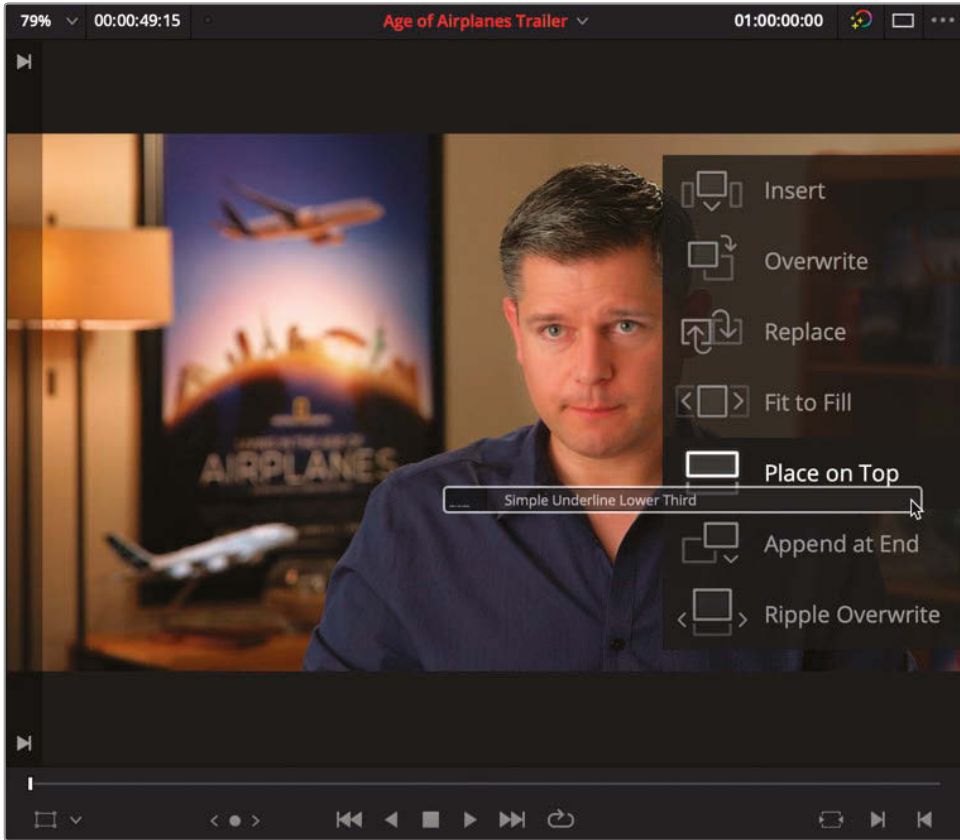
The Titles category lists all the available standard title generators and new Fusion title templates.

**TIP** Place your mouse pointer over any of the title generators (you don't need to click to select the individual titles), and then move your mouse pointer forward and backward over the length of the template. A live preview of the template, including any animation, is displayed in the timeline viewer.

- 4 From the list of Fusion titles, select the template called **Simple Underline Lower Third**.



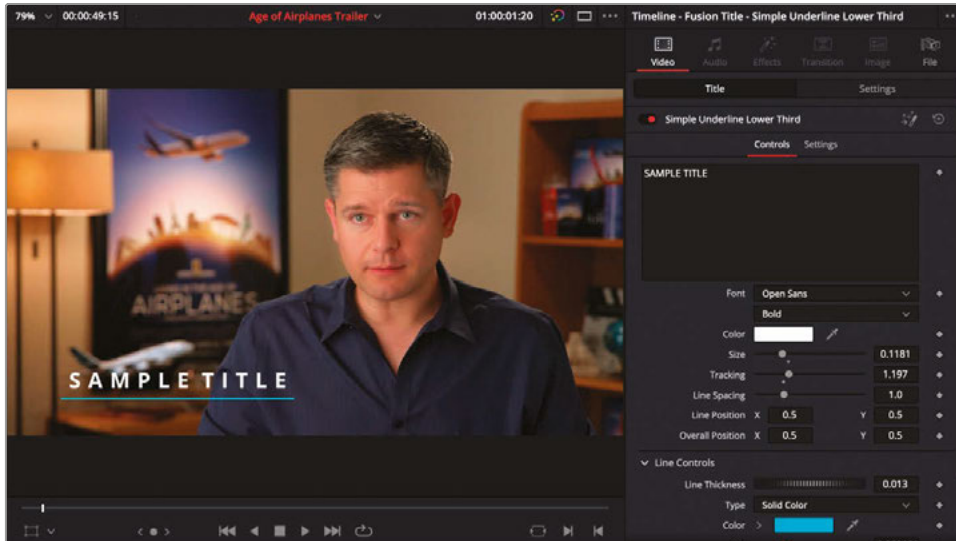
- 5 Drag the title to the timeline viewer overlays and choose Place on Top.



The Fusion title gets placed above the first video clip on a new track.



- 6 Place your timeline playhead over the center of the title clip.  
The controls for this title automatically appear in the Inspector.



These controls allow you to adjust the main characteristics of the text within this Fusion title.

- 7 In the Main text box, highlight the “SAMPLE TITLE” text and type **BRIAN J. TERWILLIGER**.
- 8 Scroll down to the bottom of the Inspector to the Line Controls section.
- 9 Change the color of the line from light blue to your preferred shade of yellow.



**TIP** To reset any Fusion title parameters to their defaults, click on the small gray dot that appears below the slider once you make a change to the parameter.

- 10 Finally, in the timeline, trim the end of the title to the end of the first clip on Video 1. Allow the title to cache and play back.



## Continue Cutting

Congratulations! You should now have a more rounded understanding of the basic editing toolset within DaVinci Resolve. However, before you move to the next lesson you might want to put your new skills to the test, as there are still a few things you can do to finesse this edit. Try to accomplish these tasks on your own. Don't forget to duplicate your timeline to create a backup version before you make any major changes! Good luck!

- 1 Trim each of the sound effect clips on Audio 2 and Audio 3 so that there's more overlap as one sound effect fades out and the other fades in.
- 2 Add keyframes to the music score clip on Audio 4 so that the volume rises after Brian's last line.
- 3 Add additional Fusion titles for each airplane clip to highlight the many different locations (Maldives, South Pole, Kenya) featured in this film.

### Reviewing the Finished Timeline

If you wish to view a finished version of this edit, created using the steps detailed in this lesson, select your Timelines bin and choose File > Import Timeline > Import AAF, XML, DRT, ADL, and navigate to R17 Editing/Lessons/Lesson 01 Start/Age of Airplanes Trailer FINISHED.drt and click Open.



# Lesson Review

- 1 What element is most often used to organize imported clips in DaVinci Resolve?
  - a) Timelines
  - b) Thumbnails
  - c) Bins
- 2 What types of edits can you perform using the toolbar buttons above the timeline?
  - a) Overwrite
  - b) Insert
  - c) Append at End
- 3 True or False? DaVinci Resolve allows you to manually add only one video or audio track at a time.
- 4 True or False? You can change only the type of transition applied to an edit by accessing the various transitions from the Effects Library.
- 5 True or False? Any changes you need to make to a Fusion title template must be made directly in the Fusion page.

## Answers

- 1 Bins are most commonly used to organize imported clips in DaVinci Resolve.
- 2 a) and b) The toolbar has buttons for performing Overwrite, Insert, and Replace edits. Append at End edits can be performed using the timeline viewer overlays, the Edit > Append at End of Timeline menu option, or by pressing Shift-F12.
- 3 False. You can add as many video and audio tracks as you require by choosing the Add Tracks option after right-clicking in the timeline track headers.
- 4 False. Transitions can be changed in the Inspector as well as from the Effects Library.
- 5 False. Many changes can be made directly in the Fusion Inspector on the Edit or Cut pages.

## Lesson 2

# Edit Preparation and Organization

While DaVinci Resolve is a superior editing, audio mixing, visual effects, and color grading system, it can also play a key role on set before a single edit is made. In this lesson, you'll focus on some of the incredibly powerful yet lesser-known, and often overlooked, Resolve functions that will help during production as you organize and optimize high-resolution, camera-original media and generally prepare everything for your edit.

### Time

This lesson takes approximately 60 minutes to complete.

### Goals

Backing Up Source Files	76
Syncing Audio to Video	85
Modifying Clip Audio Channels	91
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Importing Metadata	101
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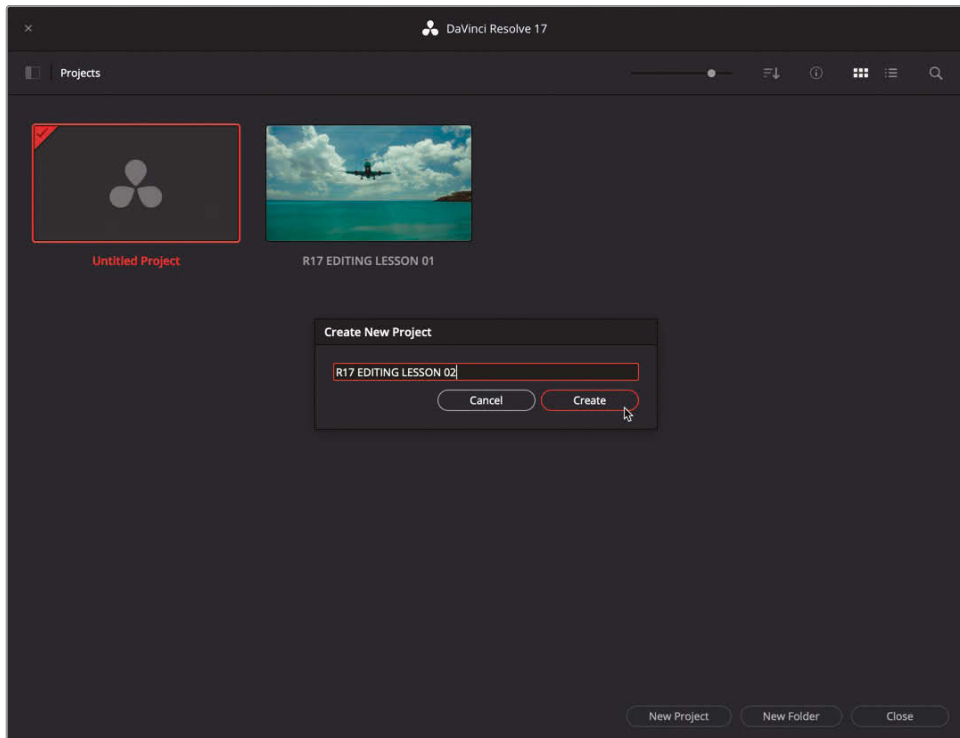
# Backing Up Source Files

The most important assets of any project are the camera-original media files. These are often irreplaceable and, if corrupted in any way, the alternatives can be painful. At worst it could require the expense of a complete reshoot! So, it makes sense that the very first thing you must do when handed media files for editing is to back up that original media.

You'll use this empty project to use DaVinci Resolve's built-in tools to back up content from a disk image file that you'll use to simulate the plugging in of a drive containing new media. However, you could just as easily use a C-Fast or SD card from a camera or any other data storage device such as a USB drive.

**NOTE** To complete the next few steps in this exercise, you will need approximately 2.5 GB of available storage on your system.

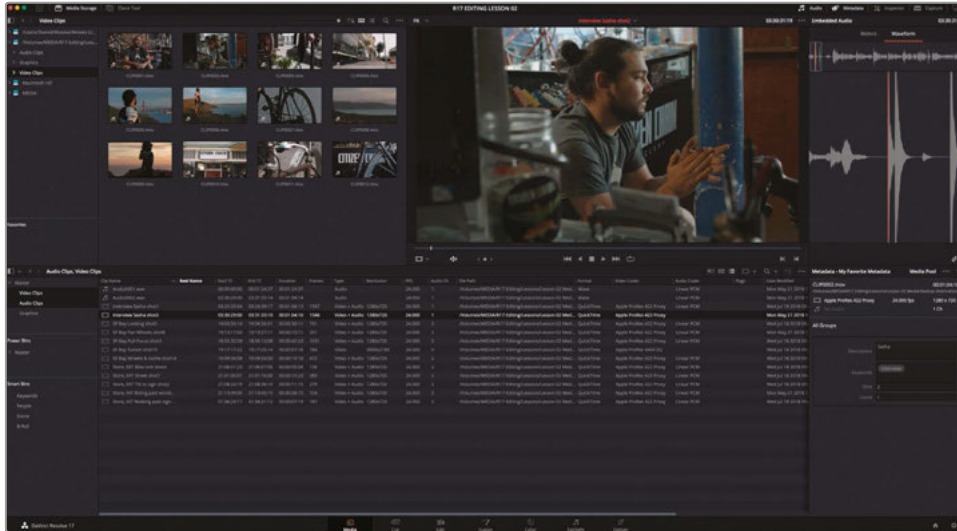
- 1 Open DaVinci Resolve and, in the Project Manager, create a new project. Name your project R17 Editing Lesson 02.



- 2 At the bottom of the interface, click the Media page button or press Shift-2.



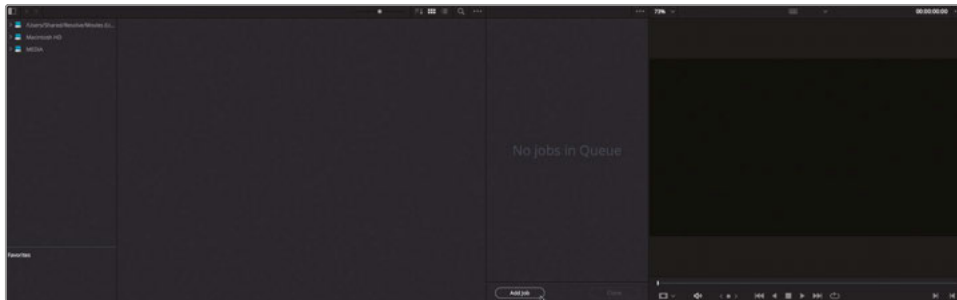
The media page is the most efficient page for importing and organizing media, syncing clips, and adding metadata. It is also where you can back up camera-original media using the Clone tool.



- 3 Click the Clone Tool button in the upper left of the toolbar.



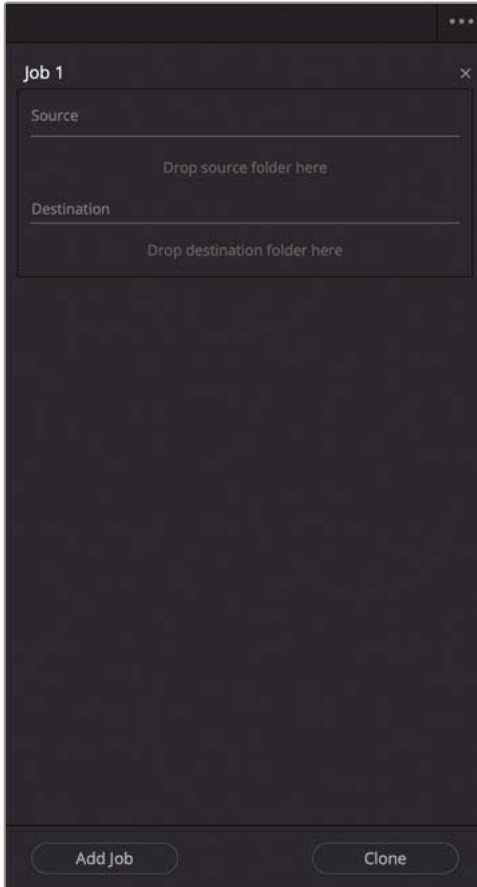
A new window opens between the Media Storage browser and the viewer that you can use to create a backup of media cards, folders, or even an entire drive of content.



- 4 At the bottom of the Clone tool panel, click the Add Job button.

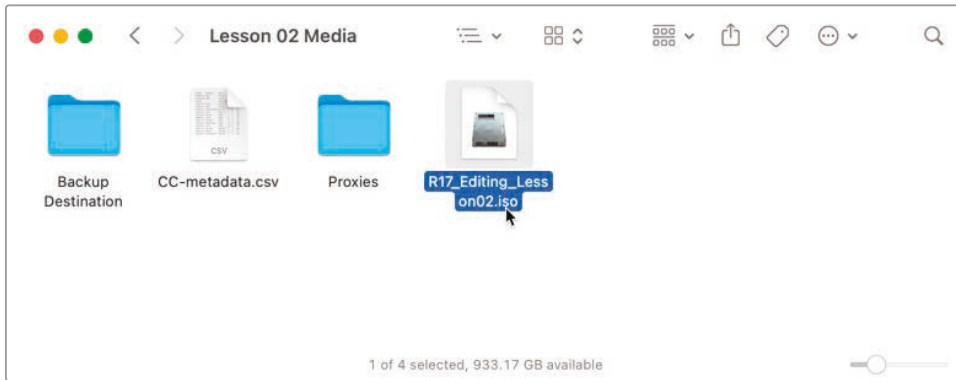


Job 1 appears at the top of the Clone tool.



Each item (most often a directory of locally attached hard drives) that you want to clone or back up is considered a job. You can add as many jobs as you like and then create clones of all their contents all at once. You add content by dragging a folder, a disk image, or camera card content from the Media Storage browser into the Clone tool panel.

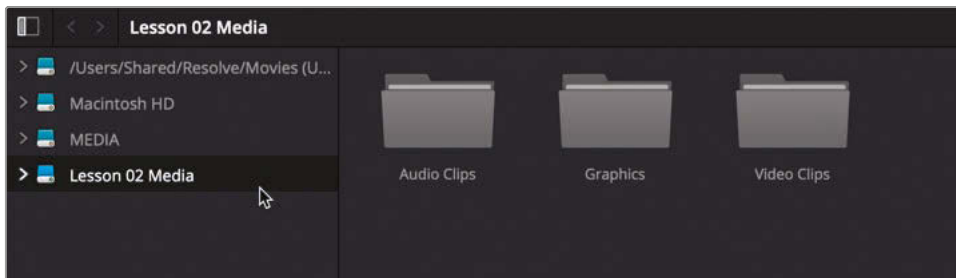
- 5 Open a new Finder window (macOS) or Explorer window (Windows) and navigate to R16 Editing Lessons > Lesson 02 Media. Double-click the **R17\_Editing\_Lesson02.iso** file to open it.



**TIP** This ISO file is a disk image that will appear on your system as a virtual hard drive. It is being used in this lesson in lieu of a compact flash card, or other camera storage media.

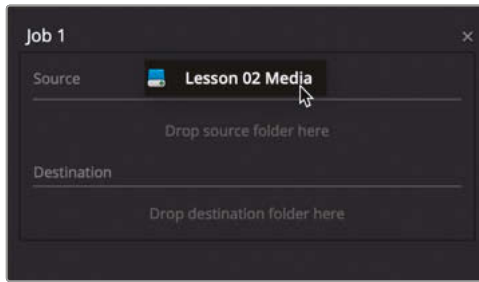
- 6 Return to DaVinci Resolve.

In the list of media storage locations, a new source called **Lesson 02 Media** is now available.



You have just simulated plugging in an external source, such as a hard drive or camera media card.

- 7 Drag **Lesson 02 Media** from the Media Storage to the Clone tool's Job 1 source.

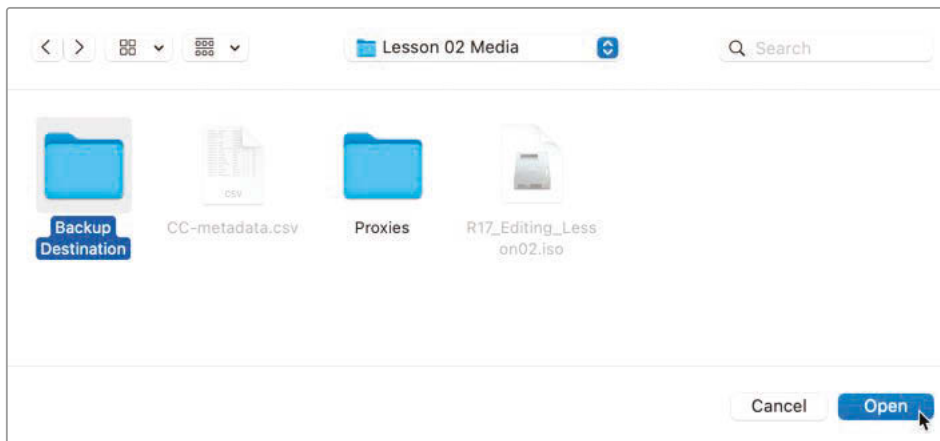


Each job can have only a single source for the cloned media; however, you can add multiple destinations to create multiple backups from that source.

- 8 Right-click in an empty space in the Media Storage Locations and choose Add New Location.



- 9 In the window that appears, navigate to the R17 Editing Lessons/Lesson 02 Media folder, select the Backup Destination folder, and click Open.





The Backup Destination folder is added to the list of Media Storage Locations.

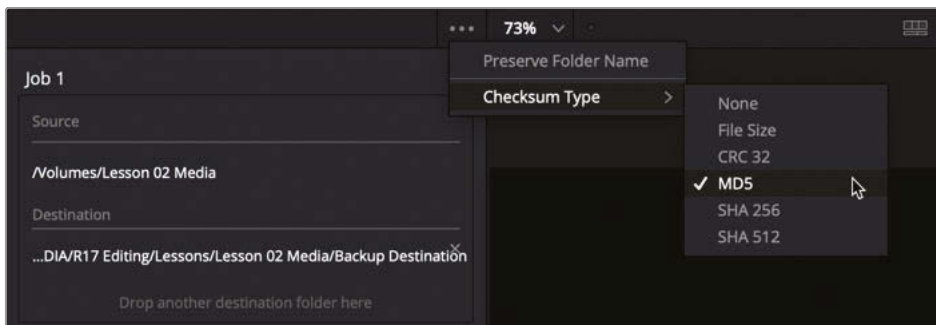


- 10 Drag the Backup Destination location from the Media Storage Location to the Clone tool's Job 1 destination area.



**TIP** You can also right-click a folder in any media storage location and choose “Set as Clone Source” or “Add as Clone Destination.”

- 11 In the upper-right corner of the Clone tool panel, click the Options menu and choose Checksum Type > MD5.

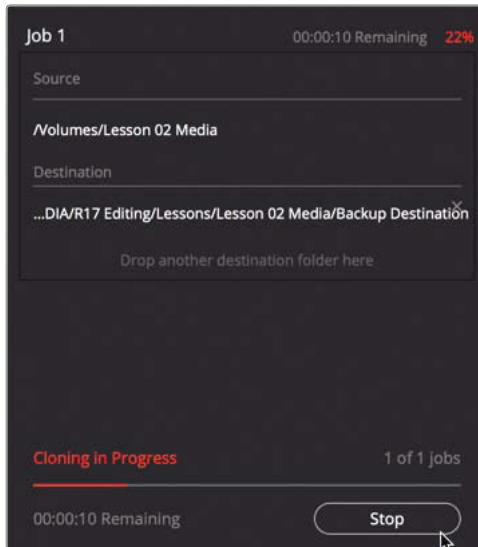


A checksum is a way of verifying the integrity of a copied file. Several checksum methods are available, but MD5 checksum has become the industry standard, and studios that require checksums with media offload on set will typically require it.

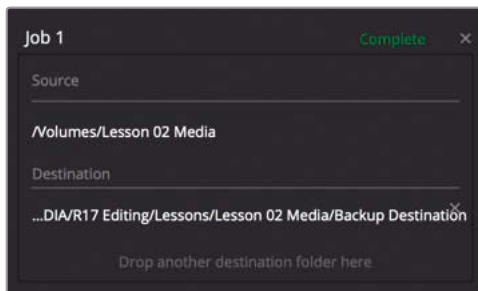
- 12 Click the Clone button at the bottom of the Clone tool panel to begin the backup.



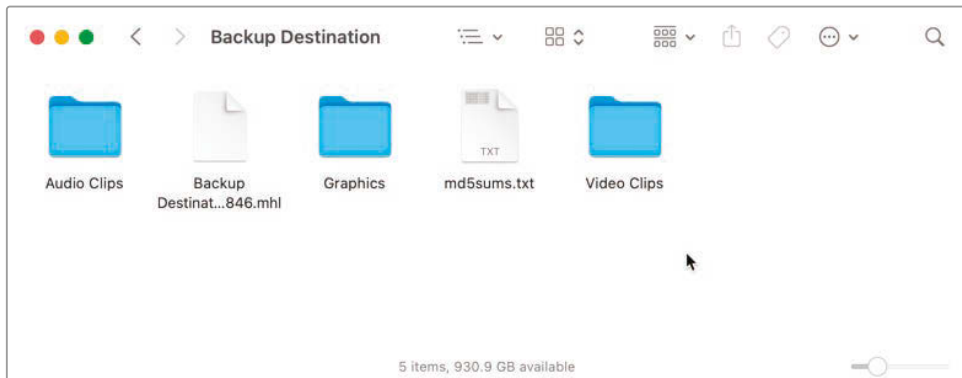
The cloning process begins. During this time, you can continue using Resolve.



- 13 When the copy is complete, a green Complete label appears above the job in the Clone tool.



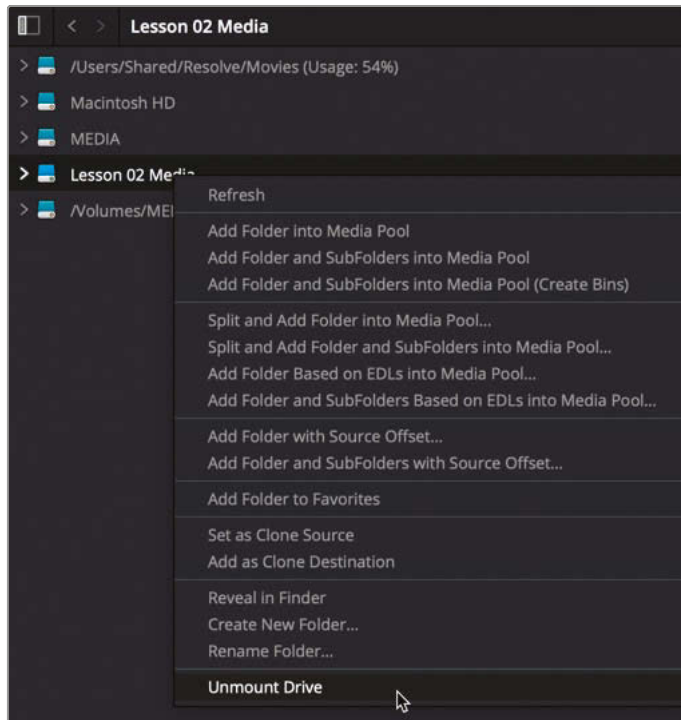
- 14 In your operating system's interface, navigate to the R17 Editing Lessons/Lesson 02 Media/Backup Destination folder.



In addition to containing the entire contents of the disk image, the backup destination includes an MD5 checksum text document, together with a .mhl (media hash list) file, both of which report the result of the checksum verification.

**NOTE** The checksums generated in these documents are for the source media files. If required, checksums can then be generated for the destination media files and compared to these original values to ensure the integrity of the copied media.

- 15 Return to Resolve, and in the toolbar, click the Clone Tool button to close the panel.
- 16 In the Media Storage Locations, right-click the **Lesson 02 Media** location and choose Unmount Drive to unmount the drive from your system, thereby allowing it to be removed safely.



**NOTE** For Windows users, if the disk image does not unmount using the above method, you can always right-click the mounted disk image and choose Eject.

Now that you have the media files safely copied to your editing system, it's time to import them into your project and begin the process of sifting through and organizing the media prior to editing.

- 17 Select the Backup Destination location in your Media Storage Locations.



This was the destination location you set in the Clone tool when copying the disk image in the previous exercise.

- 18 In the Media Storage Browser, select all three folders. Right-click any of the folders and choose Add Folder and Subfolders into Media Pool (Create Bins).



The media files are imported into your project and added to the media pool, with the folder structure used to organize the original source files being replicated as a series of *bins*.

- 19 Click the Media Storage button to hide the media storage panel.

Cloning your camera-original content is so essential that it is worth putting DaVinci Resolve on set, so rushes can be backed up during the shoot. In so doing, you can clone and check the media before the set is struck and any talent or crew leaves the location; that way, if something is wrong, you will know to reshoot right away with the least impact on schedules and budgets.

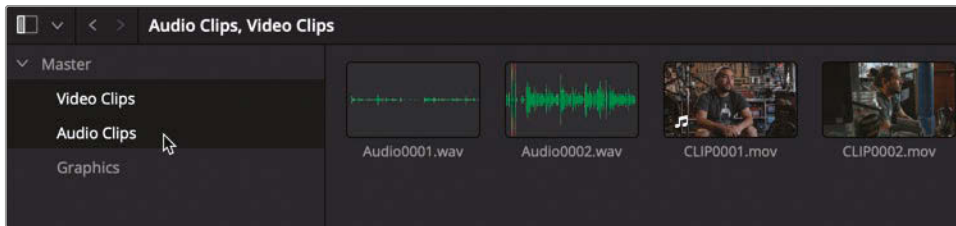
# Syncing Audio to Video

Now that you've imported the dailies into your project, you can begin organizing the media by syncing any audio and video clips that were recorded on separate devices. Some productions record audio on dedicated digital audio devices to capture the highest quality audio or when it's not practical or desirable to record audio directly to a camera. Thus, when the files come in from the day's shoot, you'll need to sync the appropriate audio and video clips—a process often referred to as “syncing the dailies.”

## Auto Sync Using Waveforms

In many cases, you can let DaVinci Resolve automatically sync these separate files using matching timecodes from both clips or by comparing camera-recorded audio with the separate audio clips. In some instances, though, you may not be so lucky, and you'll need to manually sync your clips.

- 1 In the bin list, click the Video Clips bin, and then Command-click (macOS) or Ctrl-click (Windows) the Audio Clips bin to display the contents of both bins in the media pool.



- 2 In the media pool, switch to list view and click the Clip Name column header to sort the bin in ascending order of clip name. (The arrow will point up.)

The screenshot shows the 'Audio Clips, Video Clips' bin in list view. The 'Clip Name' column header is selected, and the clips are sorted in ascending order. The table below represents the data shown in the screenshot.

Clip Name	Reel Name	Start TC	End TC	Duration	Frames	Type	Resolution	FPS	Audio Ch
Audio0001.wav		00:00:00:00	00:01:24:18	00:01:24:18		Audio		24,000	1
Audio0002.wav		03:30:29:00	03:31:33:07	00:01:04:07		Audio		24,000	1
CLIP0001.mov		03:23:33:04	03:24:39:17	00:01:06:13	1597	Video + Audio	1280x720	24,000	2
CLIP0002.mov		03:30:29:00	03:31:33:10	00:01:04:10	1546	Video	1280x720	24,000	0
CLIP0003.mov		21:13:39:00	21:13:45:15	00:00:06:15	199	Video + Audio	1280x720	24,000	2
CLIP0004.mov		21:01:00:01	21:01:16:00	00:00:15:23	383	Video + Audio	1280x720	24,000	2
CLIP0005.mov		18:55:32:09	18:56:15:08	00:00:42:23	1031	Video + Audio	1280x720	24,000	2
CLIP0006.mov		19:03:55:14	19:04:26:01	00:00:30:11	731	Video + Audio	1280x720	24,000	2
CLIP0007.mov		19:13:17:00	19:13:27:11	00:00:10:11	251	Video + Audio	1280x720	24,000	2
CLIP0008.mov		19:09:34:08	19:09:54:00	00:00:19:16	472	Video + Audio	1280x720	24,000	2
CLIP0009.mov		19:17:17:22	19:17:23:14	00:00:07:16	184	Video	4000x2160	24,000	0
CLIP0010.mov		21:08:24:19	21:08:36:10	00:00:11:15	279	Video + Audio	1280x720	24,000	2
CLIP0011.mov		21:06:51:23	21:06:57:05	00:00:05:06	126	Video + Audio	1280x720	24,000	2
CLIP0012.mov		01:36:23:17	01:36:31:12	00:00:07:19	187	Video + Audio	1280x720	24,000	2

**TIP** If you prefer to work in thumbnail view, you may find it easier to achieve the following steps by turning off Live Media Preview from the viewer's Options menu.

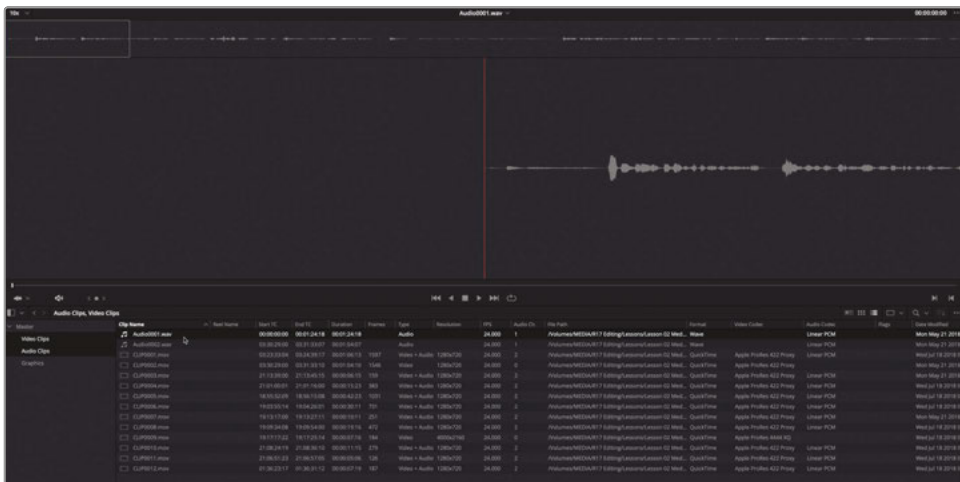
### 3 Select **CLIP0001.mov**.



### 4 Play through the interview with Sasha in the viewer.

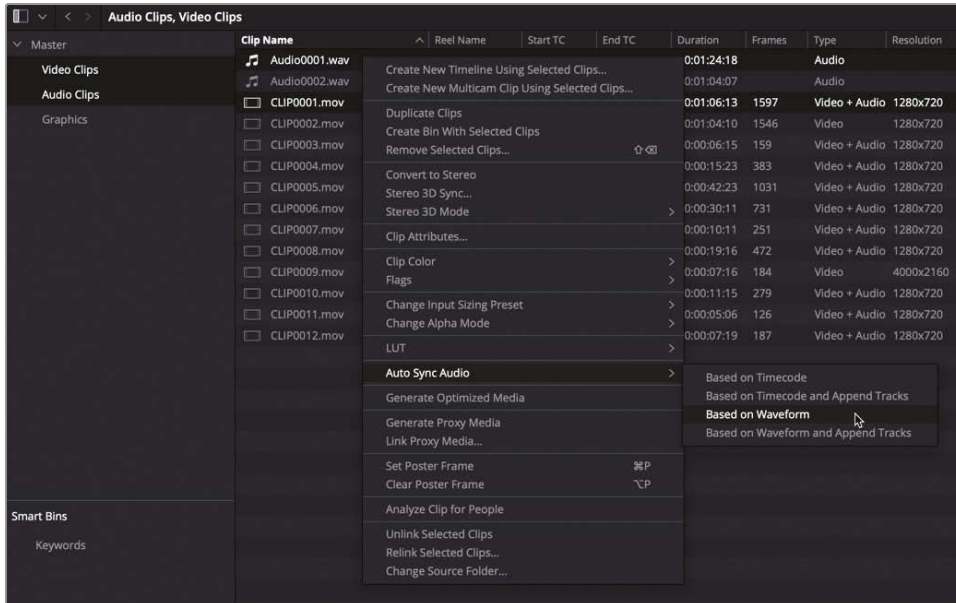
This clip has poor audio, possibly because it was recorded using the on-camera microphone.

### 5 Select **Audio0001.wav** and play through this clip in the viewer.



This clip contains the correct audio for Sasha's interview.

- 6 In the media pool, select **CLIP0001.mov** and **Audio0001.wav**, right-click either file and choose Auto-sync Audio > Based on Waveform.



- 7 From the recent clips pop-up menu at the top of the viewer, choose **CLIP0001.mov** and play it to hear the newly synchronized picture and sound.



Resolve automatically matches the waveforms of the two pieces of audio to correctly sync the production audio with the video clip.

**NOTE** This process does not delete the original audio from the clip. Instead, it adds the additional audio as linked channels. To verify this, right-click the clip, choose Clip Attributes, and select the Audio tab, where you can switch between the linked and embedded audio channels or add various configurations of both (see “Modifying Clip Audio Channels” below).

When performing the auto sync, you choose the options that include Append Tracks if you wish to work with the embedded audio and the linked audio together.

If you have many clips to sync in this manner, you can select multiple audio and video clips, right-click one of them, and choose Auto-sync Audio > Based on Waveform to let Resolve work its magic and sync them all automatically!

## Manually Syncing Audio and Video

The previous example worked well, but sometimes automatic operations don't work so smoothly, or cannot be used at all for a variety of practical or production reasons.

- 1 Select clip **CLIP0002.mov** to open it in the viewer and play through the clip.



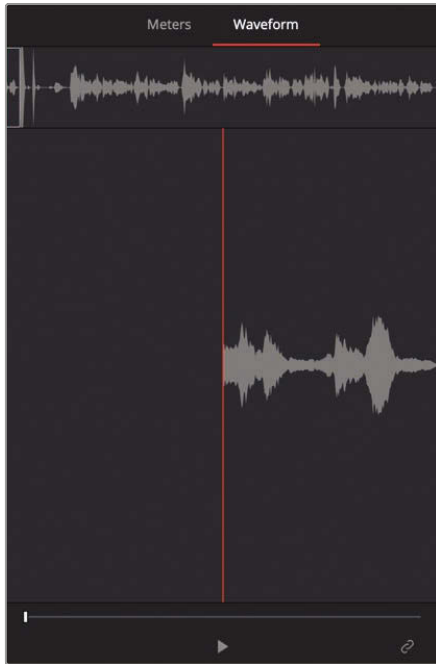
Oh no! Because no audio was recorded with this clip, you have no audio waveform with which to auto-sync the clip.

- 2 In the Audio panel, click the Waveform tab to prepare to display the audio waveform of a selected clip.





- 3 In the media pool, select **Audio0002.wav**. The waveform viewer updates to show the audio waveform of this clip, while the viewer still displays the video clip.



To manually sync these two clips, you need to position the playheads for the video clip and the audio clip where you think the clips align. Normally this would be where you would use a clapboard or digital slate, but this clip does not contain either of those options. In this case, you'll have to revert to Plan B and manually find a sync point.

- 4 In the viewer, drag the jog bar through the clip until you see Sasha clap his hands. Press the Left and Right Arrow keys to position the playhead on the exact frame where his hands are together.

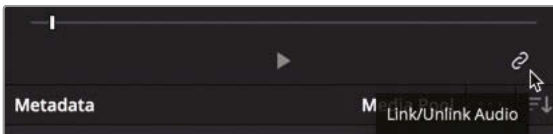


- 5 In the Audio panel, drag the jog bar until you see the first waveform peak that indicates the hand clap.
- 6 Press the Left and Right Arrow keys to position the audio panel playhead on the audio peak of the hand clap.



**TIP** Audio scrubbing is a useful feature when trying to identify a particular location on an audio clip. Choose Timeline > Audio Scrubbing or press Shift-S to toggle it on and off.

- 7 At the bottom of the Audio panel, click the Link/Unlink Audio button, choose Clip > Link Clips or press Option-Command-L (macOS) or Alt-Ctrl-L (Windows).



The transport controls beneath the audio window disappear, and the clips are now linked.



- 8 Move the playhead to the beginning of **CLIP0002.mov** and click Play to verify that the picture and sound are in sync.

**TIP** If you're not entirely happy with your results, clicking the Link/Unlink Audio button again (or choosing Clip > Link Clips) will unlink the clips and allow you to change the playhead locations as required in order to readjust the sync relationship before linking the clips together again.

While it is much easier to use Resolve's auto sync feature to sync clips based on their timecodes or audio waveforms, being able to manually sync clips is also useful if the audio has a transient audio signal that you can locate visually in the video. That's why most dual-system setups use clapperboards to help in this process.

## Modifying Clip Audio Channels

The next step in your edit prep process is to ensure that the audio in the project is configured correctly. You can do that in the Clip Attributes window.

- 1 With the Audio Clips and Videos Clips bins still selected, and the media pool in list view, Click the Audio Ch column header to organize the clips by the number of audio channels available.



- 2 In the media pool, click the **CLIP0003.mov** clip to select it.
- 3 Shift-click **CLIP0012.mov** to also select it and all the video clips in between.

A screenshot of the Media Pool window showing a list of clips sorted by the number of audio channels. The 'Audio Ch' column is highlighted. The clips are grouped into Video Clips, Audio Clips, and Graphics.

Clip Name	Reel Name	Start TC	End TC	Duration	Frames	Type	Resolution	FPS	Audio Ch
CLIP0009.mov		19:17:17:22	19:17:25:14	00:00:07:16	184	Video	4000x2160	24,000	0
Audio0002.wav		03:30:29:00	03:31:33:07	00:01:04:07		Audio		24,000	1
Audio0001.wav		00:00:00:00	00:01:24:18	00:01:24:18		Audio		24,000	1
CLIP0002.mov		03:30:29:00	03:31:33:10	00:01:04:10	1546	Video + Audio	1280x720	24,000	1
CLIP0003.mov		21:13:39:00	21:13:45:15	00:00:06:15	159	Video + Audio	1280x720	24,000	2
CLIP0007.mov		19:13:17:00	19:13:27:11	00:00:10:11	251	Video + Audio	1280x720	24,000	2
CLIP0004.mov		21:01:00:01	21:01:16:00	00:00:15:23	383	Video + Audio	1280x720	24,000	2
CLIP0008.mov		19:09:34:08	19:09:54:00	00:00:19:16	472	Video + Audio	1280x720	24,000	2
CLIP0006.mov		19:03:55:14	19:04:26:01	00:00:30:11	731	Video + Audio	1280x720	24,000	2
CLIP0005.mov		18:55:32:09	18:56:15:08	00:00:42:23	1031	Video + Audio	1280x720	24,000	2
CLIP0001.mov		03:23:33:04	03:24:39:17	00:01:06:13	1597	Video + Audio	1280x720	24,000	2
CLIP0011.mov		21:06:51:23	21:06:57:05	00:00:05:06	126	Video + Audio	1280x720	24,000	2
CLIP0012.mov		01:36:23:17	01:36:31:12	00:00:07:19	187	Video + Audio	1280x720	24,000	2
CLIP0010.mov		21:08:24:19	21:08:36:10	00:00:11:15	279	Video + Audio	1280x720	24,000	2

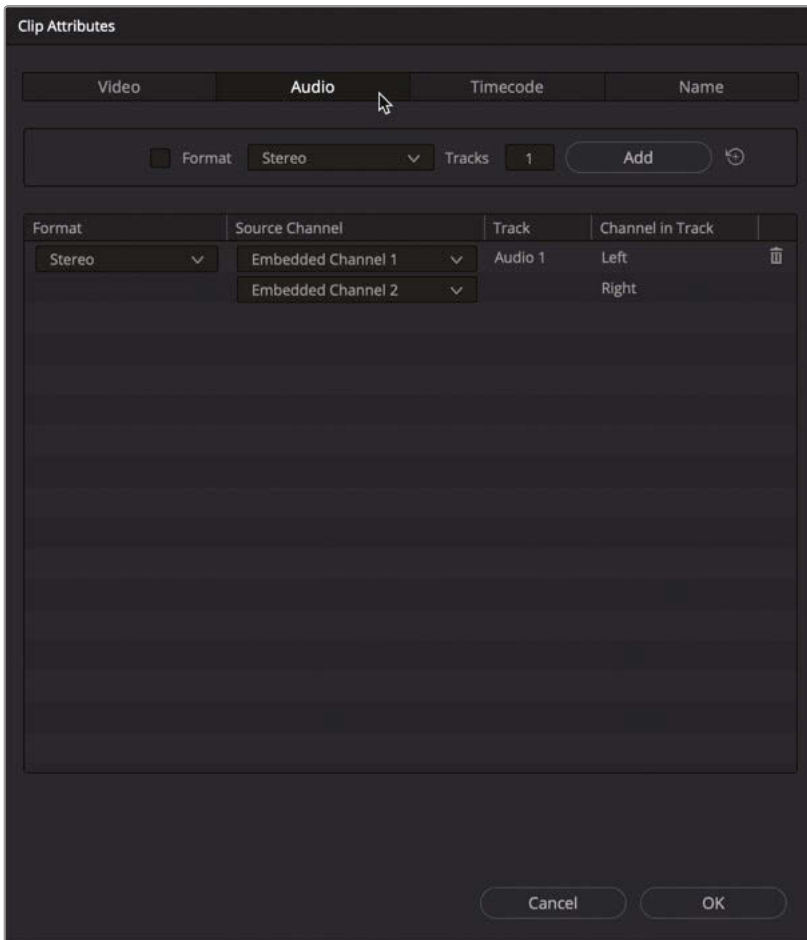
You have selected all the clips that have two audio channels.

- 4 Right-click any of the selected clips and choose Clip Attributes.



The Clip Attributes window allows you to configure various aspects of how clips are displayed, played, and heard.

- 5 Click the Audio tab.



In the Audio tab, you may change the number of tracks used when editing the clip into the timeline, the configuration of the individual channels within those tracks, and whether those channels are used or muted. In this case, these clips' audio channels have been automatically configured as single stereo tracks. However, because this audio was recorded in-camera, and audio is rarely recorded as stereo on location, it makes sense to reconfigure these two channels as two mono tracks.

**NOTE** You can individually configure multiple tracks with different configurations for each clip, depending on the audio formats supplied to you and how clips will be used throughout the edit.

- 6 In the Format column pop-up menu, choose Mono to reconfigure the current audio track as mono.



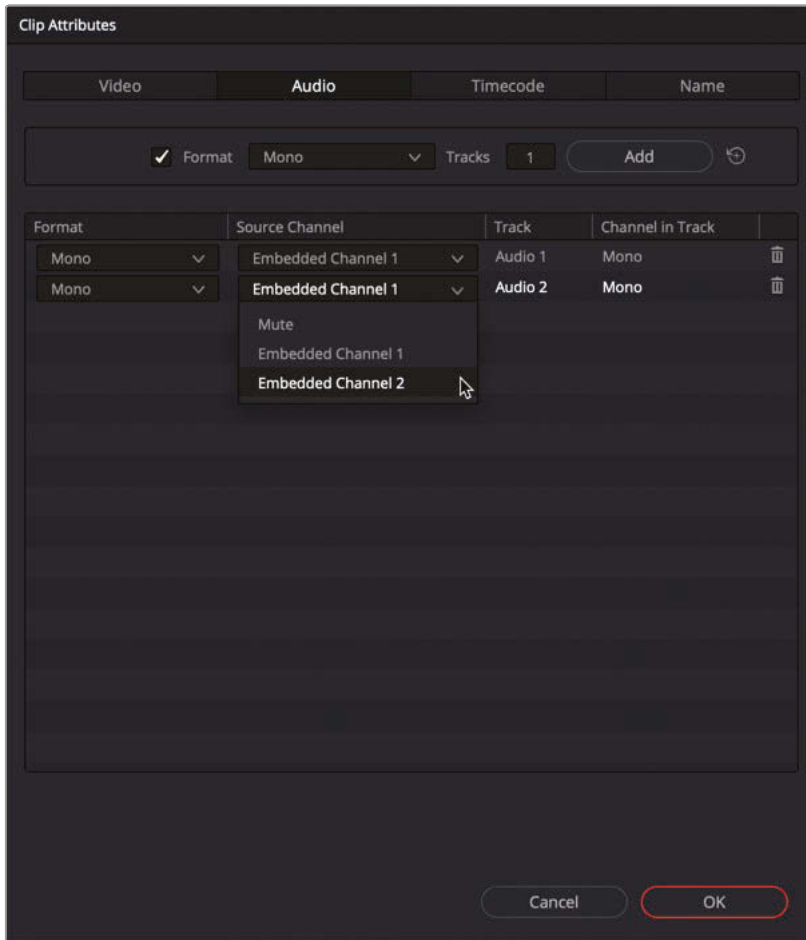
The Source Channel is set to Embedded Channel 1.



- 7 In the uppermost Format pop-up menu, choose Mono. Click Add to insert another mono track.



- 8 Change the Source Channel for this new Audio 2 track to Embedded Channel 2.



- 9 Click OK to save the setting and close the window.

These clips are all now correctly configured with two tracks of mono audio. However, you won't see much difference in these clips until you edit them into a timeline.

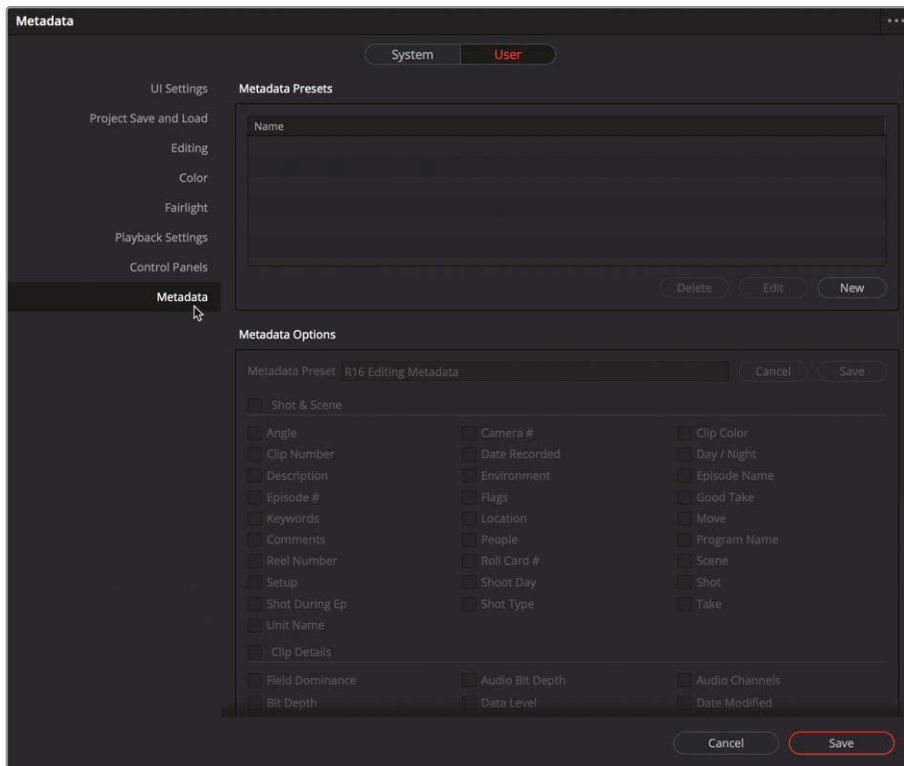
**TIP** To remove an audio track and its configuration from any clip, move your mouse pointer over the track and click the trash can icon that appears to the right. This will not delete the audio, just the selected track.

Clip attributes encompass several useful configuration features and, ideally, you'll want to configure most of them before you edit a clip into a timeline. Once clips are placed into a timeline, any changes you make to a clip's attributes in the media pool will only affect new instances of that clip added to a timeline. Existing instances of the clip in any timeline will remain unchanged, using the settings from clip attributes in place at the time the edit was made. You can adjust these existing clips within the timeline by right-clicking the clip and choosing Clip Attributes from the contextual menu.

## Configuring Metadata Presets

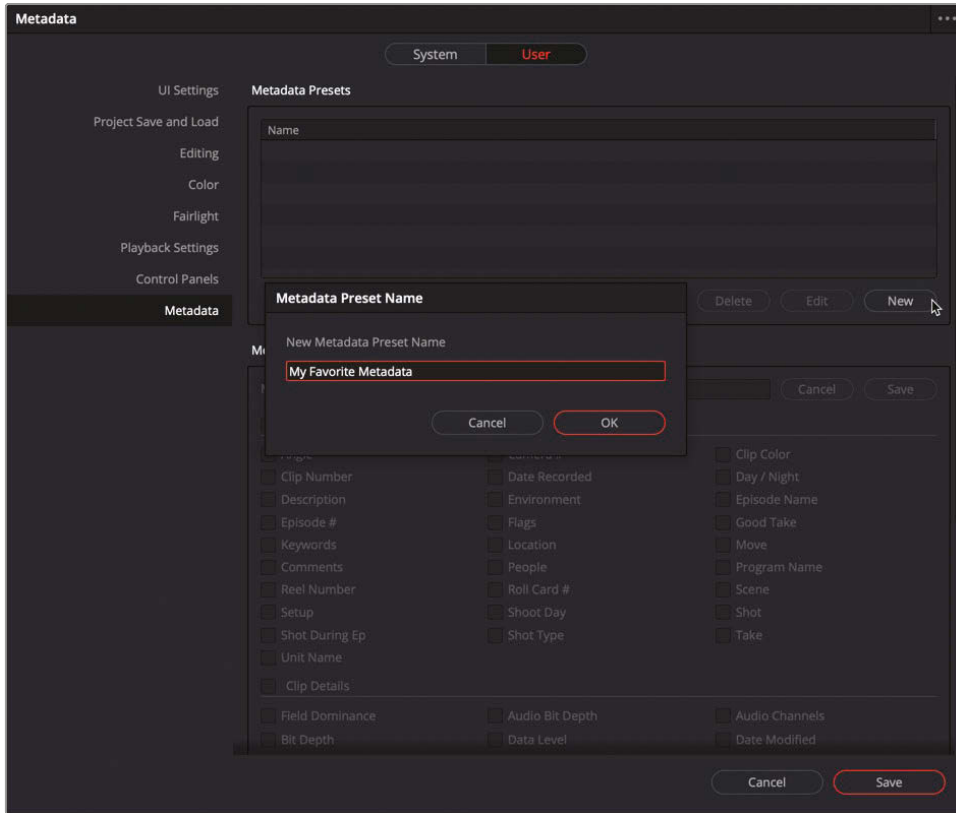
Metadata has quickly become an important part of the editing process. However, as useful as metadata is, it can quickly become overwhelming. Resolve has several metadata categories you can use to reduce the amount of metadata displayed at any one time to a manageable subset of the whole. However, you can customize metadata presets to display only the information you most need or want to see.

- 1 Choose DaVinci Resolve > Preferences, or press Command-, (comma) in macOS or Ctrl-, (comma) in Windows.
- 2 In the Preferences window, click the User tab and select the Metadata category to the left.





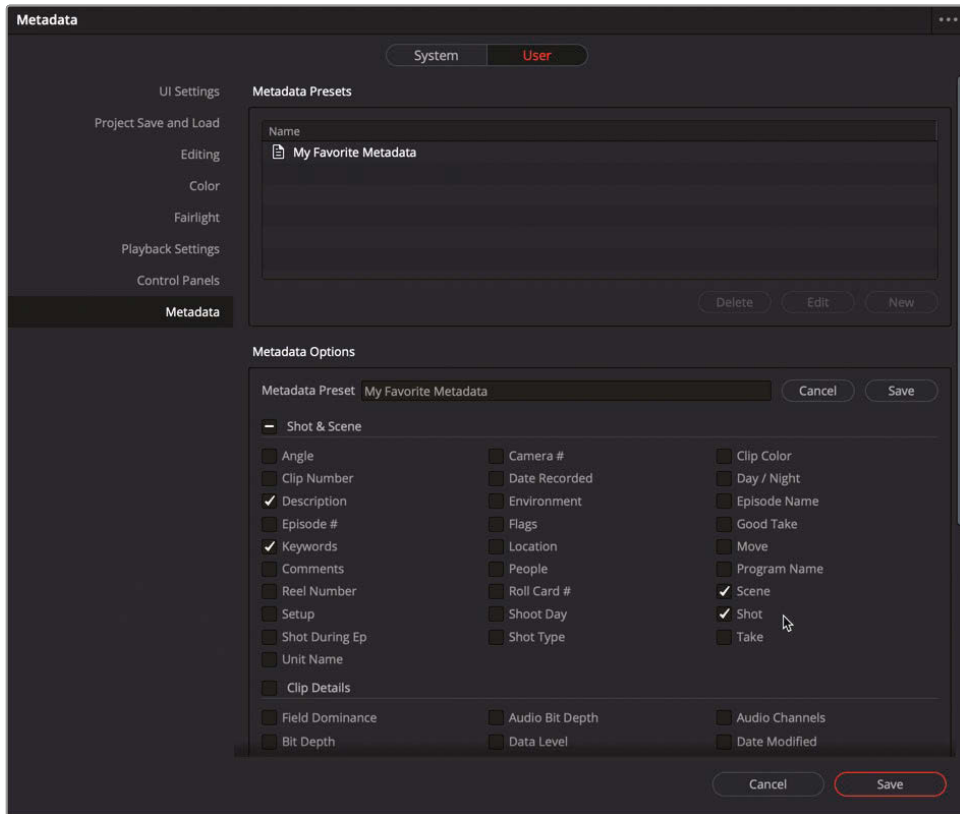
In the Metadata presets pane, you can create, modify, and delete custom metadata presets.



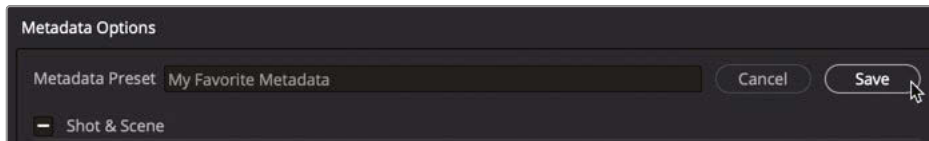
- 3 Click the New button to create a new metadata preset, and name it **My Favorite Metadata**. Click OK.

In the lower-half of the Metadata pane, under Metadata Options, you'll see all the metadata you can add to the preset.

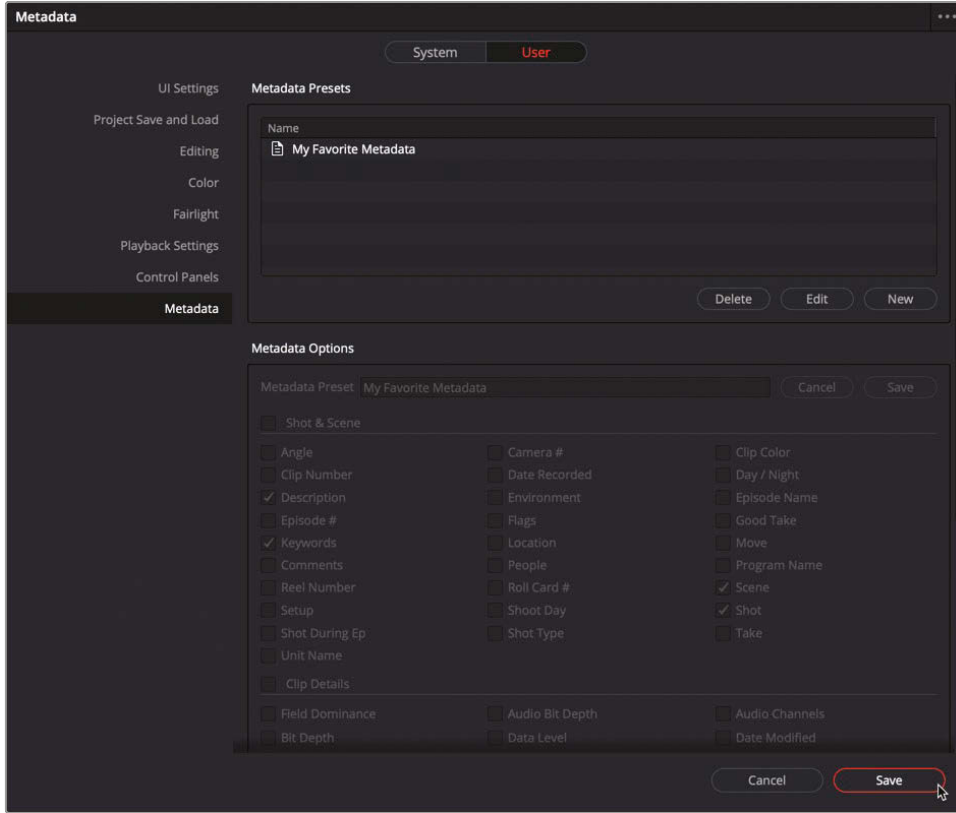
- 4 Select the checkboxes for Description, Keywords, Scene, and Shot.



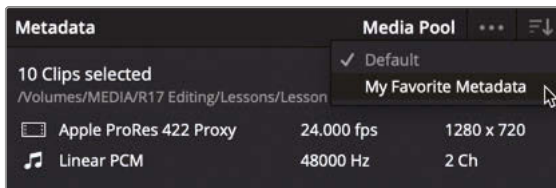
- 5 At the upper right of the Metadata options, click Save to save your changes to the preset.



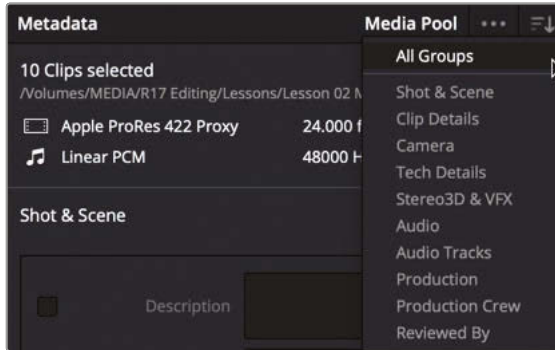
- 6 Click Save at the bottom of the Preferences window to save and close the Preferences panel.



- 7 In the media pool, select one or more clips, and if necessary, click the Metadata button to open the Metadata panel to the right of the interface.
- 8 Click the Metadata panel options menu and choose the new My Favorite Metadata preset.

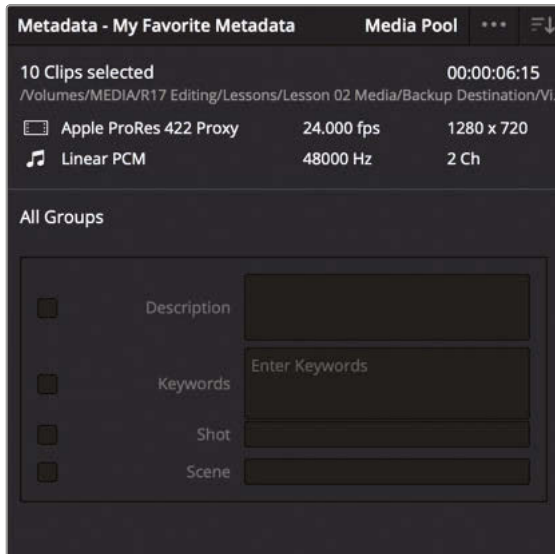


- Click the Sort menu and choose All Groups.



**TIP** Your preset will appear blank in the Metadata Editor unless it is set to show all groups or a subset that contains the fields of your preset.

Using this preset, fields for the four selected metadata items appear in the Metadata Editor.

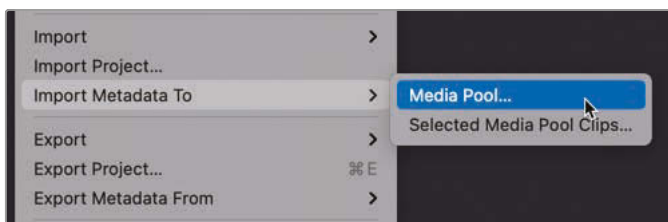


Currently, the fields are empty for all the clips in the media pool; you could enter this information manually, or if the information exists outside of DaVinci Resolve, you could import it.

# Importing Metadata

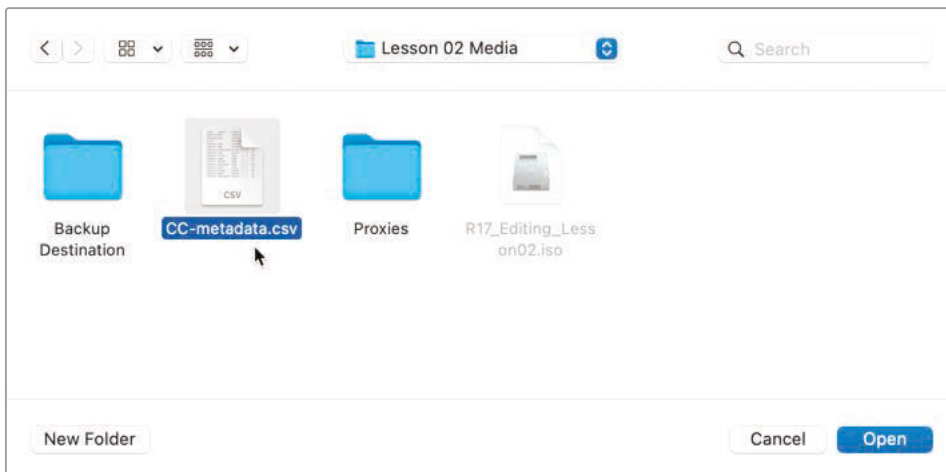
You have many ways to populate your clips with useful metadata. It may be entered on the camera during production (although detailed metadata is rarely a priority for the camera operator or an assistant); you can enter it manually yourself, which very few people want (or have the time) to do; or someone on set can be assigned to be responsible for entering metadata in their favorite spreadsheet program or in any of the smart slate apps that can be used to log metadata such as shot, scene take, and more. You can then import this data into Resolve using the simple CSV (comma separated value) format and save yourself hours of work in the cutting room!

- 1 Choose File > Import Metadata To > Media Pool.



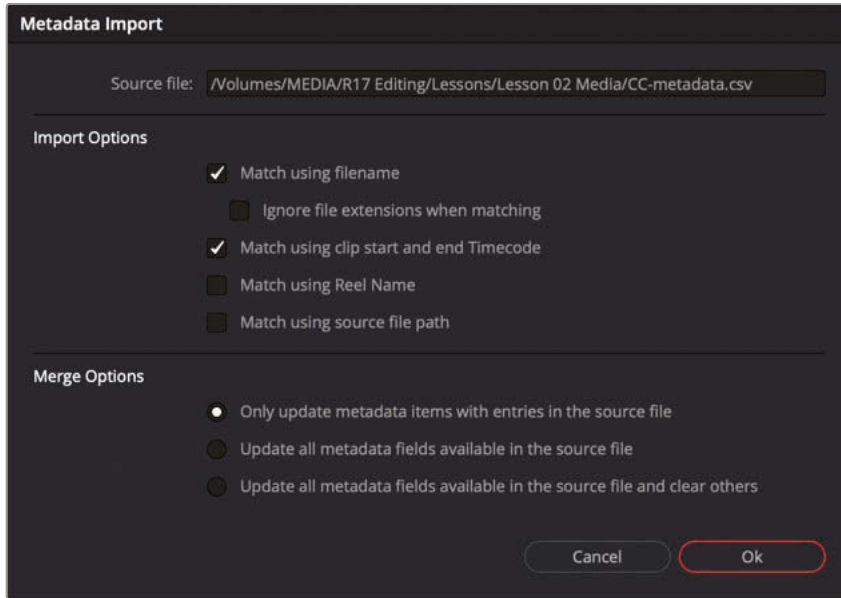
- 2 In the File dialog, navigate to R17 Editing Lessons > Lesson 02 Media. Select **CC-metadata.csv**.

This .csv file was generated from a simple spreadsheet program.

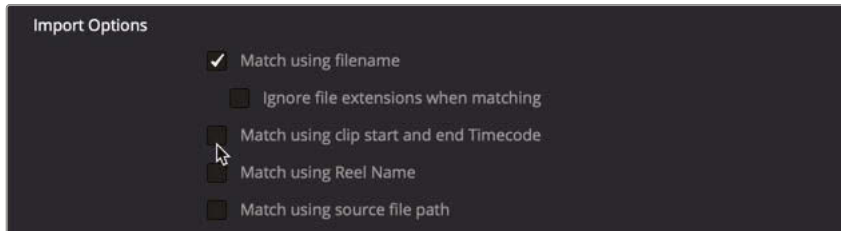


- 3 Click Open.

The Metadata Import dialog opens. This window allows you to choose how you want Resolve to match the clips with additional metadata. In this case, you can match clips based on their filenames but not timecodes, as this information is not included in the .csv file you are importing.

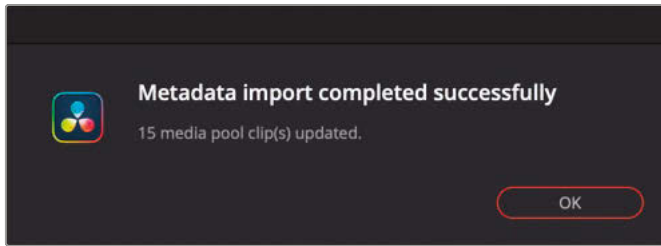


- 4 Deselect the “Match using clip start and end Timecode” checkbox as the .csv file does not contain this information.



- 5 Click OK to import the metadata from the .csv file.

A confirmation window appears stating that the information within the .csv file has been imported and added to the clips based on matching filenames.



**NOTE** Importing metadata in this manner will replace any existing metadata in the fields detailed in the .csv file. Metadata fields not listed in the .csv file will remain unchanged. This behavior can be changed based on the Merge Options section of the Metadata Import window.

- 6 Verify that the information from the .csv file has been added to the media pool clips by selecting a few clips and viewing their newly added metadata in the Metadata panel.



Your clips now include scene, shot, description, and keyword information. This metadata will help as you organize and rename the clips to something more useful than the cryptic filenames given to them by the camera.

## Exporting Metadata and Bins

As well as being able to import metadata to clips in your media pool, as detailed in the above steps, you can also choose to export the metadata from your media pool or from selected clips from the media pool. To do so, simply select File > Export Metadata From > Media Pool, or File > Export Metadata From > Selected Media Pool Clips (as appropriate). Your chosen clip metadata will then be exported as a .csv file and provides a way of easily transferring metadata from one project to another that uses the same media, even if that project is on another Resolve system.

A new option in DaVinci Resolve 17 now allows you to export an entire bin by choosing File > Export > Export Bin. This command will export the clip metadata (not the media) from the currently selected bin to a .drb file. As with exported metadata, you can use this option to transfer bins between different Resolve projects or systems by choosing File > Import > Import Bin.

Any clips listed in the .drb file will be automatically imported into the current project, together with their associated metadata. If the source media is in the same location as the system the bin was exported from, it will be automatically linked to the newly imported clip. But if the media is in a different location, you will have to manually relink.

## Renaming Clips with Metadata

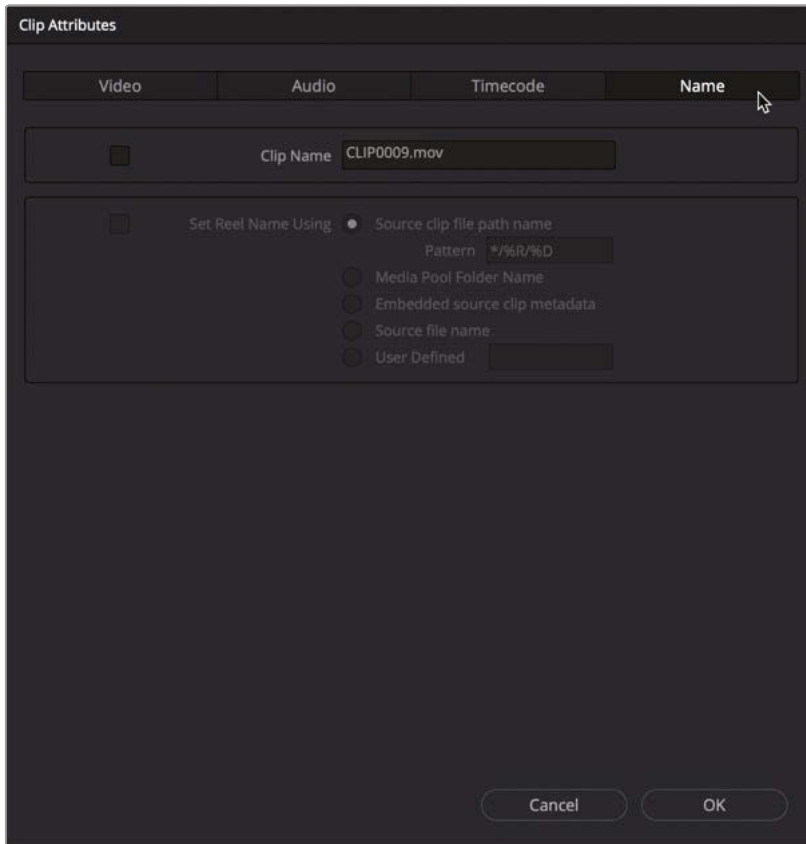
Clip names from a camera, or almost any capture device, are often an alphanumeric string that typically includes the date and time that the clip was created. They are not always the most descriptive names and often need to be changed for editing purposes. Entering clip names manually is one way to address this, but it is not the only way (or even the most efficient way) to rename them.

*Variables* are references to other metadata that exist on the clip such as scene, take, and shot number—so called because variables are not the same for each clip. You can enter a variable into the clip name, and Resolve will reference the correct information for each clip (provided the information is present). You will use the metadata you've just imported to change the generic names of the clips in your Video Clips bin to more descriptive names.

- 1 Select the Video Clips bin and press Command-A (macOS) or Ctrl-A (Windows) to select all the video clips in the bin.
- 2 Right-click any of the selected clips and choose Clip Attributes.

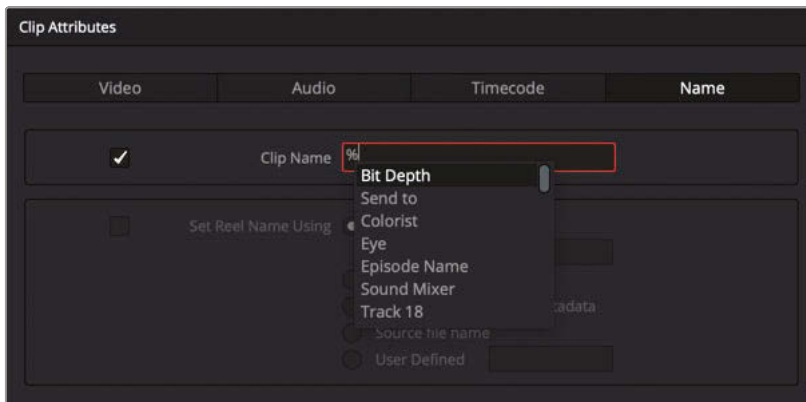


- 3 In the Clip Attributes window, select the Name tab.

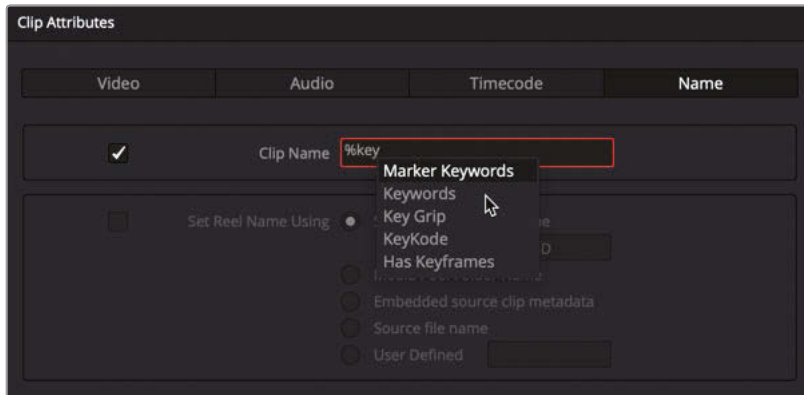


- 4 Highlight the text in the Clip Name field, type % (percentage sign).

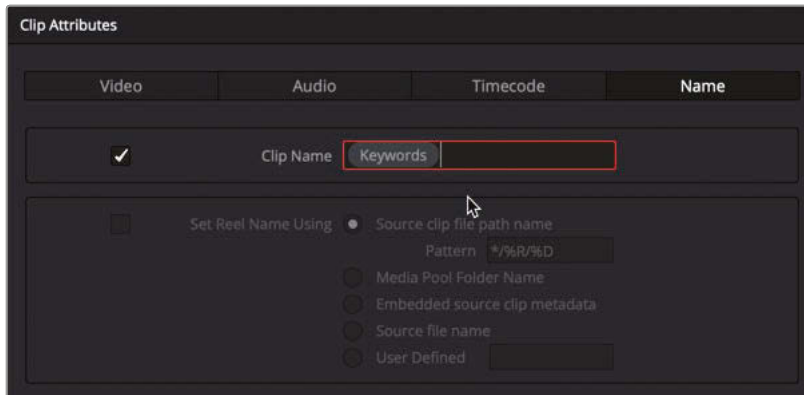
Entering % indicates that you are about to enter a variable. When you enter that %, a list of variables appears.



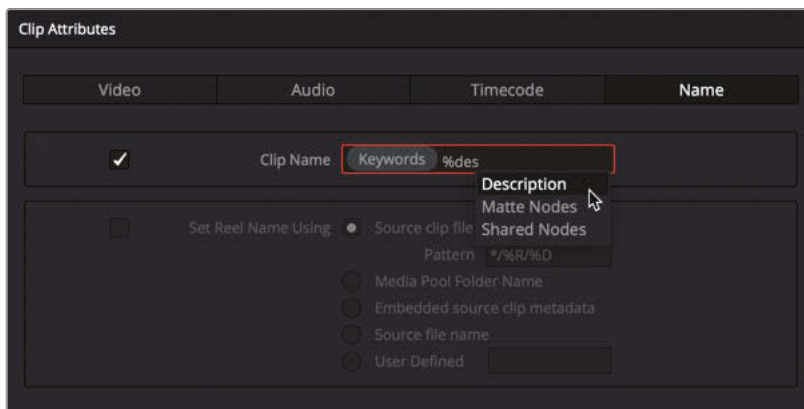
- 5 Type **key**. A list of potential variables appears that contain the letters “key.”



- 6 In the pop-up menu, click **Keywords** to add it to the Clip Name field.

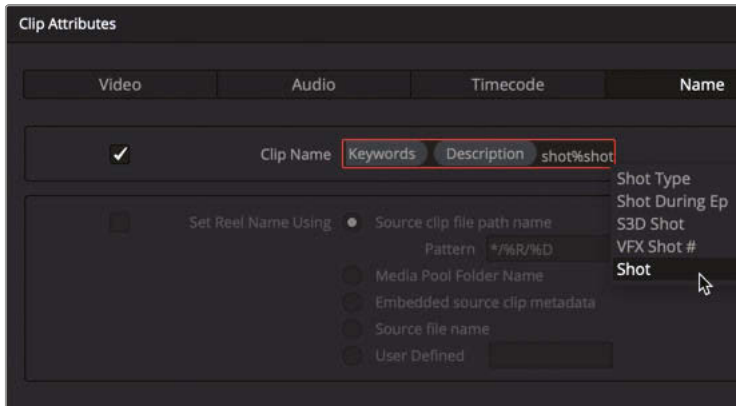


- 7 Press the Spacebar to add a space after this variable. Type **%des** and choose **Description** from the list of variables.



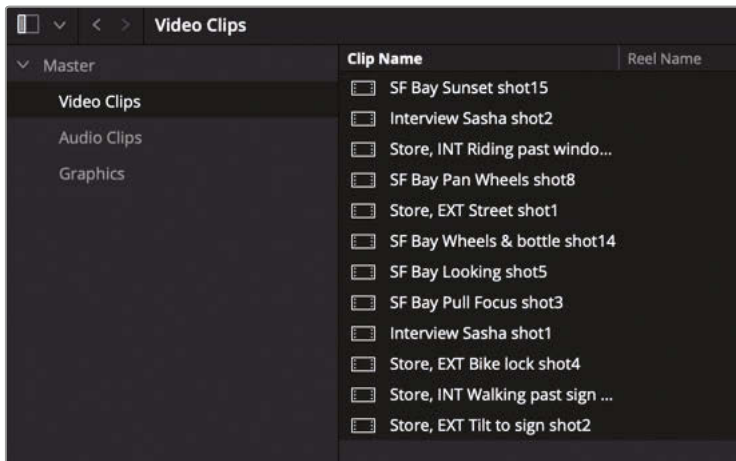
You can combine text that you enter with preset variables to create a more descriptive clip name. For instance, you can type a space to separate each variable and add the word “shot” before each shot number.

- 8 Enter a space after the description variable, type **shot**, and enter another space.
- 9 Type **%shot** to display all the variables containing “shot” and in the pop-up menu, choose Shot to add it into the Clip Name field.



- 10 Click OK to apply the changes you’ve just made.

The clip names now show a combination of the keywords, descriptions, and shot numbers for each clip, information that is pulled from the clips’ various metadata fields.



**NOTE** Changing the clip names in this way does not change the names of the original media files. Clip names are often used by editors within a project to provide a more user-friendly way of identifying a clip or series of clips.

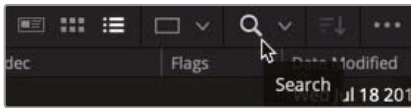
If you wish to see the original filename instead of the clip name, choose View > Show File Names. EDLs, XMLs, or AAFs generated from within Resolve will always reference the original filename.

Importing metadata and using it to rename clips with variables can save hours of manual typing and provide clear, descriptive information that you can match with other documents in a production like camera logs and script notes.

## Searching Using Metadata

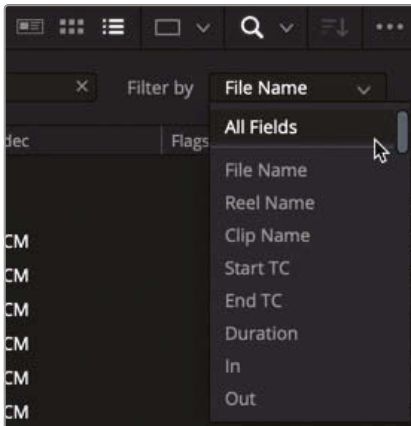
You also can use metadata to find clips quickly and easily. Being able to find the material you want or need as rapidly as possible means you can more effectively focus on the story and the flow of your edit.

- 1 Select the Video Clips bin.
- 2 At the top of the media pool, click the Search button (the magnifying glass) to reveal the search field.



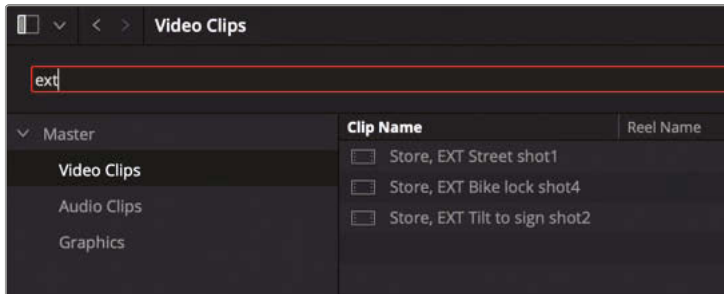
By default, the search criteria for the selected bin is set to only search across clips' filenames.

- 3 In the “Filter by” pop-up menu to the right of the Search field, choose All Fields.

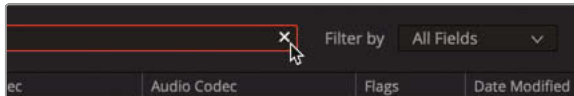


Resolve will now search across all the available metadata fields.

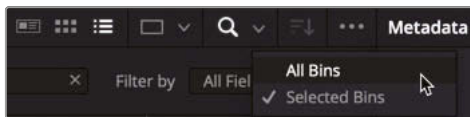
- 4 In the search bar, type **ext** to display all the shots that have EXT as some part of their metadata (in this case, EXT in the keywords indicating an exterior shot).



- 5 In the search bar, highlight ext, and type **Sasha** to reveal the two shots that include Sasha in their Description fields.
- 6 Clear the search bar by clicking the x to the right to return to the full list of media in the Video Clips bin.



**TIP** Use the drop-down menu next to the Search button to specify whether you want to search the currently selected bins or all the bins within the project.

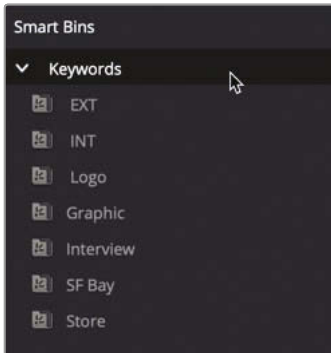


Resolve's powerful and responsive search feature lets you leverage the flexibility of metadata to easily find media pool clips in even the largest project.

## Using Automatic Smart Bins

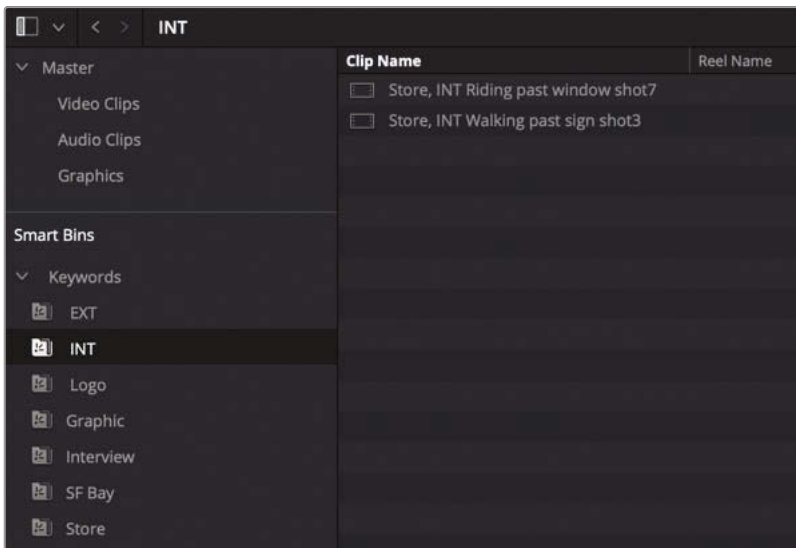
Another advantage of adding metadata to your clips is that you can use it to create Smart Bins. Keywords, scene, and shot metadata can be used to automatically create a series of Smart Bins.

- 1 In the Smart Bins area of the media pool, click the disclosure arrow for the Keywords Smart Bin folder to view the list of Smart Bins.

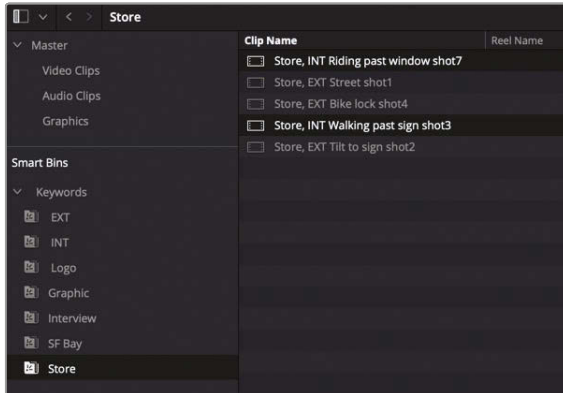


These Smart Bins were automatically created based on the keywords currently applied to each clip in this project. If you adjust the Keyword metadata of any clips within this project, this list of Smart Bins will update accordingly.

- 2 Select the INT Smart Bin. Notice that this Smart Bin contains two clips that contain the INT keyword.

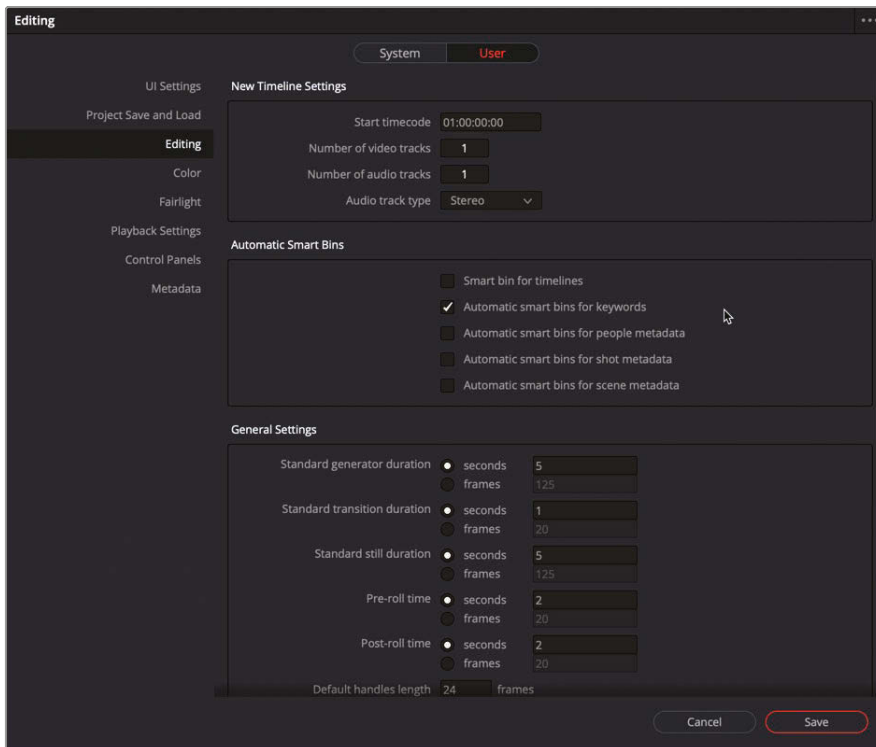


### 3 Select the Store Smart Bin.



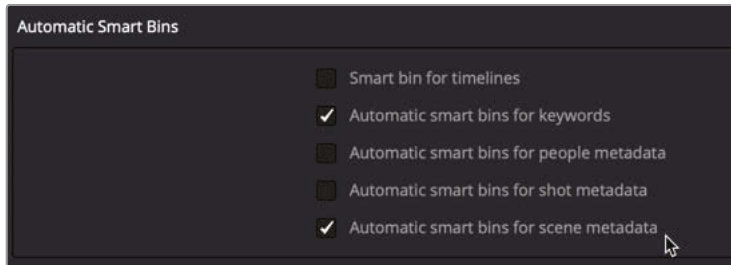
This Smart Bin contains a total of five clips, two of which are the same two clips as the INT Smart Bin.

### 4 In the main menu, choose DaVinci Resolve > Preferences, click the User tab, and then click the Editing category on the left side of the window.

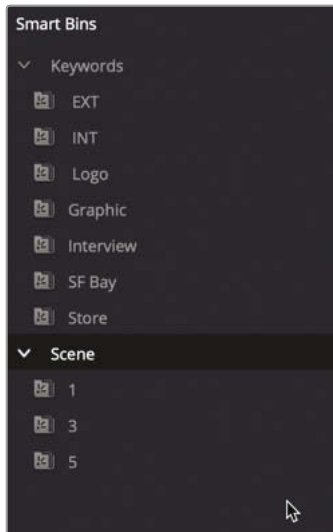


The editing preferences allow you to display other automatic Smart Bins beyond Keywords.

- 5 Select the Automatic Smart Bin for Scene Metadata checkbox, and then click Save to save the change and close the Preferences window.



A Scene folder appears in the Smart Bins list with three Smart Bins containing clips with the appropriate scene metadata.





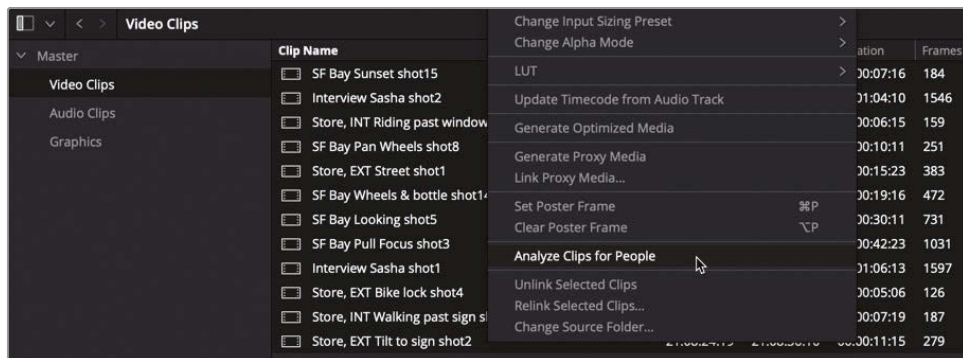
# Smart Bins for People (Studio Only)

**NOTE** Smart Bins for People Metadata is available only in DaVinci Resolve Studio. If you are using the free version of DaVinci Resolve, you may read over the exercise, but you will not be able to perform the steps. You can begin following the steps with next section titled “Creating Custom Smart Bins.”

Now that you have Smart Bins for keywords and scenes, you may also want to find clips that contain shots of certain people, whether this is an actor, interviewee, or presenter. The DaVinci Resolve Neural Engine can detect human faces in a shot and recognize that same face when it appears in other shots.

To find people in clips, you begin by analyzing the clips in a bin.

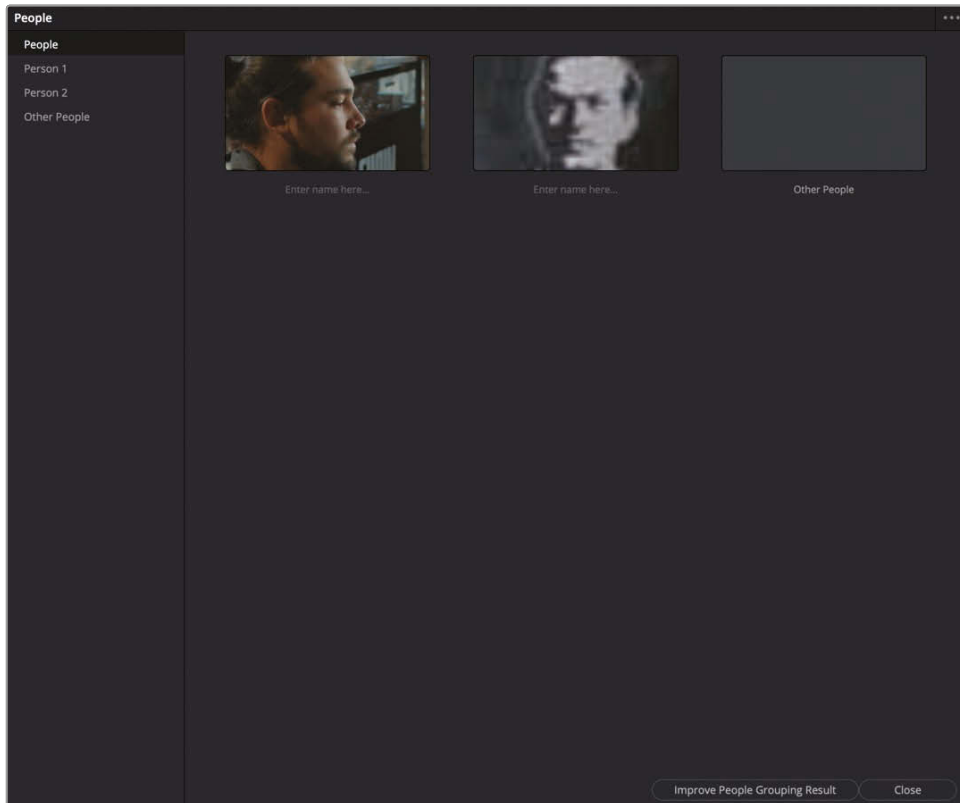
- 1 Select the Video Clips bin and press Command-A (macOS) or Ctrl-A (Windows) to select all the video clips in the bin.
- 2 Right-click any of the selected clips and choose Analyze Clips for People.



The neural engine immediately begins analyzing each clip, looking for faces and then trying to identify whether the same face appears across multiple clips.



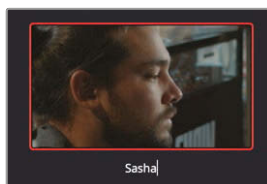
When the analysis is complete, the People window displays the results of the analysis.



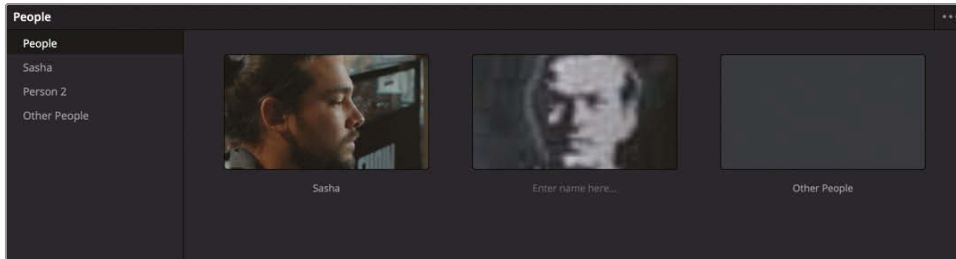
The sidebar to the left shows groups of faces created based on the analysis. The uppermost People bin displays each unique face. You can name each face Resolve has identified to add that information to the clip's People metadata.

**NOTE** You can use the Improve People Grouping Result to help the DaVinci Resolve Neural Engine provide better results by visually confirming whether the same face appears in different clips.

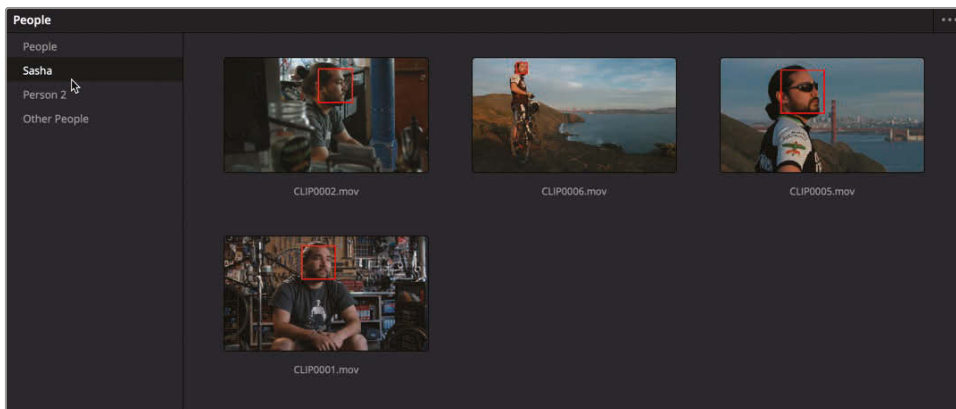
- 3 Underneath the first thumbnail, click once, pause briefly, and then click again to edit the name. Type **Sasha** as this person's name.



In the People bin, individual bins collect all the clips with a recognized individual. Naming the bin has created a Sasha bin.

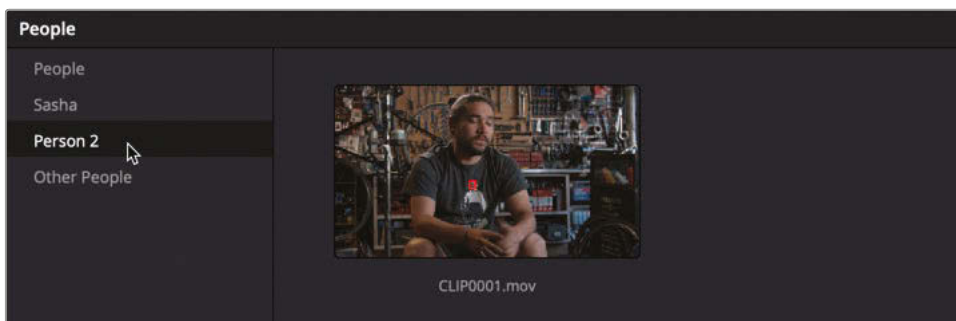


- 4 In the sidebar, select the Sasha bin to display all the clips in which Sasha is recognized.

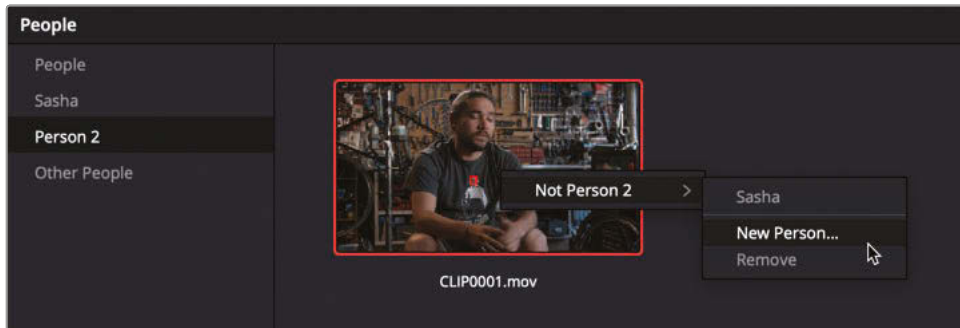


**NOTE** If incorrect clips have been added to People bins, right-clicking that clip will display options for correcting any issues, such as changing the identified face or removing the face completely.

- 5 In the sidebar, select the Person 2 bin to display the image on the T-shirt as a detected face. (Yes, the Neural Engine is *that* good!)

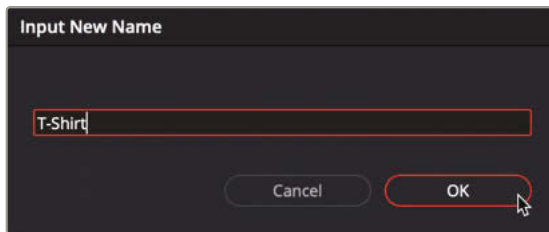


- 6 Right-click the clip in the bin and choose Not Person 2 > New Person.



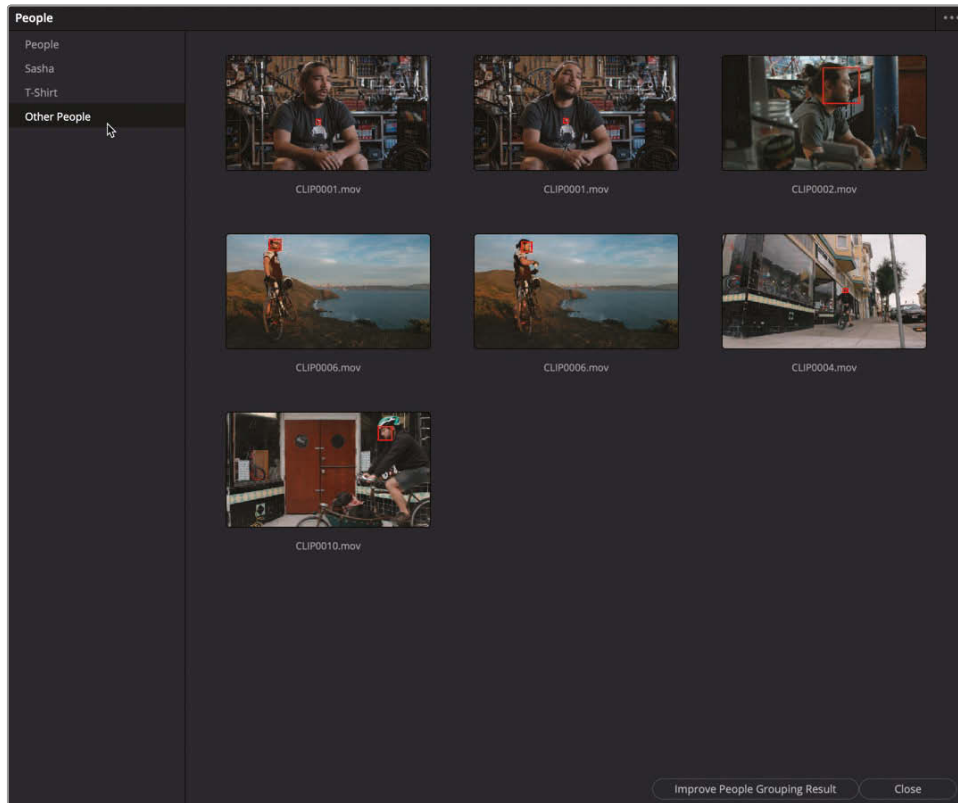
**TIP** You can also use the Remove option to move a detected face to the Other People bin.

- 7 Name this face **T-Shirt** and click OK to update Person 2 with the new name.

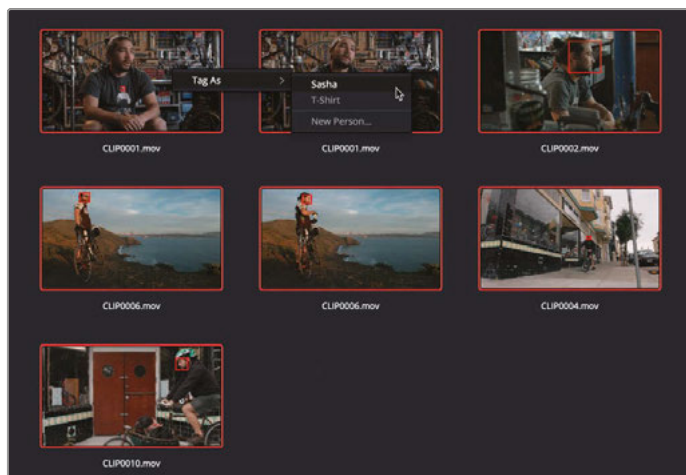


The Other bin collects clips in which faces were detected but not recognized as belonging to an identified person. You can use this bin to correctly identify these clips with the appropriate name.

8 Select the Other bin.



9 Select all the clips that include Sasha in the shot, and then right-click either of the selected clips and choose Tag as > Sasha.

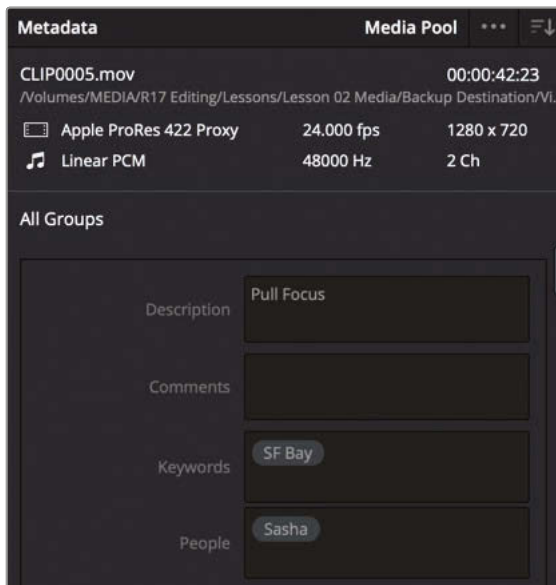


The unrecognized faces are now tagged as Sasha.

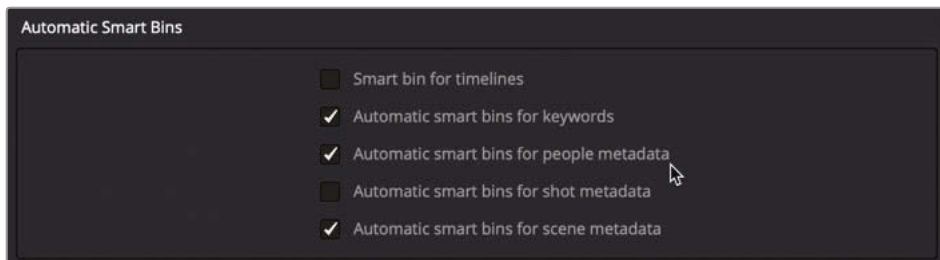
**NOTE** You may think that many of these clips have already been tagged as Sasha in the previous step. However, these are faces the Neural Engine may believe to be different faces, even though they are in the same clip. This is useful, as it means the same clip can be tagged with different faces when more than one person is in the shot.

- 10 In the lower right of the window, click the Close button to confirm all your changes.

The names of each recognized person are added to the People category in the appropriate clip metadata. However, a more convenient option is to enable the display of People Smart Bins.



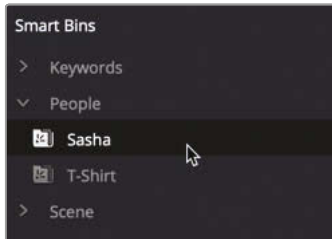
- 11 Choose DaVinci Resolve > Preferences, or press Command-, (comma) on macOS or Ctrl-, (comma) on Windows, and then select the User tab.
- 12 In the Editing category, select the checkbox for Automatic Smart Bins for People metadata.



- 13 Click OK to save the change and close the Preferences window.

A new People Smart Bin folder appears between the Keyword and Scene Smart Bin folders.

- 14 Click the disclosure arrow for People to display the Sasha Smart Bin.



All the clips that contain a recognizable face of Sasha now appear in a single Smart Bin. If you need to modify a People Smart Bin, you can reopen the People window at any time by choosing Workspace > People.

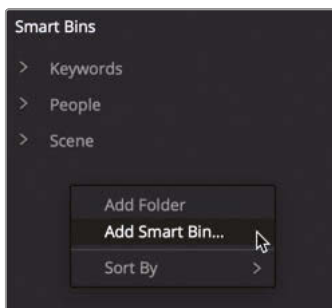
**TIP** You can reset all faces by clicking the People window's Option menu and choosing Reset Face Database.

## Creating Custom Smart Bins

Using the various automatic Smart Bins options is a great way to help add order to your projects, but the true power of Smart Bins comes to the fore when you can set your own rules for what a Smart Bin will contain.

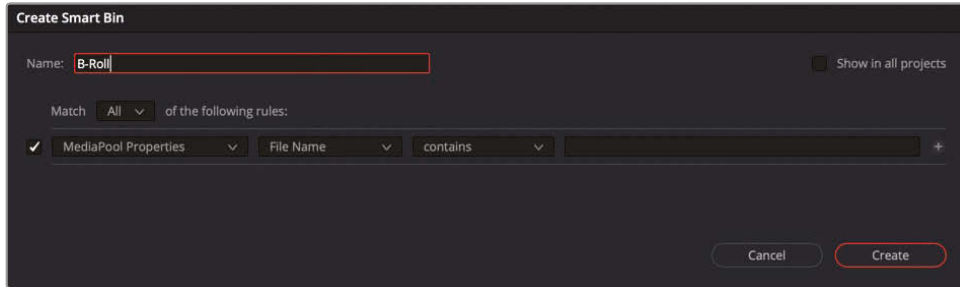
In this exercise, you will create your own Smart Bins to be able to find and work with certain media from this project.

- 1 In the Smart Bins area of the media pool, right-click and choose Add Smart Bin.

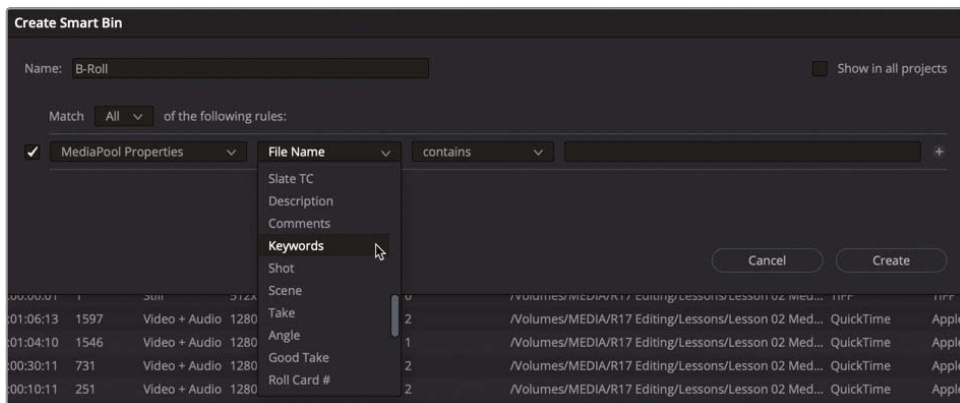


The Create Smart Bin window appears.

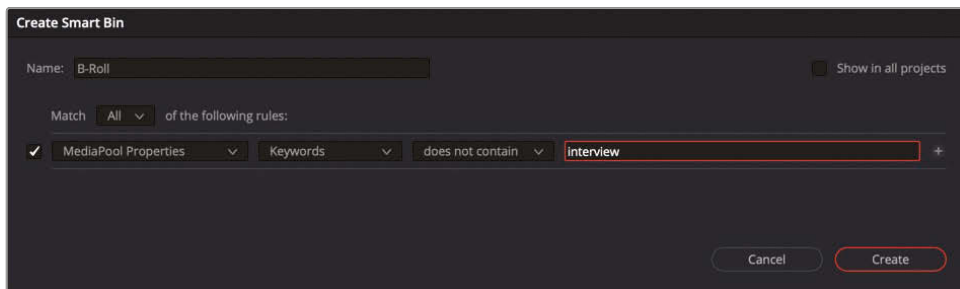
- 2 Name this Smart Bin **B-Roll**.



- 3 Click the second pop-up menu (currently File Name) and choose Keywords.



- 4 In the third pop-up menu, choose “does not contain” and type **interview** in the final field.



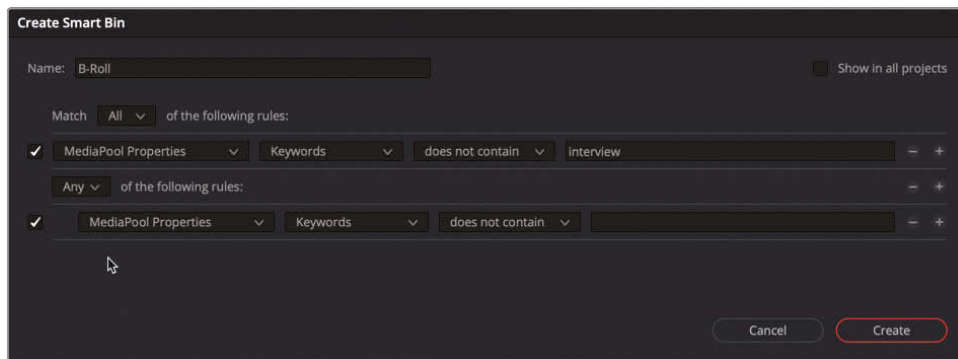
This means that any clip that *does not* have the “interview” keyword applied will be currently included in this Smart Bin.



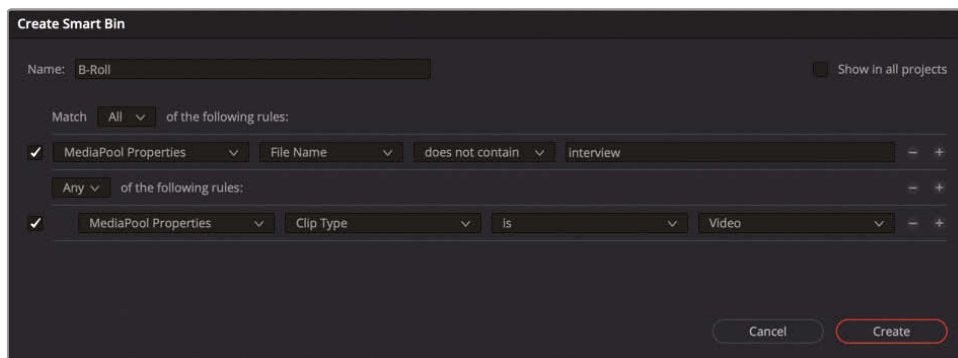
**TIP** To make this Smart Bin available across different projects, click the Show In All Projects checkbox. While this doesn't make the contents of the Smart Bin available in other projects (see the next section, "Power Bins" for that), it will enable you to reuse the rules for that Smart Bin in another project (including old projects).

This is very useful if you often use the same rules for Smart Bins across multiple projects. These Smart Bins are available in a Smart Bin folder called "User Smart Bins."

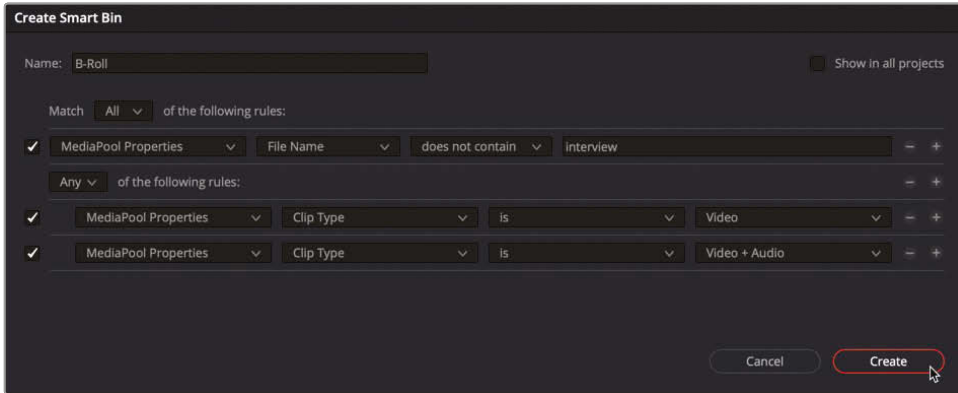
- 5 Option-click (macOS) or Alt-click (Windows) the plus button to add another set of criteria.
- 6 Change the All pop-up on this new set of rules to Any.



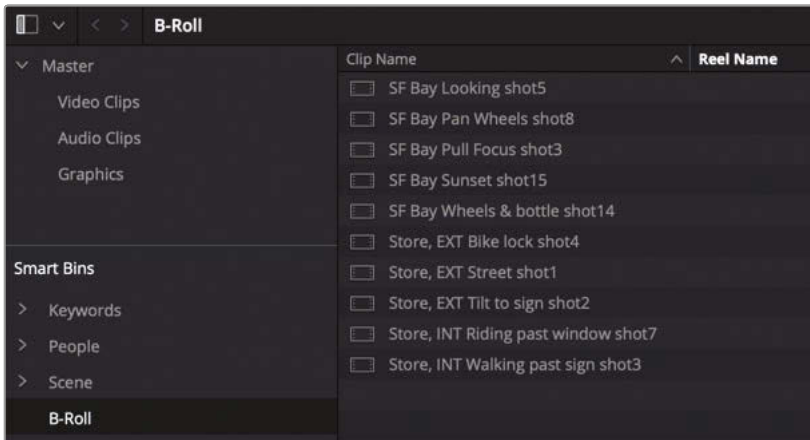
- 7 Click the pop-up that displays Keywords and press C to move to Clip Name, and then press C again to move to Clip Type. Choose Clip Type from the options.
- 8 Choose Video from the final pop-up.



- 9 Click the plus button and choose Video+Audio from the final pop-up.



- 10 Click Create Smart Bin to save this Smart Bin and its rules.



This Smart Bin now contains any clip *without* the “interview” keyword, but only if it is either a clip that contains just video *or* a clip that contains video *and* audio. This will exclude other clip types such as audio-only clips, graphics, and even timelines, compound clips or multi-cam clips from finding their way into this Smart Bin.

**TIP** To change the rules of any current Smart Bin, right-click on the Smart Bin and choose Edit Smart Bin or double-click an existing Smart Bin.

As you can see, coupled with the power of metadata, Resolve has some flexible and detailed searching functions, so you should always be confident that you’ll be able to find your media. One word of caution, however, is that this is only as good as the quality of the metadata provided or added in the first place. Sometimes a simple spelling mistake can thwart all these potential benefits.

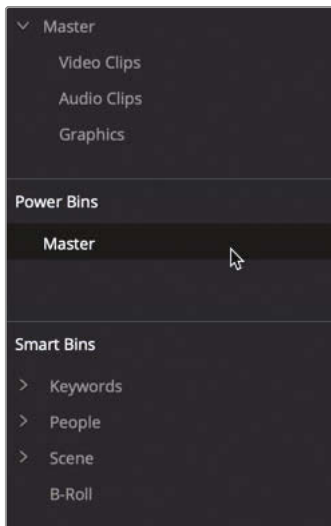
# Power Bins

Bins and Smart Bins are great organizational tools to use within a project. The Power Bin is a third bin type that can assist you with organization. Unlike regular bins or Smart Bins that exist only within the current project, Power Bins appear in every project you create within a database. They are useful for storing elements you want to reuse across separate projects, such as graphics, titles, sound effects, or music files.

- 1 Choose View > Show Power Bins.

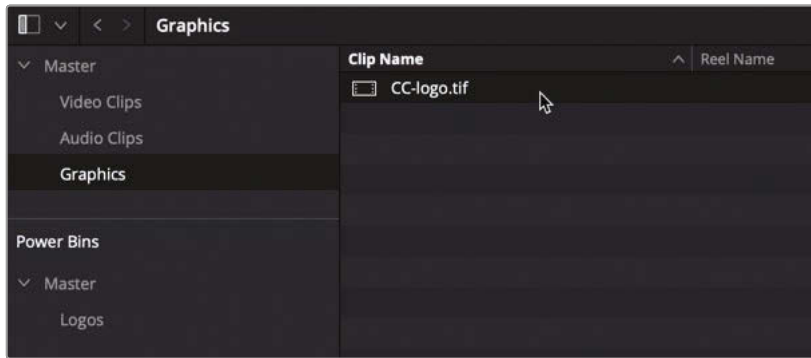


Power Bins are displayed in the media pool above the Smart Bins.



- 2 Select the Power Bin's Master bin, and press Shift-Command-N (macOS) or Shift-Ctrl-N (Windows) to add a new Power Bin. Name the bin **Logos**.
- 3 Select the Graphics bin that's currently in your project.

This bin contains a file called **CC-logo.png**.



- 4 Drag **CC-logo.png** to the Logo Power Bin.



Because Power Bins appear in every project you create, this image file (plus its associated metadata) will now be easily accessible for any project you have in your current database.

**NOTE** Multi-cam clips, compound clips, timelines, and Fusion clips cannot be placed in Power Bins.

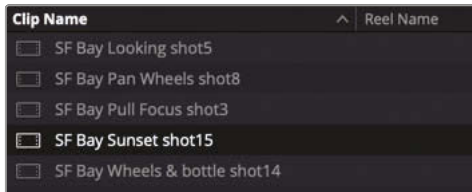
The next time you find yourself with a series of projects that share elements such as sound effects, graphics, or common video elements, Power Bins can be a powerful tool to save you time copying clips into different projects.

## Creating Proxy Files for Editing

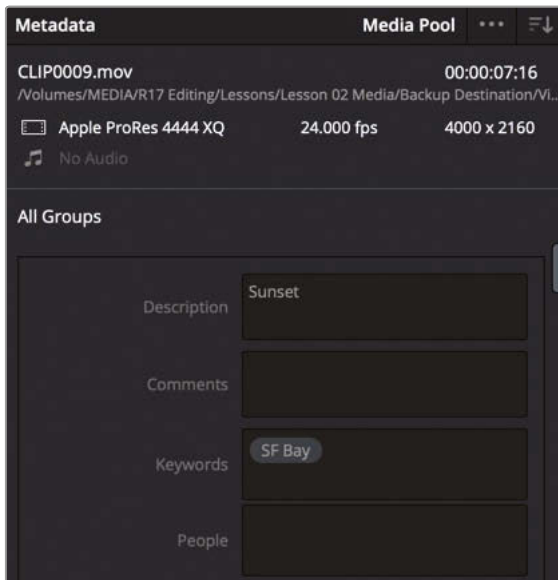
One of the last steps you might choose to perform before you begin editing in earnest is to consider creating proxy versions of high-resolution media. Working with camera-original content is ideal when color grading, but it can slow you down if it overtaxes the hardware you're working on. As you try out different shots, trimming and adjusting clips, you need a proper feel for the pacing of a scene and the changes you're making. A computer that cannot process media efficiently at its current resolution can result in a frustrating editing experience.

If you plan to edit and color grade on the same computer, Resolve includes a convenient method for creating lower-resolution clips as proxy media while retaining a relationship with the camera originals. Generating proxy media enables the speed you want when editing yet leaves you only one click away from the camera-original media when you need it for color grading or VFX work.

- 1 In the Scene 5 Smart Bin, select **SF Bay Sunset Shot 15**.

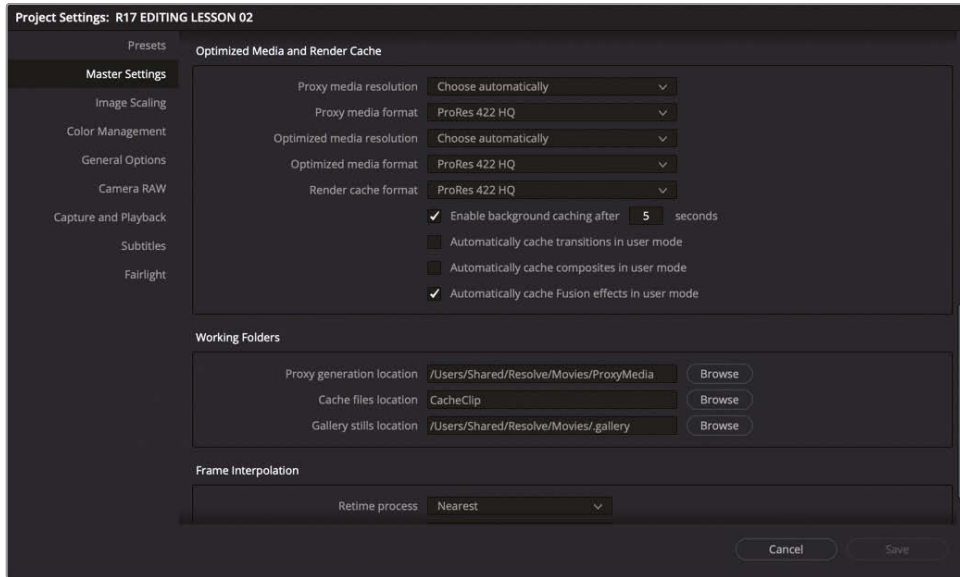


Look at the metadata for this clip.



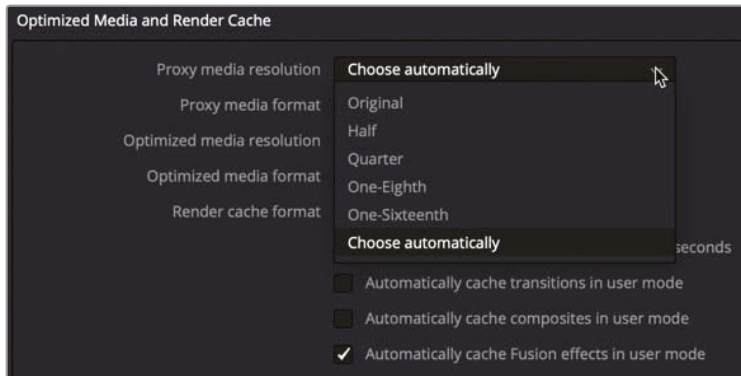
This clip is at 4000 x 2160 resolution and uses the Apple ProRes 4444 XQ codec. It is considerably larger than the other clips and may therefore slow down your computer as you edit. You'd be well advised to generate optimized media for this clip. Before you do so, however you'll want to configure the resolution and codec to be used to create the optimized file.

- Choose File > Project Settings or press Shift-9 and choose the Master Settings category.



The Optimized Media and Render Cache area of the Master Settings pane includes options for selecting the resolution and compression codec of the proxy media.

- Click the Proxy Media Resolution pop-up menu to view its options.

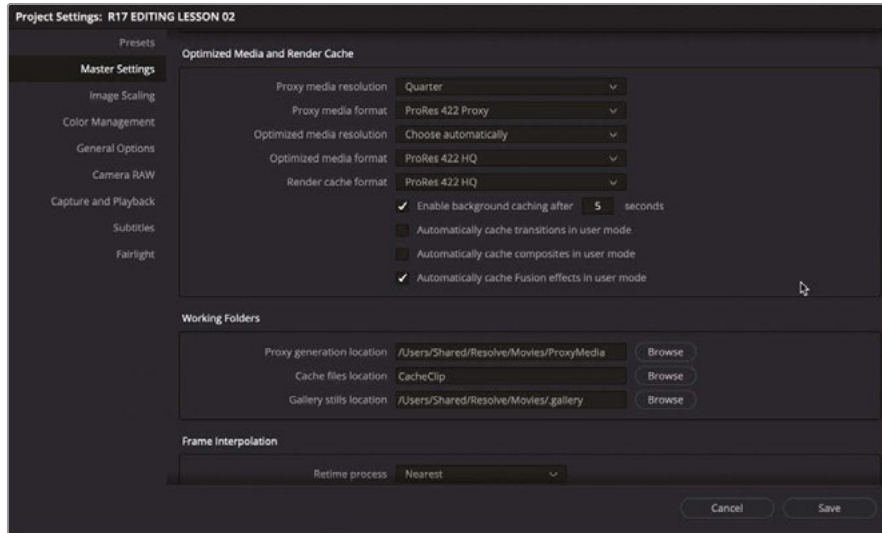


You can choose to scale down the clip by a specific percentage or allow the automatic setting to make the decision for you. Selecting Choose Automatically scales only those clips that are larger than the timeline resolution in your Project Settings. Such clips are scaled down to the current project's timeline resolution or as closely as possible to the original resolution. Clips at the timeline resolution or lower are not scaled.

- Choose Quarter.

Using this setting will create an optimized version of this file that is 1000 x 540 resolution.

- 5 In the Proxy Media Format pop-up menu, choose ProRes 422 Proxy (macOS) or DNxHR LB (Windows).

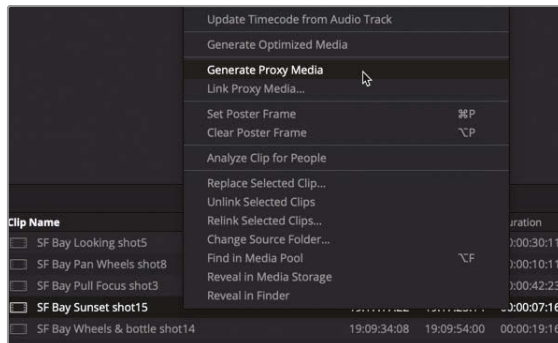


These two compression formats are low bandwidth, so they will provide better performance as you edit. Typically, you want your proxy media to be as lightweight as possible.

- 6 In the Working Folders section, check the Proxy generation location. This is where your proxy media files will be stored. To make a change to this location, click Browse and select a folder on your system.

Now you can return to the media pool and generate proxy media for the clip.

- 7 Click Save to close the Project Settings window.
- 8 With **SF Bay Sunset shot 015** still selected, right-click the clip, and choose Generate Proxy Media.



The creation of the proxy file begins, and a progress bar indicates how long it will take to process the clip.

## Identifying Proxy Media

With a simple project such as you have here, it's relatively easy to remember which clips you have optimized and which you haven't. However, in a real-world project with dozens of bins and hundreds of clips, you'll need a way to quickly identify optimized clips.

- 1 Select the **Scene 5 Smart Bin**. Review the columns of the clips bin and locate the Resolution and Codec columns.

Clip Name	Real Name	Start TC	End TC	Duration	Type	Resolution	FPS	Audio Ch.	Video Codec	Audio Codec
SF Bay Looking shot5		19:03:55:14	19:04:26:01	00:00:30:11	Video + Audio	1280x720	24,000	2	Apple ProRes 422 Proxy	Linear PCM
SF Bay Pen Wheels shot8		19:13:17:00	19:13:27:11	00:00:10:11	Video + Audio	1280x720	24,000	2	Apple ProRes 422 Proxy	Linear PCM
SF Bay Pull Focus shot3		18:55:32:09	18:56:15:08	00:00:42:23	Video + Audio	1280x720	24,000	2	Apple ProRes 422 Proxy	Linear PCM
SF Bay Sunset shot15		19:17:17:22	19:17:25:14	00:00:07:16	Video	4000x2160	24,000	0	Apple ProRes 4444 XQ	
SF Bay Wheels & bottle shot14		19:09:34:08	19:09:54:00	00:00:19:16	Video + Audio	1280x720	24,000	2	Apple ProRes 422 Proxy	Linear PCM

The columns still display the camera-original resolution and codec. Remember, the proxy media did not replace the camera-original files. They still exist on your hard drive and are linked to these clips. So, Resolve continues to display the camera-original parameters.

- 2 Right-click any column heading in the bin, and in the list of column options, select Proxy to enable the Proxy column.

Audio Ch	Vid	Keyword	Audio Codec
2	Ap	Offline Reference	Linear PCM
2	Ap	Out	Linear PCM
2	Ap	PAR	Linear PCM
0	Ap	Proxy	
2	Ap	Proxy Media Path	Linear PCM

The Proxy column displays None in the columns of clips that have no optimized media, whereas it displays the resolution of the proxies for clips that have proxy media available.

Audio Ch	Video Codec	Proxy	Audio Codec
2	Apple ProRes 422 Proxy	None	Linear PCM
2	Apple ProRes 422 Proxy	None	Linear PCM
2	Apple ProRes 422 Proxy	None	Linear PCM
0	Apple ProRes 4444 XQ	1000x540	
2	Apple ProRes 422 Proxy	None	Linear PCM

**TIP** You can create a Smart Bin to list all clips that have proxy media attached.

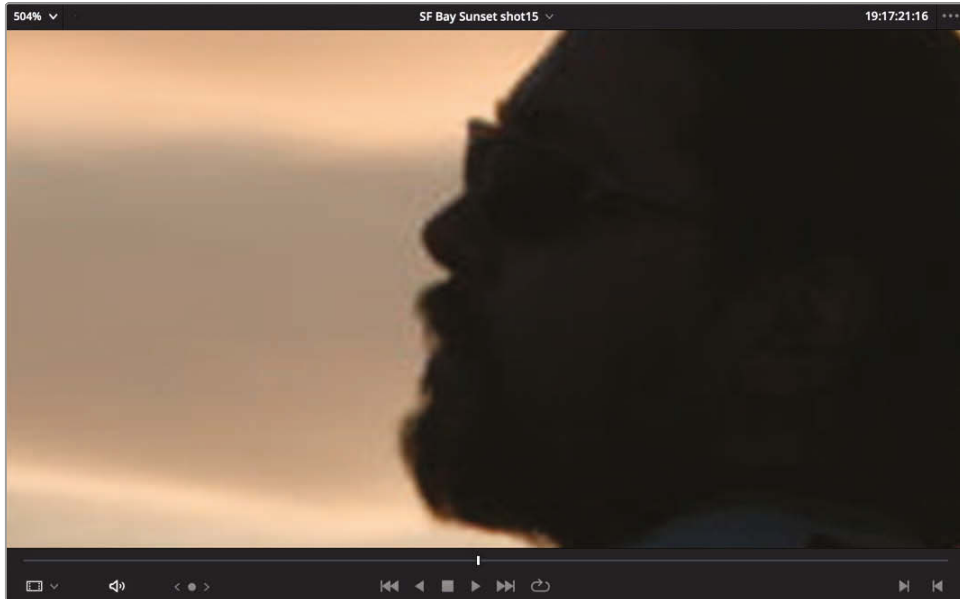
- 3 Select the **SF Bay Sunset shot 15** clip to load it into the viewer.

You can easily switch between the proxy media and the original files in the playback menu.

- 4 Place the playhead near the middle of this clip so you can see a silhouetted profile of the cyclist.



- 5 Use your mouse scroll wheel to zoom in on the image to around 500%.
- 6 Hold down your middle mouse button and drag to reposition the image in the viewer until you can see the edge of the cyclist's silhouette against the brighter background.



You should see some indication of compression artifacts around the edges of Sasha's silhouette.

- 7 Choose Playback > Use Proxy Media If Available to deselect the option.



You should notice the compression artifacts disappear when you switch from the proxy media to the original clip.

- 8 Choose Playback > Use Proxy Media If Available.
- 9 In the magnification pop-up menu choose “Fit” or press Z return to viewing the entire frame in the viewer.

Choosing Proxy Media will help you work faster during the edit because Resolve won't have to process the full image resolution, but you can quickly switch to the high-resolution image for grading or other purposes whenever you need to.

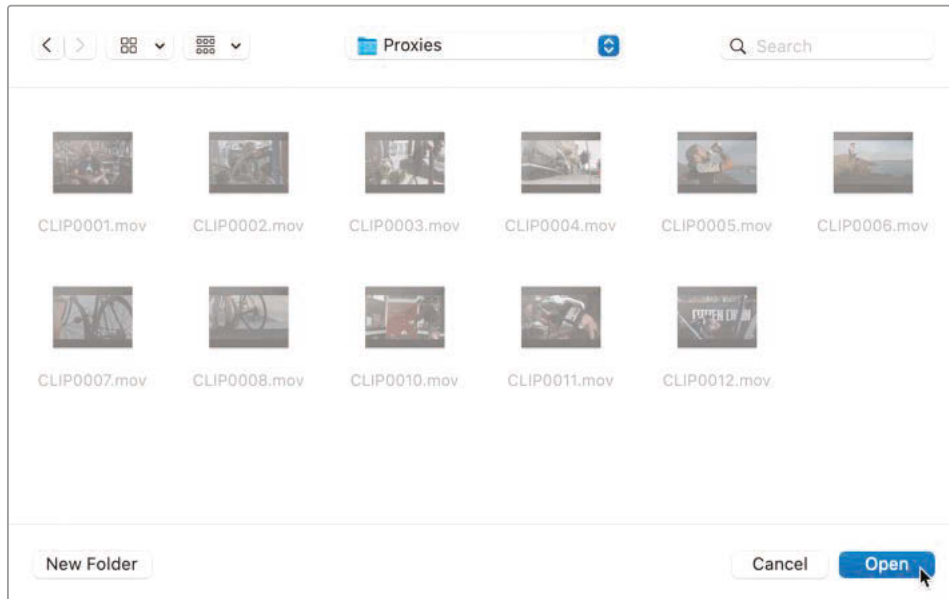
## Manually Linking to Proxy Media

You can also work with externally generated proxy files, which is particularly useful as you can generate separate proxy media on another Resolve system or by using another video compression application entirely.

- 1 In the media pool bin list, select the Video Clips bin.
- 2 Select all the clips in the Video Clips bin.
- 3 Right-click any of the selected clips and choose Link Proxy Media.

Clip Name	LUT	> ITC	Duration
Interview Sash	Update Timecode from Audio Track	24:39:17	00:01:06:13
Interview Sash	Generate Optimized Media	31:33:10	00:01:04:10
SF Bay Looking	Generate Proxy Media	04:26:01	00:00:30:11
SF Bay Pan Wh	Link Proxy Media...	13:27:11	00:00:10:11
SF Bay Pull Foc	Unlink Proxy Media	56:15:08	00:00:42:23
SF Bay Sunset	Set Poster Frame	17:25:14	00:00:07:16
SF Bay Wheels	Clear Poster Frame	09:54:00	00:00:19:16
Store, EXT Bike	Analyze Clips for People	06:57:05	00:00:05:06
Store, EXT Stre	Unlink Selected Clips	01:16:00	00:00:15:23
Store, EXT Tilt 1	Relink Selected Clips...	08:36:10	00:00:11:15
Store, INT Ridin	Change Source Folder...	13:45:15	00:00:06:15
Store, INT Walking past sign		01:36:31:12	00:00:07:19

- 4 In the window that opens, navigate to R17 Editing Lessons > Media > Proxies.



This folder contains a series of (very) low resolution versions of the clips you have been working with throughout this project.

- 5 Click Open.

DaVinci Resolve automatically searches for and connects the appropriate proxy media with the original full-resolution clip in your project based on timecode and filename (but ignoring file extension).

**TIP** If you no longer want to use proxy media for a particular clip or clips, simply right-click the selection and choose Unlink Proxy Media. The proxy file will remain on your system in case you want to relink to it again later or it is in use in another project.

### Proxy Media vs. Optimized Media

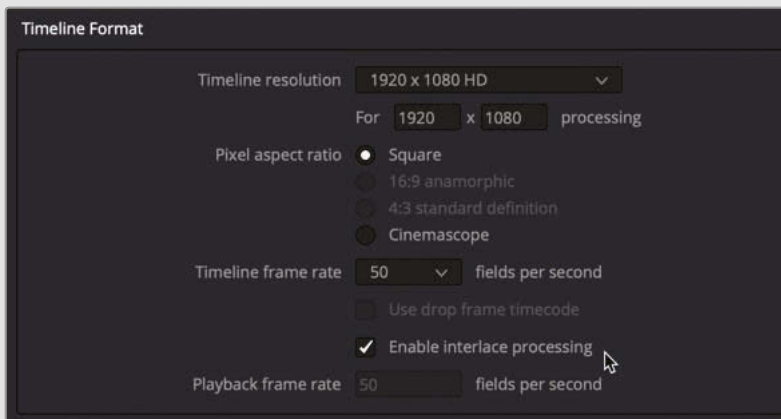
On the surface, Proxy Media and Optimized Media appear similar in function. Both options are designed to create lower bandwidth, easier to edit versions of source media. However, Optimized Media is managed internally by DaVinci Resolve, cannot be exported, and is not user accessible. In contrast, Proxy Media creates fully portable and independent media files that can be easily managed by the user.

# Saving Project Presets

The Project Settings window contains many settings, including timeline resolution and frame rate, which can be used when initially creating timelines. Configuring the project can be made easier if you have created presets for the most common project settings that you need.

## Interlaced Timelines

DaVinci Resolve 17 now has support for creating interlaced timelines. To enable interlaced processing for a timeline, select the “Enable interlace processing” option in the Timeline Format section of Project Settings or in the Format tab of the New Timeline window.



The frame rates for interlaced timelines are measured in fields per seconds and can be set to 50, 59.94 or 60.

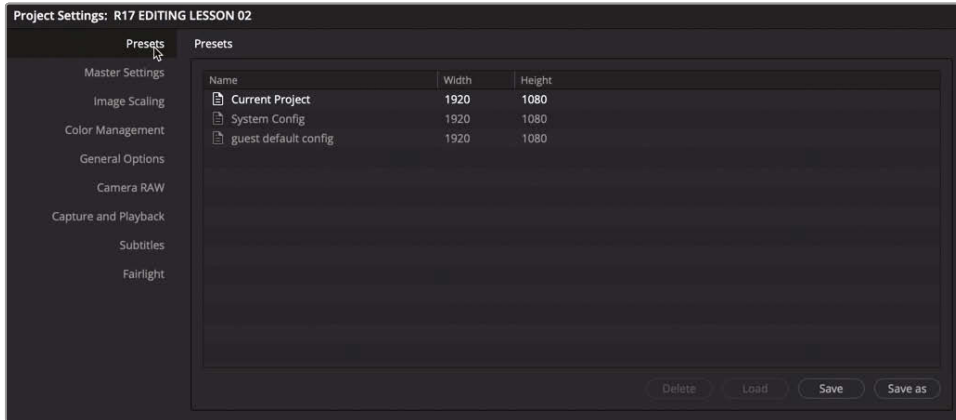
To output a native interlaced signal using a Blackmagic Design monitoring device, choose the appropriate setting in the Video Monitoring section of the Project Settings window.

Everything in an interlaced timeline, including graphics, Fusion compositions, and video clips, are processed at the field level for high-quality compositing and titling for interlace delivery.

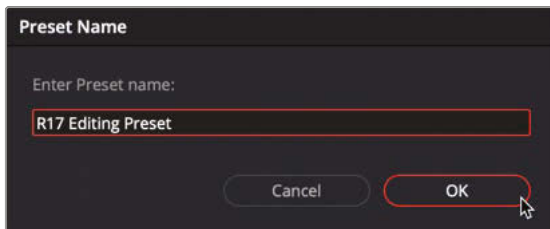
Rather than checking your project settings each time you create a project, you can configure options in the Project Settings window and save those as your defaults. Then, every time you open a new project, DaVinci Resolve will default to those settings. Plus, you can also load these presets into existing projects.

- 1 Choose File > Project Settings or press Shift-9 to open the Project Settings window.

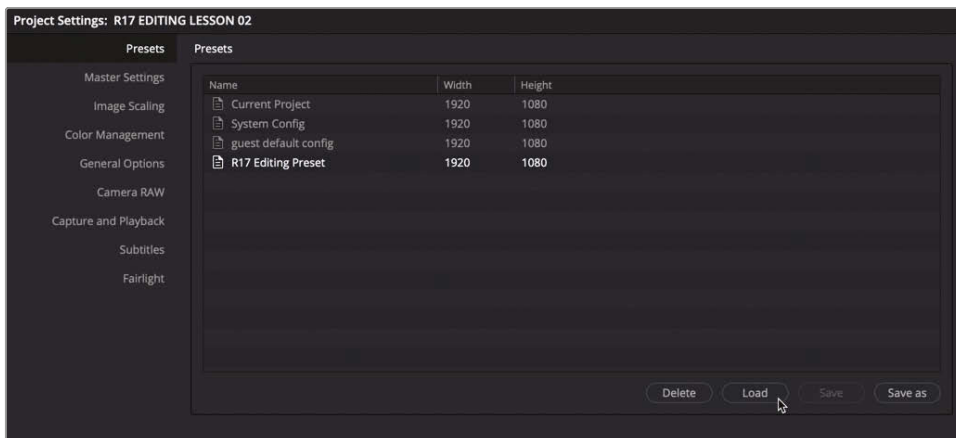
- 2 Click the Presets category.



- 3 In the Presets panel, click the Save button to save any changes to the current project.
- 4 With the Current Project preset still selected, click “Save as.” Enter the new preset name as **R17 Editing Preset** and click OK.

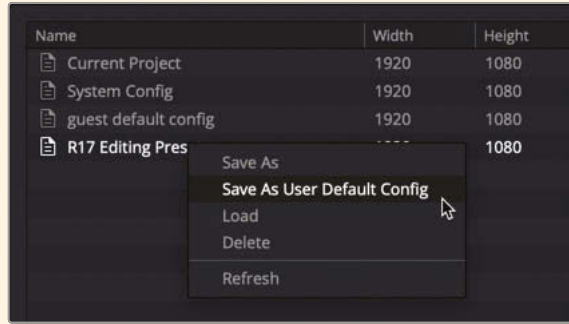


Your settings for this project are now saved. To quickly apply this preset to any currently open project, simply select the preset and click Load.



**TIP** If you want every new project to open using a specific configuration, you can save any preset into the guest default config setting.

Right-click the desired project preset and choose Save as User Default Config.



The settings of this preset are applied to the guest default config preset for the current database. Now, every new project you create will use those settings by default.

- 5 Having created your preset, click Cancel or press Esc to close the Settings window (no need to Save).

Project presets allow you to easily create, manage, and switch between presets to enable the various project timeline resolutions, frame rates, and proxy media format and locations, along with all the other settings that you might need to work with. Project presets can save nearly every parameter and setting across all panels in the Project Settings window; however, only the guest default config is used as the default for new projects.

Now that you've seen some of the organizational aspects of working with Resolve, in the next lesson let's look at some of the more advanced techniques you can employ during the creative process of editing.

# Lesson Review

- 1 When using the Clone tool, what is the default checksum type?
  - a) None
  - b) SHA 512
  - c) MD5
- 2 What methods can you use to auto sync sound to video files in the media page?
  - a) Waveform
  - b) Timecode
  - c) Markers
- 3 Which type of bin allows you access to its contents across different projects in the same database?
  - a) Smart Bins
  - b) Super Bins
  - c) Power Bins
- 4 True or False? Proxy media replaces your original media files.
- 5 True or False? You can save a preset of your current project settings to make future project configuration easier.

## Answers

- 1 c) MD5
- 2 a) Waveform and b) Timecode.
- 3 c) Power Bins.
- 4 False. Proxy media files are used when Playback > Use Proxy Media if Available is enabled. Your original, full-resolution media files remain intact.
- 5 True. Project presets are saved in the Presets panel of the Project Settings.



## Lesson 3

# Editing Interviews

Being able to get the very best out of your interview subject takes a lot of practice and a good ear for the spoken word.

When cutting interviews, it's common to initially create the best-sounding interview and almost completely disregard the visuals. This cut is commonly called a radio edit because it is similar to editing an audio-only interview. Once you have the interview audio cut properly, you can turn your attention to the video edits, often referred to as the paint because you are illustrating, or “painting,” your interview with appropriate pictures from your B-Roll rushes.

In this lesson, you'll use advanced audio and video trimming and other workflow features in DaVinci Resolve to finish an engaging social media promo piece for a 100% vegan restaurant, Miss Rachel's Pantry.

### Time

This lesson takes approximately 50 minutes to complete.

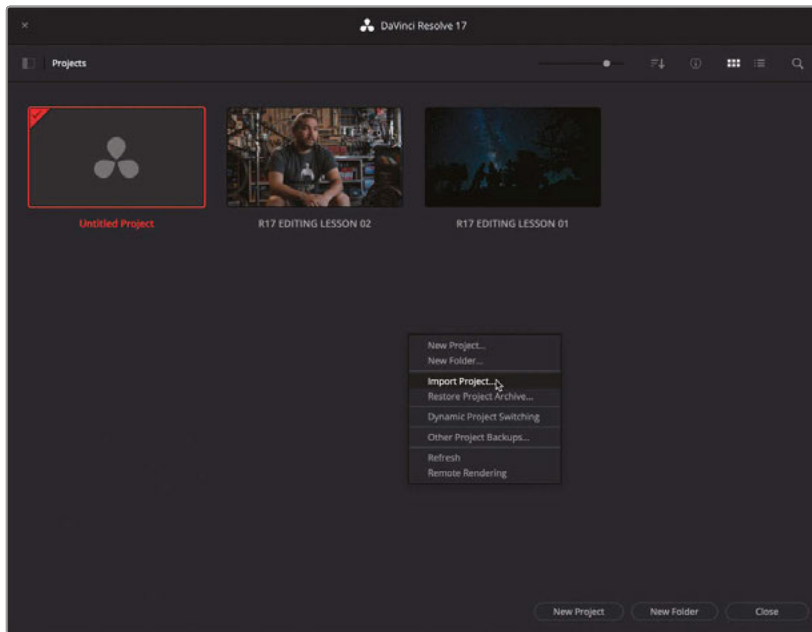
### Goals

<b>Starting the Project</b>	138
<b>Importing a “Selects” Timeline</b>	141
<b>Using Stacked Timelines</b>	151
<b>Decomposing Timelines</b>	161
<b>Creating Variable Speed Changes</b>	165
<b>Using Smooth Cut</b>	171
<b>Working with Advanced Transition Tools</b>	173
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## Starting the Project

Let's begin by opening a DaVinci Resolve Archive that has most of the radio edit already edited but including some clips in which the audio hasn't been examined for clarity. You'll play the clips and then begin to identify and remove the small stutters and stray "umms" to get the best soundbites from the interviewee.

- 1 In the Project Manager, right-click and choose Import Project.

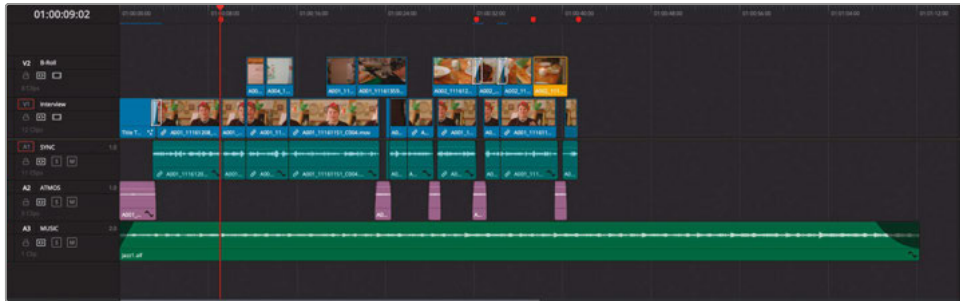


- 2 Navigate to R17 Editing Lessons > Lesson 03 and select **R17 EDITING LESSON 03 INTERVIEW.drp**.
- 3 Double-click the imported project in the Project Manager, click the Edit Page button and relink the media.



- 4 Choose Workspace > Reset UI Layout to reset the workspace.

- 5 In the media pool, select the Timelines bin and double-click the **WTTP Rough Cut** timeline to open it.



This timeline is the first part of the promo and has already been cut for you.

- 6 Return your playhead to the start of this timeline and play through to review the edit so far.

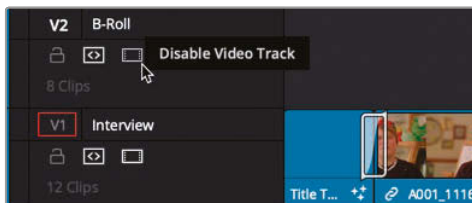
As you can see, the piece is being driven by an interview with the eponymous Miss Rachel, owner and head chef at Miss Rachel's Pantry. Notice how the interview has been edited so that it sounds clean, without many distracting pauses, stutters, or poorly chosen words.

**NOTE** Feel free to review the rushes from the Interview Clips bin to get a sense of how this edit was pieced together from the original clips.

You will also notice a few small gaps that were left intentionally to add short pauses between thoughts or subjects and to allow the edit to breathe. Small audio clips of wildtrack or atmos help to fill the gaps left in the audio with the ambient sounds of the restaurant. Much of the distracting jump cuts have then been covered by editing B-Roll footage onto the B-Roll track.

To get a sense of how the cut interview would look without the B-Roll, you can disable the track.

- 7 In the timeline track header for the B-Roll track (V2), click the Disable Video Track button.



All clips on the B-Roll track are disabled.



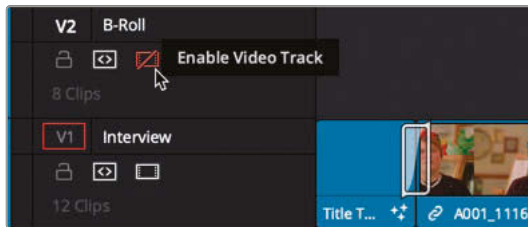
- 8 Return the playhead to the start of the timeline and play through the edit once again.

Wow! The edited interview alone isn't quite so polished. The jump cuts between the edited soundbites really distract from what Miss Rachel is saying! The gaps that provided a bit of pacing and breathing space now feel like yawning chasms!

It may not look pretty, but it does still sound good. This edit is often referred to as a radio edit. When creating a radio edit, you want to remove any large or small bits of audio that may detract from the message.

**TIP** To get a feel for how well a radio edit works, try closing your eyes during playback to just listen to the spoken words. If you can't hear any obvious edits and the pacing of the speech sounds natural, that's generally the key to a good radio edit.

- 9 Re-enable the clips on the B-Roll track by clicking the Enable Video Track button in the timeline track header.



Now that you've seen how the edit is currently shaping up, it's time to add a few more parts of the interview and paint them with appropriate B-Roll.

# Importing a “Selects” Timeline

While you could sit and continue watching all the unused interview footage and slowly start to piece together the final part of the interview, it's common for the director, edit producer, or edit assistant to put together a selection of clips they would like you to use or think might be useful. Quite often they might work on their own systems reviewing footage before passing a “selects” timeline to you for the fine tuning and to incorporate into the main edit.

This is what has happened in this case. The director of the Miss Rachel's Pantry promo has got a cloned copy of the same rushes you're working with and has used a free version of DaVinci Resolve 17 to pull together the final part of the interview with Miss Rachel, together with a few extra clips they'd like you to use as B-Roll.

Rather than sending a copy of the whole project for you to open and find the correct version of the timeline, they have simply sent you the relevant timeline as a .drt file.

**NOTE** The extension .drt refers to a DaVinci Resolve Timeline file and is an efficient way of transferring timelines from one project, or Resolve system, to another. Similar to an .xml or .aaf, a .drt file is a binary file that contains only the relevant information needed to rebuild the timeline in a DaVinci Resolve project.

DaVinci Resolve Timeline files do not contain any media, so the recipient system would need a copy of the media to be able to play the imported timeline, but this also means they are very small and therefore can be easily transferred across a network, via cloud storage or even email.

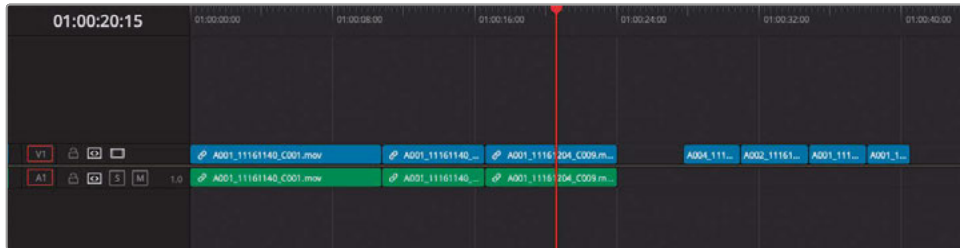
You can create a .drt file from your currently active timeline by choosing File > Export > Export AAF, XML, DRT or pressing Shift-Command-O (macOS) or Shift-Ctrl-O (Windows) and choosing DaVinci Resolve Timeline Files (\*.drt)” from the file type.

- 1 In the media pool, select the Timelines bin. This is where you will import the .drt file.
- 2 Choose File > Import Timeline > Import AAF, XML, DRT, ADL or press Shift-Command-I (macOS) or Shift-Ctrl-I (Windows).
- 3 Navigate to R17 Editing/Lessons/Lesson 03 Interview. Select **WTPP\_New\_Interview.drt** and click Open.

The imported timeline appears in the Timelines bin and opens in the Timelines window.



This timeline contains a basic assemble of three interview clips followed, after a short gap, by four additional B-Roll clips. This is the footage the director would like you to incorporate into the main edit. However, as directors aren't skilled editors themselves, they have left much of the detailed work to you.

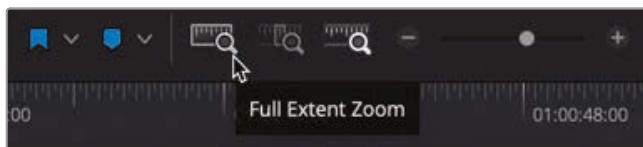


A common workflow for many editors is to use multiple different timelines to work on small sections of the overall edit; this could be the scenes of a feature film, the different parts of a broadcast TV show, or different sections of a corporate video. These scenes or parts often go through numerous iterations and changes themselves, before being edited together into a final timeline that will be the version delivered to the distributor, broadcaster, or video streaming site.

## Working Across Multiple Timelines

In the following steps, you will use the timeline you've just imported to refine the new interview into a radio edit, before incorporating it and the new B-Roll into the main WTTP timeline.

- 1 In the **WTTP\_New\_Interview** timeline, click the Full Extent Zoom button to see the whole timeline.

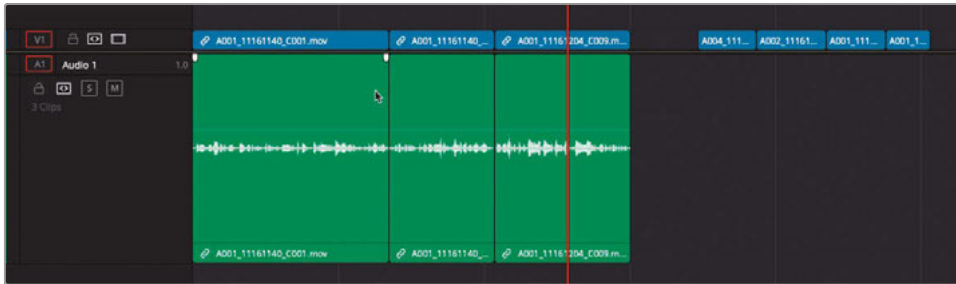


- 2 Play the first three interview clips to review the parts of the interview the director has chosen.

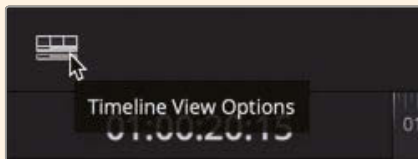
Whenever you are editing an interview such as this, or any piece of dialogue, it is useful to have a clear view of the clips' audio waveforms.

- 3 Click the Timeline View Options button.
- 4 Holding Shift and using the mouse scroll wheel, adjust the height of the audio tracks to reveal the clips' audio waveforms. You may also wish to increase the height of the

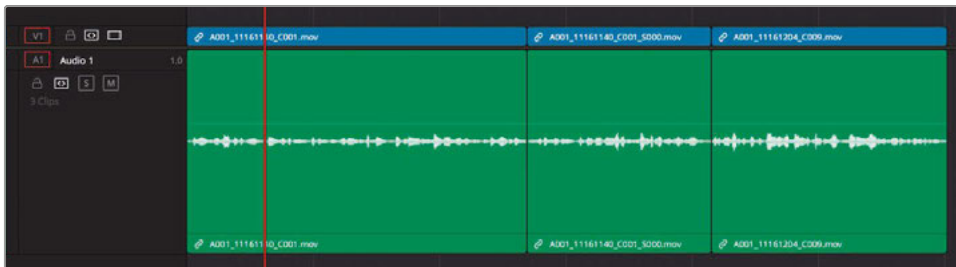
video track slightly and drag the bar dividing the timeline audio and video tracks so you can see the waveforms clearly.



**TIP** You can always adjust track heights directly in the timeline by dragging the timeline track divider in the track headers or by using the Video and Audio Track Height sliders in the Timeline View Options menu.



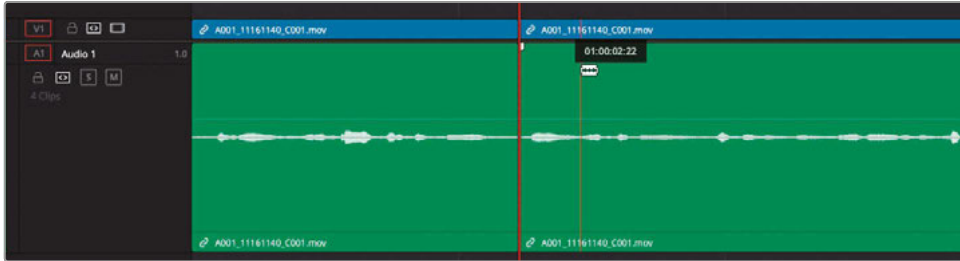
- 5 Play the first clip again and stop playback when you hear the first time that the interview subject says, “Umm,” around two seconds from the beginning.



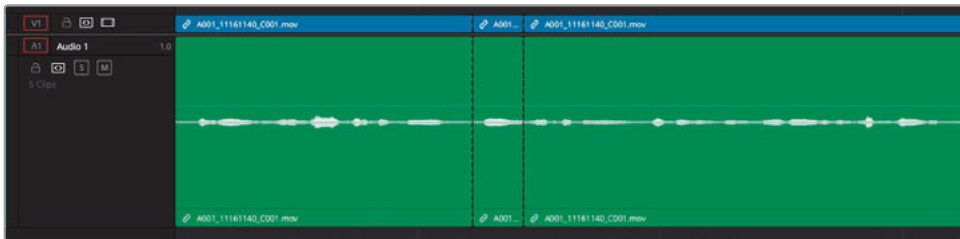
You should be able to clearly identify the problematic “Umm” in the waveforms. If not, increase the zoom of the timeline either by clicking the Detail Zoom button in the toolbar or by pressing Command+= (macOS) or Ctrl+= (Windows).

- 6 Ensure that audio scrubbing is enabled (press Shift-S if it is not) and jog the playhead back and forward until you can hear the start of the “Umm.”

- Press the B key to switch to Blade Edit mode. Click just before and just after she says, “Umm.”



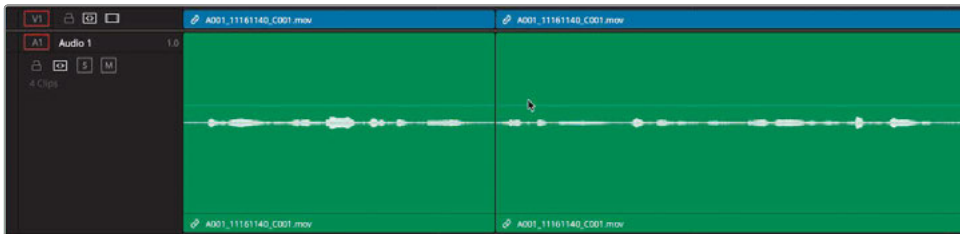
Doing so has isolated the “Umm” into a separate clip.



The dotted lines on the edit points represent through edits; that is, edits that are visible on the timeline but playback smoothly because no frames have been removed from either side of the cut. The edits were also added to both the audio and video parts of the clip because the timeline linked selection was active.

**TIP** To remove an unwanted through edit, in the timeline, place your playhead after the through edit and choose Timeline > Join Clips or press Option-\ (backslash) in macOS or Alt-\ (backslash) in Windows.

- Return to Selection mode by pressing A. Select the “Umm” clip, and press Shift-Delete (or Backspace) to perform a ripple delete.



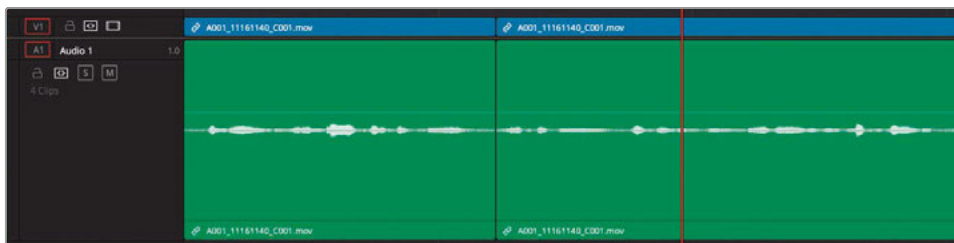
- With your playhead over the new edit point, press / (slash) to play the edit.



You’re aiming to have this audio edit be as inconspicuous as possible. When you play around the current edit, try listening to the cut without watching the picture. Does it sound as if an edit is there? If it does, you’ll need to do a little finessing, which you’ll look at soon.

**TIP** When you perform an edit, you can’t really know just how successful it will be until you play back your timeline. It’s highly doubtful that things will be perfect immediately (though happy editing accidents have been known to occur). In reality, most edits you perform will always need to be improved with a few trims here and there.

- 10 Continue playing what is now the second interview clip until you hear the next problem where she says, “We’re taking dishes and flavors.” She stutters and says the word “and” twice. It’s a simple task to tidy this up.
- 11 Press the JKL keys to play forward and backward over the clip, finally positioning the playhead just before the first “and.”



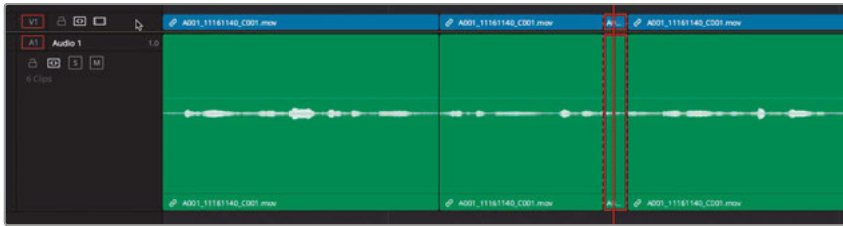
**TIP** Remember that you can jog the playhead back and forth by holding down the K key and tapping the L or J key. It’s also useful to have audio scrubbing turned on so you can hear the starts or ends of words. Choose Timeline > Audio Scrubbing or press Shift-S to toggle audio scrubbing on and off.

- 12 Press Command-B (macOS) or Ctrl-B (Windows) to cut the clip.

**TIP** Pressing this keyboard shortcut adds an edit point to a selected clip or clips at the playhead position. It’s a little more precise than clicking to add a cut in Razor Edit mode.

- 13 Jog forward until the playhead is located before she says the second “and.” Press Command-B (macOS) or Ctrl-B (Windows) again to add a second through edit.

- 14 Move your playhead over the isolated “and” in the timeline and press Shift-V to select the clip under the playhead.

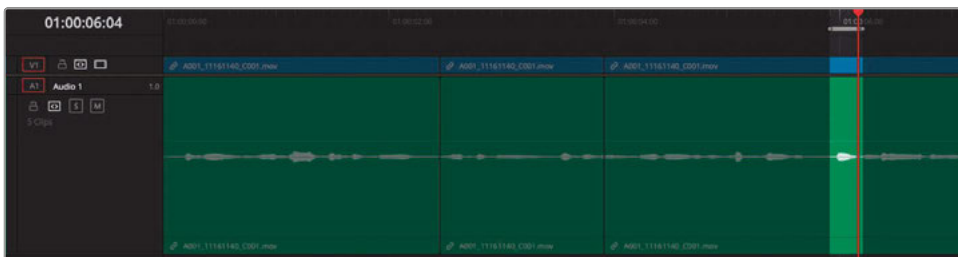


- 15 Press Shift-Delete (or Backspace) to ripple delete the clip.

- 16 Press / (slash) to play around the new edit.

Again, try listening to the edit without looking at the jump cut you’ve just created. Remember, you’re trying to create a natural-sounding interview that won’t distract the audience. Don’t worry if the current edit is not as smooth as you would like; you’ll finesse it soon.

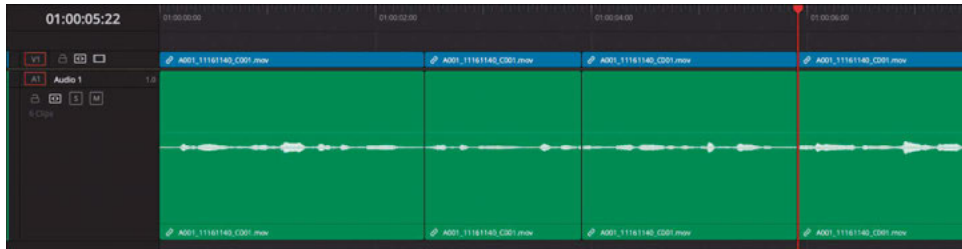
- 17 Keep playing through the interview. The next portion you’ll remove is the “Umm” just after she says “textures.” This time, you’ll place timeline In and Out points to remove this unwanted portion of the interview.
- 18 In the timeline, place your playhead at the start of the “Umm” and press I to add an In point.
- 19 Jog the playhead forward six or seven frames until you hear her start to say, “and really making them.” Press O to set an Out point just before she says, “and.”



**TIP** Because Resolve’s playhead is inclusive of the current frame, In points are always added to the head of the frame, and Out points are added to the tail of the frame. When adding Out points, it’s often useful to find the frame you want to keep (usually at the start of the next word) and then move the playhead one frame back before adding the Out point. By doing so, you’ll be sure to keep the frame you wanted.

You’ve now set In and Out points around the portion of the interview you want to remove.

- 20 Press Shift-Delete (or Backspace) to ripple delete the contents between the In and Out points in the timeline.



- 21 Press / (slash) to preview your new edit.

### Extra Credit

The director has also asked if you could tidy up a specific part of the interview; she doesn't like the interviewee's use of the word "palatable" to describe the food. This is a slightly more subjective cut, but when trying to put together the best radio edit description of the food at the restaurant, it may be desirable to aim higher than simply "palatable." Do you think you'd be able to edit out the words "palatable and" so that she simply says, "making them delicious"?

## Refining the Radio Edit

DaVinci Resolve has very comprehensive roll, ripple, slip, and slide trimming options that you can perform using the mouse. However, when you're making small, subtle, but precise changes to an edit—often adding or removing single frames—it's useful to perform most of your trimming using keyboard commands. In doing so, you'll exercise the most precise control over each of your edits. Learning how to get the best from Resolve's trimming options is an important step in choosing the best technique for any given situation.

You'll use keyboard shortcuts exclusively to move and select the cut points you need to trim.

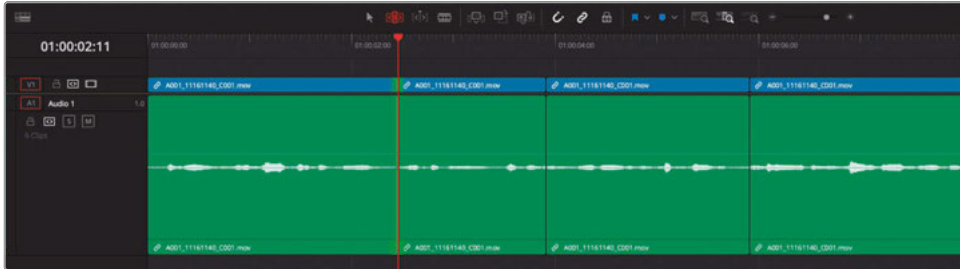
- 1 Position the playhead at the start of the interview clips.
- 2 Press the Down Arrow to go to the first cut in that clip.
- 3 Press / (slash) to preview the edit.

Listen closely to the audio edit you created in the previous steps. Does it sound like a natural, continual part of her speech pattern? Does she fully pronounce all the words without having any part of what she's saying cut off? Identifying how to adjust the edit effectively, whether to add or remove frames from either the outgoing or incoming clips, is a skill that will come only with practice.

- 4 Press T to enter Trim mode.

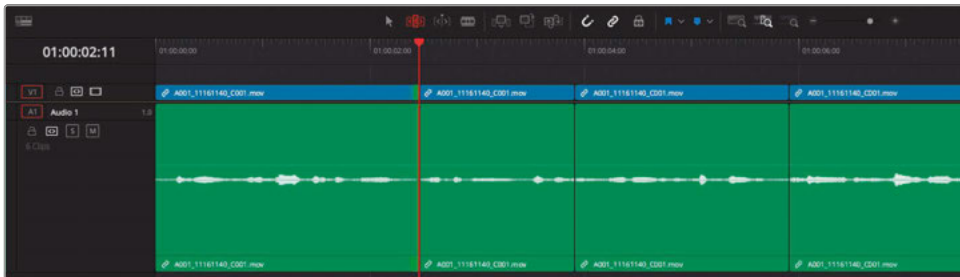
- 5 Press V to select the edit point nearest the playhead.

**NOTE** This keyboard shortcut selects the edit point nearest the playhead for any track that has the auto tracks selector enabled.

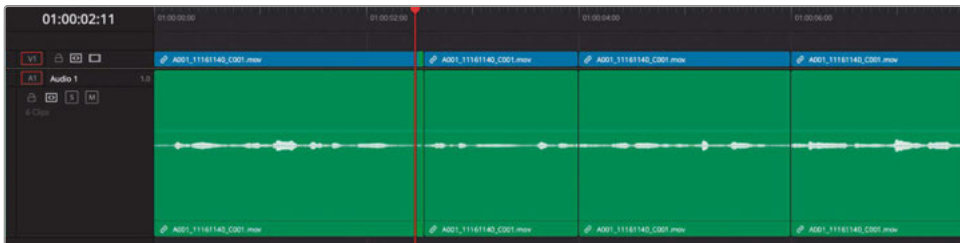


- 6 Press the U key until only the outgoing (left) side of the cut is selected for ripple trimming.

**NOTE** This keyboard shortcut switches between roll, outgoing ripple, incoming ripple, and back to roll.



- 7 Press , (comma) to trim the selected edit one frame to the left or . (period) to trim it one frame to the right.



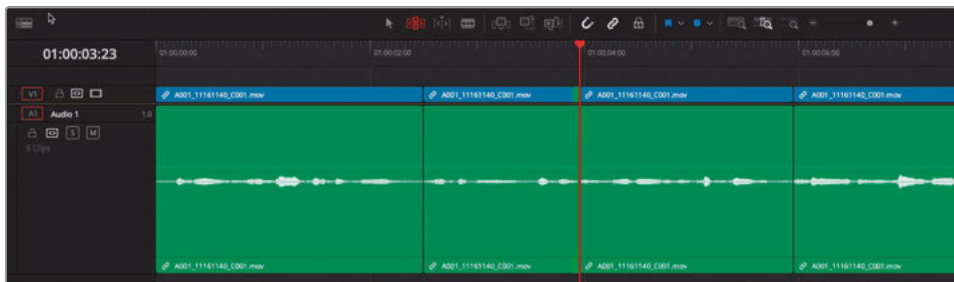
**TIP** Because you're concentrating on the audio in these clips, it's useful to keep an eye on the clip waveforms to see if you're adding or removing parts of words.

- 8 If necessary, press U twice to change the trim to the head of the incoming shot, and press , (comma) or . (period) to add or remove frames as needed.
- 9 Press / (slash) to play around the cut point and check your trim decision.

**TIP** Press Shift-, (comma) or Shift. (period) to perform a nudge operation that trims multiple frames at once. The default value is 5 frames, but you can change this value by going to DaVinci Resolve > Preferences, selecting User Settings, and adjusting the Default Fast Nudge Length in the Editing panel.

Continue to refine the edit until you are happy with the results. Then you can move on to the next cut.

- 10 Press the Down Arrow to go to the next cut in your timeline. This edit is selected in the direction you last had the previous edit selected.



- 11 Press / (slash) to play around the cut point and to determine what you need to trim.
- 12 Decide whether the edit needs to be refined, and press U to change to the appropriate trimming operation.
- 13 Press the , (comma) or . (period) keys to refine the edit, adding or removing frames from either the tail of the outgoing clip or the head of the incoming clip.
- 14 Press / (slash) to review your trim.
- 15 When the audio edit sounds good, move on to the next cut.
- 16 Press the Down Arrow to go to the next cut in that clip.
- 17 Press / (slash) to play around the cut point and identify what you need to trim.

- 18 Press U to toggle the edit direction and press , (comma) and/or . (period) to refine the edit.
- 19 Press / (slash) to review your trimming.
- 20 When you have finished, press A to return to the Selection mode.

You have refined a small part of this interview using various techniques to remove unwanted parts of what the subject says and refining the rest into a succinct description of her business. When chipping away at a longer cut with the goal of making it shorter, these keyboard-oriented trim commands enable you to make tiny, precise trims as you see and hear the results, which can be invaluable!

### Subframe Audio Editing

While video trimming is limited to a project's frame rate, audio is captured using tens of thousands of samples each second. DaVinci Resolve includes the ability to edit audio at the subframe level in the edit page, which enables a much more detailed ability to trim that means you can isolate subtle syllables or words that are slurred and make them sound clean and clearer.

You don't need to do anything to activate this feature; it's how the edit page automatically works with audio. However, when trimming audio at the subframe level, it's best to have Snapping and Linked Selection turned off for the timeline; zoom in as far as you can and do all your trimming with the mouse.

If you need greater precision than is offered by subframe audio editing, you'll need to utilize the editing functions on the Fairlight page where audio can be trimmed precisely to the sample level.

## Completing the Radio Edit

Continue to edit the two additional interview clips the director has included in this timeline.

- 1 Edit the next clip so that Miss Rachel just says, "...vegan food is starting to get the recognition it deserves."
- 2 Edit the final interview clip so she says, "Because it seems like it's a diet or a lifestyle of cutting things out when, in reality, we're just doing things completely differently."

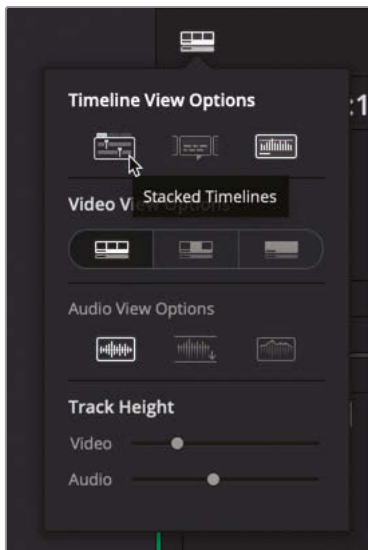
Once you have your radio edit complete, it's time to add the new interview clips into the main timeline and complete the edit.

**NOTE** For consistency, a completed version of this radio edit timeline is available for you to import into this project to complete the rest of the steps in this lesson. Select the Timelines bin and choose File > Import Timeline > Import AAF, XML, DRT, ADL and navigate to DR17 Editing Lessons/Lesson 03 Interview/Timelines/WTTP\_New\_Interview\_RADIO\_EDIT.drt and click Open.

# Using Stacked Timelines

Once you have a nice radio edit, you will want to incorporate it into the much longer interview that's already been cut. To use one timeline as a source for another timeline, it's often easier to see both timelines at the same time. The edit page timeline can display multiple timelines in different tabs or stacked on top of one another.

- 1 Ensure that the **FINISHED\_WTTP\_New\_Interview\_RADIO\_EDIT** timeline has been imported and is open in the Timelines window. Click the Full Extent Zoom button to see the entire timeline.
- 2 Select the Timeline View Options menu and choose the first option to enable stacked timelines.

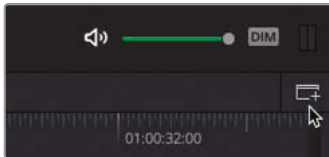


Tabs appear above the timeline, with the timeline's name. You can use the pop-up menu on this tab to access any other timeline from your project (similar to the Timeline Viewer pop-up menu) or open additional tabs using the plus button to display multiple timelines.

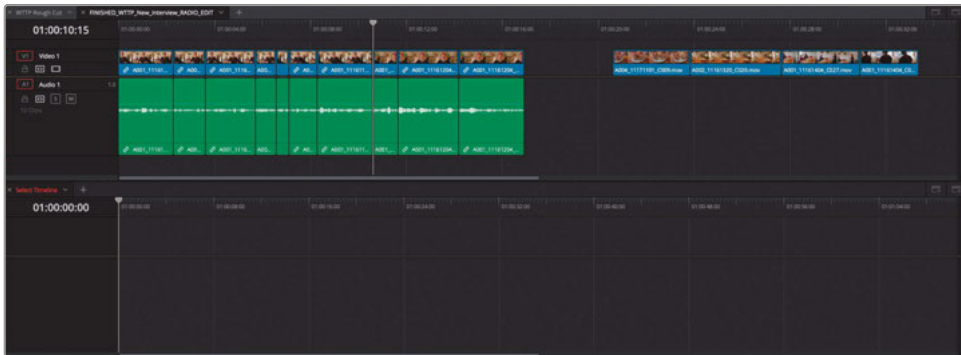
**TIP** You can close existing tabs by clicking the X next to the name of each tabbed timeline. You can also drag timeline tabs horizontally to change their order.

**NOTE** You can only open one instance of each timeline in any project. If a timeline is currently open in a tab, it will be grayed out in the list of available timelines.

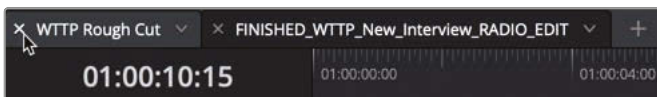
In addition to the tabs, another second type of Add Timeline button appears in the top-right corner of the timeline window.



- 3 In the upper-right corner of the timeline, click the New Stacked Timeline button. A second timeline window appears below your current radio edit timeline.



- 4 In the upper timeline, close the **WTTP Rough Cut** timeline tab.

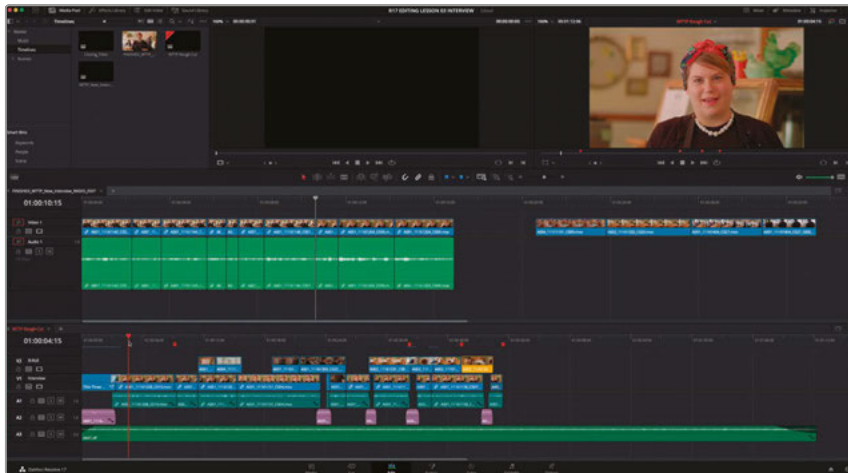


- 5 In the lower timeline window, from the Select Timeline pop-up menu on the empty timeline tab, choose the **WTTP Rough Cut** timeline.



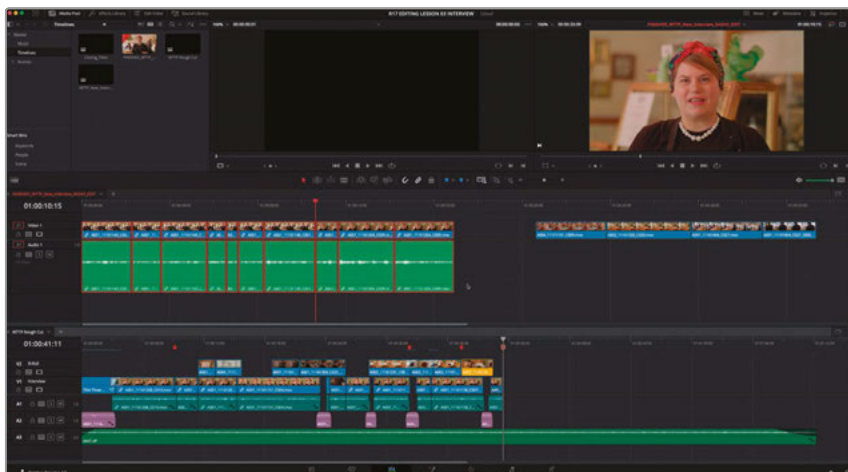


- 6 If necessary, resize your interface and use the zoom controls and timeline track height sliders located in the Timeline View Options menu so you can see the contents of each timeline clearly.

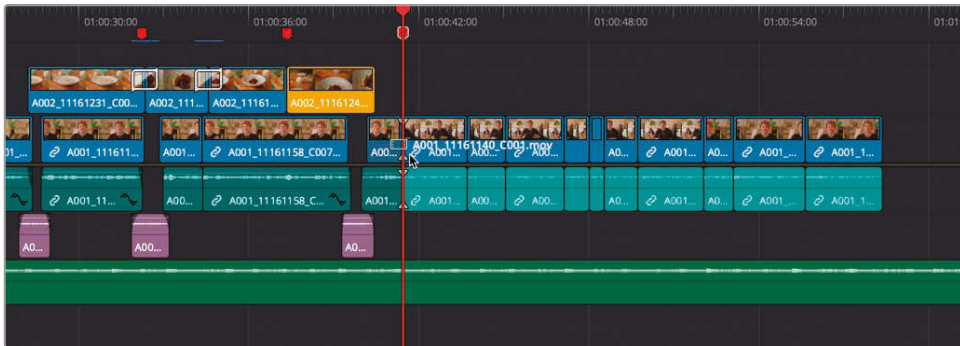


**NOTE** Each timeline has its own set of zoom and view controls that work independently from any other open timelines. The currently active timeline is indicated by highlighting the timeline's name in red.

- 7 In the **WTPP Rough Cut** timeline, press Shift-Down Arrow until the playhead is at the last marker, named “Add Final Interview.”
- 8 In the **FINISHED\_WTTP\_New\_Interview\_RADIO\_EDIT** timeline, select all the edited interview clips.



- 9 Drag the selected interview clips from the upper timeline into the lower timeline, ensuring that they sit on the first video and audio tracks and snap to the last red timeline marker.



**TIP** If you realize snapping is not enabled at this point, you can still enable snapping by pressing N, even if you are currently in the middle of an operation, such as dragging these clips between timelines. This toggles the Snapping function until you release the mouse button.

The clips are instantly copied from the radio edit timeline into the main **WTTP Rough Cut** timeline. This creates separate instances of these clips in your new timeline that you can trim and adjust without disrupting or changing the original edits.

Now you'll refine this interview further before adding the cutaways.

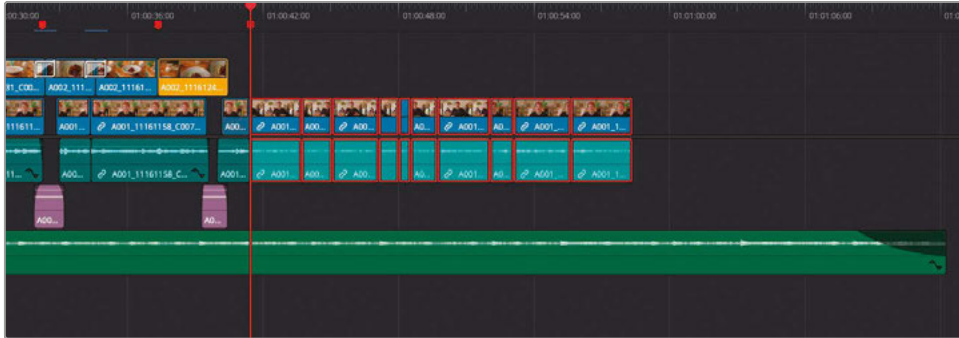
- 10 If necessary, move your **WTTP Rough Cut** timeline playhead to the last red timeline marker.

**TIP** Press Shift-Down Arrow to jump to the next marker and press Shift-Up Arrow to jump to the previous marker.

- 11 Press / (slash) to preview this edit.

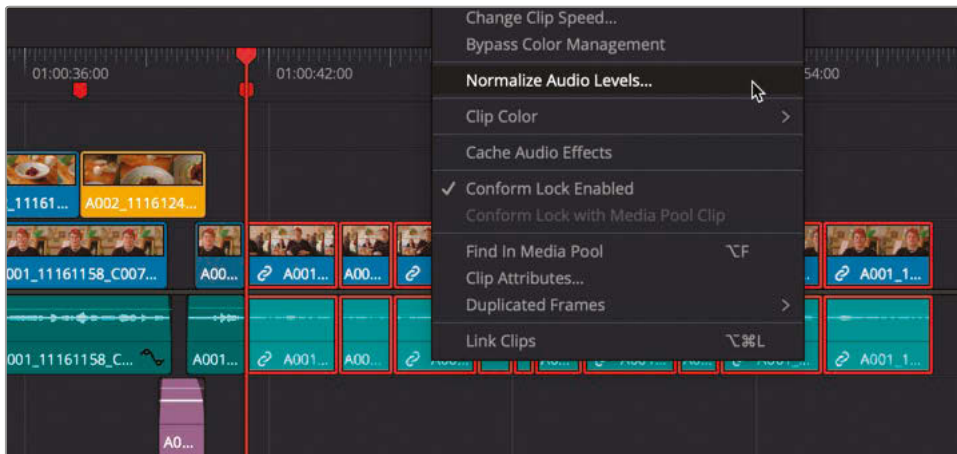
First, there's a difference in audio levels, and second, the edit is a little too abrupt.

- 12 Select Timeline > Select Clips > Forward > Select Clips Forward on This Track, or press Y to select all the clips forward of the playhead position.

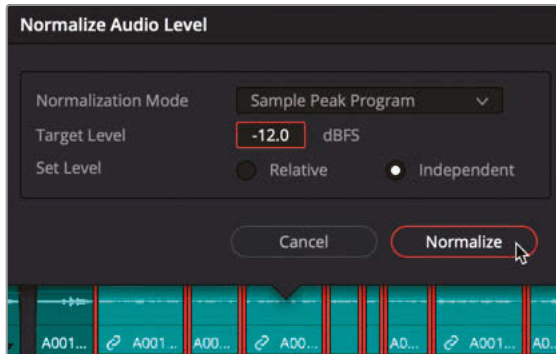


**NOTE** This command selects clips forward on a track that is targeted by the timeline destination controls. Press Command-Y (macOS) or Ctrl-Y (Windows) to select all clips backward from the playhead on a selected track, press Option-Y (macOS) or Alt-Y (Windows) to select all clips forward on all tracks, and press Option-Command-Y (macOS) or Alt-Ctrl-Y (Windows) to select all clips backward on all tracks.

- 13 Right-click any of the selected interview clips and choose Normalize Audio Levels.



- 14 In the Normalize Audio Levels dialog box, choose Sample Peak Program, change Target Level to -12dBFS, Set Level to Independent, and then click Normalize.

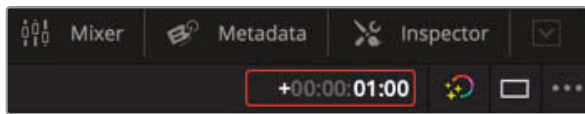


The audio for the selected clips is normalized and is now more in keeping with the adjusted levels in the rest of the timeline.

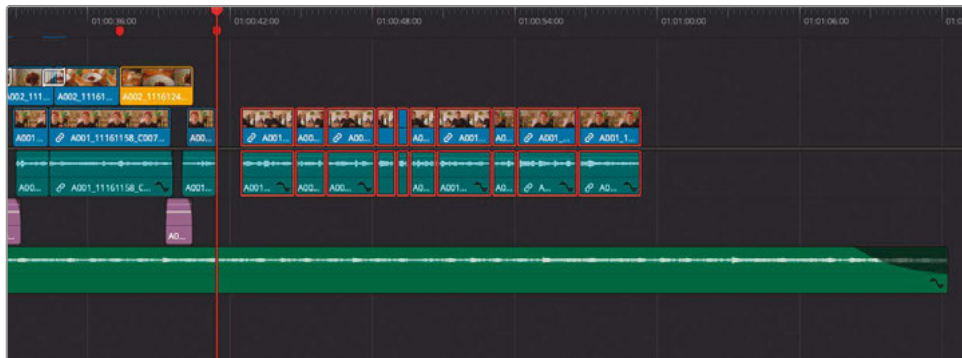
Next, you will adjust the pacing of the new interview clips.

- 15 With the clips still selected, type **+100** and press Enter.

This relative timecode adjustment automatically appears in the timeline viewer's timecode field.



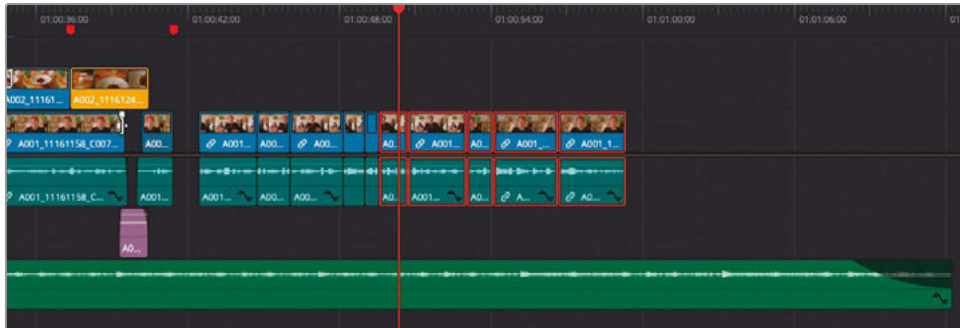
- 16 Press Enter.



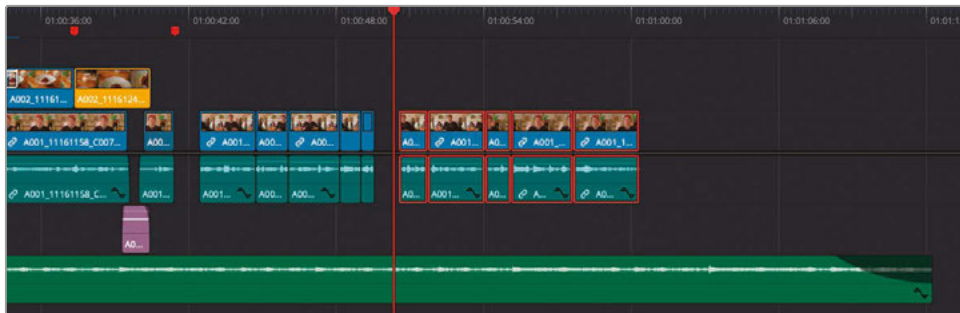
The selected clips move forward 1 second, leaving a 1-second gap.

- 17 Play forward and stop just as Miss Rachel says, "Vegan food..." (the sixth of these newly added clips).

- 18 Make sure your playhead is on the clip where Miss Rachel says, “Because vegan food...” and press Y to select only the clips forward of this point.



- 19 Again, type **+100** and then press Enter to move these clips forward by another one second.

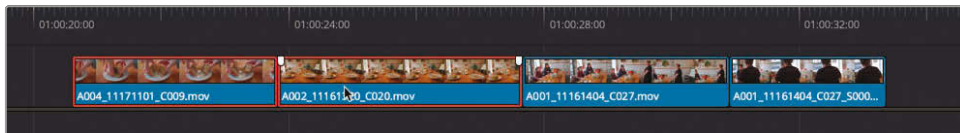


These one-second gaps you have created give the interview the breathing room required to make Miss Rachel’s interview sound natural and easy to understand.

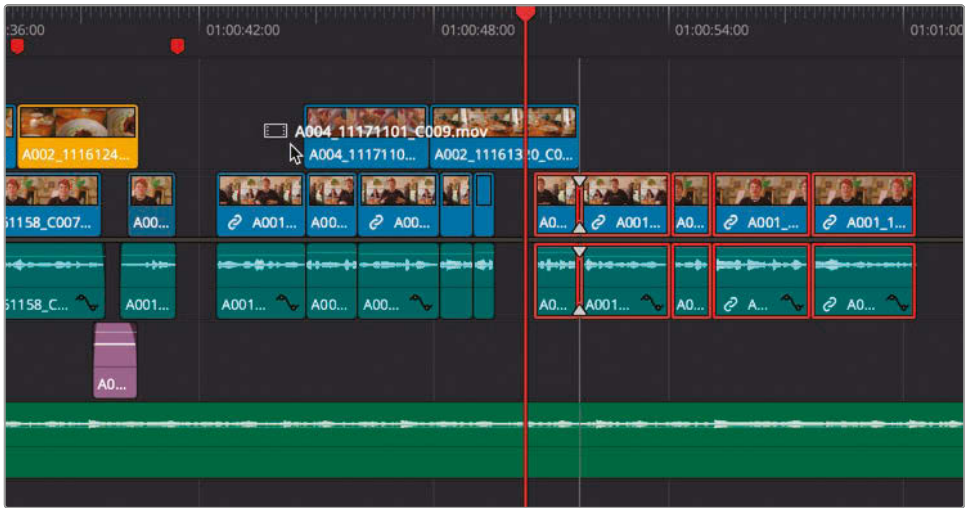
## Adding the Cutaways and Filling in Atmos

Now that you have added the edited interview into this project’s main timeline, it’s time to cover all those distracting visual jump-cuts with the B-Roll shots provided by the director.

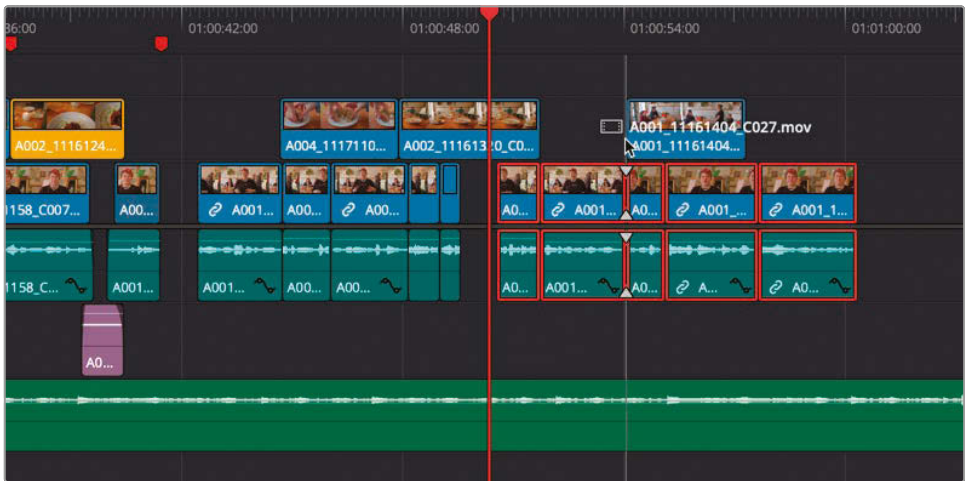
- 1 In the uppermost timeline, **FINISHED\_WTTP\_New\_Interview\_RADIO\_EDIT**, select the first two clips after the gap.



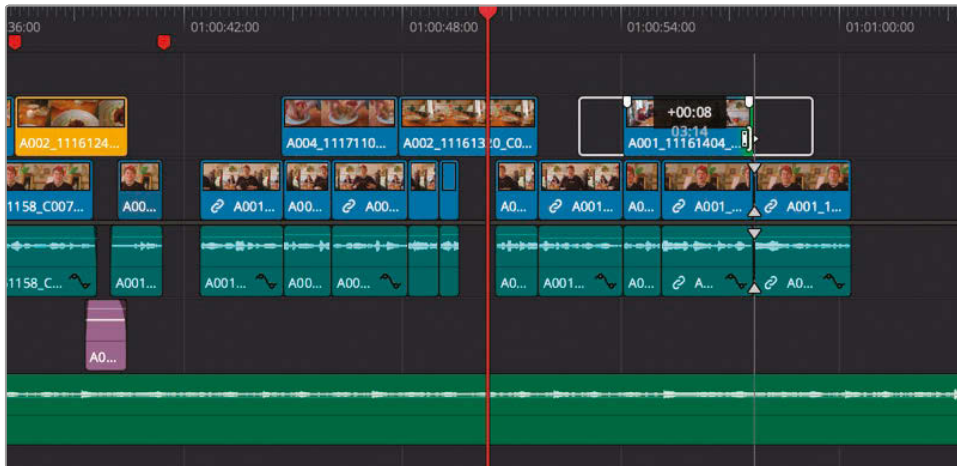
- 2 Drag them to the second video track in the **WTTP Rough Cut** timeline, snapping the end of the second clip to the end of the first interview clip after the second gap you created.



- 3 In the upper radio edit timeline, select the third cutaway clip and drag it into the WTTP Rough Cut timeline so it snaps to the start of the third interview clip from the end.



- Trim the end of this clip to snap to the start of the final interview clip.



Now that you have added the new footage from the imported timeline, you can close the stacked timelines.

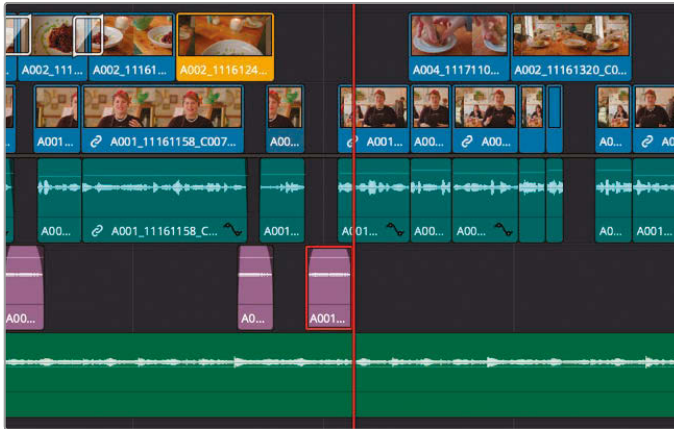
- Make sure the **WTTP Rough Cut** is the currently active timeline, then open the Timeline View Options menu and click the stacked timelines button again to return to a single timeline view and adjust the edit page interface to use the additional space.



**TIP** You can choose to close a specific stacked timeline by clicking the Close Stacked Timeline button in the upper-right corner of its timeline window.

By adding the B-roll footage to the track above the interview you have successfully covered the jump cuts. Now, you just need to fill the gaps in the interview with a bit of atmos or wildtrack. Thankfully, as you already have sections of atmos used for this purpose on Audio 2, it's simply a matter of copying those clips to the new gaps.

- 6 Select the second clip in the ATMOS audio track and press Command-C (macOS) or Ctrl-C (Windows) to copy the clip.
- 7 Place your playhead at the start of the gap at the last red timeline marker.
- 8 Press Command-V (macOS) or Ctrl-V (Windows) to paste the copied audio clip.



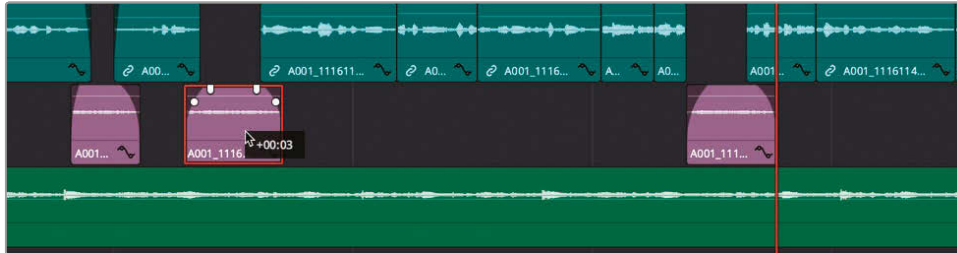
- 9 Choose Playback > Next > Gap or press Option-Command-' (apostrophe) on macOS or Alt-Ctrl-' (apostrophe) on Windows to move to the next gap.

**NOTE** The Next Gap and Previous Gap commands move the playhead to the appropriate gap on any auto select-enabled track.





- 10 Again, press Command-V (macOS) or Ctrl-V (Windows) to paste another copy of the clip.
- 11 Move and trim the pasted audio clips so that they cover the gaps in the interview audio.



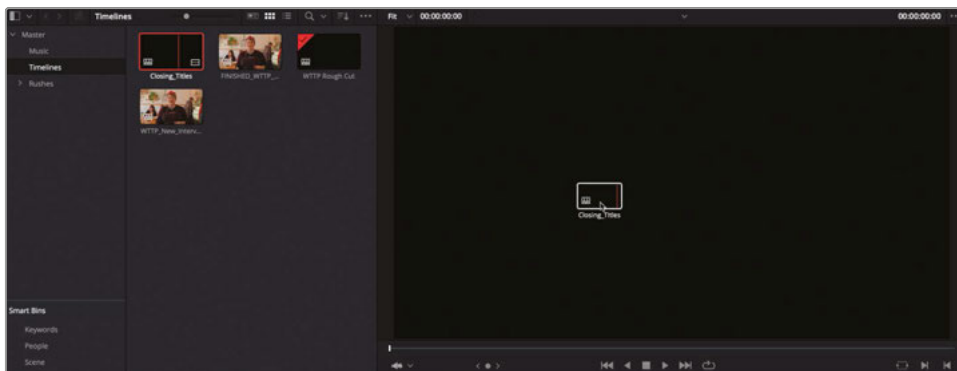
## Decomposing Timelines

Another way to edit one timeline into another is by dragging from the media pool directly into the Timeline window. When editing in this manner, you create a compound clip by default that appears as a single source clip in the timeline.

**NOTE** You will learn more about creating your own compound clips for specific tasks in Lesson 7.

Again, the director has put together a set of titles she would like you to include at the end of this short promo for Miss Rachel's Pantry.

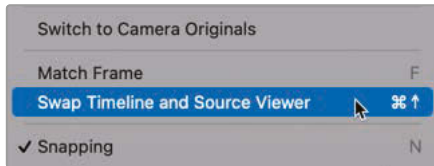
- 1 From the Timelines bin, drag the **Closing Titles** timeline to the source viewer.



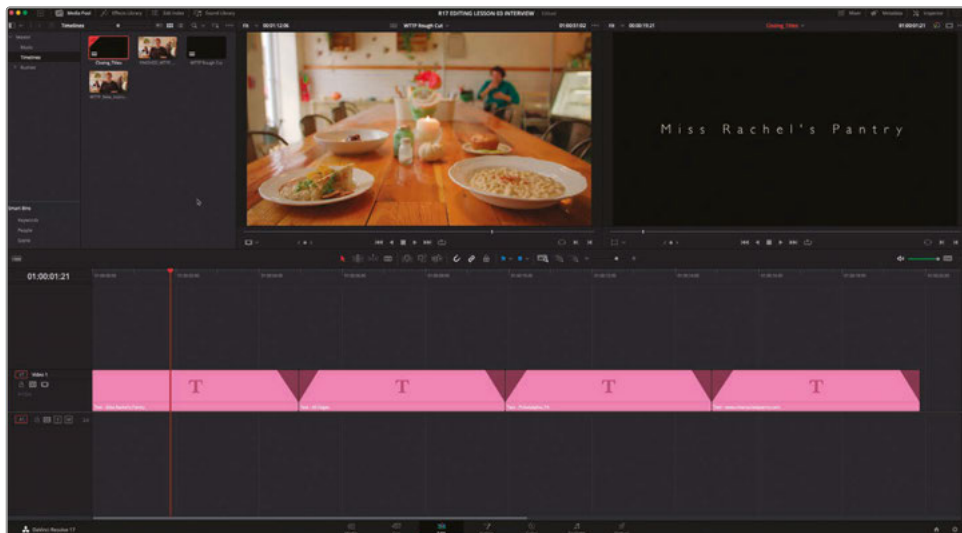
The source viewer now displays the contents of the timeline currently loaded into it.



- 2 Choose Timeline > Swap Timeline and Source Viewer.



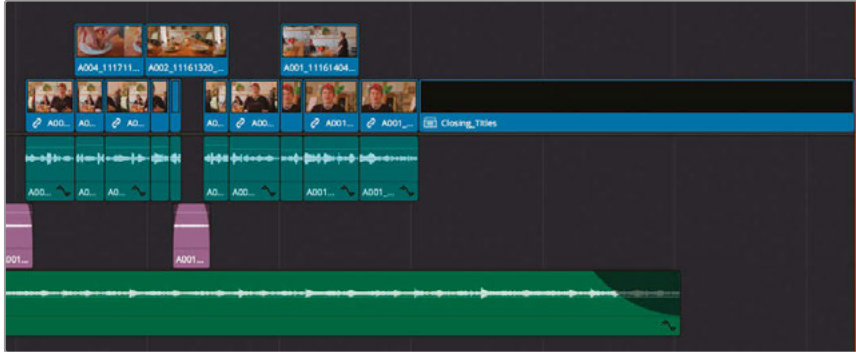
The Source and Timeline Viewers swap positions, and the timeline shows the content of the source viewer, which comprises four separate titles, each animated with dynamic zoom and a short fade in and out.



- 3 Choose Timeline > Swap Timeline and Source Viewer or press Command-Up Arrow (macOS) or Ctrl-Up Arrow (Windows) to swap the viewers once more.

You need to edit these titles at the end of your **WTTP Rough Cut** timeline.

- 4 Press Shift-F12 to perform an Append At End edit.

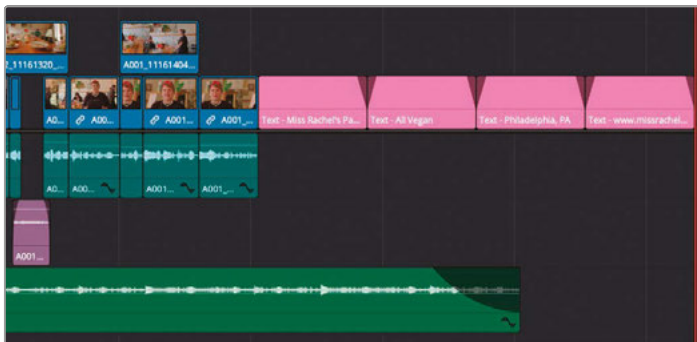


The titles appear at the end of the current timeline but are displayed by default as a single compound clip.

A compound clip is actually a special clip used to group multiple clips together as one. Using compound clips can make it easier to manipulate, add effects to, color correct, and animate many clips in a timeline at the same time because it is treated as a single source clip. You'll learn more about the process for creating your own compound clips in a later lesson. In this case though, you'll want to access the individual titles inside the compound clip so you can trim them all to the correct duration.

- 5 In the timeline, select the **Closing Titles** compound clip and choose Clip > Decompose in Place.

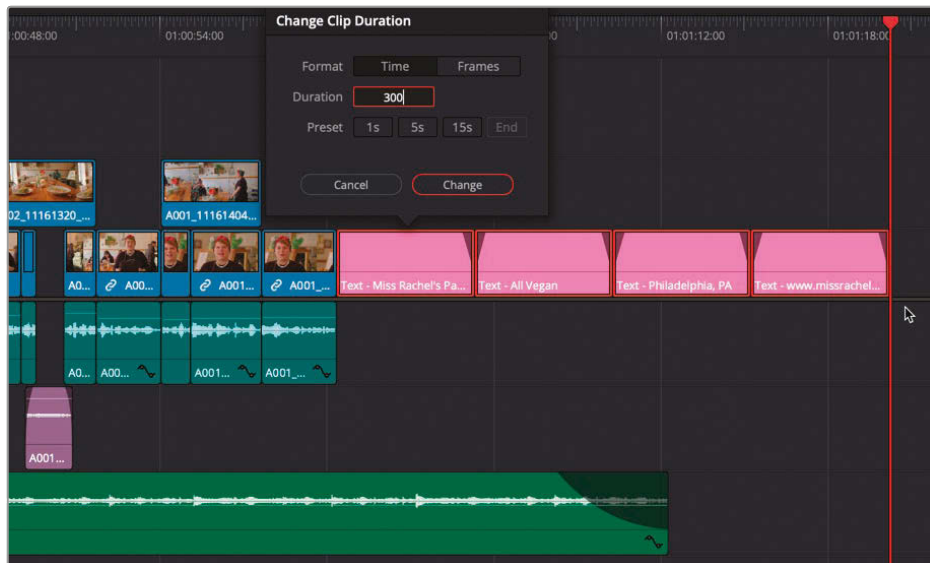
**NOTE** You can identify a clip as a compound clip from its icon, which looks like a layered video clip.



The compound clip is removed, and the original titles are displayed. Although compound clips provide some convenience by treating multiple clips as one, having independent titles in the timeline allows you to better trim them to the end of the music.

**TIP** You can tell DaVinci Resolve to automatically decompose compound clips automatically when you edit one timeline into another by choosing **Edit > Decompose Compound Clips On Edit**.

- 6 Select the four titles at the end of the timeline.
- 7 In the toolbar, click the Trim Edit mode button, or press T.
- 8 Right-click any of the selected clips and choose **Change Clip Duration** or press **Command-D (macOS)** or **Ctrl-D (Windows)**.
- 9 In the **Change Clip Duration** window, type **300** and click **Change**.



The clips each change duration to 3 seconds and, because the Trim Edit mode is active, ripple to the correct duration.



Many complex edits are often broken down into multiple different timelines, each of which might go through several different versions before being reassembled back into the finished file for delivery. By carefully managing each of these timelines, you'll find that it's a more efficient way of working through an edit than trying to do everything in one massive timeline.

Next, you'll explore some of the tricks that can be used to help refine a timeline such as this, where you're trying to present lots of disparate pieces of footage, often shot at different times and under different conditions, as a single, unified production.

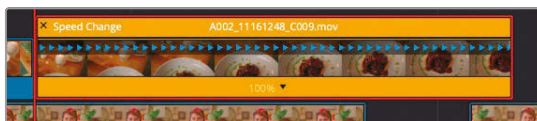
## Creating Variable Speed Changes

DaVinci Resolve has many advanced controls to manipulate the playback speed of clips. One set of these tools, the retime controls, enable you to apply multiple speed changes to the same clip without splitting the clip into multiple cuts. Such speed changes are commonly known as speed ramps. To explore these techniques, you'll finesse the **WTTP Rough Cut** timeline you added to in the previous lesson.

- 1 Press A to ensure you are in Selection mode.
- 2 In the timeline, select the yellow clip on the B-roll track and press / (slash) to play the selection.

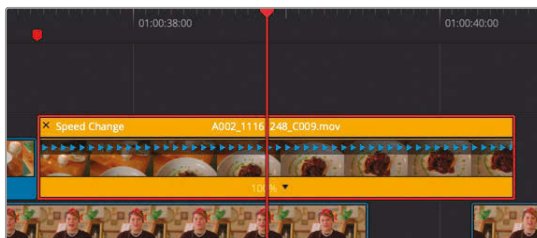
This shot of the barbecued seitan would be nicer if it slowed down as the plate came closer, allowing the viewer's eye to linger over this dish.

- 3 Click the Detail Zoom button to zoom into the clip on the timeline.
- 4 Press Command-R (macOS) or Ctrl-R (Windows).



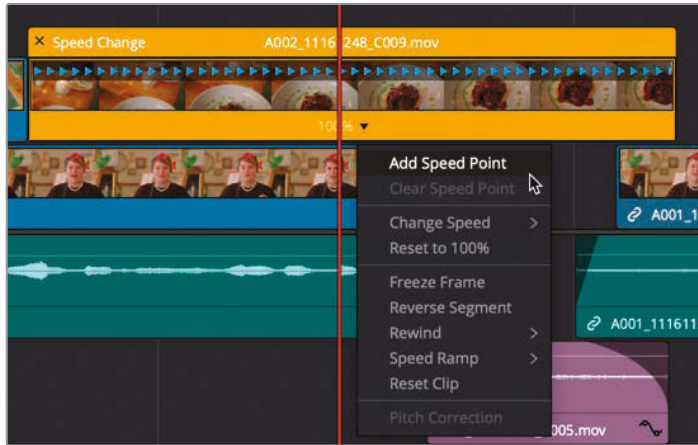
A bar appears along the top of the clip with the speed percentage of the clip displayed underneath the video thumbnails.

- 5 Place the playhead about halfway into the duration of the clip.

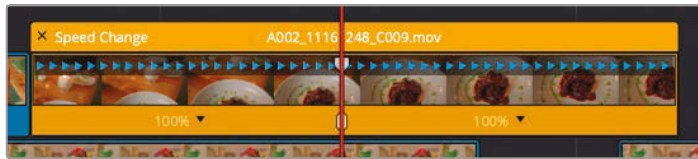


This is the location where you would like to start slowing down the clip playback. You do so by adding a speed point at the playhead location.

- 6 Along the bottom of the clip, click the disclosure arrow to the right of the speed percentage display and choose Add Speed Point.

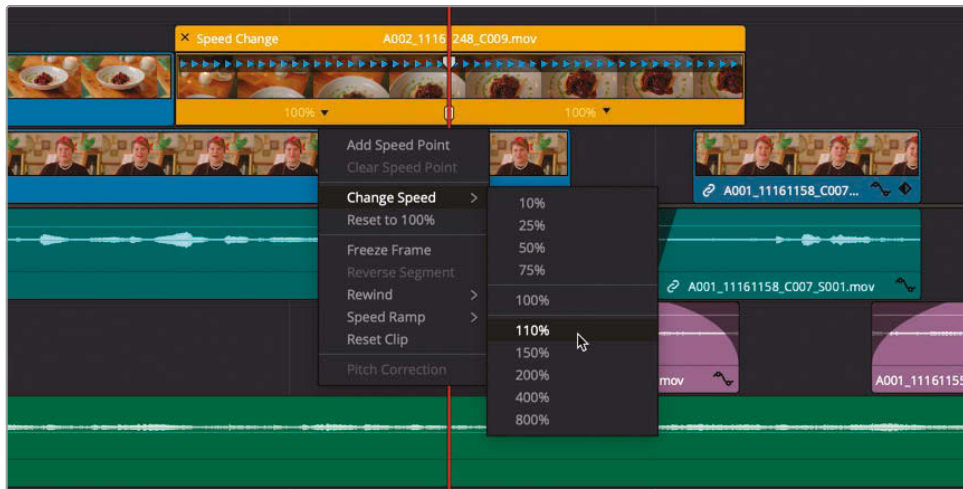


The speed point divides the clip into two sections, with each section now having its own playback speed. You can set the speed in the menu you used to set this speed point.

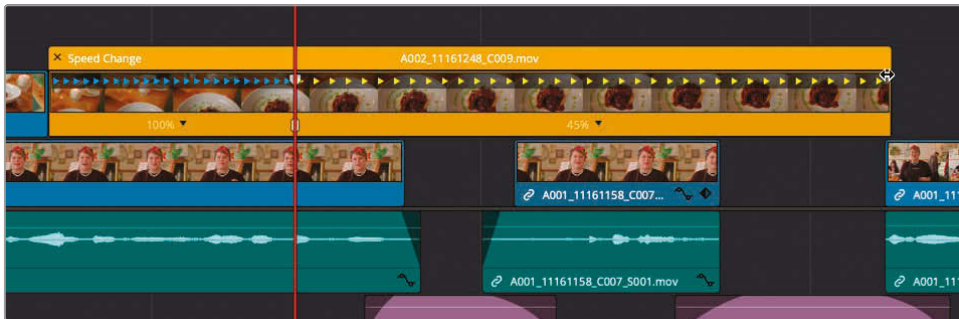


You will increase the speed slightly for the first half of the clip, and then slow it down for the second half.

- 7 Click the disclosure arrow for the segment on the left and choose Change Speed > 110%.



- Position your mouse pointer on the right edge of the Speed Change bar, and when the pointer changes to a double arrow, you can drag the edge of the clip to the point where she laughs. Doing so reduces the speed even further and better covers the jump cut.

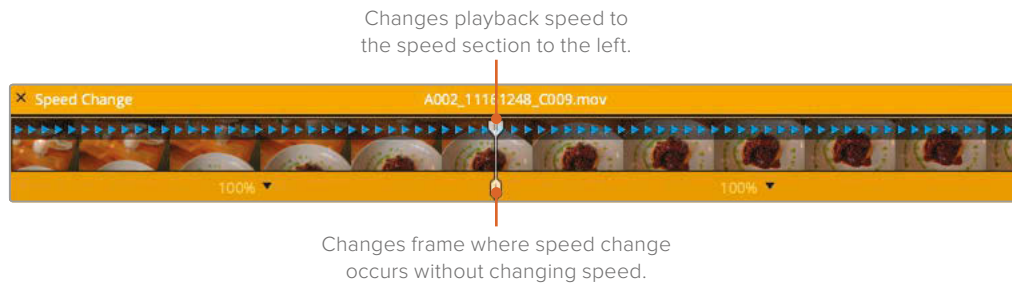


- Play over the speed change to view the results.

Being able to manipulate the speed at different points in a clip is a simple yet powerful technique. However, like most things in editing, you rarely set it and forget it. You will more likely want to make changes to the speed and how it appears.

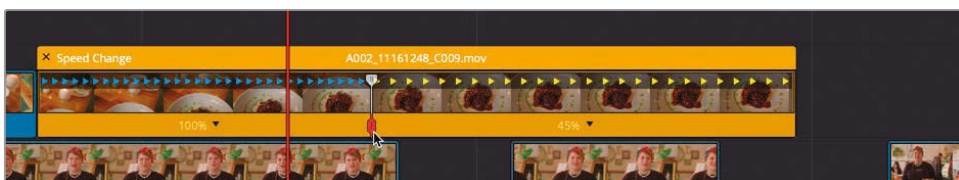
## Modifying Speed and Quality

You can modify the position of speed points and the playback speed of each section by dragging the speed point. Each speed point has two handles. Dragging the upper handle speeds up or slows down the section to the left, whereas dragging the lower handle changes the frame on which speed point occurs.



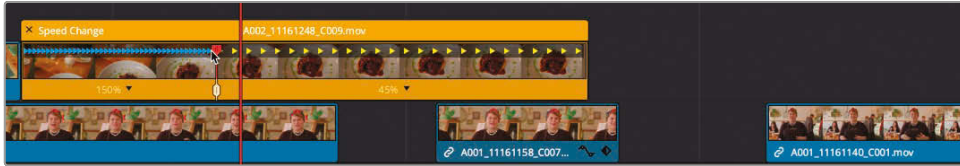
On this clip, if you want the speed change to occur when the plate is a bit more fully onscreen, you can drag the lower handle.

- Drag the lower handle to the right until the plate is more fully in the frame.



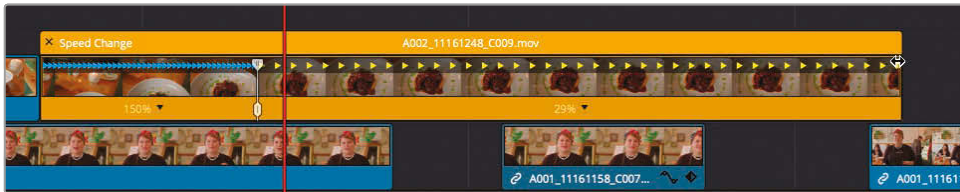
Notice that the speeds of both sections on either side of the speed point did not change speed. Only the location of the speed point has changed. If you wish to increase the playback speed of the first half of the clip, you can drag the upper handle.

- 2 Drag the upper handle to the left until the speed display at the bottom of the clip is around 150%.



Changing the speed for the first half of the clip as well as the location of the speed point has changed the clip's overall duration. You'll need to change the speed of the second half of the clip to extend it over the next clip on video track 1. The last segment does not have a speed point, but you can change the speed of the segment using the speed bar at the top of the clip.

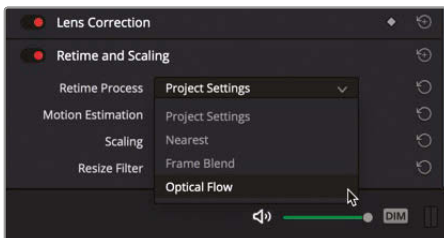
- 3 As you did previously, drag the speed bar corner to the left until the clip is extended to cover the clip on video track 1 and the speed of the second half is around 25%



- 4 Play over the clip to review your changes.
- 5 Select the clip and press Command-R (macOS) or Ctrl-R (Windows) or right-click the clip and choose Retime Controls to close the retime controls.

You now have an eye-catching shot that feels more contemporary and engaging than the straight food shot you had previously. Unfortunately, the slow parts of the footage now appear a little stuttery because Resolve has to repeat frames to create that speed change.

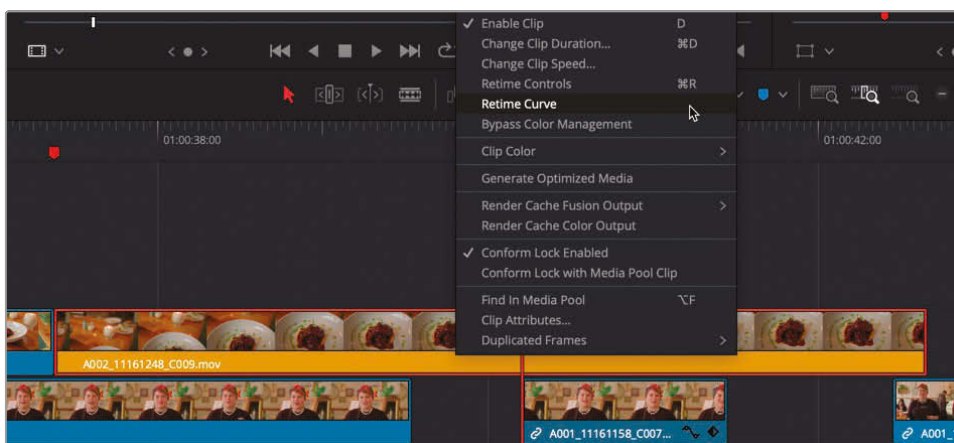
- 6 Select the clip in the timeline and open the Inspector. In the Retime and Scaling controls, change Retime Process from Project Settings to Optical Flow.



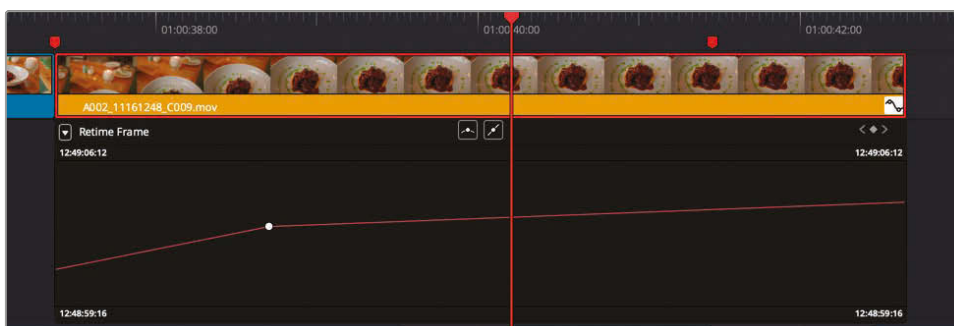


**TIP** The Motion Estimation menu includes a more advanced option called Speed Warp that can improve optical flow on shots with criss-crossing objects such as cars, picket fences, and shots of walking and running legs.

- 7 Finally, to smooth the transition between to the two speed sections, right-click the clip in the timeline and choose Retime Curve.



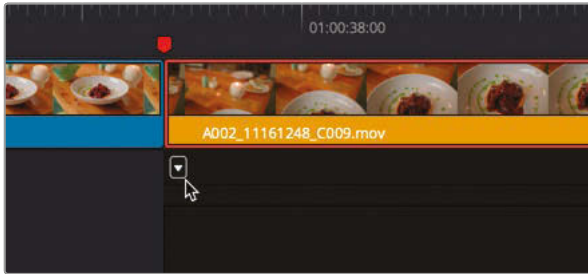
The Retime Frame Curve opens below the clip in the timeline.



The Retime Frame Curve displays a diagonal line that represents a time graph where the vertical axis represents each frame of a clip's source media, and the horizontal axis represents the frame of playback in the timeline. Normally, this graph would be a constant progression from bottom left to top right. However, in this case you'll see where a keyframe has been added that interrupts the straight progression for this clip.

Sometimes it's easier to change the graph to something that's easier to view.

- 8 Click the Curve pop-up menu at the top-left of the Curve Editor.

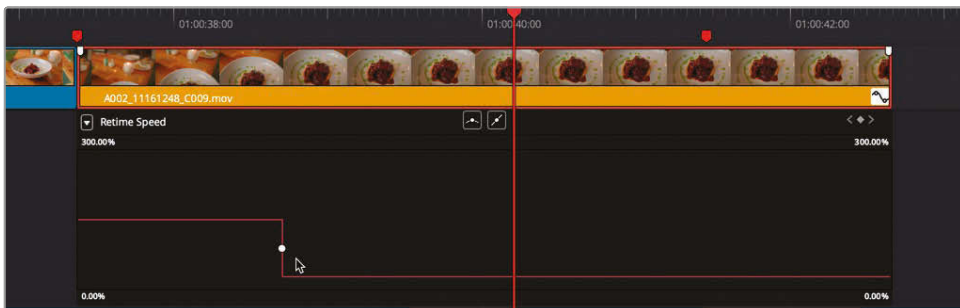


- 9 Select Retime Speed and deselect Retime Frame.



The Retime Speed Curve is presented as a flat, horizontal line. To increase the speed of a section, drag the line up; to decrease the speed for a section, drag the line down. A tooltip displays a percentage of the original speed for that section. The amount of time the speed change takes to occur is represented by the vertical line that joins the different levels. In this case, because the line is completely vertical, the speed change is instant and abrupt. To smooth the interpolation, you need to add handles to the keyframe.

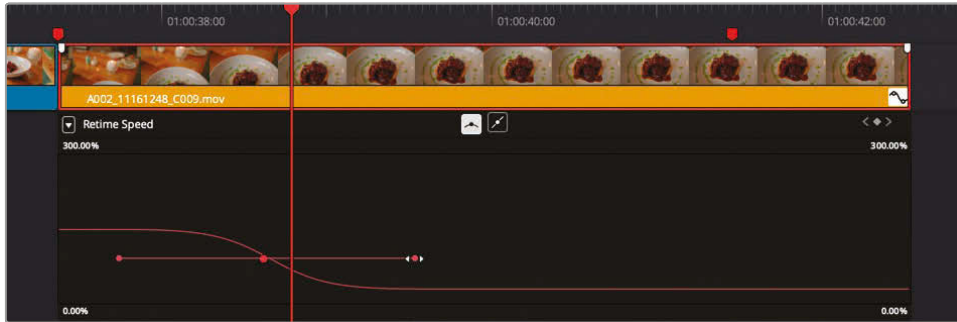
- 10 In the Retime Speed Curve, click the keyframe to select it.



- 11 Click the Bézier control.



- 12 Drag the handles out to adjust the amount of smoothing applied to the speed change.



- 13 Finally, right-click the clip and choose Retime Curve to hide the retime curve.

This food shot in your timeline is now much more dynamic and exciting. You've also easily manipulated a moving shot to increase its impact and help cover the jump cuts in the interview edit.

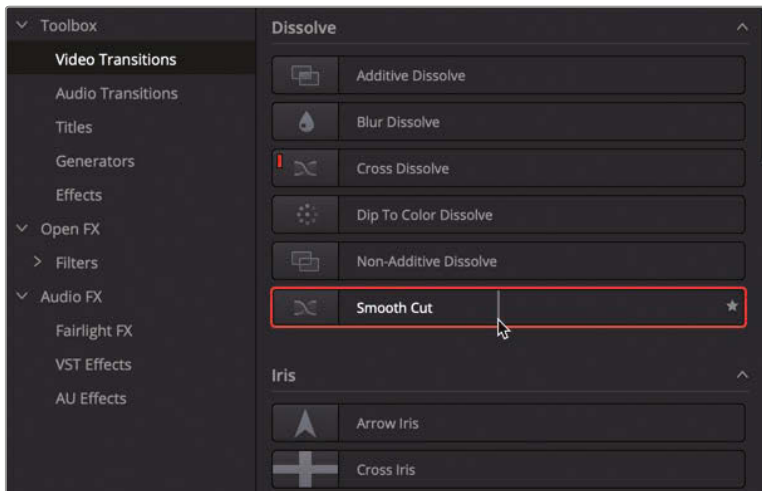
## Using Smooth Cut

Another way to hide a jump cut from your viewer is to use the Smooth Cut transition.

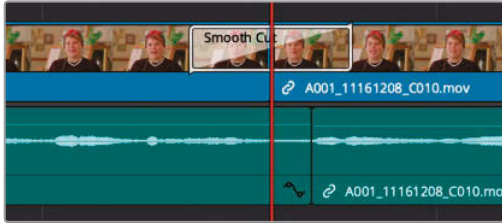
- 1 In the timeline, place your playhead at the first red timeline marker. Press / (slash) to preview the cut.

This is a classic jump cut that distracts from the story about the merits of this vegan restaurant.

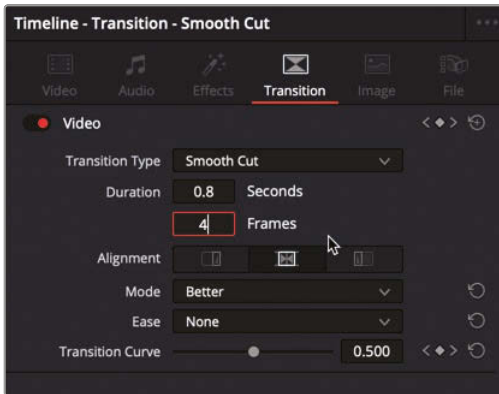
- 2 Open the Effects Library, select the Video Transitions group, and in the Dissolve category, locate Smooth Cut.



- 3 Double-click the Smooth Cut transition to add it to the edit point.

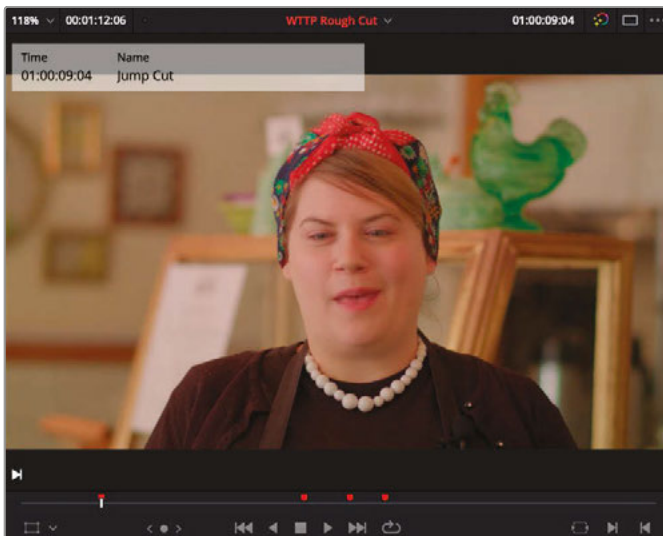


- 4 Select the Smooth Cut transition in the timeline and set the duration of the transition to 4 frames in the Transition Inspector.



- 5 Press / (slash) to play around the selected transition.

You should see that Resolve successfully manages to blend the two sides of the jump cut into what appears to be a single take.



Remember, though, that you should use this transition with great care; you don't want to change or misrepresent the meaning of something your interviewee said through your editing, no matter how subtly!

## Working with Advanced Transition Tools

Transitions in Resolve are very straightforward to use. But they also allow you to go much deeper into transition customization than you might have thought possible. Resolve has a built-in curve editor for transitions that enables you to customize the acceleration of any transition animation. Let's create one for your radio edit.

- 1 Go to the second marker in the timeline.

This is the shot of macaroni and cheese in the middle of your timeline.

- 2 Play over the cross dissolve transition at the end of this clip.

The transition works well, but the incoming shot takes a few frames before the camera motion settles down. If you ease the transition's start, it will fade into the incoming shot more slowly, thereby reducing the impact of the camera movement at the start of the clip. You can address this by creating a custom ease-out using the Transition Curve editor.

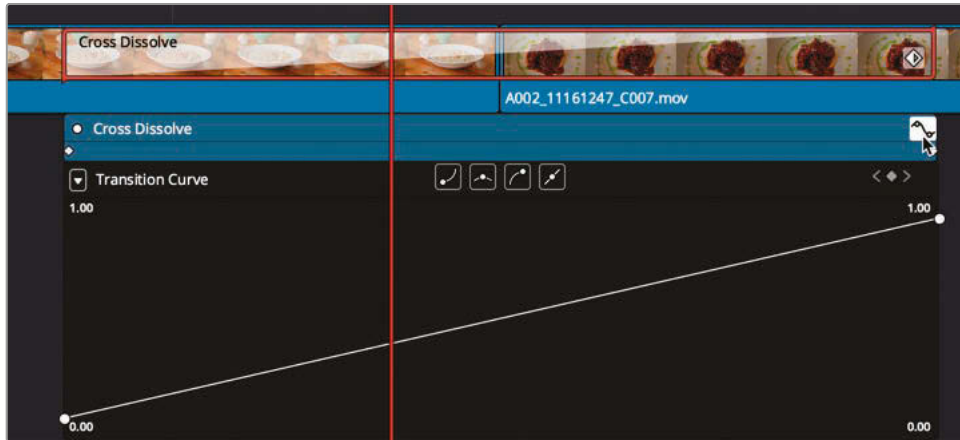
- 3 Click the Detail Zoom button and select the transition. Click the diamond icon to open the keyframe track.



**TIP** If you can't see the diamond icon on your transition, zoom further in on your timeline.

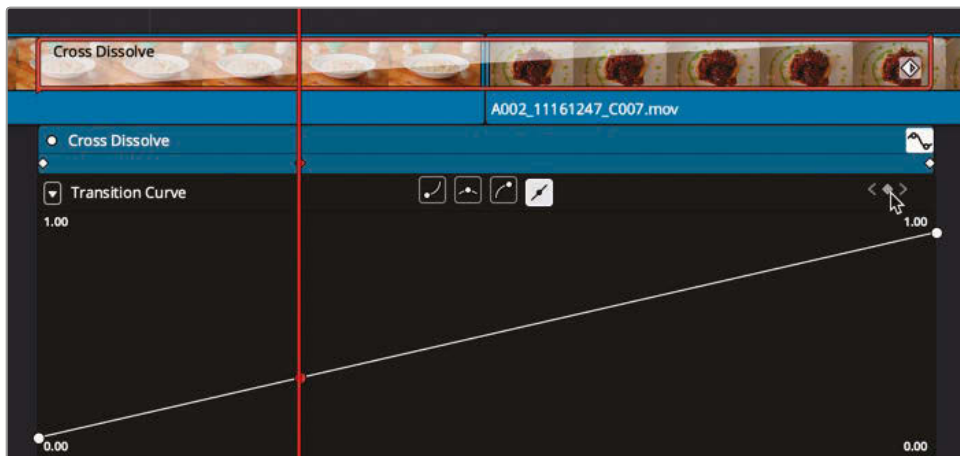
If you just wanted to move a keyframe earlier or later, you could use this editor. However, to create a custom acceleration curve, you must use the curve editor.

- 4 On the right side of the keyframe editor that appears below the clip, click the curve editor icon to open the Transition Curve editor.

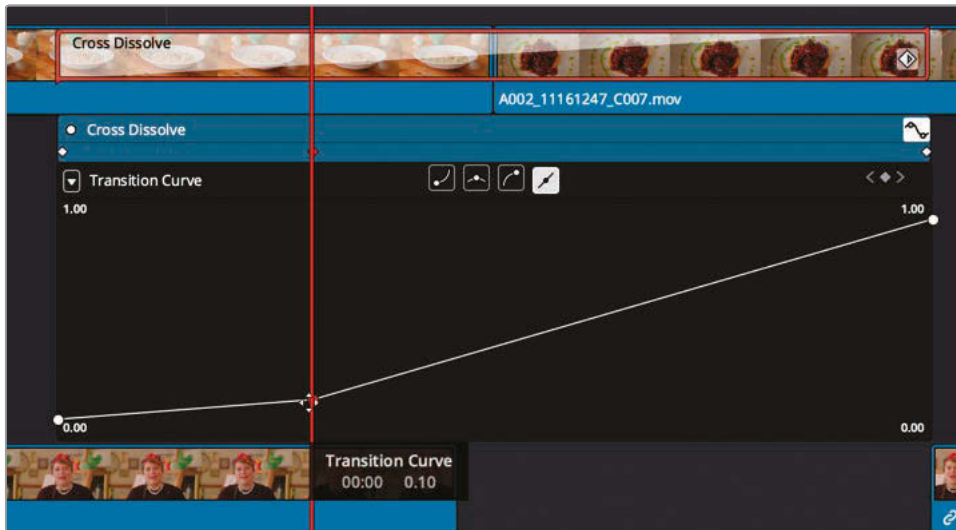


You change the slope of the curve in this curve editor to change the transition acceleration. The default linear transition is a diagonal line from the lower left to the upper right. However, you can flatten that line's slope to slow the transition speed. To slow down the curve at the start, you can add a control point along the line and decrease the slope between the initial control point on the left and the new control point you add.

- 5 Move the playhead to about one-third of the way through the transition and click the Add Keyframe button.



- 6 Drag the new keyframe down until the Transition Curve tooltip reads 0.10.

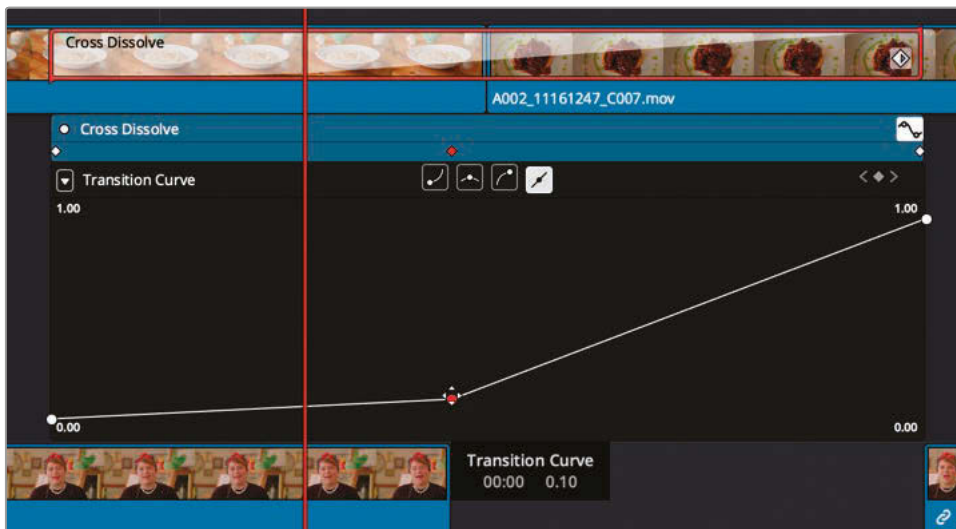


This setting indicates that at this keyframe, the transition will be only 10% complete.

- 7 Press / (slash) to play around the selected transition and view the results.

If the acceleration isn't hiding enough of the slow camera start at the beginning of the clip, you can move the control point horizontally to change the timing.

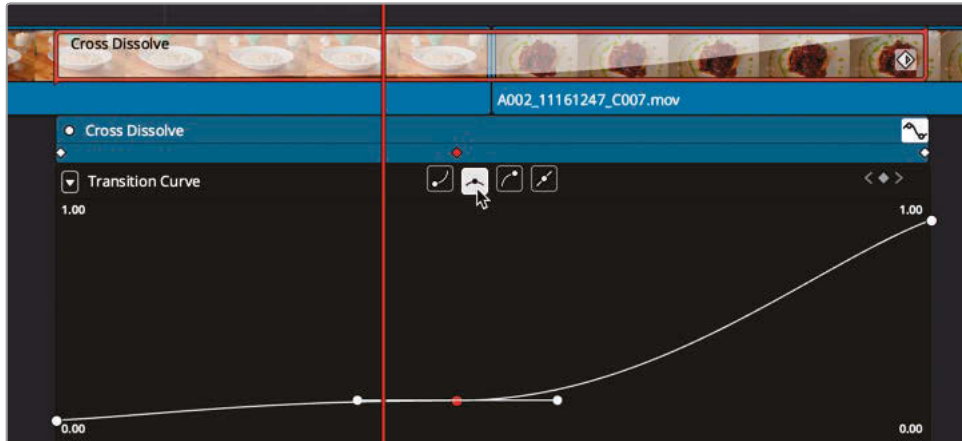
- 8 In the Keyframes Editor track, drag the control point to the right until it is almost in the middle of the clip to lengthen the slow acceleration.



- 9 Press / (slash) to play around the selected transition.

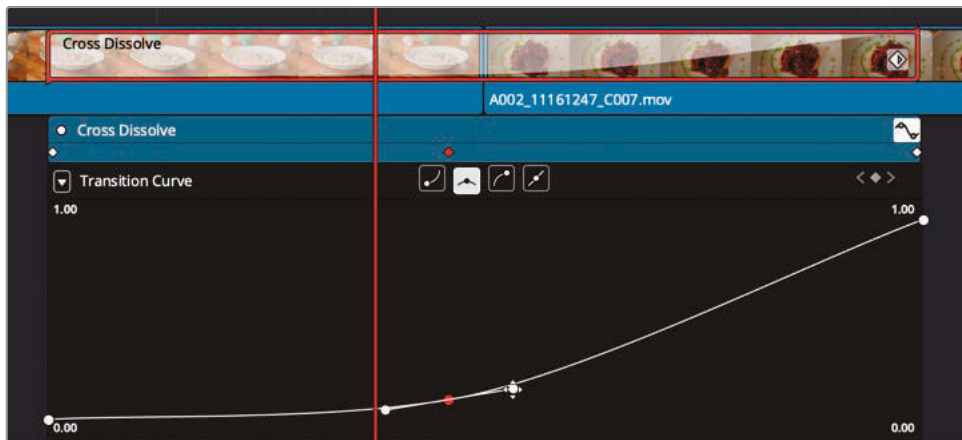
Although you delayed the acceleration, a very linear transition remains between the control points. You can smooth these transitions using the interpolation buttons at the top of the curve editor.

- 10 With the keyframe still selected, click the second interpolation button from the left to create an ease-in/ease-out interpolation for the control point and to display Bézier handles that will allow you to perform further refinement.



Because the Bézier handles are almost completely horizontal when added, they will create a pause in the transition, holding it for just a moment. However, that's not what you want, so you'll need to adjust the handle to accentuate the slow acceleration at the start of the clip.

- 11 Adjust the Bézier handles to create a smoother curve.



- 12 Press / (slash) to play around the selected transition.



- 13** If you are happy with the results, you can close the curve editor by clicking the Transition Curve editor button in the upper-right corner of the graph. Then, click the diamond-shaped Keyframes Editor button in the lower-right corner of the transition icon in the timeline to close the Keyframes Editor.

Custom transitions such as this are most often used in very specific situations, but you can also save them as presets if you anticipate the need to reuse a custom curve transition in the future.

## Lesson Review

- 1** What is known as a “radio edit”?
  - a)** When your edit will be used on radio as well as television
  - b)** A cut-down version of your film used by reviewers
  - c)** A technique of concentrating on the audio before editing the visuals
- 2** Where can you find the option to show stacked timelines?
  - a)** Drag one timeline on top of another to display two timeline windows.
  - b)** The Timeline View Options menu
  - c)** There is no option to show stacked timelines.
- 3** Where are the Retime Process options located for each clip?
  - a)** In the Retime Frame Curve
  - b)** In the Inspector
  - c)** By double-clicking a clip
- 4** What transition should be used to make short jump cuts less noticeable?
  - a)** Smooth wipe
  - b)** Smooth dissolve
  - c)** Smooth cut
- 5** How can you access the advanced transition controls?
  - a)** Right-click the transition in the timeline and choose Advanced Transition Controls.
  - b)** Click the transition’s Keyframe button and click the Transition Curve editor button.
  - c)** Click the transition’s Curve Editor button in the Inspector.

## Answers

- 1 c) A “radio edit” is created when you focus on editing the audio of an interview to make it sound smooth and natural before turning your attention to the covering visuals.
- 2 b) The Timeline View Options menu
- 3 b) In the Inspector, specifically in the Video tab.
- 4 c) Smooth cut is a special-purpose transition designed to make short jump cuts less noticeable by using optical flow processing to automatically morph a subject between two positions across the duration of the transition.
- 5 b) To reveal the Transition Curve editor, click the Keyframe diamond icon in the lower-right corner of the transition to display the Keyframes Editor, and then click the Curve Editor button.

## Lesson 4

# Cutting a Dialogue Scene

Editing a dialogue scene is often done by establishing the location and cutting between shots as they would play out in real time.

Commonly known as *continuity editing*, this technique is centered around cutting between two or more shots, alternating back-and-forth between each character as their dialogue and reactions warrant. In this lesson, you'll apply this continuity technique to a scripted scene. You'll start with one of the most firmly established conventions in cinema—the shot/reverse-shot—and see how the editing, match framing, and trimming tools in DaVinci Resolve 17 can speed up this classic editing style.

### Time

This lesson takes approximately 60 minutes to complete.

### Goals

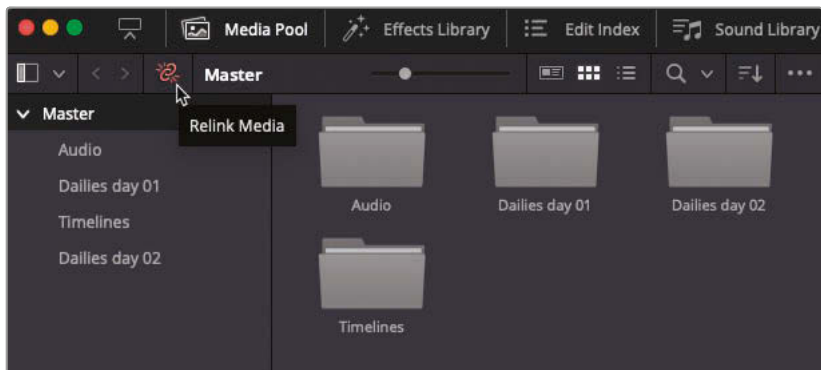
<b>Selecting Your Best Takes</b>	180
<b>Editing with Continuity</b>	193
<b>Match Frame with an Offset</b>	199
<b>Finish Cutting the Scene</b>	203
<b>Choosing from Multiple Takes</b>	203
<b>Going Beyond the Straight Cut</b>	213
<b>Trimming On-the-Fly</b>	218
<b>Putting Yourself to the Test</b>	221
<b>Dynamic Trim Mode</b>	222
<b>Lesson Review</b>	225

## Selecting Your Best Takes

Watching each take and choosing those parts that feature the best performances is often the most time-consuming part of your entire editing process, but it is also a critical step in becoming familiar with the available content and identifying which shots might and might not work. Often, you might need to work with different parts of different takes to get the best performances. Working with *subclips* is one way to help you efficiently identify and isolate those best parts within each clip.

A subclip is a totally new instance of a clip that you create from a selection within a longer clip. By creating subclips of your content, you can avoid repeatedly sifting through long clips looking for a particular bit you remember. If you make subclips while locating the good bits within clips, you'll find it easier to find them again when you need them.

- 1 In the Project Manager, right-click in an empty area and choose Import Project. Navigate to R17 Editing > Lessons > Lesson 04 Dialogue. Select the **R17 EDITING LESSON 04 DIALOGUE.drp** project file and click Open.
- 2 Open the project and click the edit page button, if necessary. Relink the media files.

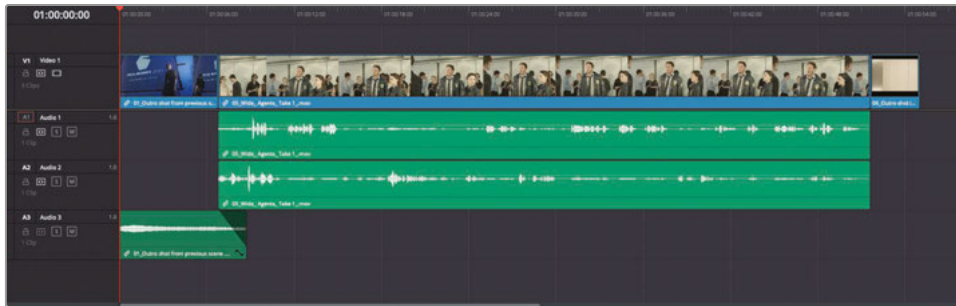


This project contains a series of dailies organized in a couple of bins.

- 3 In the timeline, click the Full Extent Zoom button, return the playhead to the start of the timeline, and play through to review the scene.



This small scene is from a short science fiction film about robots going rogue (the “Syncs” referred to by Agent Jenkins).



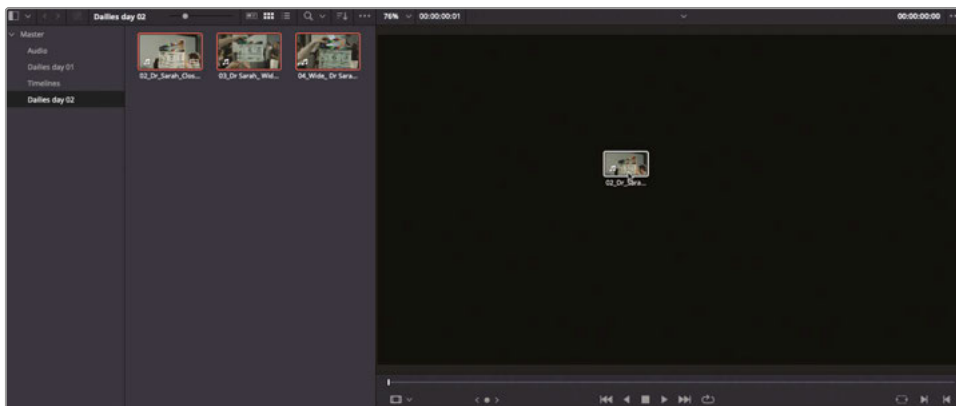
This initial timeline lays out the scene using one take but requires more work to add shots of the Doctor and show the interaction between the characters.

- 4 In the media pool bin list, select the “Dailies day 02” bin.

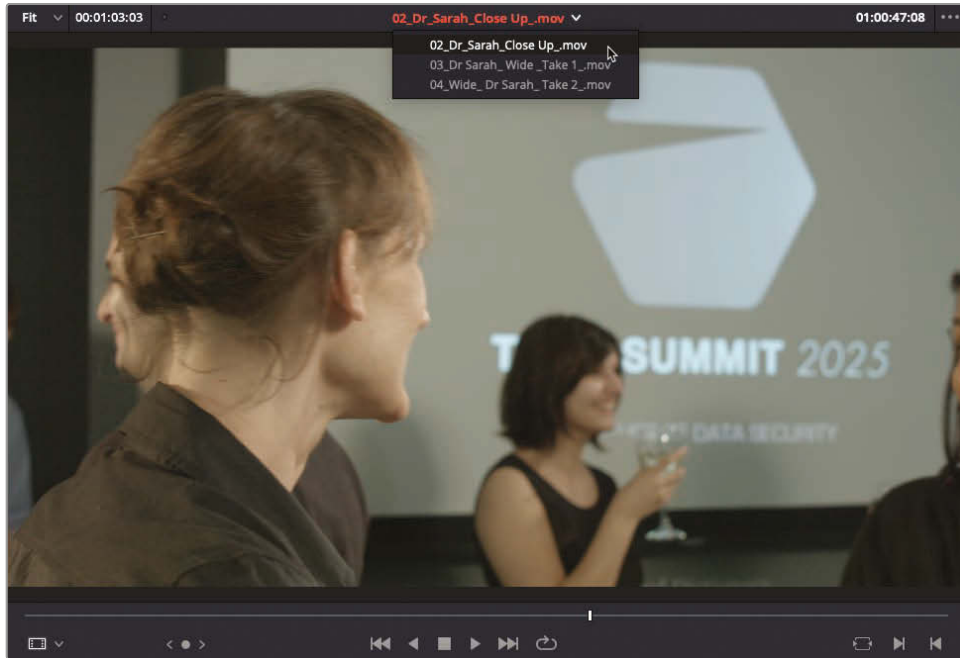


This bin contains the various takes featuring Doctor Kaminsky.

- 5 Select all three clips in this bin and drag them into the source viewer.



By dragging these clips into the source viewer at the same time, you can access them using the Recent Clips drop-down menu at the top of the viewer.



Doing so provides an easy way to switch between the last 10 clips you loaded in the source viewer without searching for them in the media pool.

- 6 If it's not already open in the viewer, select **02\_Dr\_Sarah Close Up\_.mov** in the Recent Clips pop-up menu to load it into the source viewer. Play the clip to review it.

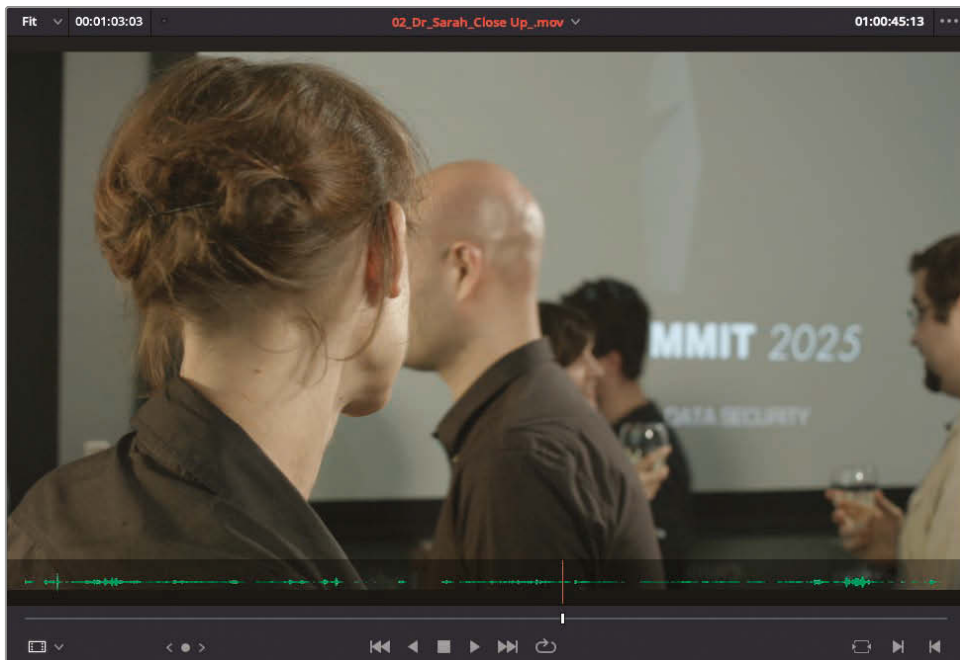
This clip starts with a clapper and takes a good 20 seconds to get going. Instead of watching or scrubbing through the unusable footage each time you return to this clip, you will make a new subclip of just the relevant footage.

- 7 In the source viewer options menu, select Show Full Clip Audio Waveform to help you see where the dialogue starts and stops.



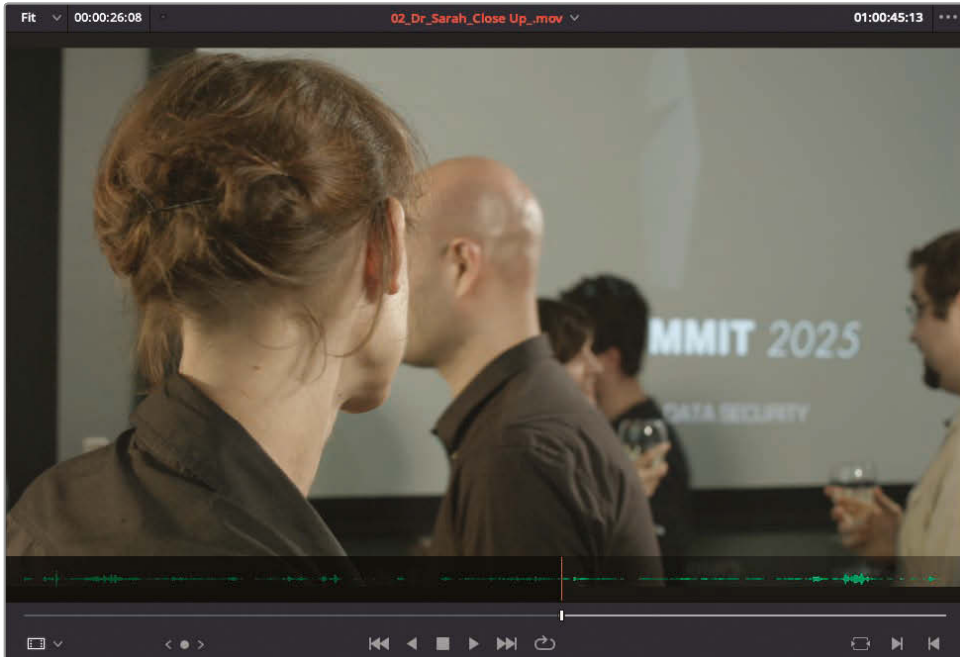
**TIP** Show Full Clip Audio Waveform works well for these short takes. For longer takes, you may find the Show Zoomed Audio Waveform a better option when judging where the dialogue lines start and stop.

- 8 Scrub through the clip until just before Doctor Kaminsky is revealed on the left of frame (at around 01:00:38:00).
- 9 Play the take until she turns her head toward the camera and then stop playback.  
The director has decided that the bald male actor is not making the cut, but you can still use the remaining portion of the take.
- 10 In the source viewer, find the part when the male actor is walking away, just before Doctor Kaminsky turns her head away from him (around 01:00:45:00).

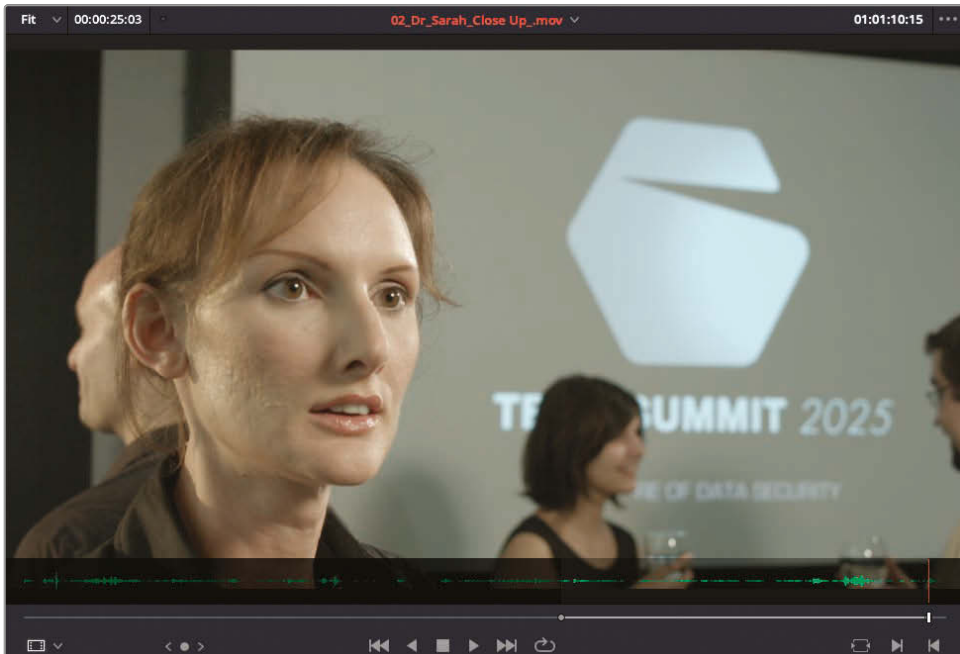


This location is far enough into the clip to lose most of the bald actor and makes for a good starting point for your subclip.

- 11 Press I to mark an In point.

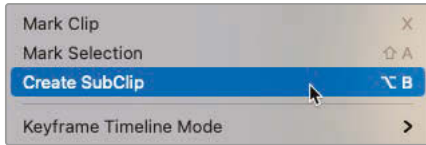


- 12 Play the clip and mark an Out point just before you hear the director yell, "Cut," (around 01:01:10:00).

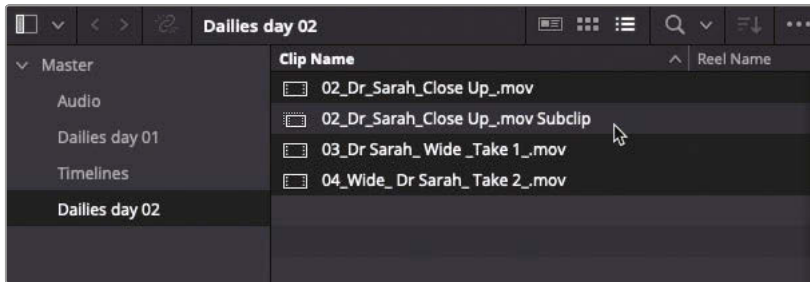




- 13 Choose Mark > Create SubClip or press Option-B (macOS) or Alt-B (Windows) to make a subclip based on these In and Out points.



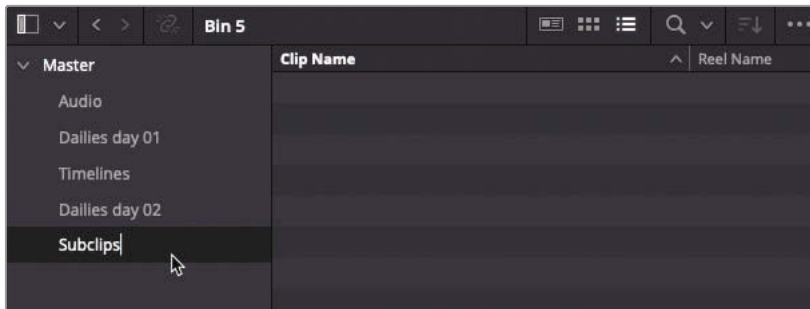
In the media pool, a new clip is created in the currently selected bin with the word “subclip” appended to the original clip name.



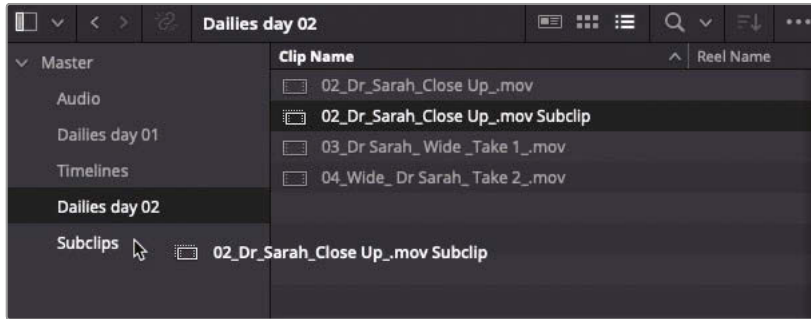
You might find it useful to keep these subclips in a separate bin, so you don't confuse them with the original source clips.

**NOTE** A subclip might seem like a duplication of the original clip, just limited to the portion of the clip between the In and Out points you've just set. However, it's worth noting that a subclip still references the original source media file on your hard drive, so it hasn't actually duplicated any media. This means you can create multiple subclips from the same master clip, and they won't take up any additional storage space on your hard drive.

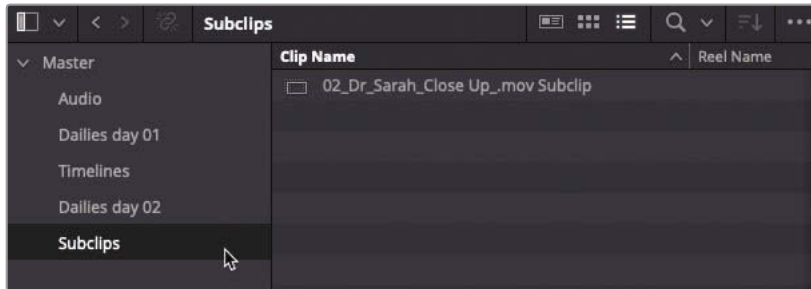
- 14 Select the Master bin, and then choose File > New Bin, or press Shift-Command-N (macOS) or Shift-Ctrl-N (Windows) to create a new bin. Name this bin **Subclips**.



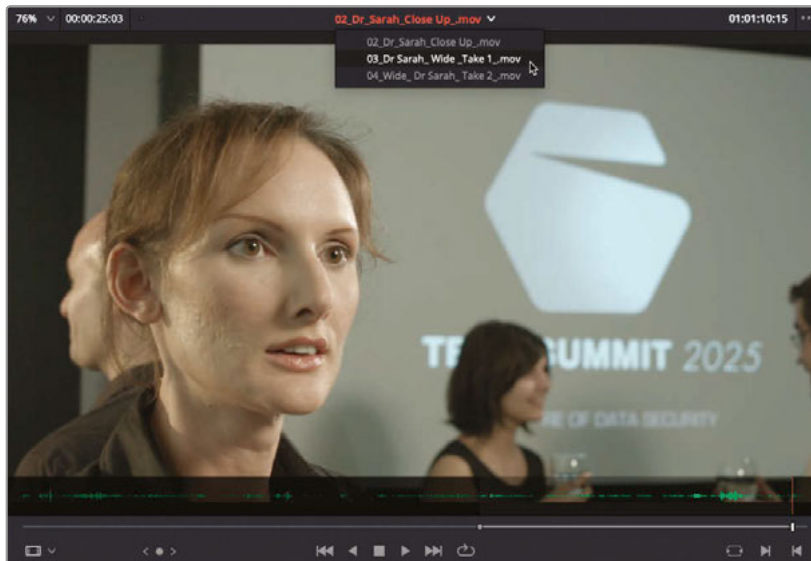
- 15 Move the **02\_DrSarah\_Close\_Up\_.mov Subclip** from the “Dailies day 02” bin to this new Subclips bin.



- 16 Select the Subclips bin to see its contents.



- 17 In the source viewer Recent Clips drop-down menu, choose **03\_DrSarah\_Wide\_Take1\_.mov** to open it in the source viewer.



- 18 Play the clip from the beginning and mark an In point when the bald actor begins to walk away (around 01:02:55:00).

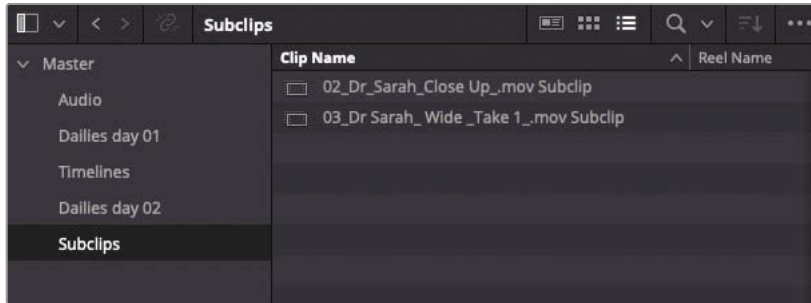


- 19 Find the point at the end of the take just before the director yells “Cut” (around 01:03:50:00) and mark an Out point.



**TIP** You should be able to easily identify both these parts of the clip using the audio waveform overlay.

- 20 Press Option-B (macOS) or Alt-B (Windows) to create another subclip in your currently selected Subclips bin.



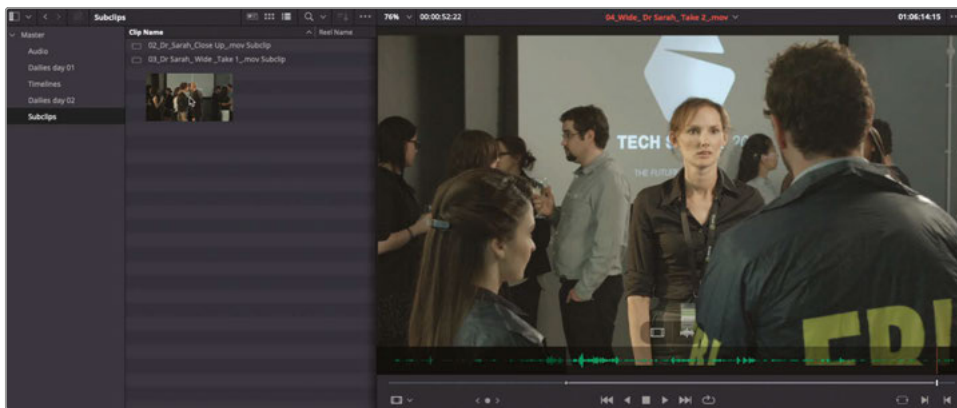
- 21 In the source viewer Recent Clips pop-up menu, choose **04\_Wide\_DrSarah\_Take 2\_.mov**.
- 22 Again, because this is a second take of the wide shot, mark an In point when the bald actor begins to walk away.



- 23 And again, find the end of the clip where the director shouts “Cut” and mark an Out point.



- 24 This time, drag the marked clip from the source viewer back into the Subclips bin in the media pool.



The new subclip is added to the bin.

## Subclips and Duration Markers

Although a subclip is totally independent of its source clip, it does differ from placing a duration marker to identify a portion of a clip, which is a technique you may already be familiar with. Unlike ranges identified by duration markers, you can organize subclips into their own bins, load them into the source viewer, add metadata, and edit them into the timeline using any of the editing functions in Resolve. In effect, you're treating them exactly like any other source clip.

You can convert existing In and Out points into duration markers by choosing **Mark > Convert In and Out to Duration Marker** or convert existing duration markers to In and Out points by choosing **Mark > Convert Duration Marker to In and Out**.

## Modifying Subclips

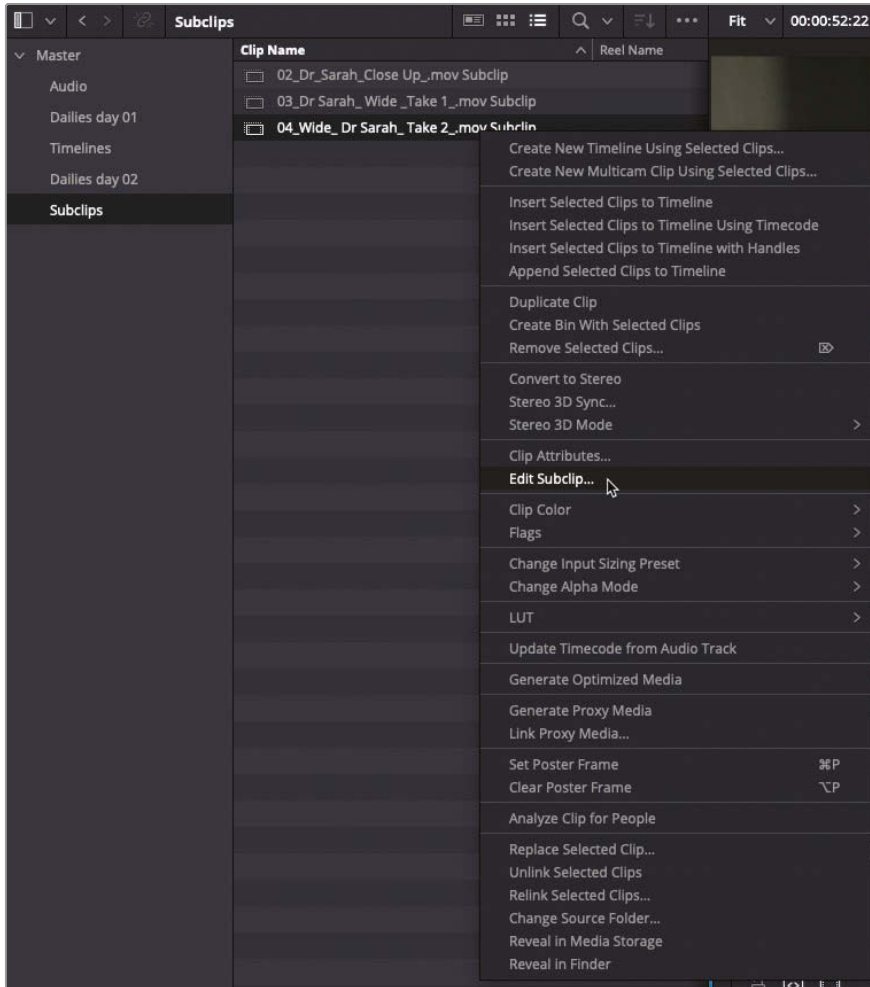
One limitation of a subclip is that, even though it is referencing the original source media file, it is limited to the initial In and Out points you used to create it. Therefore, it's good practice to set your initial In and Out points a little before and after the portion you want to subclip, thereby leaving a little bit of wiggle room when you later trim the clips in the timeline.

However, when you find that you need a few extra frames not included in your subclip, you can always extend the boundaries of that subclip.

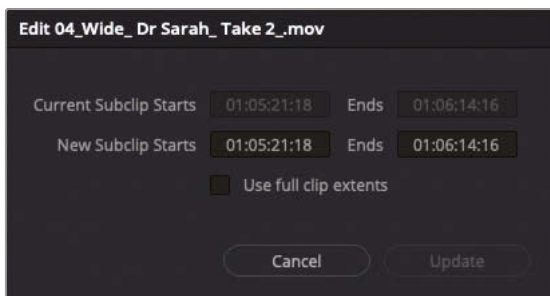
- 1 Double-click the **04\_Wide\_DrSarah\_Take 2\_.mov Subclip** to load it into the source viewer and see the full extent of the subclip you created in the previous steps.



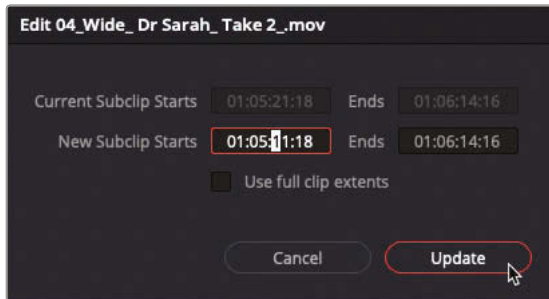
- 2 In the media pool, right-click the **04\_Wide\_DrSarah\_Take2\_.mov Subclip** and choose Edit Subclip.



In the dialog that appears, you can adjust the subclip's start and end values or remove the limits of the subclip entirely.



- 3 Change the New Subclip Start time to 10 seconds earlier, and then click Update.



The source viewer updates the positions of the In and Out points to reflect this change, and the bald man is once more included in this subclip.



Now that you have your subclips created, you can start to cut them in to the current timeline to build out the scene.



# Editing with Continuity

You will use the single take in the timeline as a reference for editing dialogue and action from other takes and using some editing functionality that is unique to DaVinci Resolve to add close-ups and reaction shots that build both time and space continuity.

- 1 Ensure that you have the **01 Edit Start** timeline open in the timeline viewer. If necessary, you can select it from the pop-up list at the top of the timeline viewer.



**TIP** You can choose how the project's timelines are ordered in this list in DaVinci Resolve > Preferences > User > UI Settings and the Timeline Sort Order pop-up menu.

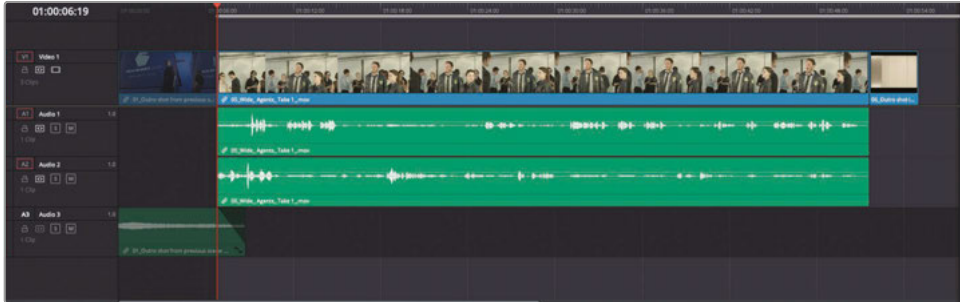
This timeline will act as the master shot for this scene.

- 2 Play the timeline from start to end to remind yourself of the lines of dialogue and how the scene plays out.

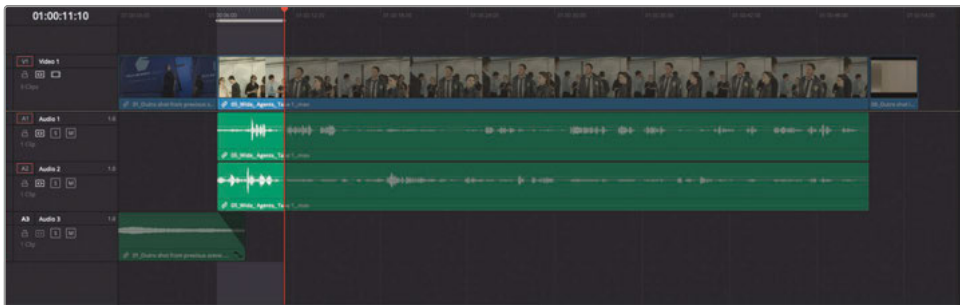


This master shot focuses on the FBI agents, so it is up to you to add reverse-angle shots of the doctor—a process many editors refer to as “removing the air.” More precisely, it consists of eliminating unnatural intonations or pauses in the dialogue when you cut between the different takes. As with the initial steps in the previous lesson, you are focusing on the pacing of the dialogue from these different takes to sell the idea of these characters having a seamless conversation.

- 3 In the timeline, navigate to the cut point between the first two clips and mark an In point.

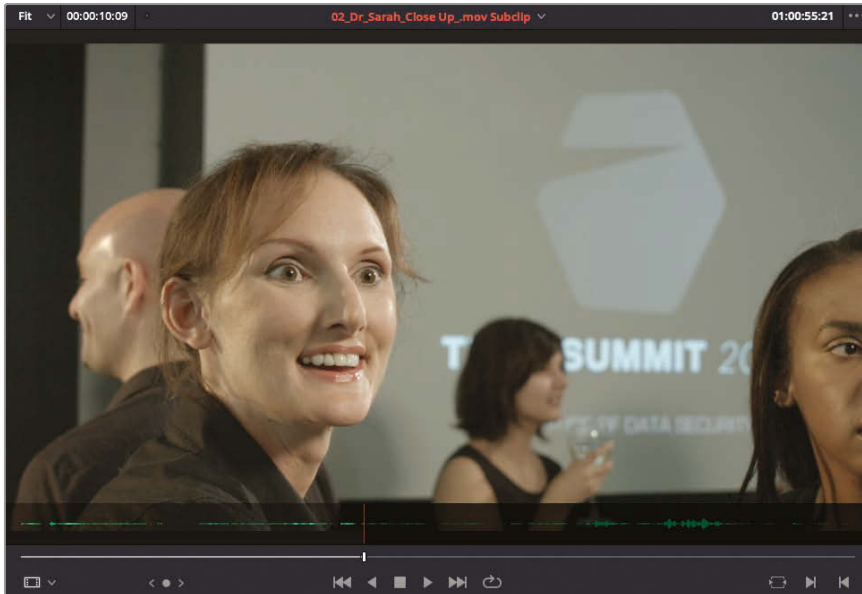


- 4 Play the clip and mark an Out point just before Agent Jenkins’s line, “I’m Agent Jenkins...”



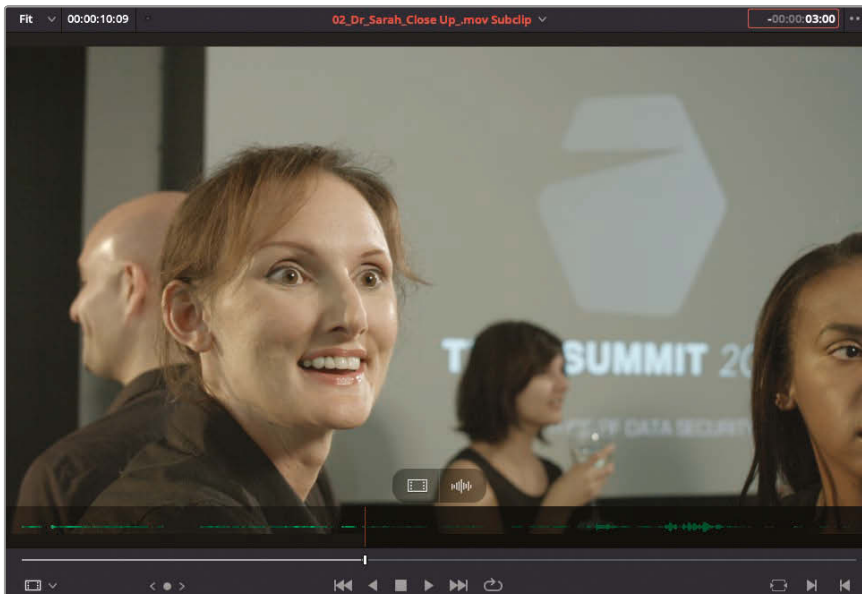
- 5 From the Subclips bin, double-click **02\_DrSarah\_Close Up\_.mov Subclip** to open it in the source viewer.

You will start by marking an Out point, not because you want to backtime the edit, but because it will be easier to locate the same line of dialogue.

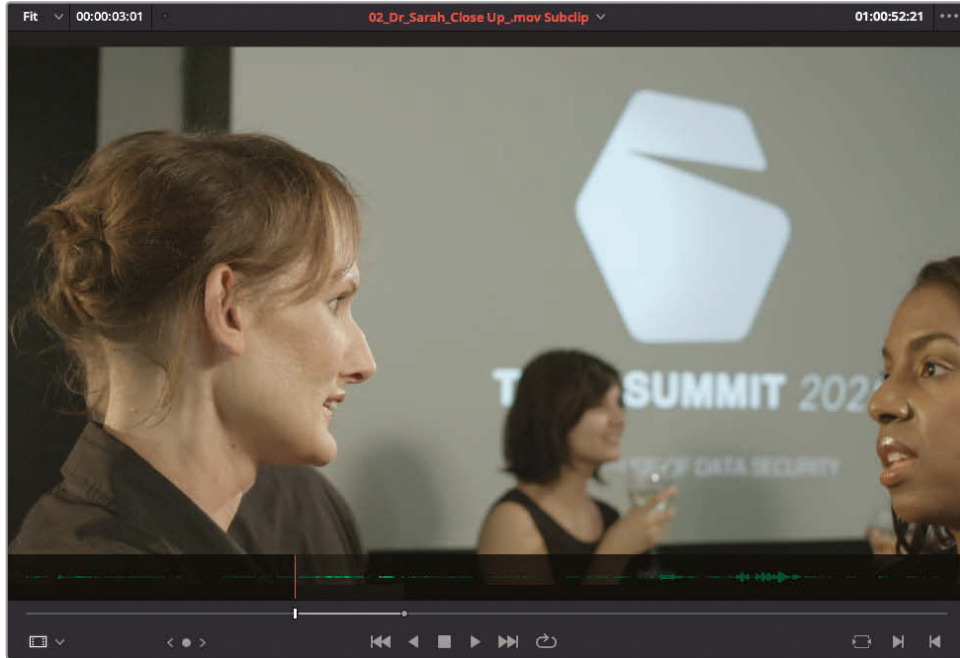


- 6 Mark an Out point on **02\_DrSarah\_Close Up\_.mov Subclip** just after Doctor Kaminsky says, “Ah yes?”

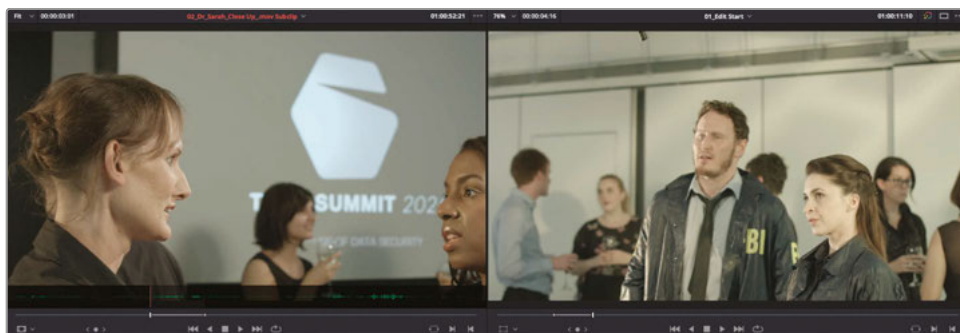
You need a short amount of this clip to show the party scene and introduce the lead female character.



- 7 In the source viewer, type **-300** and press Enter to move the playhead back 3 seconds. Because this dialog is just incidental chit-chat before the doctor turns, this will be a good place to begin this shot.
- 8 Press I to mark an In point.

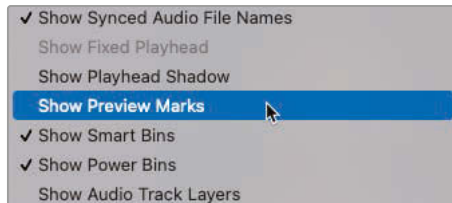


Hold on. You have now managed to add a total of four points (an In and Out point in the timeline and another In and Out point in the source viewer). Also, while all four marked points are well placed, the resulting durations of your two selections differ: in the upper-left corner of both the source and timeline viewers, you have the current marked duration: 03:01 for the source and around 4:15 for the timeline (depending on where you actually placed your timeline Out point).



As you are now no doubt aware, many of the editing functions in DaVinci Resolve follow the standard rules of three-point editing, therefore only three of these four points would be valid for a standard overwrite or insert edit. You can, however, preview which marks Resolve will use.

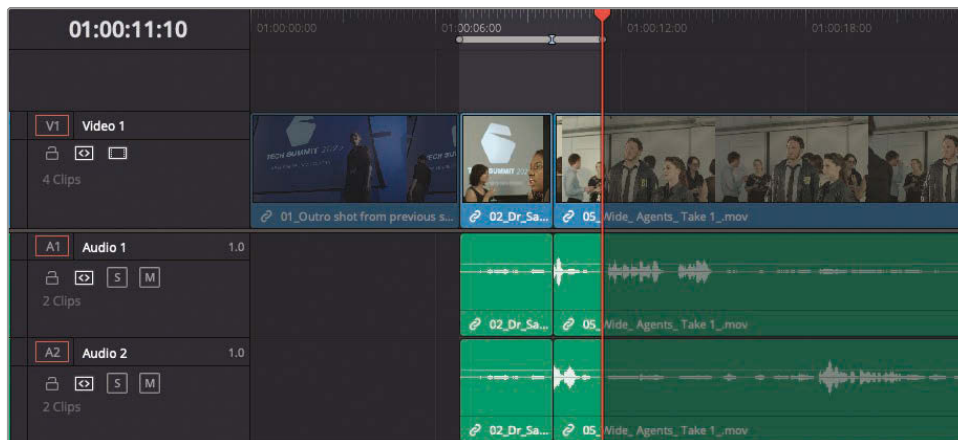
- 9 Choose View > Show Preview Marks.



The preview marks display a virtual indicator in the timeline ruler to highlight where the source clip's Out point will land.



- 10 Press F10 or click the Overwrite Clip button above the timeline.

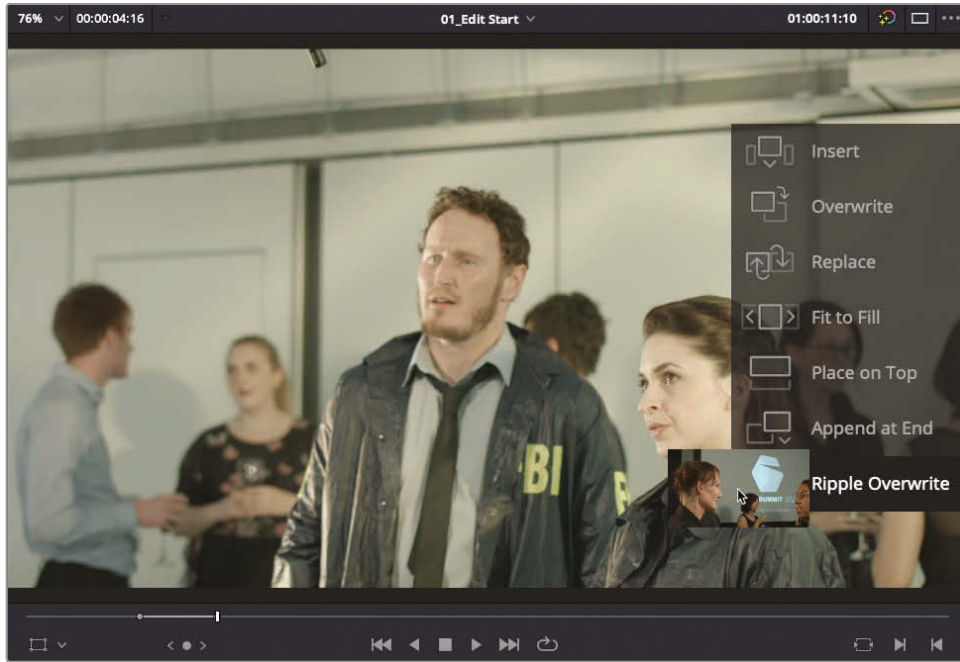


Performing an overwrite edit limits the edit based on the shorter source clip. This leaves a jarring repetition of a line from the previous take and a pause before Agent Jenkins continues with his next line. If you were to proceed with this edit, you would have to trim the pause to correct for the continuity of the scene.

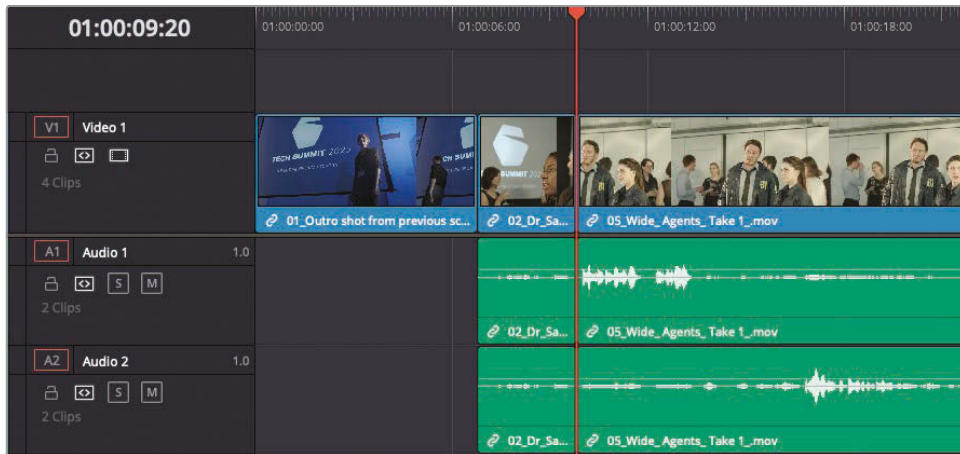
- 11 Choose Edit > Undo, or press Command-Z (macOS) or Ctrl-Z (PC).

Fortunately, Resolve has a unique edit called Ripple Overwrite that will overwrite the source clip and appropriately trim the timeline simultaneously. The ripple overwrite replaces a selection in the timeline with a clip of a different length and does so without

opening a gap or overwriting the adjacent clip. In this case, Ripple Overwrite will use all the In and Out points you have marked, which means it is a *four-point edit*.



- 12 Choose Edit > Ripple Overwrite or press Shift-F10 to perform the ripple overwrite edit.

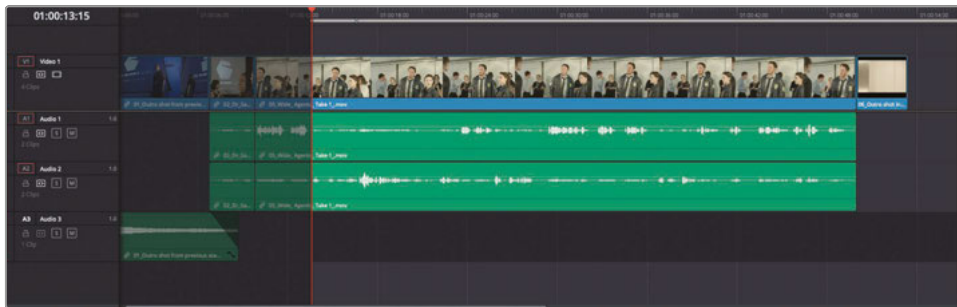


In the timeline, play over the edit to verify that you have successfully overwritten the unwanted part of the clip with a shot that introduces the doctor. This time, the frames that were previously left between the preview mark and the timeline's Out point were automatically removed by the ripple overwrite edit.

# Match Frame with an Offset

You will continue with another example of this method of continuity editing by cutting in another reaction shot of the doctor. This time you'll use Resolve's match frame feature to keep the source clip and timeline in sync, making it easier to cut in reverse angles.

- 1 In the timeline, position the playhead at the end of **02\_DrSarah\_Close Up\_.mov Subclip**.
- 2 Play the timeline until you hear the offscreen doctor, say, "I'll catch up with you later." You need a reaction from the doctor to indicate how she feels about the FBI suddenly showing up at her party, but you also want to end the reaction shot in time to cut back to the FBI agents to get their impatient reactions.
- 3 Position the timeline playhead after the FBI agent says, "We need you to come with us right away" and before the doctor says, "Umm", roughly 3 to 4 seconds from the last cut.
- 4 Press I to mark an In point in the timeline.



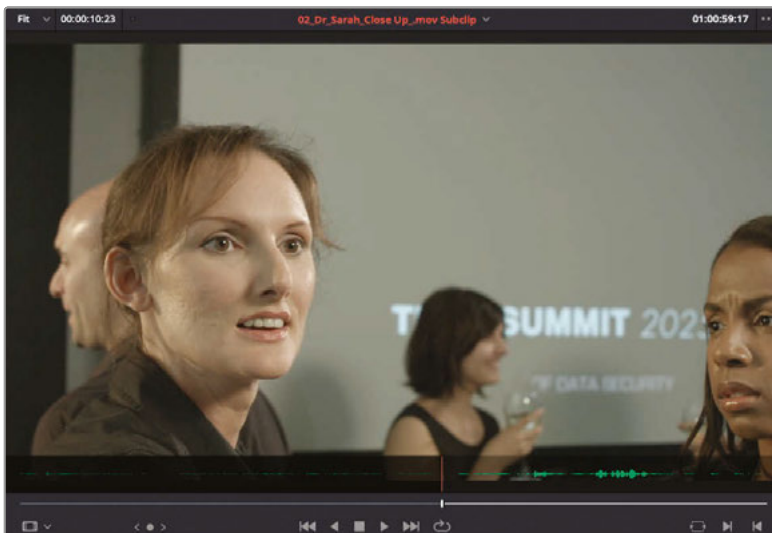
At this point, you can turn your attention to the source clip that you want to cut in. Because the dialogue is the same on both the doctor's close-up in the source viewer and the FBI agent's shot in the timeline, you want to pick up the source clip dialogue in a spot that roughly matches your timeline playhead location. Resolve has a very nice match frame feature to do just that.

- 5 In the timeline and *without moving the timeline playhead*, Option-double-click (macOS) or ALT-double-click (Windows) anywhere on the previous **02\_DrSarah\_Close Up\_.mov Subclip**.



The **02\_DrSarah\_Close Up\_.mov Subclip** is loaded in the viewer as a match frame with the previously marked In and Out points used to edit the clip into the timeline. However, the playhead in the source viewer is offset from the Out point by the same 3 to 4 seconds that you moved the timeline playhead. This is where the doctor starts to react to the FBI and her assistant stops speaking, and it's a great place for you to add your next In point.

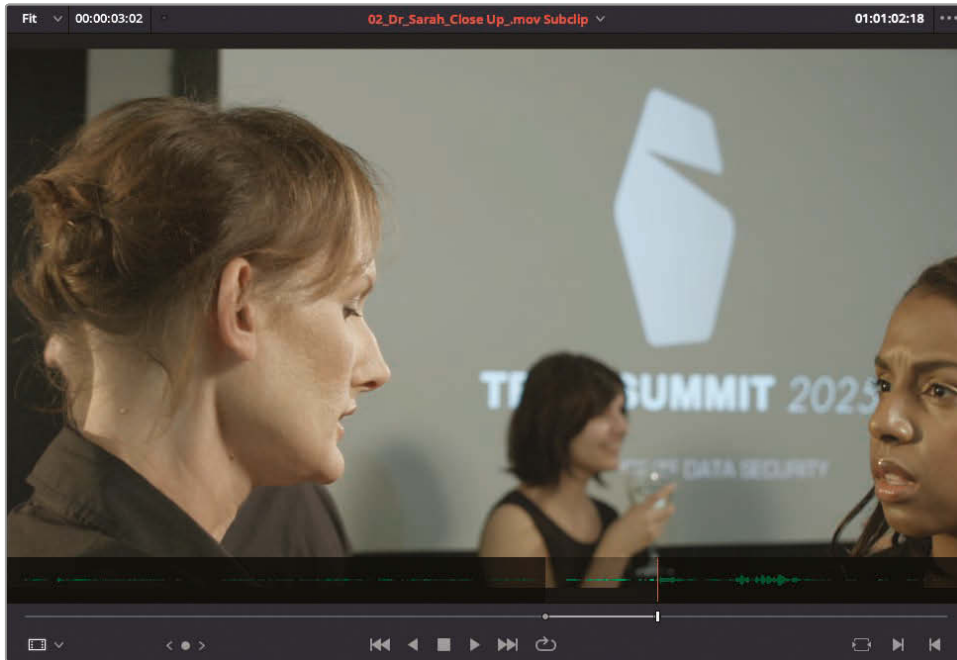
- 6 Press I to mark an In point in the source viewer.



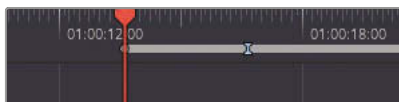


You'll place the Out point after the friend asks if the doctor is OK, and the doctor turns away.

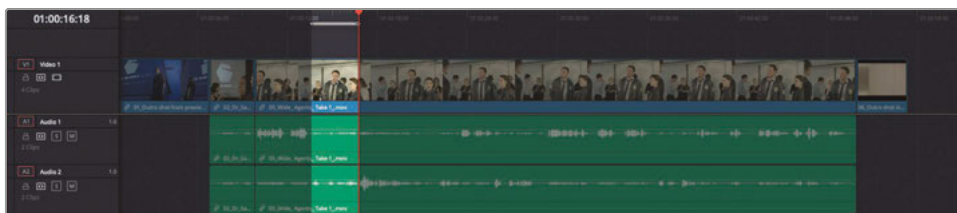
- 7 Play the clip in the source viewer and mark an Out point just after the doctor turns her head but before she says, "Yeah, yeah," (around 01:01:02:00).



A preview mark appears in the timeline showing us the implied Out point.

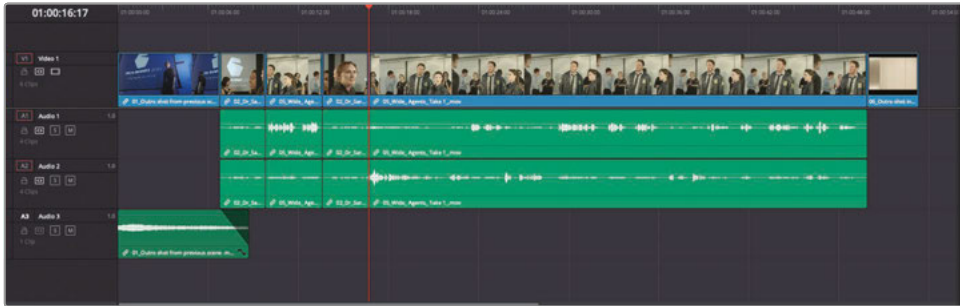


- 8 Press Q to switch to the timeline viewer and play forward in the timeline. Set an Out point just after the doctor's assistant asks, "Is everything OK, Sarah?" but before the doctor starts to reply "Yeah, yeah."



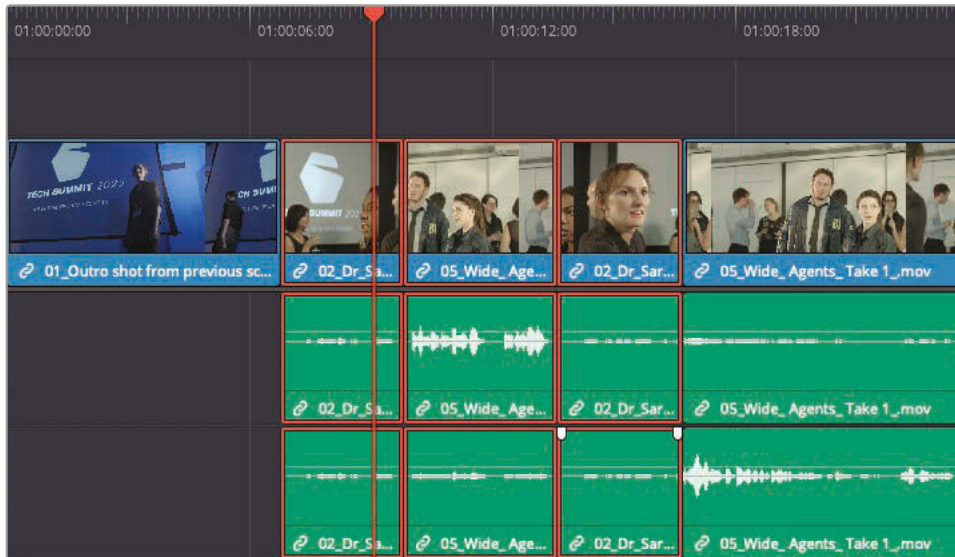
Notice that your timeline Out point should be a few frames after the preview mark. It may seem a minor amount, but it means you shouldn't have to go in and trim the edit at this stage.

- 9 Press Shift-F10 to perform a ripple overwrite edit.



Now that you have placed your shot/reverse shot to move this dialogue scene forward, it's time to review the edits.

- 10 In the timeline, select the first three shots of the doctor and FBI agents and press / (slash) to play the current selection.



This type of shot/reverse shot juxtaposition is the most common technique used when initially blocking out a scene such as this. That's why the ability to keep the same offsets between source and timeline using the modified match frame feature is a major timesaver.

## Finish Cutting the Scene

There are still a few edits to make in this timeline before the scene is ready to show the director. Using the **04\_Wide\_Dr Sarah\_Take 2\_.mov Subclip** take and Ripple Overwrite, edit the following lines of dialogue from Doctor Kaminsky into the **01\_Edit Start** timeline to complete the scene.

- 1 “I’m sure it’s fine...Are you going to tell me what this is about?”
- 2 “My help? You’ll have to do better than that.”
- 3 “You mean, like, a virus? That wouldn’t be possible.”

For additional practice, try the following using video-only overwrite edits:

- 4 Add a video-only reaction shot of Doctor Kamisky when Agent Jenkins says, “...we believe one of your Syncs is carrying...”
- 5 Add another reaction shot of Doctor Kamisky when Agent Jenkins says, “I need you to tell me everything you know about the Syncs...”

### Reviewing the Finished Timeline

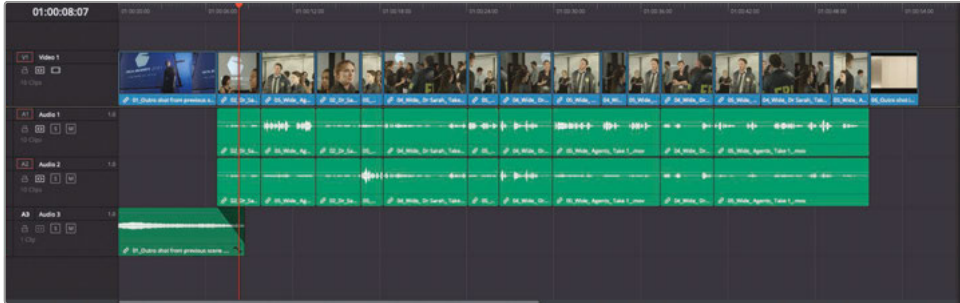
If you wish to view a version of this timeline created using the steps detailed in this lesson, select the Timelines bin, choose File > Import Timeline > Import AAF, XML, DRT, ADL and navigate to R17 Editing/Lessons/Lesson 04 Dialogue/**Sync Scene Rough Cut.drt**.

## Choosing from Multiple Takes

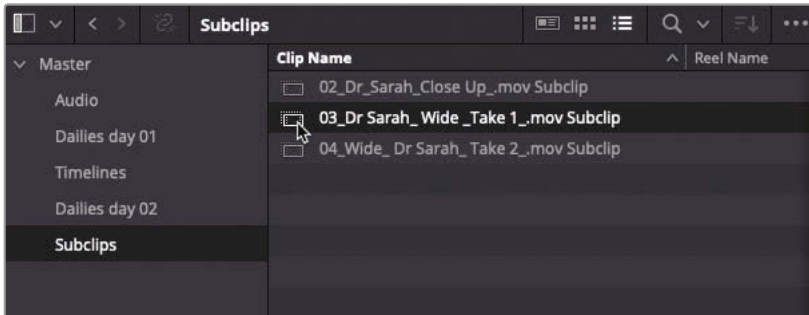
When cutting dialogue, you can easily fall into the trap of cutting based solely on words. But dialogue editing is trickier than that. You must not only pay attention to the words but also the eyes, the mouths, and the body language of the performers. All these performance elements are essential to establishing the emotional pacing of a scene and establishing the scene’s storyline. So, even though your cut may maintain dialogue continuity, you might want to search out alternate takes that feature superior performance elements, alternative looks, or body or camera movements.

Comparing different takes often means repetitively revising your timeline. For example, imagine that the director wants to see what a wide shot of the doctor would look like instead of the close-up. To begin with, you will use a ripple overwrite edit to swap the first shot of the doctor.

- 1 In the timeline, position your playhead anywhere over the second clip in this timeline, **02\_Dr\_Sarah\_CloseUp.mov Subclip**.



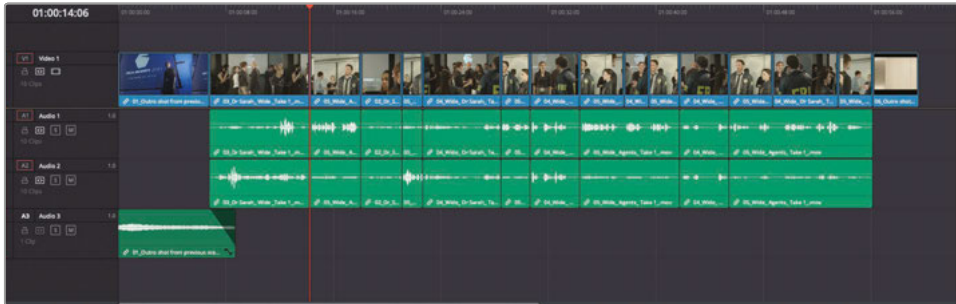
- 2 From the Subclips bin, double-click **03\_Dr Sarah\_Wide\_Take 1.mov Subclip** to open it in the source viewer.



- 3 Play from the start of this subclip until just after Doctor Kaminsky says “Yeah, yeah” and set an Out point.

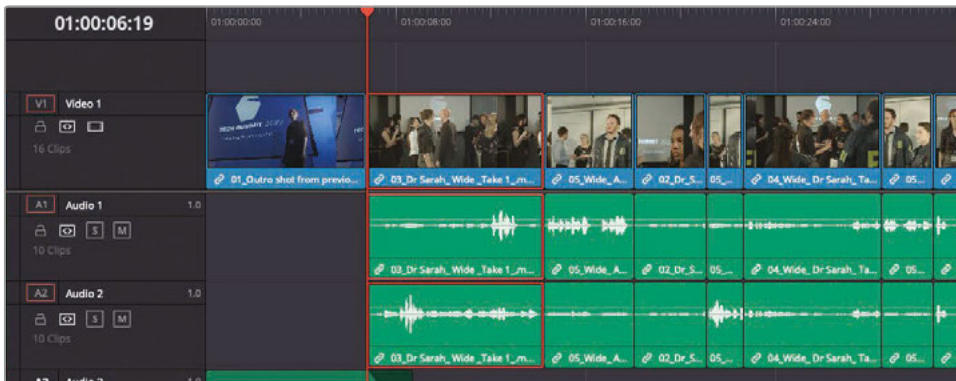


- 4 Press Shift-F10 to perform a ripple overwrite of the shot in the timeline.



The ripple overwrite edit quickly swaps out the old take for the new take.

- 5 Press the Up Arrow to move to the start of the new clip in the timeline, press Shift-V to select the clip, and press / (slash) to play the selection.



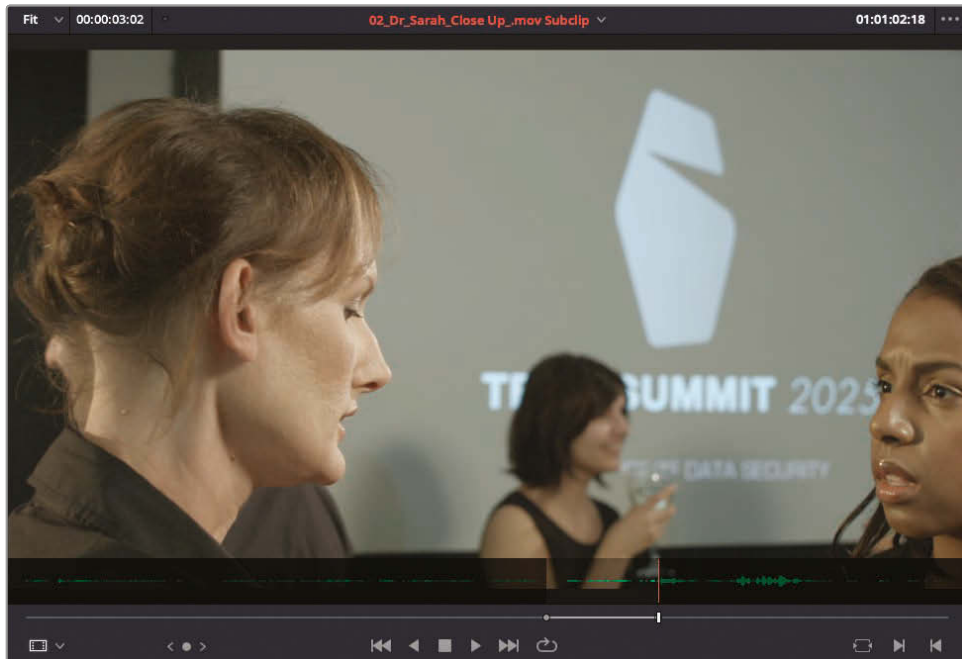
Even though you set only one Out point, the ripple overwrite used the start of the subclip as well as the In and Out points of the timeline clip under the playhead to complete the four-point edit and is a great example of how flexible this editing function is.

## Take Selector

In the above example, ripple overwrite makes the process of editing one take for another easy, however most editors will tell you that a director is rarely satisfied with that and often wants to see multiple choices in quick succession. Never fear; as you'd expect, DaVinci Resolve makes this process a lot easier with the Take Selector.

- 1 In the timeline, position the playhead at the second shot in your timeline, the **03\_Dr Sarah\_Wide\_Take 1.mov Subclip**.

The director wonders aloud how this wide shot compared with the earlier close-up.



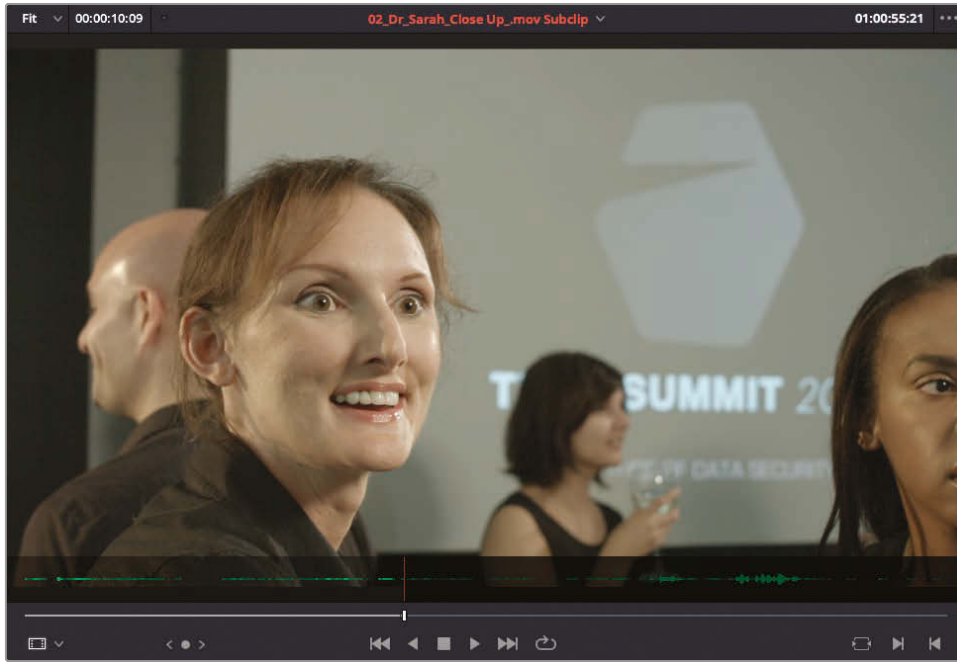
- 2 From the source viewer clips list, select **02\_Dr\_Sarah\_CloseUp.mov Subclip** to bring this take back in the source viewer.

You'll need to quickly reset the In and Out points around the opening part of this subclip.

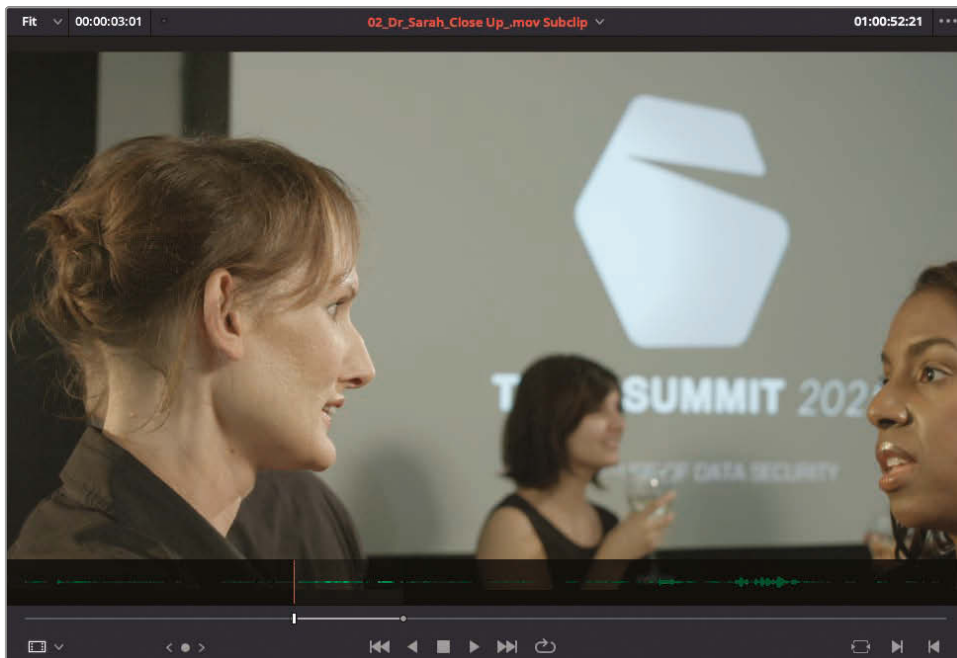
- 3 In the source viewer, type **-1000** to move the playhead 10 seconds backward.



- 4 Play forward until just before Agent Jenkins says "I'm Agent Jenkins..." (around 01:00:55:00) and add an Out point.

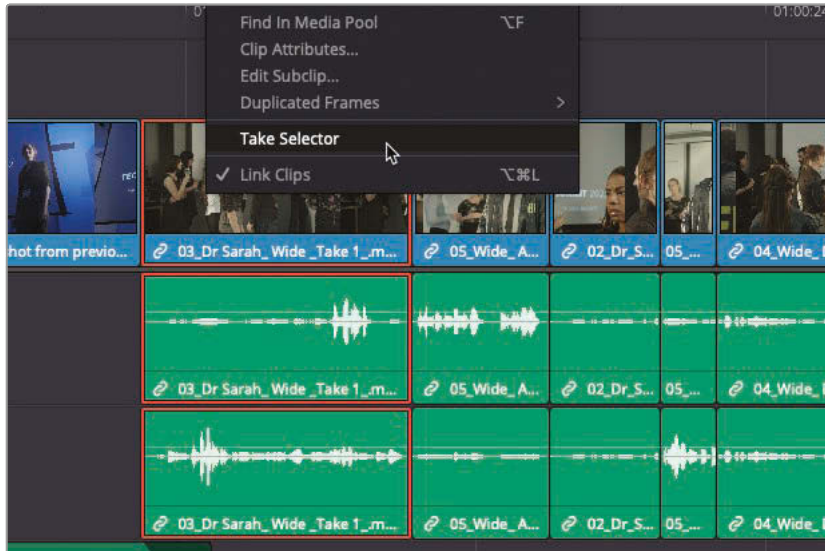


- 5 Type `-300` to move the playhead back a further 3 seconds and add an In point.

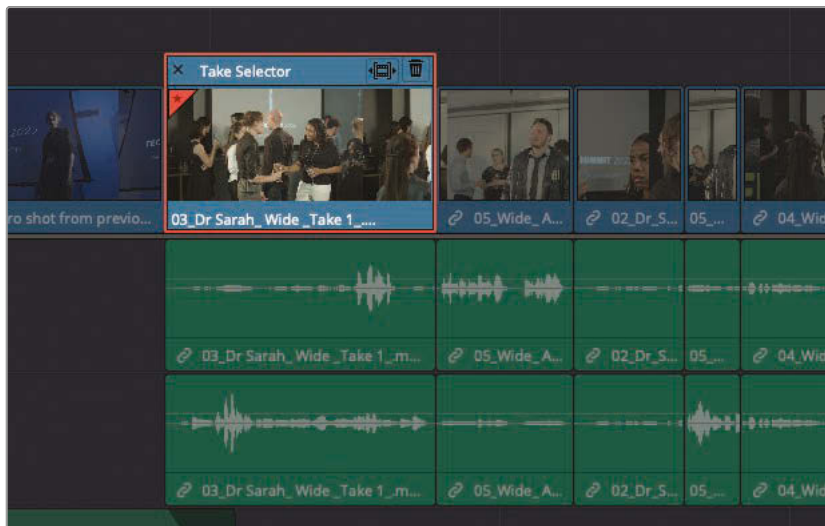


To audition this take in the timeline, without actually replacing the current take, you will enable Resolve's Take Selector.

- 6 In the timeline, right-click **03\_Dr Sarah\_Wide\_Take 1\_.mov Subclip** and choose Take Selector or choose Clip > Take Selector.



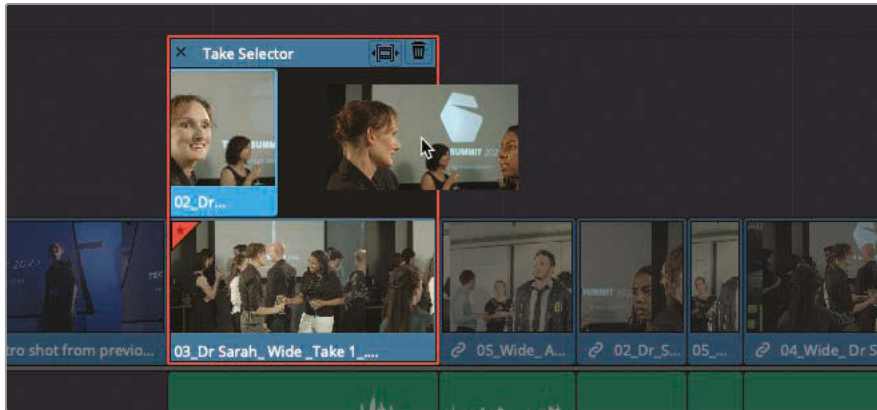
The Take Selector is activated on the selected clip.



The Take Selector acts as a container for multiple clips. While you'll see only one of those clips when you play the timeline, you can switch between the clips at any time.



- 7 From the source viewer, drag the **02\_Dr\_Sarah\_CloseUp.mov Subclip** onto the Take Selector clip in the timeline.

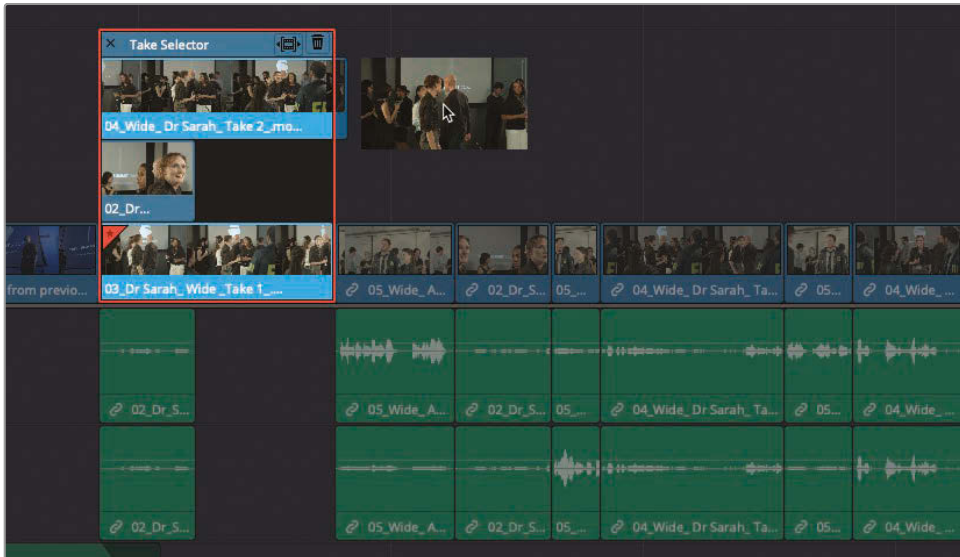


The Take Selector now shows the two clips stacked on top of each other. You can add as many takes as you want to the Take Selector.

- 8 From the Subclips bin, double-click the **04\_DrSarah\_Wide\_Take 2\_.mov Subclip** to open it in the source viewer.
- 9 Mark an In point just before Doctor Kaminsky greets her friend with a “Hey.”
- 10 Mark an Out point when the doctor turns and says, “Yeah?”

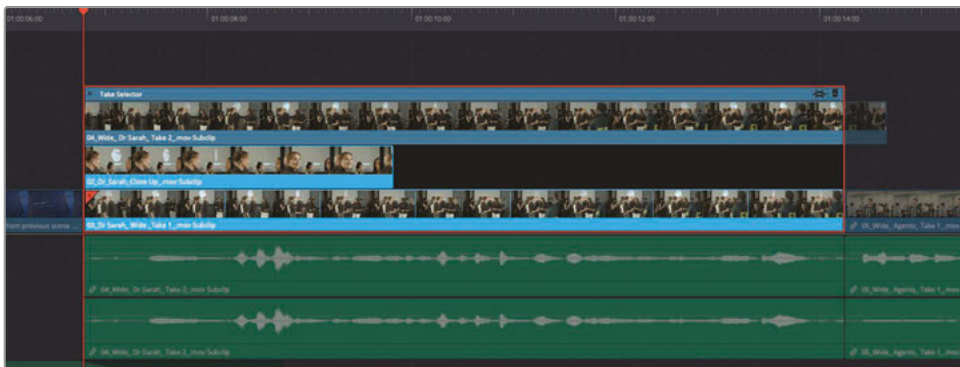


- 11 From the source viewer, drag the **04\_DrSarah\_Wide\_Take 2\_.mov Subclip** onto the Take Selector clip in the timeline.



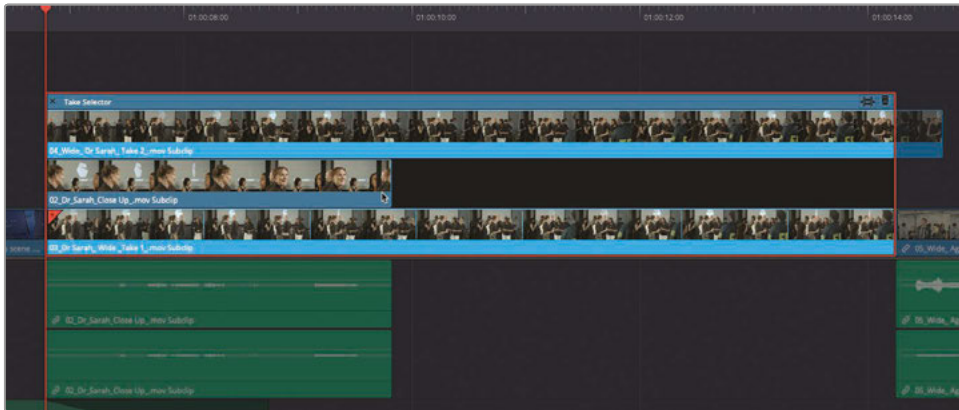
**TIP** You can also drag the clip from its bin in the media pool directly into the Take Selector.

All three takes are now visible in the Take Selector, with the most recently added take being the active take, but you can change that by clicking the clip you want to view in the timeline.



**TIP** The currently selected take in the Take Selector is actually the clip with the dullest brightness, thereby matching the other clips in the timeline.

- 12 In the Take Selector, click the middle clip in the stack to view it in the timeline.

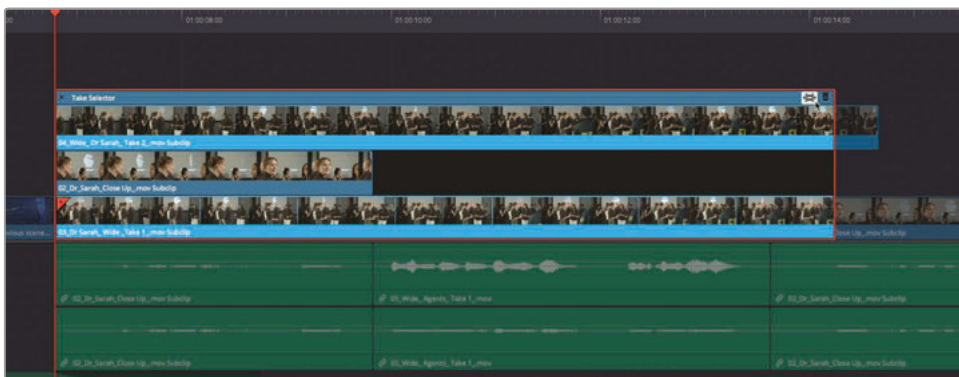


- 13 Press the / (slash) key to play over the new take.

This shorter take conforms to the duration of the original take in the timeline. When you select a take that is shorter or longer than the original clip, you can ripple the timeline to adjust to the new take's length.

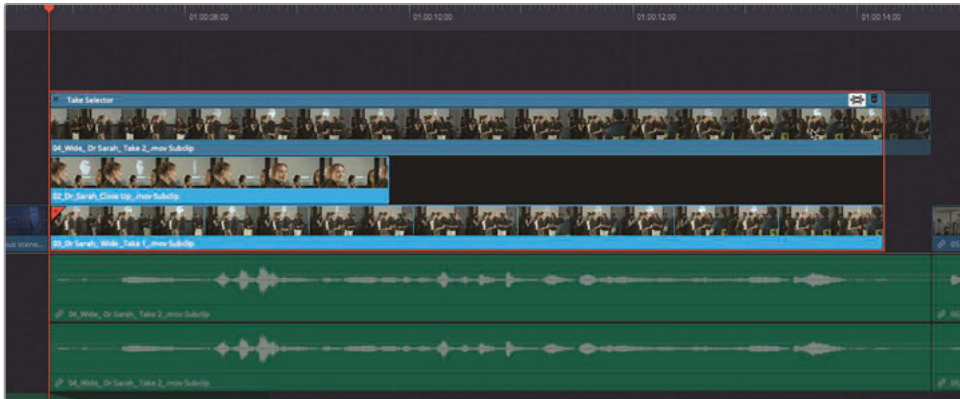


- 14 In the upper-right corner of the Take Selector, click the Ripple button.



The timeline adjusts to fit the shorter take's duration.

- 15 Move the playhead to the start of the clip play to review the rippled timeline.
- 16 In the Take Selector, click the upper clip to view it in the timeline.



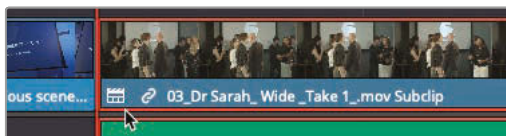
- 17 Again, move the playhead to the start of clip and play to review this take.  
The director believes that the original wide-angle take introduces the party scene most effectively, so you'll make the new take a permanent part of the timeline.
- 18 In the Take Selector, click the bottom clip to choose that take.



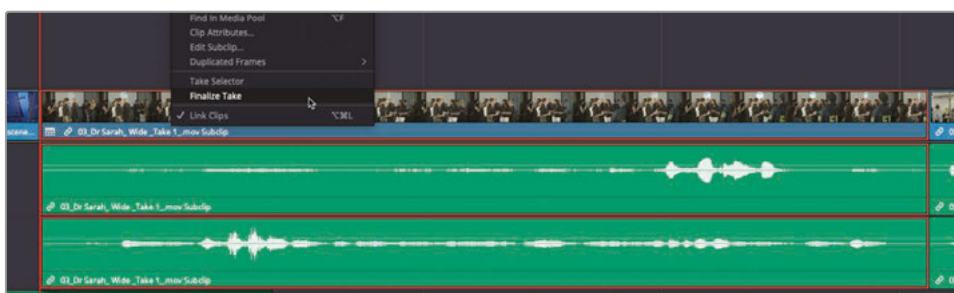
- 19 In the upper-left corner of the Take Selector, click the Close button to collapse the Take Selector stack.



**TIP** At this point, you can always reopen the Take Selector and continue reviewing the different takes for this opening shot by double-clicking the Take Selector icon in the lower-left corner of the clip in the timeline.



**20** Right-click the clip and choose Finalize Take.

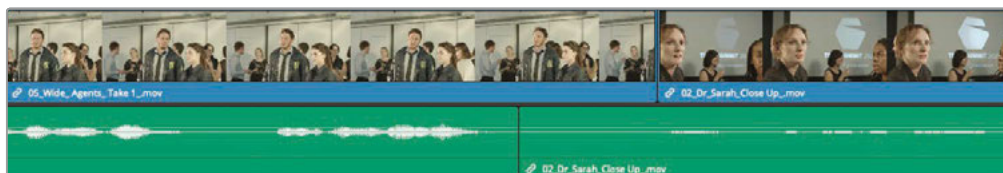


Finalizing the take removes the Take Selector and all the alternate takes from the timeline, leaving the director's final choice as a stand-alone clip.

## Going Beyond the Straight Cut

A straight cut, with which audio and video start and end simultaneously, can be quite abrupt and a little jarring. A *split edit*, often referred to as an *L-cut* or *J-cut* because of the implied shape it creates in the edit, delays either the audio or video cut of a clip. Staggering the cuts in this way can create a more natural transition between shots.

The most common split edit is the J-cut, with which you first introduce the sound of the next shot and then cut to the picture a beat or two later. This is the way that most of us perceive the world around us. For example, when you hear a car horn in the street, you look for the source of that sound a fraction of a second later.



An L-cut leads with the image and then cuts in the audio. It is often used when you want to show a character's reaction to something happening or being said.

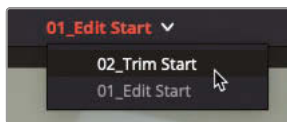


In Resolve, you have multiple ways to create J-cuts and L-cuts. Let's look at a J-cut split edit in which you hear upcoming clip audio first, and then see the picture.

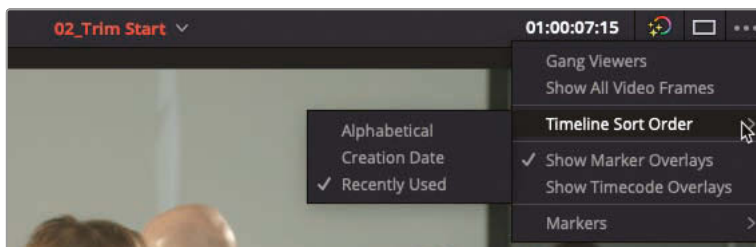
## Extending an Edit

To begin a series of trimming exercises, you will use a timeline with a few edits already made. This first exercise focuses on a quick and common way to create a split edit using the playhead as a guide to extend the video or audio of a clip.

- 1 From the Timeline Viewer drop-down menu, select the **02 Trim Start** timeline to load it into the timeline window.

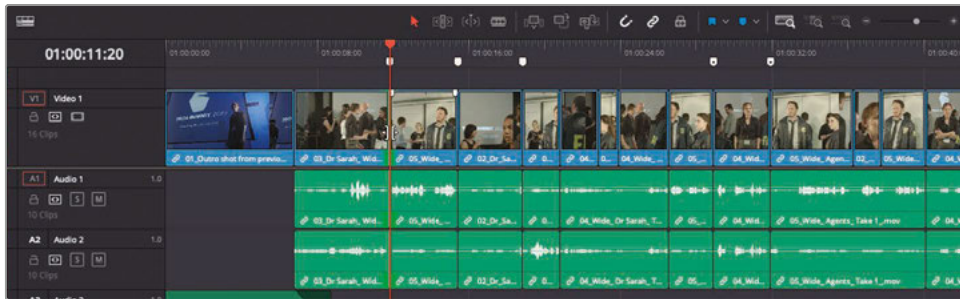


**NOTE** Click the timeline viewer options menu to choose the sort order for the timeline drop-down menu.



This timeline is a continuation of all the editing you performed in this lesson. It includes a few additional cuts that you can use to practice some advanced trimming techniques.

- In the timeline, select the cut at the first white marker at the second and third clips in the timeline, the **03\_Dr Sarah\_Wide.mov Subclip** and **05\_Wide\_Agents\_Take 1.mov**.



This is the end of the Take Selector clip that you recently worked on. Selecting the cut prepares it for a rolling trim with the green highlight on both sides of the cut.

- Press the / (slash) key to review this edit.

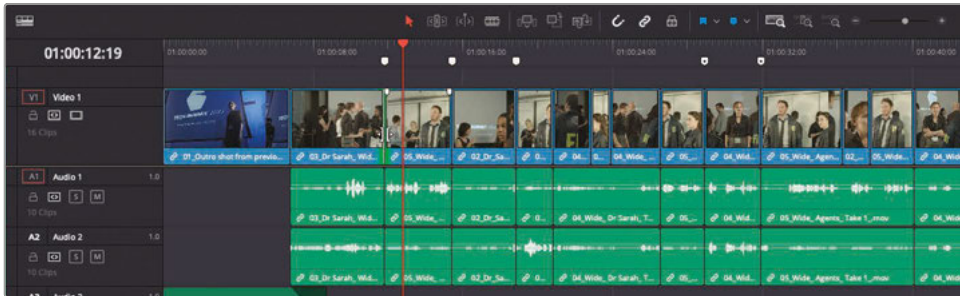
As the FBI agent introduces himself, it might be better to extend the doctor's clip so you can see her reaction. You can do so by positioning the playhead where you want the video edit to occur.

- In the timeline, move the playhead to the frame where the male FBI agent begins to turn his head to introduce his partner.



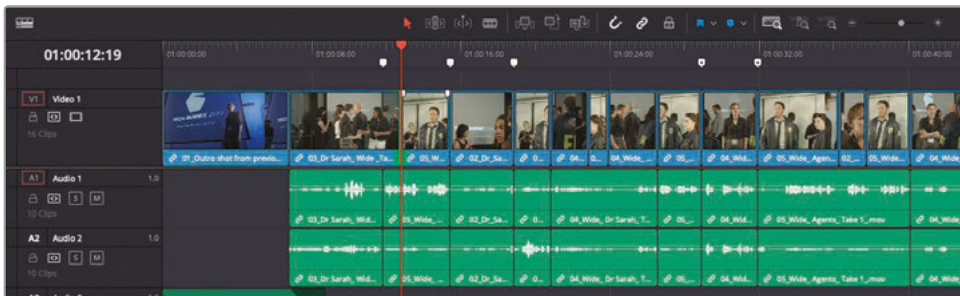
To move just the video edit and not the audio, you must unlink the audio and video segments. You can do so by disabling the Link button in the toolbar or with a modifier click in the timeline.

- Option-click (macOS) or Alt-click (Windows) the video edit between **03\_Dr Sarah\_Wide.mov Subclip** and **05\_Wide\_Agents\_Take 1.mov**.



Option/Alt-clicking is a temporary method for disabling the Link button for a single click. Now you have the video selected as a rolling trim, and you are ready to extend the cut to the playhead location.

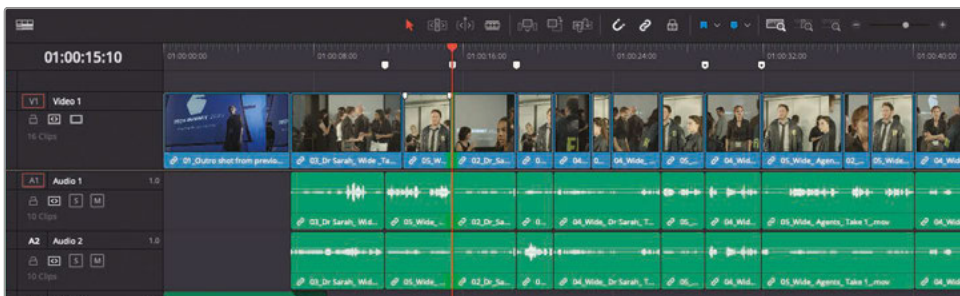
- Choose Trim > Extend Edit or press E.



The extend edit moves the selected video edit point to the position of your playhead in the timeline. In this case, you perform an instant rolling trim and create a split edit. Press / (slash) to review the new split edit.

That edit now feels very natural in that you see the doctor react to the FBI agent's introduction, while the FBI agent's line of dialogue motivates the picture cut a second or so later. Let's use an extend on the other end of the FBI clip.

- Press the Down Arrow key to move to the second white marker at the end of the FBI shot.

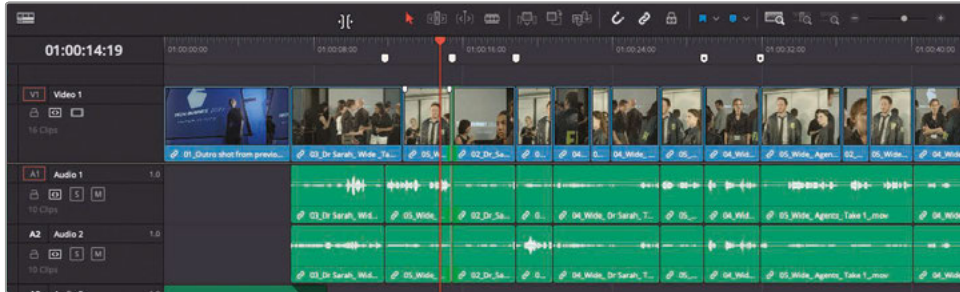




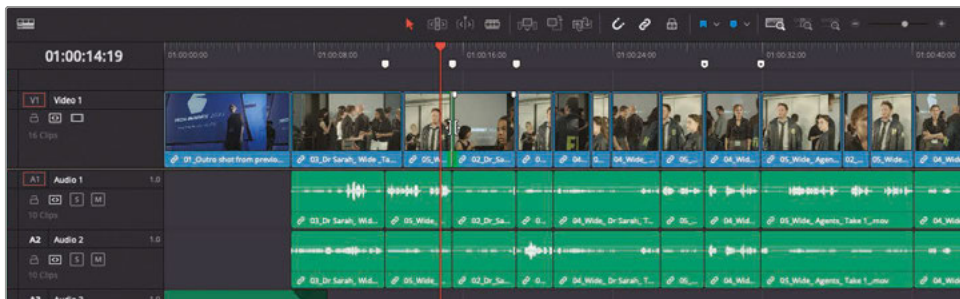
- 8 Press the / (slash) key to review the edit.

Now you will trim this edit so that you see Doctor Kaminsky's reaction sooner.

- 9 Position the playhead right after the FBI agent says, "We need you to come with us," but before he continues saying, "Right away."



- 10 Option-click (macOS) or Alt-click (Windows) the video edit between **05\_Wide\_Agents\_Take 1.mov** and **02\_Dr\_Sarah\_Close Up.mov**.



The video is selected as a rolling trim, and you are ready to extend the cut to the playhead location.

- 11 Press E to perform the extend edit.



The extend edit moves the selected edit point to the position of your playhead in the timeline.

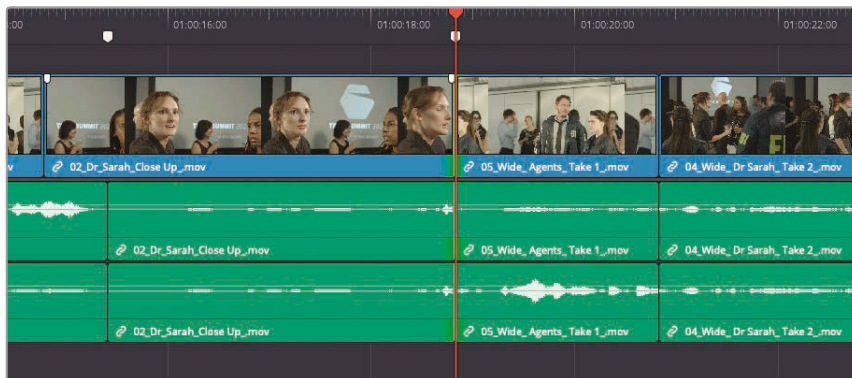
- 12 Press / (slash) to review the new split edit.

Creating simple split edits using the extend edit command is a quick and straightforward editing technique that is used all the time, not just in dialogue scenes such as this but in editing across all genres.

## Trimming On-the-Fly

The extend edit is a fast trimming style that works with ripple trims as well as rolling trims. It's even faster than what you have currently experienced because it can be performed as you play the timeline. Let's explore this by working on the next cut in the timeline.

- 1 Press the Down Arrow twice to move to the third white marker between **02\_Dr\_Sarah\_Close\_Up.mov Subclip** and **05\_Wide\_Agents\_Take 1\_.mov**.



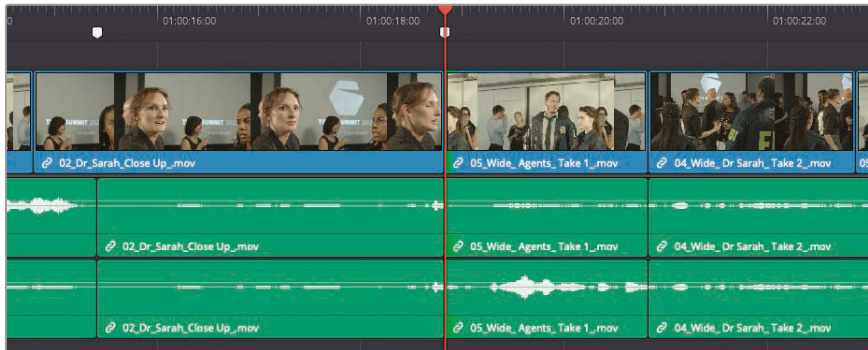
- 2 Press the / (slash) key to review this edit.

This transition has a line that is repeated in both the outgoing and incoming clips. Let's remove the line where the doctor says, "Yeah, yeah," from the outgoing clip, and leave the impatient FBI reaction shot as is. Doing so requires a single-sided ripple trim, so you'll need to switch to Trim mode and then move the cut selection to the outgoing side. You can do all that using keyboard shortcuts for added speed.

- 3 Press the T key to select the Trim mode.

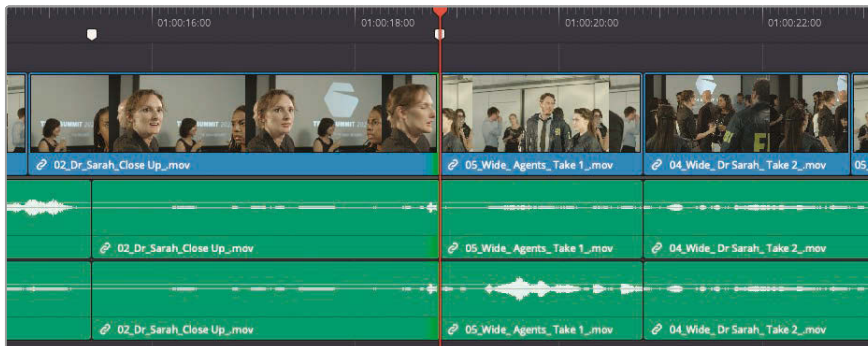


- 4 Press the U key to change the trim selection from a rolling trim to a single-sided incoming ripple trim.



The U key is a three-way toggle that cycles through the trim selection states: rolling trim, single-sided ripple trim from the incoming clip, and single-sided ripple trim for the outgoing clip. Currently, the incoming side is selected, but pressing the U key again still selects the outgoing side of the cut.

- 5 Press the U key a second time to select the outgoing side of the cut.



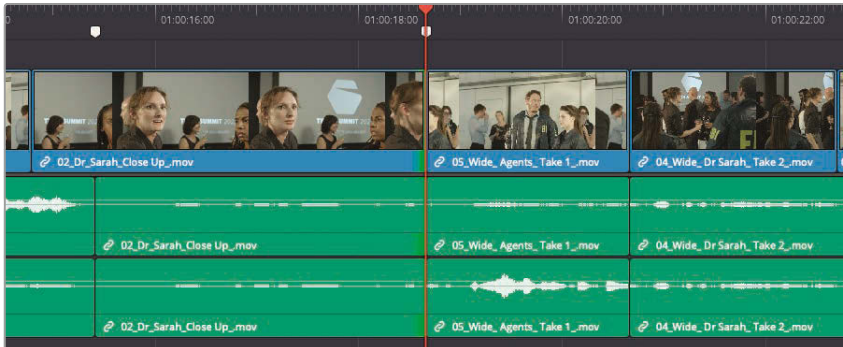
- 6 Under the timeline viewer, click the Loop button, or press Command-/ (slash) in macOS or Ctrl-/ (slash) in Windows.



With loop activated, Resolve continuously plays whichever playback option you choose. To loop play over the trim point, play the selection.

- 7 To review the edit, press / (slash) to loop play the selection.
- 8 While looping in the timeline, press the E key to mark a new Out point after the doctor turns to face her friend but before she says, “Yeah, yeah.”

- 9 Let the selection loop play a few times and modify the edit by pressing `,` (comma) to remove a single frame from the tail or `.` (period) to add a single frame to the tail.

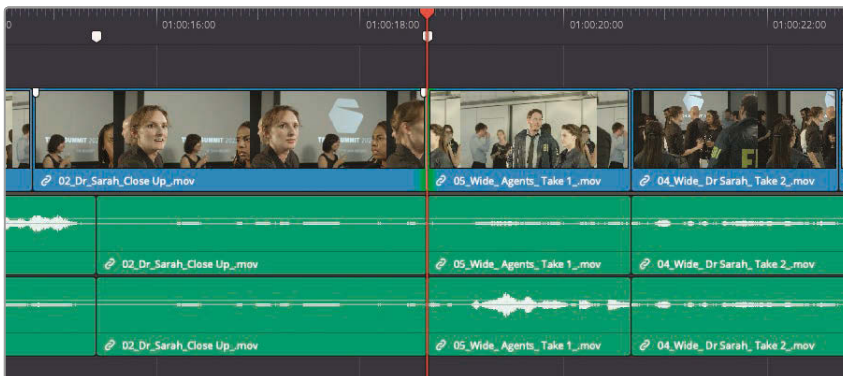


- 10 When you feel the edit is right, press Spacebar to stop playback.

The rhythmic beats of your audio and the associated sound edits contribute significantly to the pacing and mood of a scene. Trimming on-the-fly is one way to realize the most natural and organic feel with that rhythm.

To continue practicing trimming on-the-fly with this cut, you'll bring the video cut back a bit to see a little more of the FBI agent's reaction and make the selection in the timeline using keyboard shortcuts.

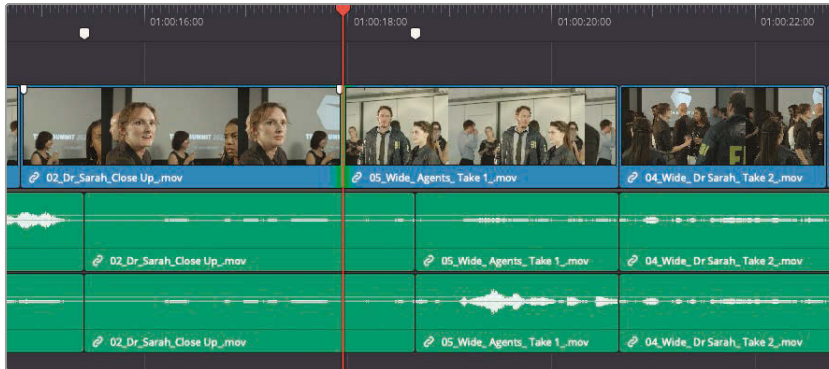
- 11 Press `U` to cycle the selection until both sides of the cut are selected, as indicated by the green highlight.
- 12 Press `Option-U` (macOS) or `Alt-U` (Windows) to select only the video track for trimming.



Just as pressing the `U` key toggles the side of the cut to trim, pressing `Option/Alt-U` toggles through the tracks to trim.

- 13 To loop playback, press `/` (slash).
- 14 After the doctor says, "Sure," press the `E` key to roll the video edit back a second or so to create an L-cut.

- 15 Let the selection loop a few more times and modify the edit by pressing either , (comma) to roll the edit back one frame or . (period) to roll it forward one frame.



- 16 Press the Spacebar when you have finished perfecting your edit.  
17 In the toolbar, select the Selection tool or press A.

By this point, you should understand that J-cuts and L-cuts are all about keeping the edit flowing seamlessly. Offsetting the audio or video cuts from each other even slightly allows you to keep the dialogue moving forward while giving the audience a peek at the reaction of other characters, thereby helping to knit together the whole edit.

## Putting Yourself to the Test

The next two white markers in the timeline are cuts that also need refinement. Using the keyboard shortcut methods you just learned, see if you can make smooth split edits with these two cuts.

Here are some simple instructions to follow:

- 1 Move the playhead down to the fourth white marker.
- 2 Press the V key to select the cut.
- 3 Review this edit.
- 4 Use keyboard shortcuts to select the video track and extend the FBI agents after the doctor says, “My help?”
- 5 Use keyboard shortcuts to move to the next edit.
- 6 Review this edit.  
This edit requires two changes:
- 7 Ripple trim the incoming FBI agent shot to remove the audio of the doctor speaking.
- 8 Extend the incoming doctor shot after the FBI agent says, “OK.”

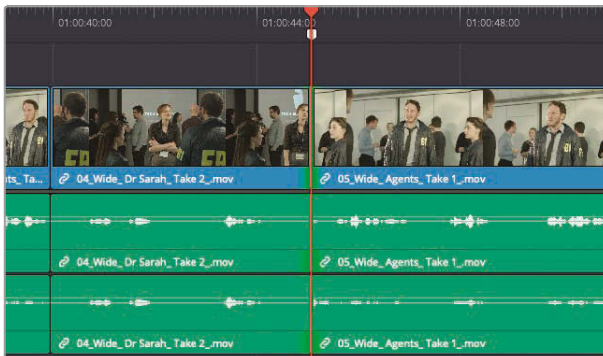
## Dynamic Trim Mode

Extending a cut on-the-fly is just one way to trim while playing over an edit. Enabling Dynamic Trim Mode allows you to use the familiar JKL keys that you have probably been using to play forward and backward through the timeline.

- 1 Move the playhead down to the sixth white marker.

**TIP** You can use the keyboard shortcut Shift-Down Arrow to move to the next marker or Shift-Up Arrow to move to the previous marker.

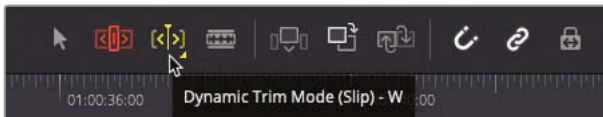
- 2 Press the V key to select the video and audio of the nearest edit.



- 3 Press / (slash) to review this edit.

For this edit, the director wants to remove the first two lines of the FBI agent. The director would like this clip to start when the FBI agent says, “I need you to tell me everything about the Syncs.” This also, helpfully, loses a rather awkward step forward that Agent Jenkins performs at this moment.

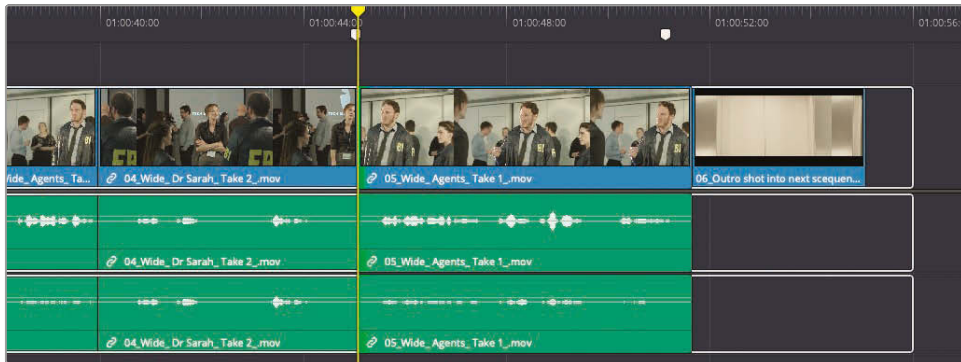
- 4 Press the U key until the incoming side of the current edit is selected.
- 5 Press T to enable Trim Edit mode, if necessary.
- 6 In the toolbar, click the Dynamic Edit mode button, or press W.



When Dynamic Trim Mode is enabled, your familiar keyboard shortcuts now change. If you’ve been using Spacebar to start/stop playback, this now becomes the equivalent to the Play Around Current Frame function, while J and L now adjust the edit point in real time!

- 7 Press and hold the K then L keys together to begin trimming slowly forward until the FBI agent finishes his second line, “Because it is happening.”

Pressing the K and L keys together trims while playing half-speed forward.

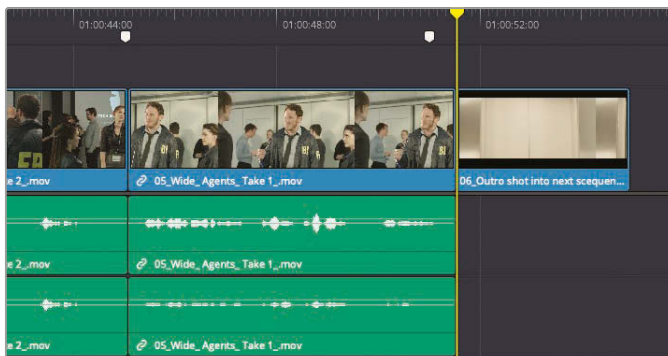


- 8 Press Spacebar to review the edit. Adjust if necessary by holding K and L or J, depending on whether you want to trim forward or backward.

**TIP** If you want to trim a frame at a time, the familiar , (comma) and . (period) shortcuts will continue to work. Alternatively, you can hold down K and tap J or L.

All the trimming functions you are used to, such as slip and slide, are available to you in Dynamic Trim mode.

- 9 Press the Down Arrow to move to the last cut in the timeline.



To make this ending shot more dramatic and lead the audience into the next scene, let's move the last shot of the sync robot so it appears over the FBI agent saying, “We need to know everything.” One way to do so is to slide the last clip back over the FBI agent video. You can easily do so using keyboard shortcuts to select the entire clip, and then slide it back using Dynamic Edit mode.

- 10 Press Shift-V to select the entire clip instead of just the edit point.

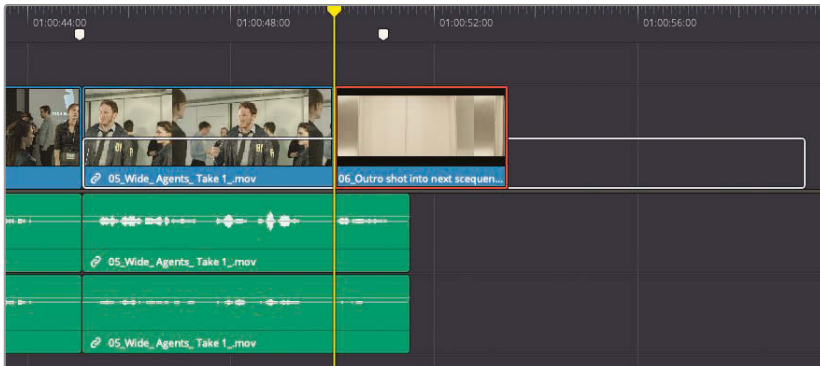
When a clip is selected, the toolbar button for the Dynamic Edit mode changes to show you whether you're in Slip or Slide mode.



- 11 Tap the S key until the Dynamic Edit mode button in the toolbar becomes a slide icon.

**TIP** You can also right-click the Dynamic Trim button to choose between Slip and Slide.

- 12 Press the J and K keys together to slide the last clip back until the FBI agent begins to say, "We need to know everything." If you go too far back, press the K and L keys to slide the clip forward.



- 13 Press Spacebar to review the edit.
- 14 When you are done with the change, press the W key to disable Dynamic Edit mode and press the A key to return to the Selection tool.

While this lesson has been about editing dialogue, its underlying theme is continuity. Continuity editing involves matching screen direction, position, and temporal relations from shot to shot. The extend edit, trimming on-the-fly, applying ripple overwrite editing, and using the Take Selector are just a few of the many Resolve features that support this single most important principle of editing.



# Lesson Review

- 1 What methods can you use to create a subclip from a marked duration of a clip in the edit page?
  - a) Drag the clip from the source viewer to the media pool.
  - b) Press Option-B (macOS) or Alt-B (Windows).
  - c) c) In the source viewer options menu, choose Make Subclip.
- 2 What do the preview marks on the timeline indicate?
  - a) They show where you can add markers.
  - b) They help determine where clips will be placed when making three-point edits.
  - c) They show where text and graphics will align on the timeline viewer.
- 3 True or False? Ripple Overwrite is a three-point edit.
- 4 True or False? To extend a cut on-the-fly while playing you must enable Dynamic Edit mode.
- 5 True or False? All clips in the Take Selector should have the same duration.

## Answers

- 1 a) and b) You can create subclips by choosing Mark > Create Subclip, and right-clicking the source viewer jog bar; then choose Create Subclip, press Option-B (macOS) or Alt-B (Windows), or drag the subclip from the source viewer into the media pool.
- 2 b) Preview marks help you determine where clips will be placed whenever you execute a three-point edit.
- 3 False. Ripple Overwrite is a four-point edit that you use when the duration of the marked source clip is different from the duration marked in the timeline, and when you want the timeline to ripple to accommodate the difference in duration.
- 4 False. To use JKL keys to trim, you must enable Dynamic Edit mode. Extend edit while playing is always available.
- 5 False. The Take Selector can contain clips of different durations. When switching between these clips, you can enable the Ripple Take button in the upper-right corner (to the left of the trash can button).

## Lesson 5

# Multicamera Editing

Multiple cameras running simultaneously are used for many types of productions, including music videos and reality programming.

The cut page enables one way to edit multicamera productions, with its Source Overwrite editing function. Meanwhile, the edit page uses a more traditional multicamera editing workflow.

Both pages allow you to initially synchronize multiple clips and then easily manage and edit between different camera angles without any further concern about sync issues.

However, the edit page provides a bit more flexibility when it comes to naming and ordering camera angles, as well as enabling switching and even color grading.

In this lesson, you'll explore the power of multicamera functionality in the edit page and learn how to solve some common challenges.

### Time

This lesson takes approximately 60 minutes to complete.

### Goals

<b>Starting a Multicamera Project</b>	228
<b>Switching Angles in the Timeline</b>	237
<b>Editing a Multicamera Music Video</b>	244
<b>Real-Time Multicamera Editing</b>	252
<b>Adjusting the Multicamera Edit</b>	260
<b>Adjusting a Multicam Clip</b>	262
<b>Lesson Review</b>	267

# Starting a Multicamera Project

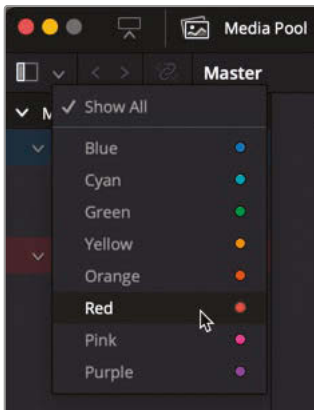
Accurately establishing the sync relationship between multiple camera angles is critical for a successful multicamera edit in the edit page.

- 1 Open Resolve, and in the Project Manager, right-click and choose Import Project.
- 2 Navigate to R17 Editing > Lessons > Lesson 05 Multicam > **DR17 EDITING LESSON 05 MULTICAM.drp** and choose Open. Double-click the new project to open it.
- 3 If necessary, switch to the edit page and relink the media files.

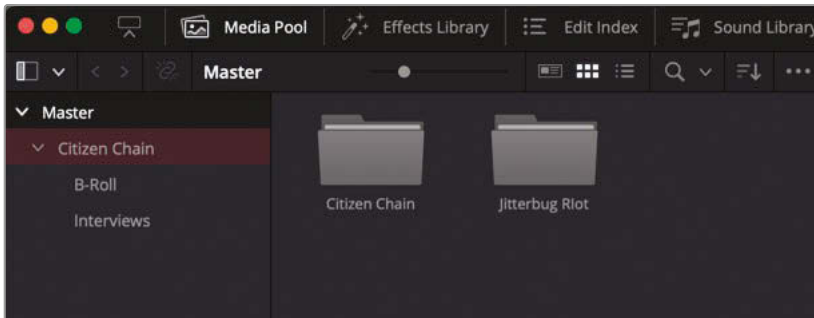
This project contains footage from two separate shoots; the first is the interview with Sasha from Citizen Chain Cyclery; the second is a music video shoot for the band Jitterbug Riot.

You will concentrate on editing the different multicamera setups for each of these separate events, concentrating on each in turn.

- 4 In the media pool bin list pop-up menu, choose the Red bin option.



This hides the Blue colored bin in the bin list, as you are not interested in the band footage just yet.

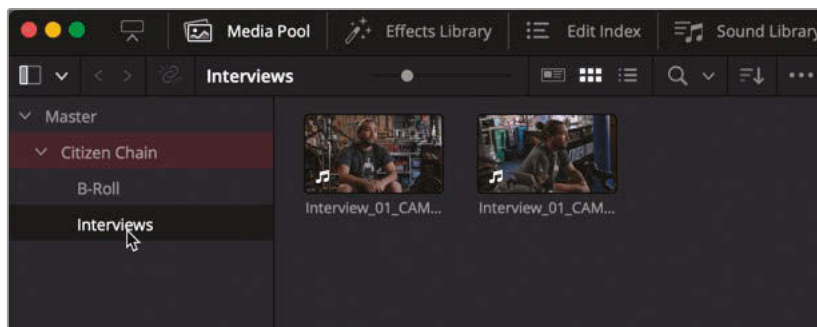


- 5 In the timeline, review the current edit **Citizen Chain Multicam\_START**.  
This rough edit provides a useful introduction to Sasha's interview.
- 6 Click the Full Extent Zoom button in the timeline toolbar.

**NOTE** The Full Extent Zoom function will always display the whole of the current timeline in the edit page, similar to the functionality of the cut page's upper timeline.

The director wants the interview to start after the camera has panned to the Citizen Chain shop sign at the end of the third clip.

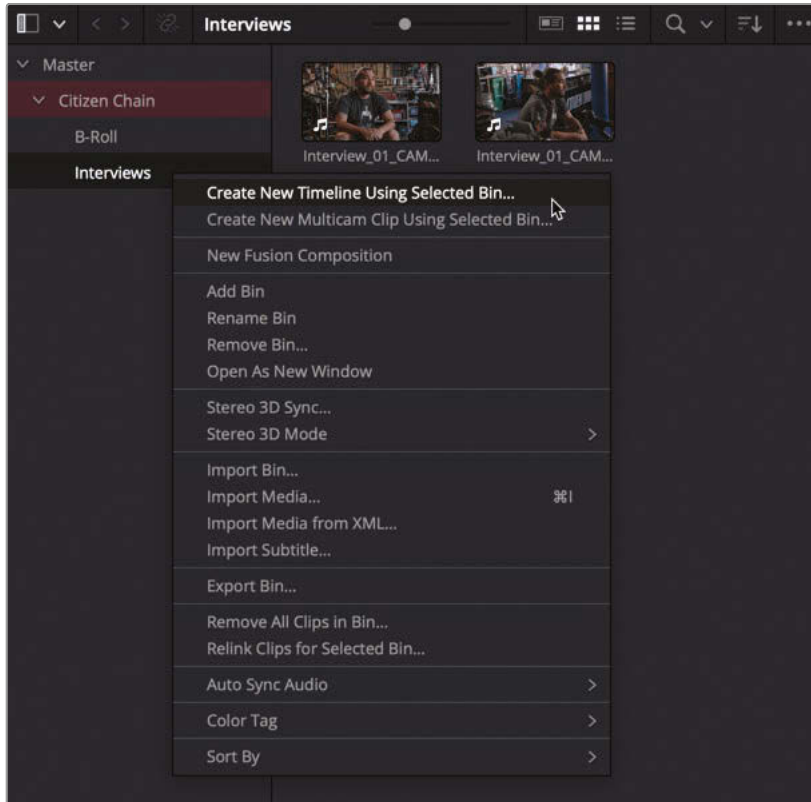
- 7 Position your timeline playhead on the edit point between **Store\_Front\_MS.mov** and **Rosebud\_Sticker.mov**.
- 8 In the media pool, select the Interviews bin and review the footage.



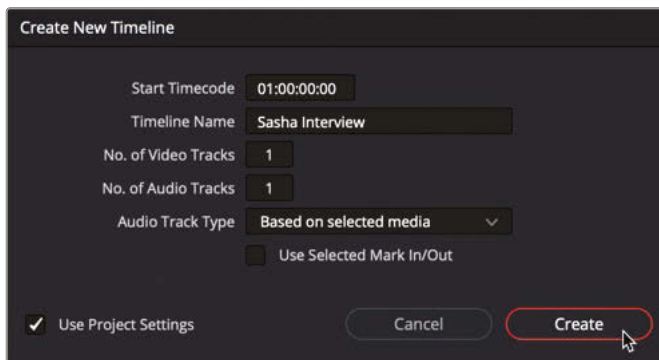
This bin contains two interview clips with Sasha in which he explains the inspiration for the business's name. It's a nice story, but the director would like it to flow a little better. Thankfully, because this interview was shot on more than one camera, you can cut between the different cameras instead of adding B-roll cutaways to cover jump cuts or patching the interview with the Smooth Cut transition.

However, before you start editing this interview, you need to sync the clips.

- 9 In the media pool, right-click the Interviews bin and choose Create Timeline Using Selected Bin.

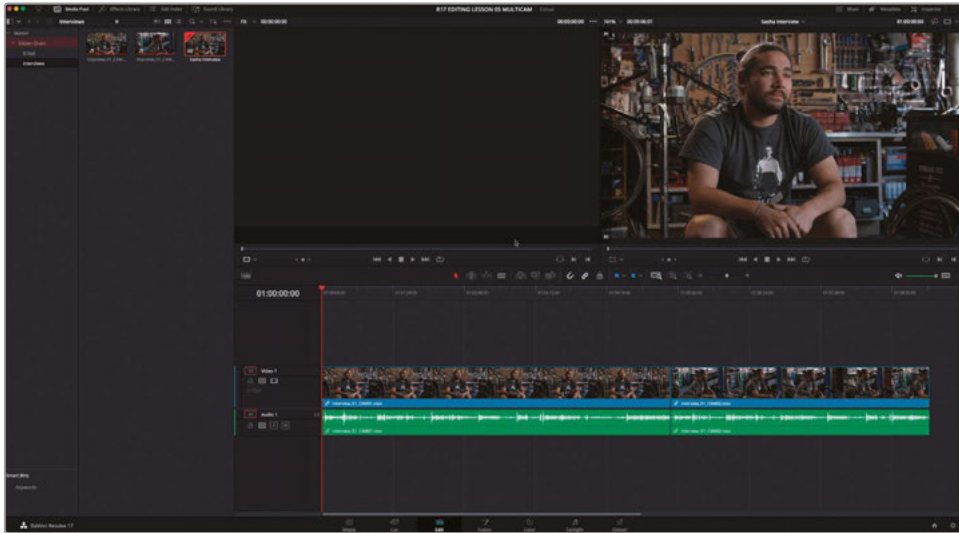


- 10 In the New Timeline window, name this timeline **Sasha Interview**, deselect Use Selected Mark In/Out, and click Create.

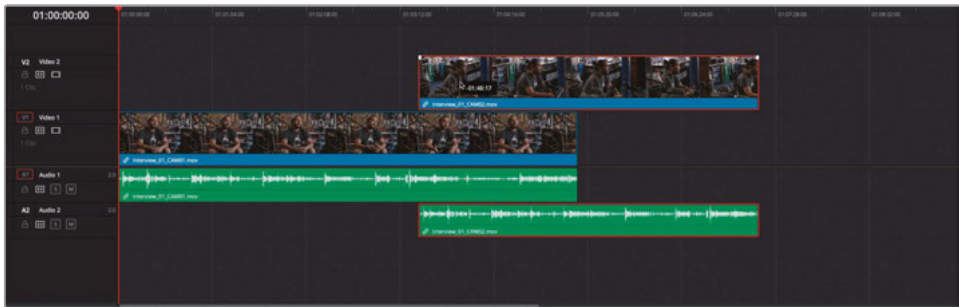


A new timeline is added to the Interview bin and automatically opens in the timeline.

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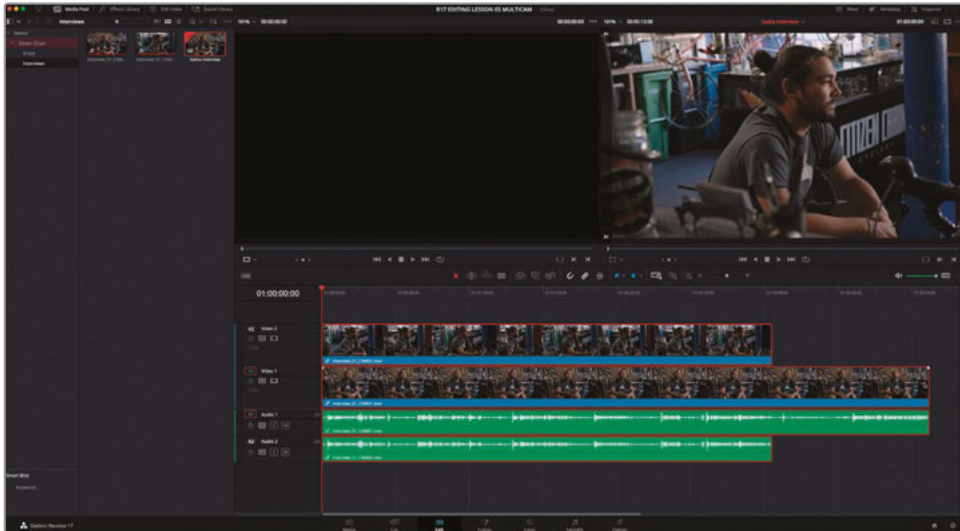
- 11 In the timeline, select **Interview\_01\_CAM02.mov** and drag it anywhere above the previous clip.



- 12 In the timeline, select both clips, and then choose **Clip > Auto Align Clips > Based on Waveform**.

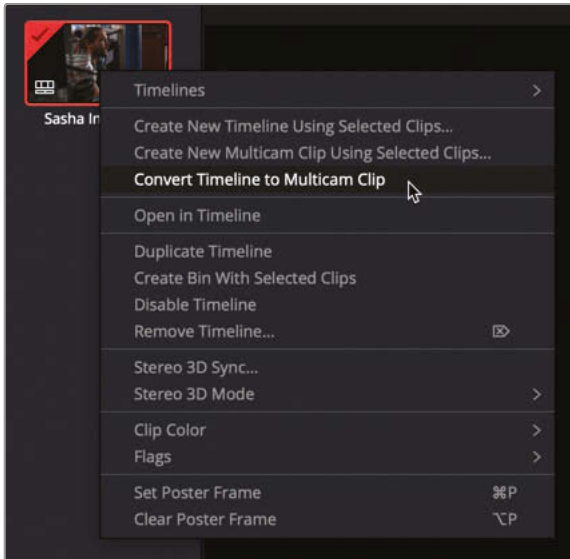
**TIP** Alternatively, you can right-click the selected clips and choose **Auto Align Clips > Based on Waveform**.

After a brief analysis, Resolve correctly synchronizes the two clips in the timeline.



You now need to convert the Sasha Interview timeline into a special multicam clip.

- 13 In the Interviews bin, right-click the Sasha Interview timeline and choose Convert Timeline to Multicam Clip.





The timeline closes (as it's no longer a timeline), and its bin icon changes to that of a multicam clip.

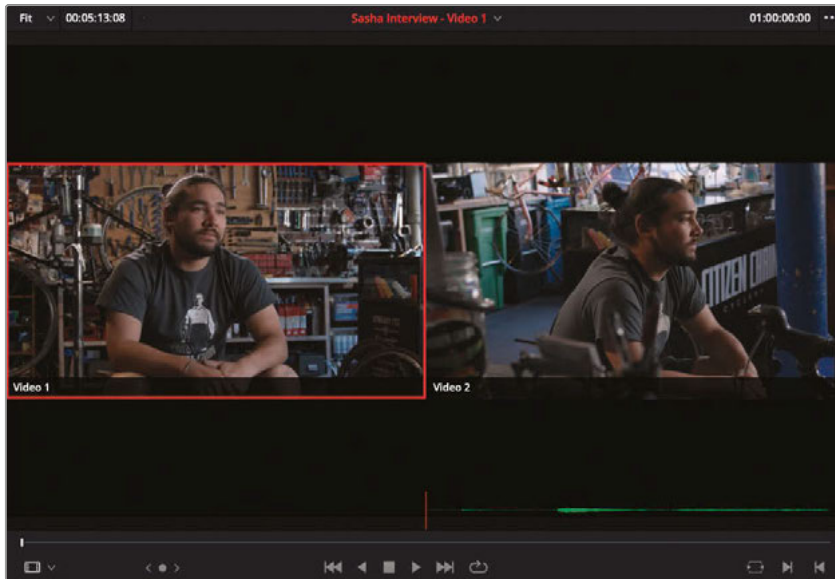


You are now ready to insert this interview into the main timeline and start editing between the different angles.

## Viewing the Multicam Clip

You can work with a multicam clip just like any other source clip. However, because it contains both angles in a single clip, you can switch between the two shots at any time.

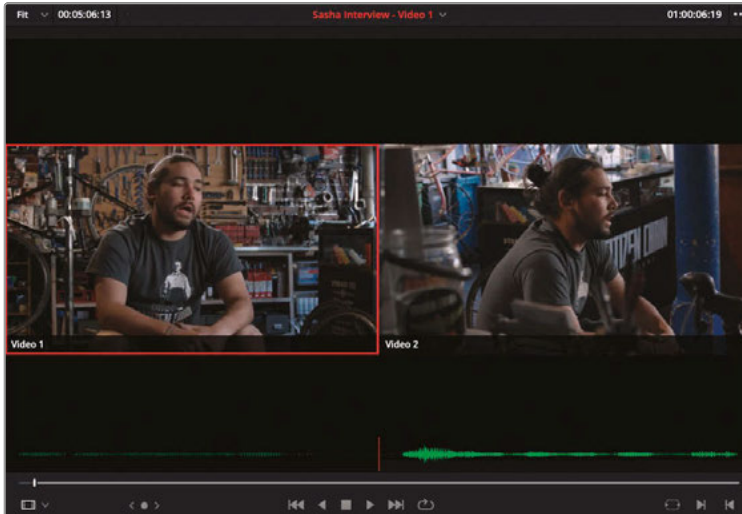
- 1 Double-click the **Sasha Interview** multicam clip to open it in the source viewer.



Because this is a multicam clip, Resolve automatically displays both angles side-by-side. The angle with the red outline represents the currently active angle—the angle that you will see and hear.

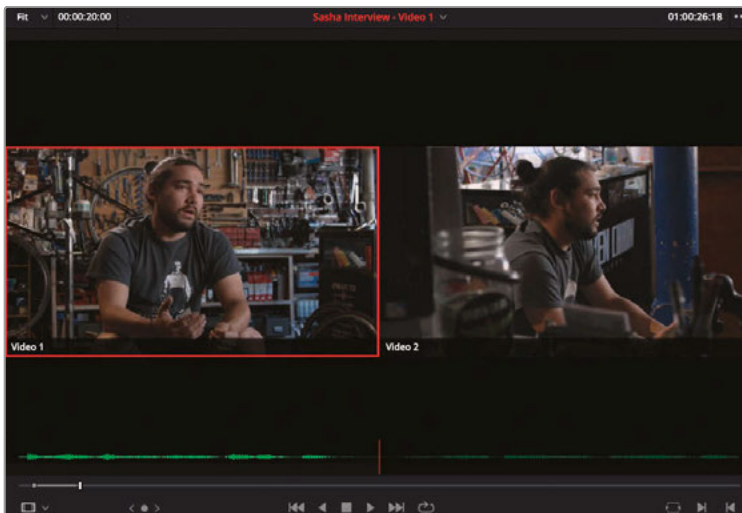
**NOTE** The names of these angles are “Video 1” and “Video 2” because these were the names of the video tracks in the original timeline. You will learn how to rename angles later in this lesson.

- 2 Play the multicam clip in the source viewer. Both angles should be in sync.
- 3 In the source viewer, set an In point just before Sasha says, “I was a big fan of Orson Welles” (around 01:00:07:00).



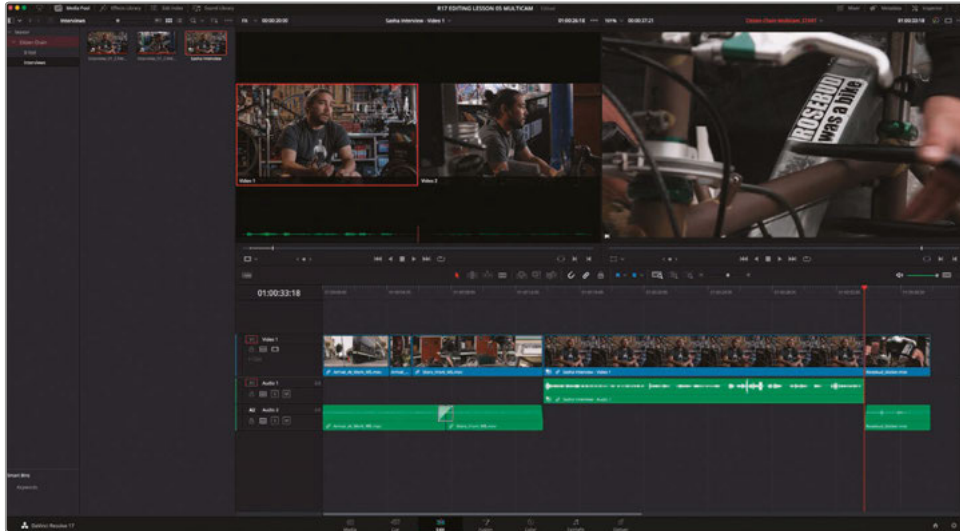
**TIP** If you wish to display waveform overlays in the source viewer as you have done in previous lessons, simply enable this option in the Source Viewer Options menu before opening the multicam clip.

- 4 Set an Out point after Sasha says “...we found out that Rosebud was really a bicycle” (around 01:00:27:00).



**NOTE** The source timecodes referred to in this exercise are the timecode values for the original timeline that this multicam clip was created from, not the timecode for the actual source clips inside the multicam clip.

- 5 Press F9 to Insert or click the Insert Clip button in the timeline toolbar (or however you prefer to perform an Insert edit) to insert this multicam clip into the timeline at the playhead position.



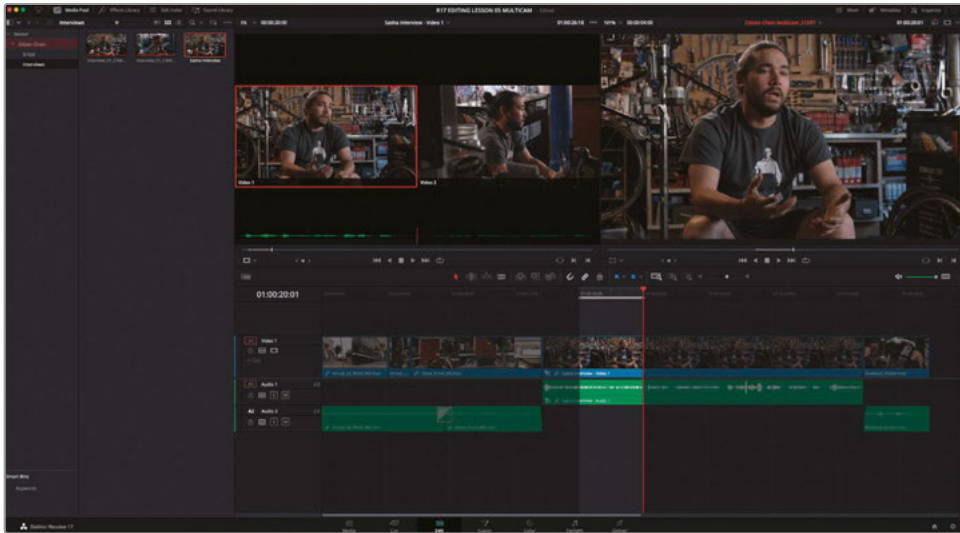
When you play this multicam clip in the timeline, you'll see only the currently active angle. The second angle is hidden.

## Refining the Radio Edit

Now that you have the interview in the timeline, you can start to edit to improve the flow of Sasha's storytelling. First, you'll have to remove a couple of distracting "umms" and "ahhhs." Then, you'll want to tighten up the last part of the interview.

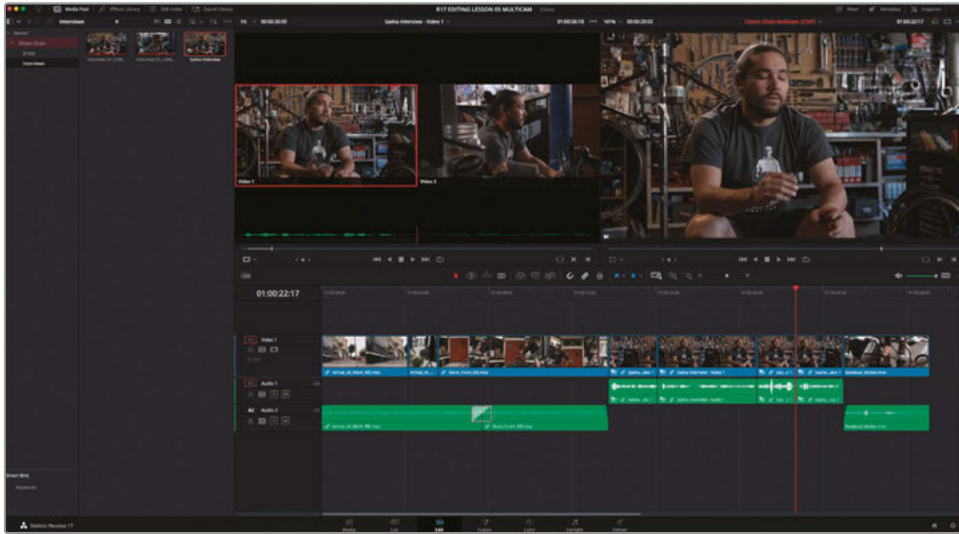
- 1 In the timeline, play through the interview until just after Sasha says, "I was a big fan of Orson Welles". Press I to add an In point.

- 2 Continue to play through the interview until just before Sasha says "...I appreciated the pun..." Press O to add an Out point.



- 3 Press Shift-Delete (or Backspace) to ripple delete the marked section.
- 4 Press / (slash) to preview the edit.  
By now, this process should be second nature to you.
- 5 Continue playing the timeline and use the same technique to remove the “ummm” a few seconds later, after he says, “Citizen Chain, Citizen Kane,” and before he says, “And only after we named the shop...”
- 6 Set another In point after he says, “It was only after we named the shop,” and place an Out point just before he says, “We found out that Rosebud was really a bicycle.” Again, ripple delete this section of the interview to tighten up the punchline of the story.

**NOTE** There is an additional “Ummm” you may want to take out just before Sasha says “Citizen Chain, Citizen Kane.” Consider this an extra credit exercise you could remove yourself once you’re comfortable with editing multicamera footage.



At this point, the director is satisfied that your new cut has engaged the audience sufficiently.

- 7 Return your playhead to the start of the interview and click Play to listen to this radio edit.

**NOTE** Remember, at this stage you are listening to ensure that the interview sounds right and contains no obviously distracting audio edits. If you need to adjust any edits, use the techniques you learned in Lesson 3 to ripple trim the edit points to suit yourself.

Once you have the radio edit working to your satisfaction, you're ready to put the additional angle of your multicam clip to work.

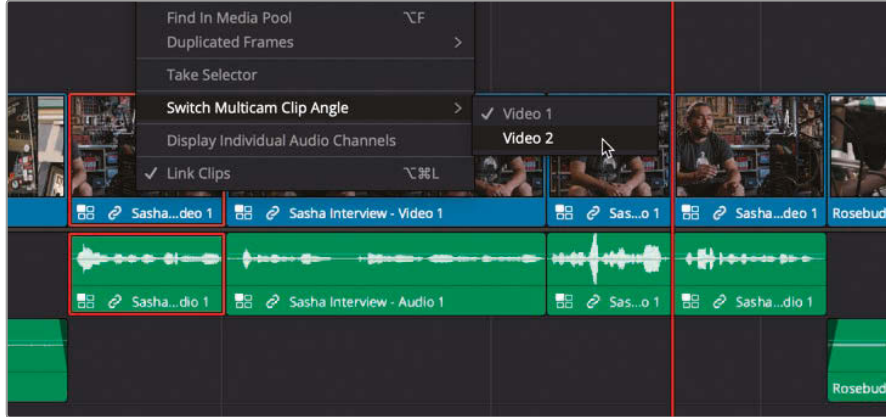
## Switching Angles in the Timeline

Not all multicamera edits must be done on-the-fly, cutting between angles in real time as the footage races past. You can switch between the different angles within a multicam clip at any time.

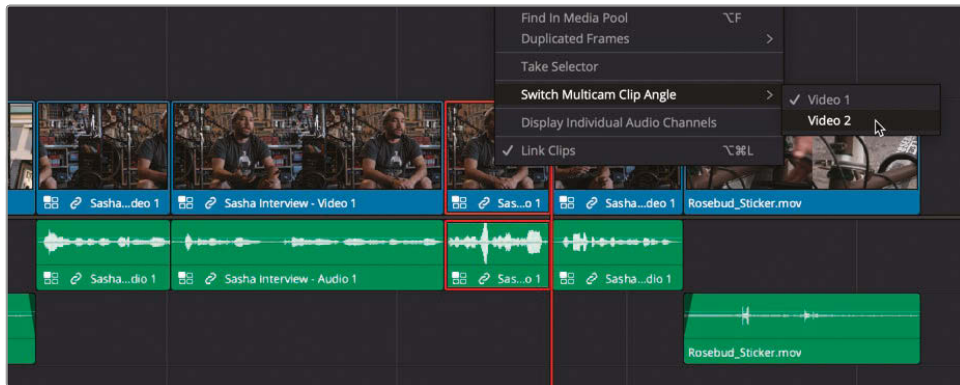
- 1 In the **Citizen Chain Multicam\_START** timeline, place the playhead on the edit between the first and second multicam clips.

**TIP** You can identify a multicam clip in the timeline by the little box icon next to the name of the clip.

- 2 Press / (slash) to review the cut.
- Ouch! You'll no doubt agree that this is a rather nasty jump cut.
- 3 Right-click the first multicam clip in the timeline and choose Switch Multicam Clip Angle > Video 2.



- 4 Press / (slash) to review the new edit.



- 5 In the timeline, right-click the third multicam clip and choose Switch Multicamera Clip Angle > Video 2.

**NOTE** The above techniques will switch the video part of the multicam clip in the timeline. If you want or need to switch the audio, right-click the audio clip and choose Switch Multicam Clip Angle where you will find the audio angles available.

- 6 Return to the start of the multicam clips in the timeline and review the changes you've just made.

## Utilizing Split Edits

Now that you have the interview sitting amid the rest of the footage, and utilizing the different angles, it's time to begin finessing how you may move into an out of the interview.

- 1 Press Shift-Command-L (macOS) or Shift-Ctrl-L (Windows) or click the Linked Selection toolbar button to disable your timeline's Linked Selection feature.

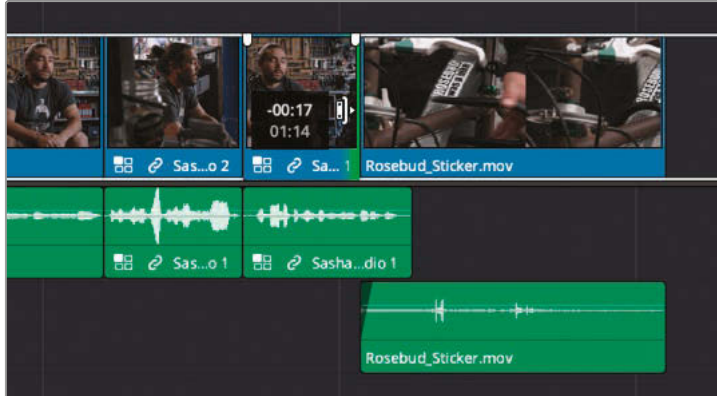


- 2 Press T to enter Trim Edit mode or click the Trim Edit mode toolbar button.



To begin with, you will adjust the cut between the interview and the last clip in the timeline.

- 3 Select the outgoing video edit between the fourth multicam clip and **Rosebud\_Sticker.mov**.



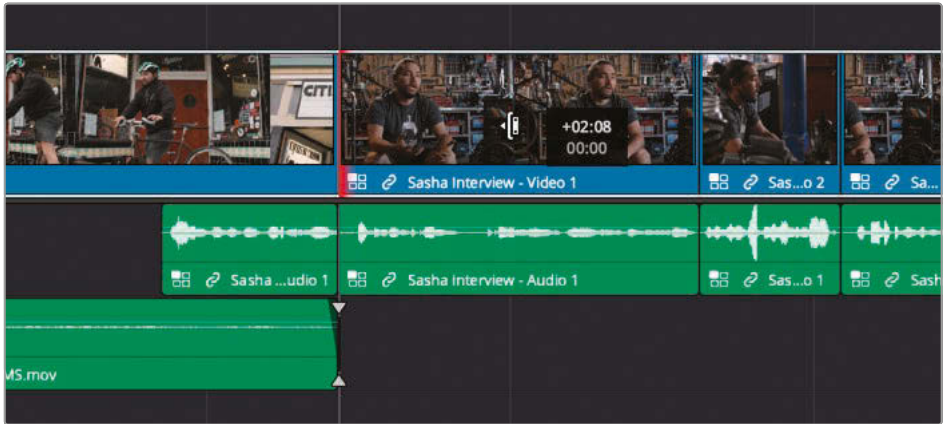
- 4 Trim the video edit back slightly to create an L-cut.
- 5 Press / (slash) to preview the selected edit.

That simple change has created a nice split edit that helps to soften the end of the interview going back into the B-Roll footage.

Now you'll turn your attention to the incoming part of the interview.

- 6 Select the incoming side of the first multicam clip video.

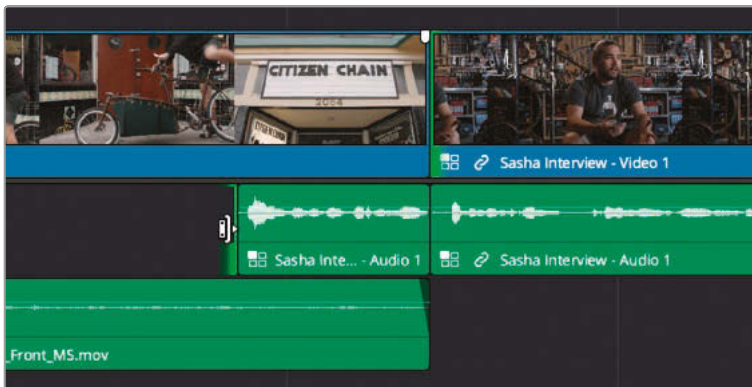
- 7 Trim the selection forward until you reach the end of the first multicam clip.



Resolve allows you to trim a clip to zero frames, effectively removing it. If you want to trim further into the next clip, you'll need to reselect the edit.

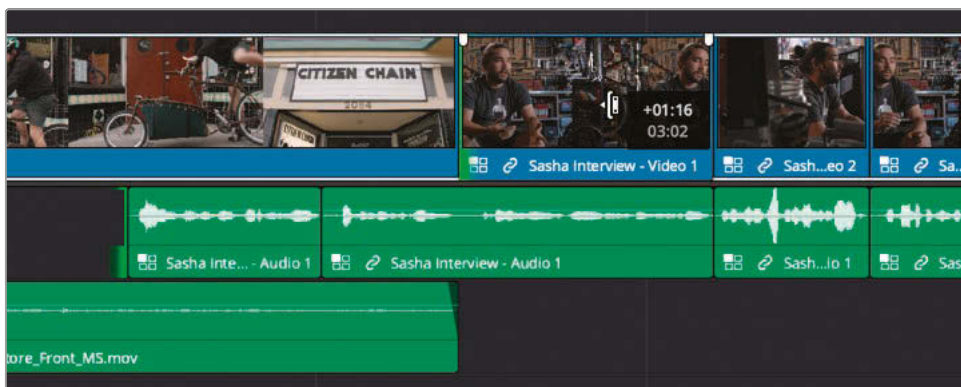
- 8 Reselect the incoming video of the next multicam clip.

If you continue to trim forward from this point, you will trim the underlying audio backward, overwriting the previous audio clip just as you encountered in a previous exercise in Lesson 1. In that exercise, you had to disable the Auto Track Selector control for the track; unfortunately, however, that won't work here. Instead, you will perform an asymmetric trim—that is, a trim applied to two separate edit points in different directions! Don't worry, it sounds much more complex than it is.





- 9 With the incoming video still selected, Command-Click (macOS) or Ctrl-Click (Windows) the outgoing part of the gap before the first audio clip left of the interview.
- 10 Click and hold the incoming video edit and trim the video edit forward by about 1.15 (using the small, flat part of the audio waveform as a guide). At the same time, notice that the audio edit is trimmed backward, thereby maintaining the sync between the different audio and video clips!



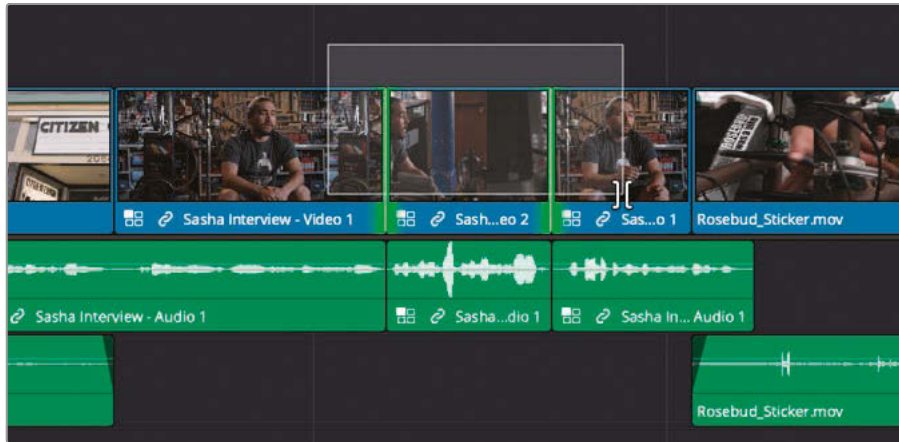
**TIP** You can also use the , (comma) and . (period) keys to finesse this edit further.

- 11 Press / (slash) to preview the selected edits and marvel at your newly created split!

**NOTE** While asymmetric trims like this are rare, knowing how you can make complex selections when trimming in the timeline is a key step in mastering the trimming functionality available in Resolve.

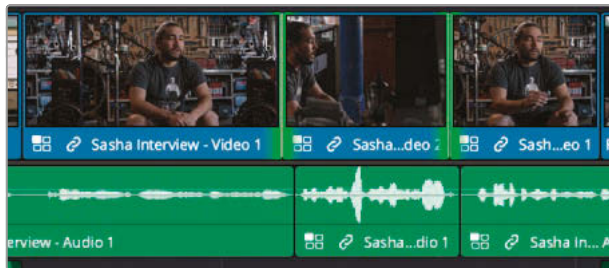
With the beginning and end of this interview now nicely intercut with the B-Roll footage, you can apply a couple more tiny split edits to help smooth the cuts between the different cameras.

- 12 Ensure that you are still in Trim Edit mode, and then click and drag from an empty part of the timeline across the two edits between the three remaining multicam clips.



The edits are automatically selected as rolling trims.

- 13 Press , (comma) three or four times to roll back the video edits a few frames to create two small L-cuts.



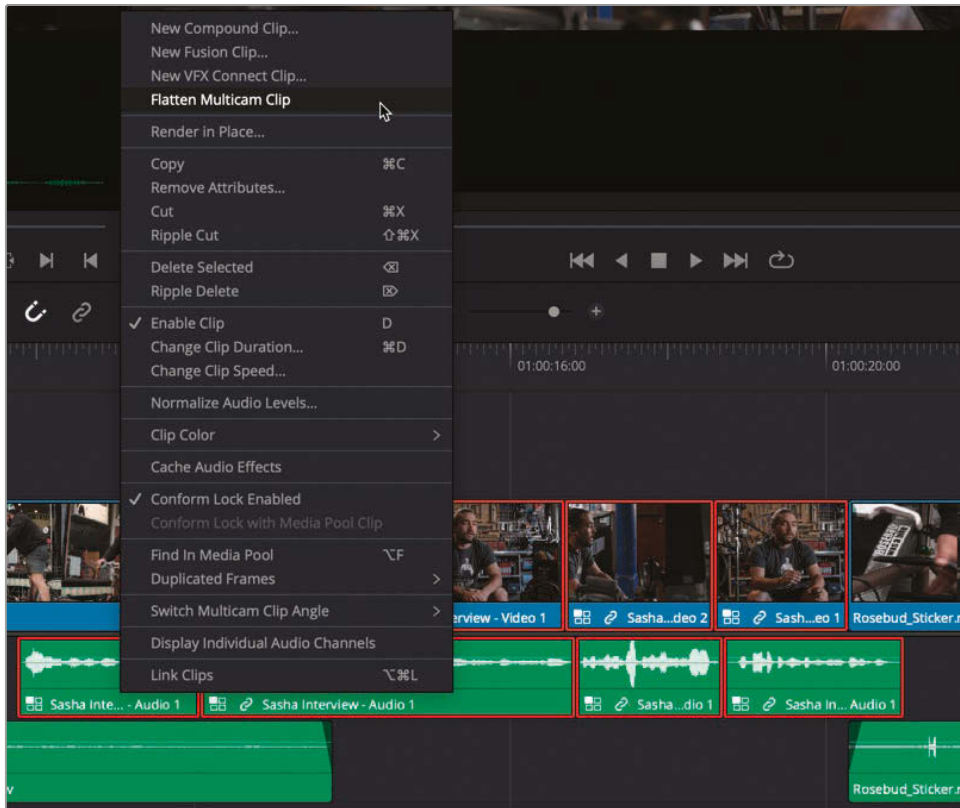
- 14 Press / (slash) once more to review the selected edits.

The slight offset of the video edit from the audio edit softens the edit, making it a little less jarring.

- 15 Review each of these edits, and if necessary adjust the split edits as necessary. Offsetting the edits even one or two frames can make a big improvement in the way the edits are perceived.

**TIP** Remember, you don't always have to roll the edit backward to create an L-cut. A cut might work better if you roll the video edit forward to create a J-cut.

- 16 When you have finished, select all the multicam clips in your timeline (both audio and video). Right-click any of the selected clips and choose Flatten Multicam Clip.



**NOTE** Flattening a multicam clip in the timeline removes all the additional angles and leaves the active angle in its place as a normal timeline clip. Once you have flattened a multicam clip, you will no longer be able to switch to the alternate angles.

By shooting this interview with more than one camera, you can cut the interview effectively without having to paint it entirely with B-Roll or rely on the Smooth Cut transition.

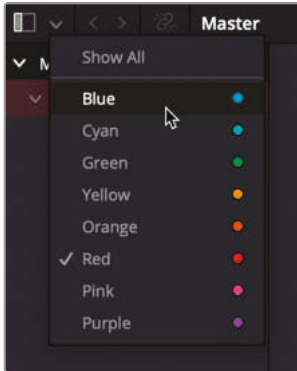
### Reviewing the Finished Timeline

If you wish to view finished versions of this edit created using the steps detailed in this lesson, choose File > Import Timeline > Import AAF, XML, DRT, ADL and navigate to R17 Editing/Lessons/Lesson 05 Multicam/[Citizen Chain Multicam Finished.drt](#).

## Editing a Multicamera Music Video

For the next multicamera exercise, you will concentrate on editing a live music video, which will enable you to explore some of the more in-depth features of multicam editing in the edit page.

- 1 In the Bin List pop-up menu, choose to display the Blue-tagged bins.



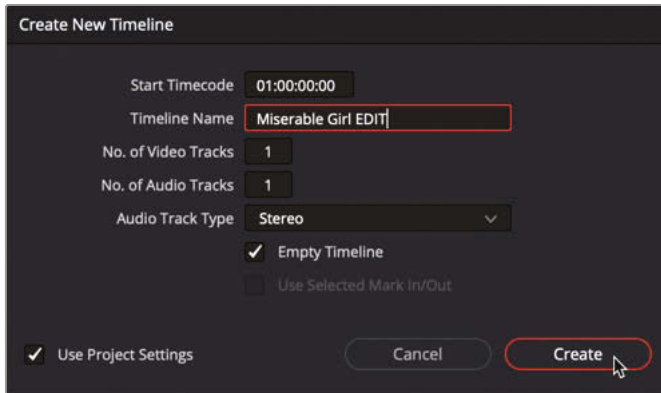
The Citizen Chain bins are hidden since they are color-tagged as Red, and the Blue color-tagged Jitterbug Riot bin is displayed.



You will begin this exercise by creating a new, empty timeline.

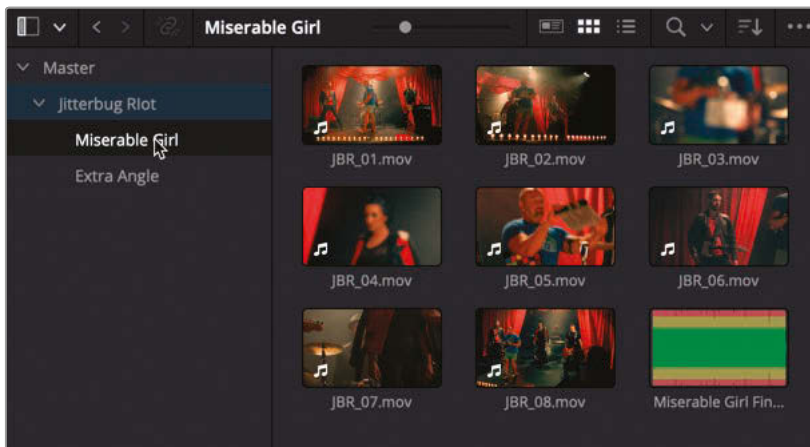
- 2 With the Jitterbug Riot bin selected, press Command-N (macOS) or Ctrl-N (Windows) to create a new timeline.

- 3 In the New Timeline window, name your timeline **Miserable Girl EDIT**—the title of the song the band is performing—and click Create.



The new timeline is added to the bin.

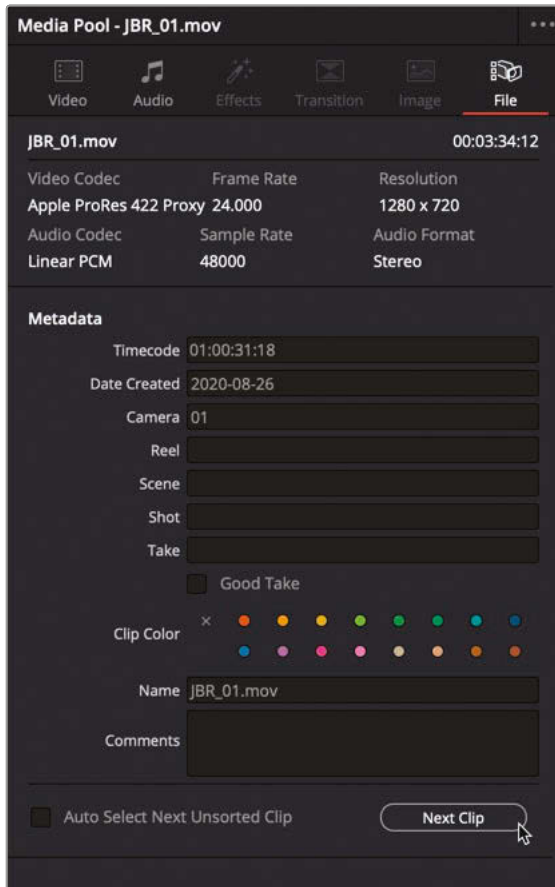
- 4 Select the Miserable Girl bin and review the footage.



This bin contains eight separate video clips of the band performing their song. Each of the video clips has guide audio of various quality recorded on the in-camera microphones. A separate .wav audio file contains a clean, mixed version of the track that the band is performing.

- 5 Ensure that the clips are sorted by Clip Name in the bin and select **JBR\_01.mov** in the bin.

- 6 Open the Inspector and select the File tab.



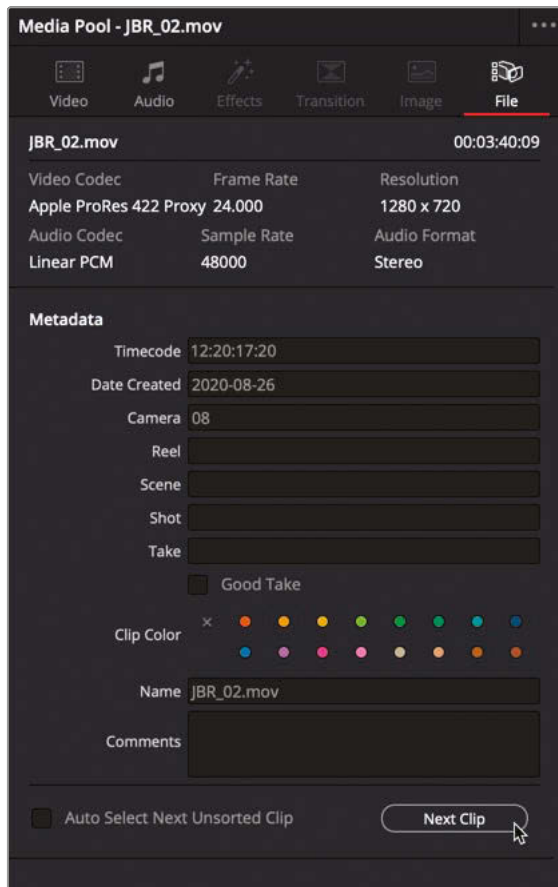
The File Inspector displays some commonly used metadata for the selected clip.

**NOTE** This tab in the Inspector is not customizable but is a convenient location. The comprehensive metadata view is in the Metadata panel.

Notice that this clip has Camera metadata identifying it as “01” in the File Inspector.

- 7 At the bottom of the File Inspector, click the Next Clip button.

The next clip in the bin, **JBR\_02.mov**, is selected and its metadata is displayed in the File Inspector.



Notice that this clip has Camera metadata identifying it as "08." Other cameras are similarly identified with different Camera metadata.

- 8 In the bin, select **Miserable Girl Final Mix.aif**.



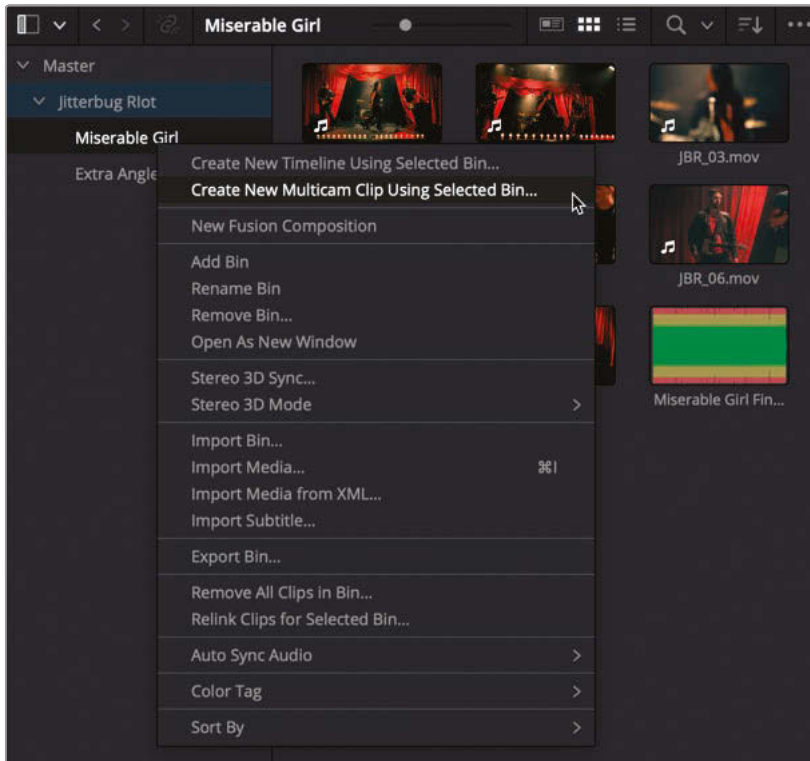
- 9 Again, notice that this audio-only clip has Camera metadata identifying it as “MUSIC.”



## Creating the Multicam Clip

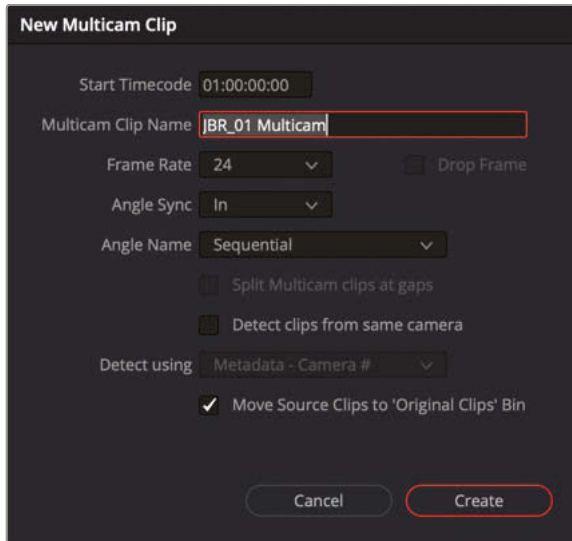
As in the previous exercise, the first step in editing multicamera footage on the edit page is to create a multicam clip of the synchronized clips.

- 1 In the bin list, right-click the Miserable Girl bin and choose Create New Multicam Clip Using Selected Bin.



**NOTE** You can also create a new multicam clip from individually selected clips instead of an entire bin.

The New Multicam Clip window opens in which you can select how Resolve will synchronize the clips and create the multicam clip.



- 2 In the Multicam Clip Name field, type **Miserable Girl SYNC**.
- 3 In the Angle Sync pop-up, choose Sound.

Selecting Sound synchronizes the clips based on their audio content similar to the way you synced the interview clips in the previous exercise and the dual system clips in Lesson 2.

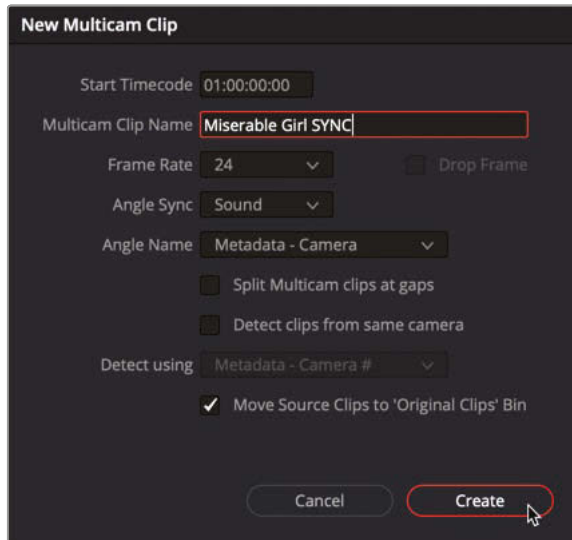
**NOTE** Other options for synchronizing multicam clips include using existing In or Out points and matching timecode or markers.

- 4 Change the Angle Name menu to Metadata – Camera.

**NOTE** The Angle Name option dictates the order in which the angles are sorted. When you choose Sequential, Resolve labels the angles and sorts them as Angle 1, Angle 2, and so on, based on their starting timecode values, with the earliest timecode becoming the first angle.

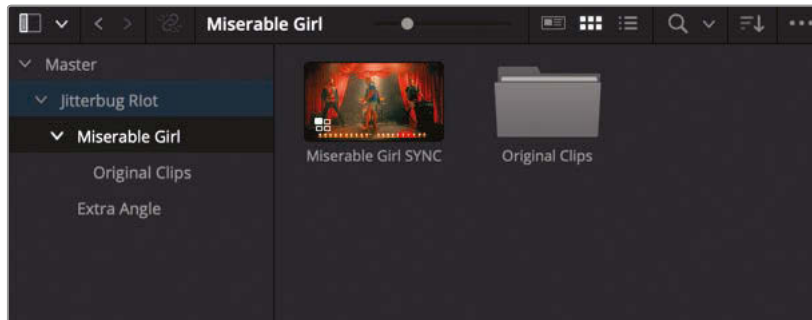
Choosing Clip Name sorts the clip names in ascending alphanumeric order and labels the angles appropriately. Similarly, choosing Metadata – Angle or Metadata – Camera sorts the clips based on information in their respective metadata fields.

- 5 Ensure that the option Move Source Clips to 'Original Clips' Bin is selected.



- 6 Click Create to create the multicam clip.

Resolve analyzes the clips' audio and creates the new multicam clip in the selected bin.



A new bin also appears called Original Clips that contains the individual camera source clips.

## Real-Time Multicamera Editing

The fun aspect of working with a multicamera edit in the edit page is that you can cut between the different cameras in real time as if you were sitting in the live studio in front of a switcher. Often, this will save you hours because you can cut the material in the time it takes to play the timeline.

- 1 Double-click the **Miserable Girl SYNC** multicam clip to open it in the source viewer.



The multicam clip appears in the source viewer and displays each of the nine different clips—or angles—as a separate box, each displaying the appropriate Camera metadata information. This view organizes the angles from left to right and from top to bottom. So, the first angle (in this case **JBR\_01.mov** is identified as CAM\_01) appears in the upper-left window and the ninth angle (**Miserable Girl Final Mix.aif** and identified as MUSIC) appears in the lower-right window. Notice that the angles' names have inherited the Camera metadata information.

**NOTE** If the playhead is at the start of the multicam clip, you will see blank frames for most of the angles because not all the cameras began rolling at the same time. Simply move the playhead to later in the multicam clip to see the footage for all the angles.

- 2 Play the multicam clip in the source viewer to verify that all the angles are in sync.

Because **Camera 01**, in the upper-right quadrant of the viewer, is selected by default, that is the angle that you will hear when you begin playing the clip.

- 3 Set an In point just before the music starts (around 01:00:19:00).



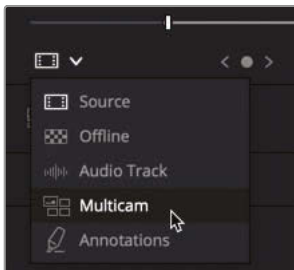
- 4 Perform an overwrite edit to edit this clip into the empty Miserable Girl EDIT timeline.
- 5 Click the Media Pool and Inspector buttons to hide the respective panels and give yourself a little more space to view the multicamera footage in all its glory.
- 6 Click the Full Extent Zoom button in the timeline toolbar to display the entire timeline and adjust the size of the timeline window.

- 7 Press Home to return the playhead to the start of the timeline.

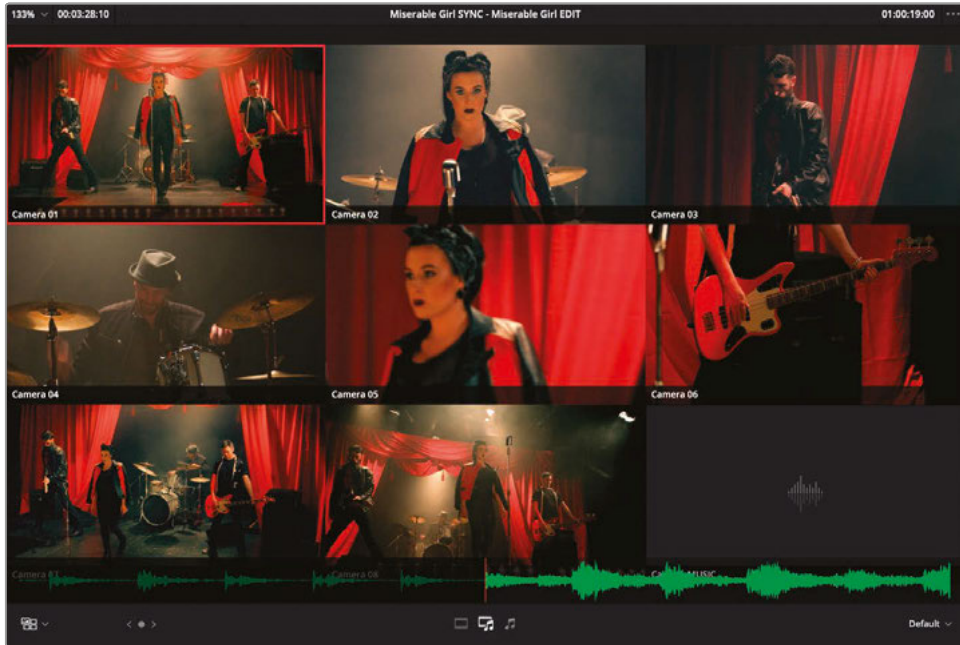


In the timeline viewer, only the first angle, **Camera 01**, is displayed because that is the active camera. To be able to effectively switch camera angles and keep the source viewer in sync with the timeline clip, you need to enable multicam mode for the source viewer.

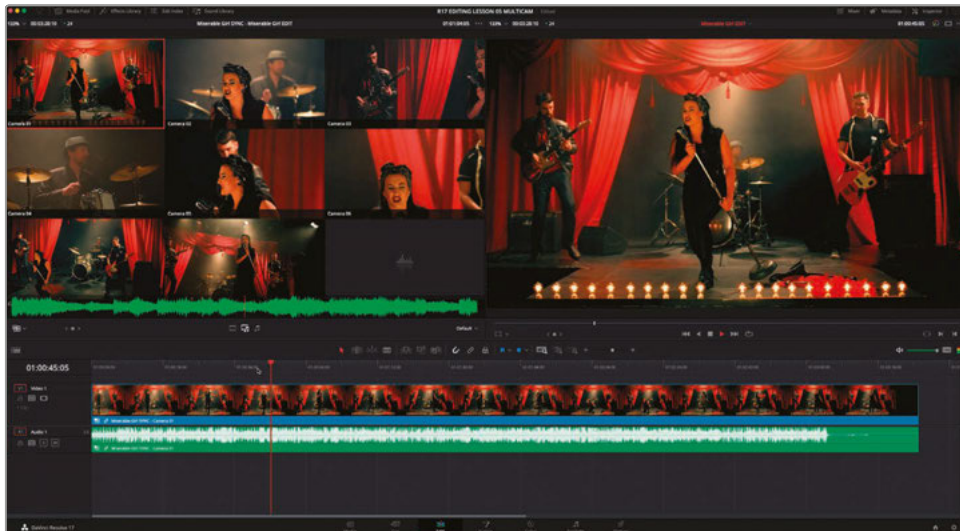
- 8 In the source viewer mode pop-up menu, choose Multicam to display the multicam viewer.



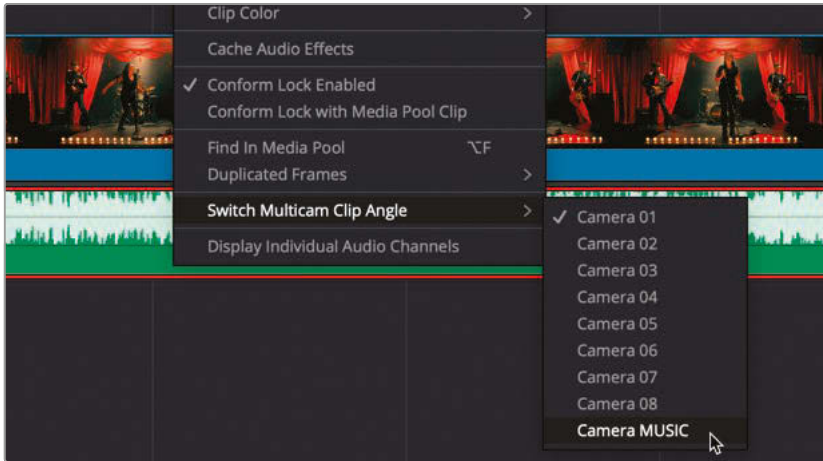
Enabling multicam mode replaces the transport controls under the viewer with multicam-related controls. Transport controls are no longer necessary because moving the timeline playhead will also move the source clips in the multicam viewer so they maintain their synced relationship.



- 9 Play the timeline and see how the different angles in the multicamera viewer play in sync with the timeline viewer.



- 10 In the timeline, right-click the audio for the multicam clip and choose Switch Multicam Clip Angle > Camera MUSIC.

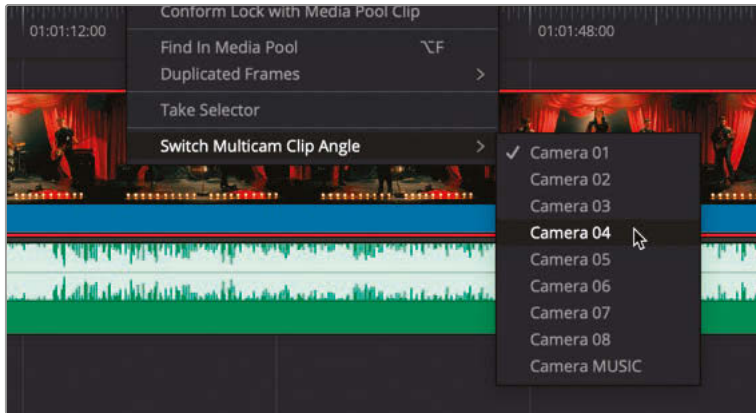


The audio for the multicam clip is changed so that it plays the audio from the **Miserable Girl Final Mix.aif** file. The multicam viewer also displays a green box around the **MUSIC** angle to indicate that this is the currently active audio.





- 11 In the timeline, right-click the video for the multicam clip and choose Switch Multicam Clip Angle To > Camera 04.



The video in the timeline viewer updates to display the video clip for Angle 4, and the multicam viewer now also displays a blue box around the same angle to denote that this is the currently active video angle.



You will now tell Resolve that you want to edit only the video from this multicam clip, as you do not want to edit between the different audio from the different cameras.

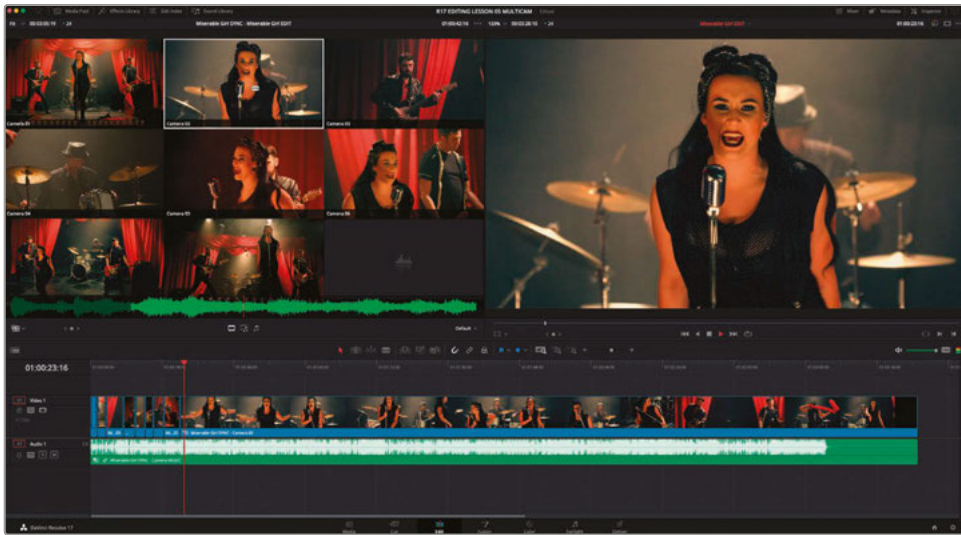
In the source viewer below the multicam clip, three buttons control which parts of this multicam clip cut when you switch angle: video, video and sound, or sound only.

- 12 Click the Video button to the left to edit only the video of this multicam clip.



Now for the fun part...

- 13 With the playhead at the start of the timeline, start playing, and begin clicking each of the video clips in the source viewer to cut between the angles of the multicam clip in real time. As you do so, you will see the edit points appear in the timeline as you cut between the angles. Keep going until you reach the end of the timeline.



**NOTE** You can also press the 1, 2, and 3 keys along the top of your keyboard to cut between the angles instead of clicking on the boxes in the multicam source viewer.

- 14 Once you have reached the end of the song, return the playhead to the start of the timeline, and click Play to review your multicamera masterpiece!

How cool is that?

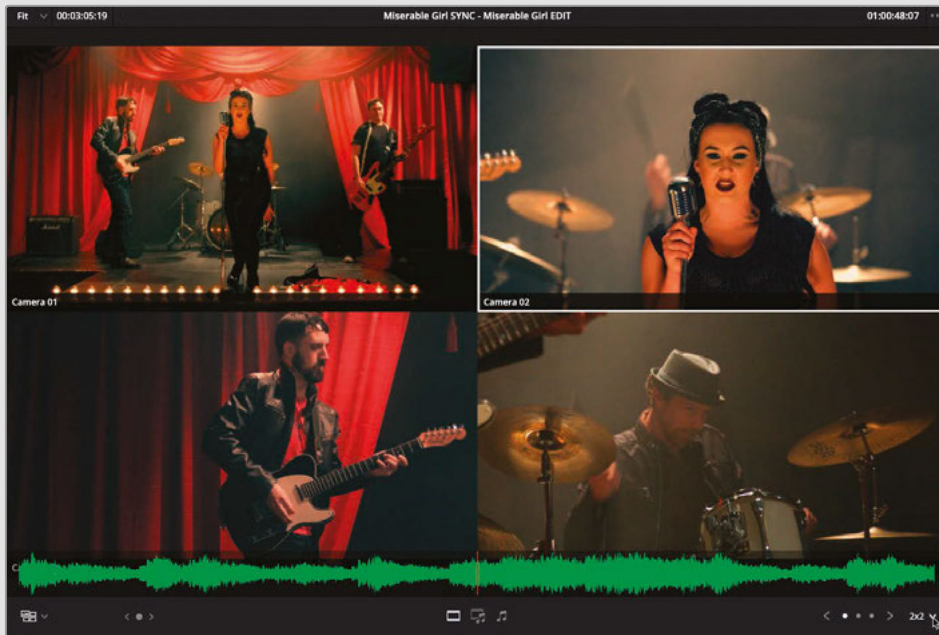
Unfortunately, while it's great fun, this first attempt at a real-time multicamera edit will probably not result in a perfect edit. It's very rare that you would cut to the exact angle at exactly the right time on your first try.

Instead, think of this as your rough cut, which you will now need to refine.

## Multicamera Editing Techniques

When editing multicamera material like this, do not try to make every cut perfect on this first pass. Instead, try to get a feel for the pacing of the music and the different angles you have to work with. It can be useful to watch the multicam clip back a few times before making a single cut. When you do start editing, try to make cuts according to when you feel they work best with the music and don't be afraid to make mistakes. You will learn how to refine the edit further in the next steps.

If you find it difficult to concentrate on so many angles at once, it is often useful to reduce the number of angles you are viewing at any one time. In this case, click the Multicam Display pop-up menu in the bottom-right of the multicam source viewer and choose an option such as "2x2." This option displays only the first four angles of the multicam clip, with the other angles then available on different "pages," which can be accessed using the Multicam page buttons that now appear.



By reducing the initial number of angles you're working with, you may find it easier to begin your multicamera edit. You can then introduce the other angles once you have the initial rough cut down.

You can use metadata (as you have done here) to identify the most important clips as angles 1 through 4 (or see the section "Adjusting a Multicam Clip" later in this lesson), and then order your clips appropriately when you create your own multicam clips.

## Adjusting the Multicamera Edit

Now that you have completed your rough cut, when you review it, you may notice two common issues: you've made a cut at the wrong time, or you've cut to the wrong angle.

Even worse, it could be both issues at the same time!

Fear not. You're not directing live television here; this is post-production, so you can change your mind before anyone has seen your previous "creative choices." Solving the first issue where you cut at the wrong time is easy. You already know how to change an existing cut point by simply performing a rolling trim using any number of techniques.

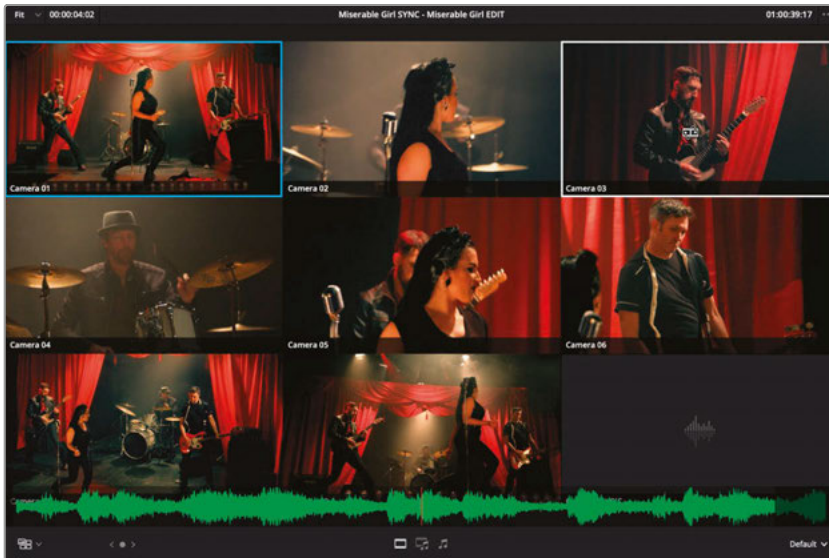
The second issue, where you use the wrong angle, is just as easy to fix by switching angles in the source viewer.

**TIP** When working with a multicamera edit, you need to be very mindful of the sync between the angles. For this reason, it's probably not advisable to begin rippling, slipping, or sliding shots until you are confident that you have mastered those edits.

- 1 In the timeline, play your multicam edit until you see a shot you want to change, and then stop playback.

As the edit plays, the source viewer will also update because in Multicam mode the source viewer is automatically ganged to the timeline playhead position.

- 2 In the multicam viewer, Option-click (macOS) or Alt-click (Windows) a different image to switch the active angle to the new angle.



When you're switching the active angle, the mouse pointer changes to a replace edit icon.

It's just as easy to add further cuts to your multicam edit, too.

- 3 In the timeline, move the playhead to the middle of one of the multicam clips, and in the source viewer, click any other angle.



A new edit point appears at the playhead position in the timeline and changes the rest of the multicam clip after the cut to the new active angle.

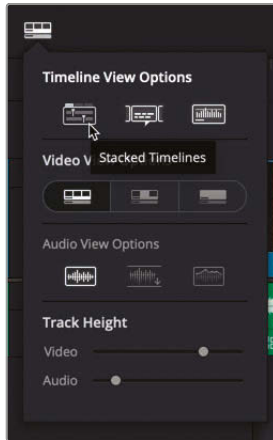
**TIP** Pressing the number keys at the top of your keyboard (1, 2, 3, and so on) makes a cut at the playhead position in the timeline. Holding down Option (macOS) or Alt (Windows) and pressing a number key switches the multicam clip angle at the playhead position in the timeline. You can perform either of these operations during playback or when the playhead is stationary.

Excellent. Now you have a real taste of how much fun multicamera editing is, and how it works in Resolve. But before you start making further adjustments to this edit, you will look at other ways you can adjust the multicam clip itself.

# Adjusting a Multicam Clip

Although the multicamera clip appears as one segment in the timeline, it is actually a type of container timeline, which is very similar to a compound clip. You will work more with compound clips in Lesson 7, but for now, it's useful to know that you can open a multicam clip in its own timeline when you need to make changes, such as changing the order of the angles or an angle's name.

- 1 In the Timeline View Options pop-up menu, select Stacked Timelines.



The timelines you worked on across this project now open as individual tabs.

- 2 Select any of the multicam clips in the timeline and choose Clip > Open in Timeline or right-click any of the **Miserable Girl SYNC** multicam clips and choose Open in Timeline.

The multicam clip opens in its own tabbed timeline.



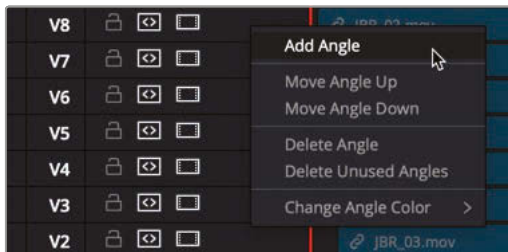
**TIP** To view such a large number of timeline tracks effectively, click the Timeline View Options button and reduce the Video and Audio Track Heights to their minimum. You may also need to drag the line between the viewers and the toolbar area upward to make the timeline area much larger.

You can see how Resolve has structured and organized the multicam clip; it is very similar to the way you arranged the clips of Sasha's interview in the timeline before creating the first multicam clip in this lesson. The organization is simple: any content on the video and audio 1 tracks is displayed as the first angle in the multicam viewer. If content is present on the video and/or audio 2 tracks, it is displayed as angle 2, and so on. Notice that the track names follow the names of the angles as displayed in the Multicam source viewer.

**NOTE** Notice how the V9 track is empty. This is because the *Miserable Girl Final Mix.aif* audio occupies the A9 track, meaning that the music for this edit is available as Angle 9.

You will now add an additional angle and change the order of the angles in this multicam clip.

- 3 Right-click any of the timeline video track headers and choose Add Angle.



A new angle is added, V10 and A10.

- 4 Open the media pool and select the Extra Angle bin.



A tenth, currently unused angle is in this bin called **JBR\_09.mov**.

- 5 Drag the **JBR\_09.mov** clip into the new V10 in the multicam clip timeline.

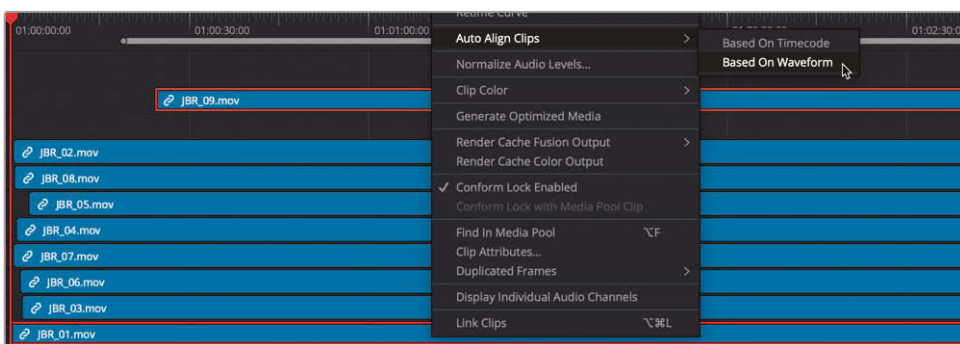


You will now need to sync this new angle to the other angles in this multicam clip timeline.

- 6 Ensure that Link Selection is enabled, and then select the clip on V10/A10 and any other clip in the timeline.



- 7 Right-click on any of the video clips and choose Auto Align Clips > Based on Waveform.



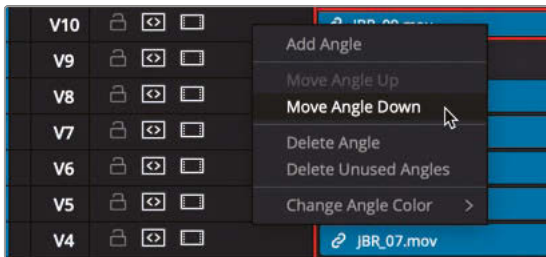


Resolve instantly syncs the new angle to the existing angles!



You will now rename the new angle to ensure that you keep your multicam clip organized and tidy.

- 8 Right-click the track header for V10 and choose Move Angle Down.



Instantly, Resolves Changes the order of angles V10 and V9, as well as A10 and A9.

- 9 Increase the height of V9 slightly and notice that this angle is still named Camera 10.
- 10 Click the angle name and type **Camera 09** in keeping with the other angle names for this multicam clip.

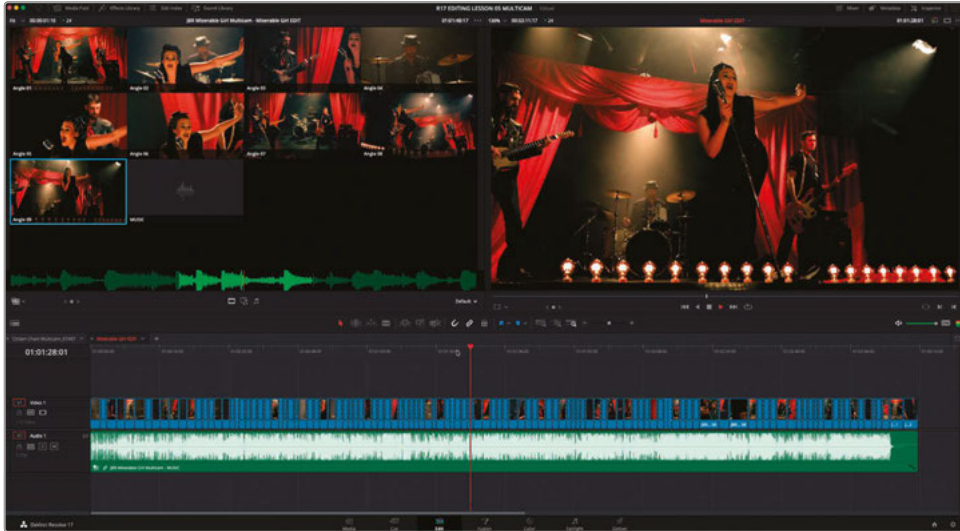


Now you can start to use this new angle in your multicamera edit.

- 11 Select the timeline tab for the **Miserable Girl Edit** timeline to switch back to the main timeline for this edit.
- 12 In the source viewer pop-up menu, choose Multicam to switch the source viewer to the multicam viewer.

- 13 In the Multicam view pop-up, choose 4x4 to view all ten angles in the multicam clip (plus space for up to six additional angles, which are not currently in use).

**NOTE** 4x4 is the maximum number of angles that can be viewed at any one time, even though your multicam clips can contain an unlimited number of angles. Any more than the 16 angles that this option can display will be found in subsequent multicam “pages.”



- 14 Finally, watch your multicam edit through again, making any further adjustments you think are necessary. Don't forget to include the new camera angle and flatten the multicam clips once you have finished!

### Reviewing the Finished Timeline

If you wish to view finished versions of this edit created using the steps detailed in this lesson, choose File > Import Timeline > Import AAF, XML, DRT, ADL and navigate to R17 Editing/Lessons/Lesson 05 Multicam. Here you will find two versions of the finished timeline; **MISERABLE GIRL FINISHED.drt** is an edited version that you can use to practice your multicamera editing skills. This timeline will also import the associated multicam clip used in this edit. **MISERABLE GIRL FINISHED\_FLATTENED.drt** is the same edit but has been flattened so the alternative angles are no longer available.

Congratulations! You should now have the skills necessary to tackle even the most complex multicamera editing tasks in DaVinci Resolve's edit page. Remember, cutting footage shot on multiple cameras is one example of the type of editing that you can do in both the edit and cut pages, though both pages have their own approaches to syncing and editing the clips together. Of course, you're free to choose whichever workflow you find most appropriate!

Nevertheless, when editing multicamera projects and playing back in real time, you are really trying to assess the rhythms and themes of the music and capture those characteristics as you are cutting. Sometimes you might cut a multicam clip in three or four ways to experiment with various pacing strategies and later decide which one is showing the most love, but as with all editing, each cut requires constant revisiting and reworking to ensure that your audience is watching the best possible results.

## Lesson Review

- 1 What options do you have for synchronizing angles in a multicam clip from video clips without sound?
  - a) In or Out points
  - b) Markers
  - c) Timecode
- 2 What is the maximum number of angles you can view simultaneously in a multicam clip?
  - a) 16
  - b) 18
  - c) 28
- 3 What modifier key is held down to switch the entire multicam clip to another angle instead of adding a new edit point?
  - a) Command (macOS) or Ctrl (Windows)
  - b) Option (macOS) or Alt (Windows)
  - c) Shift
- 4 True or False? You cannot change the angle names, add additional angles to, or change the current order of the angles of an existing multicam clip.
- 5 True or False? When you choose to flatten a multicam clip, you lose all the other synchronized angles.

## Answers

- 1 a), b), and c) You can choose to synchronize angles using In points, Out points, timecode, or markers instead of sound.
- 2 a) 16. You can have multiple pages of more angles, but the maximum number of angles you can view in any one page is 16 (4x4).
- 3 b) Option-click (macOS) or Alt-click (Windows) an angle to switch the existing angle.
- 4 False. Right-click a multicam clip and choose Open in Timeline to adjust an existing multicam clip.
- 5 True. Flattening a multicam clip removes all the unused angles and leaves only the clip that was used in the active angle in the timeline.

## Lesson 6

# High Speed Editing with the Cut Page

When it comes to editing, there isn't a one-size-fits-all approach. That's why DaVinci Resolve has two different editing environments: the cut page and the edit page. The cut page includes many innovations that make editing much faster than before. Speed and accuracy are critical, whether you're editing long-form episodic television drama, documentaries, news, corporate videos, music videos, or television commercials. The cut page offers unique and innovative tools for dealing with large amounts of footage and footage from multicamera shoots.

The cut page has also been specifically engineered to work with dedicated hardware such as the DaVinci Resolve Speed Editor or the Editor's Keyboard. Both of these keyboards allow editors to, almost literally, get their hands directly on the footage as though they were manipulating film stock or video tape.

### Time

This lesson takes approximately 60 minutes to complete.

### Goals

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## Edit Keyboards

The Davinci Resolve edit keyboards have been designed in conjunction with the cut page to make editing dramatically faster. You get physical controls that you can feel in your hands, making the experience much better than software-only editing.



The Davinci Resolve Speed Editor

The Speed Editor is a compact unit with dedicated editing functions that is designed to work alongside your keyboard and mouse. However, unlike a mouse, the search dial feels just like holding the timeline in your hand! Dedicated SHTL, JOG, and SCRL buttons allow for very accurate scrolling of both the Source Tape and the timeline. Trim keys allow the search dial to be used for live trimming, which becomes faster and more intuitive than ever before because the search dial is larger and more precise.

Throughout this lesson, sidebars will explain how to use the Speed Editor for many of the mouse and keyboard functions performed in the cut page exercises.



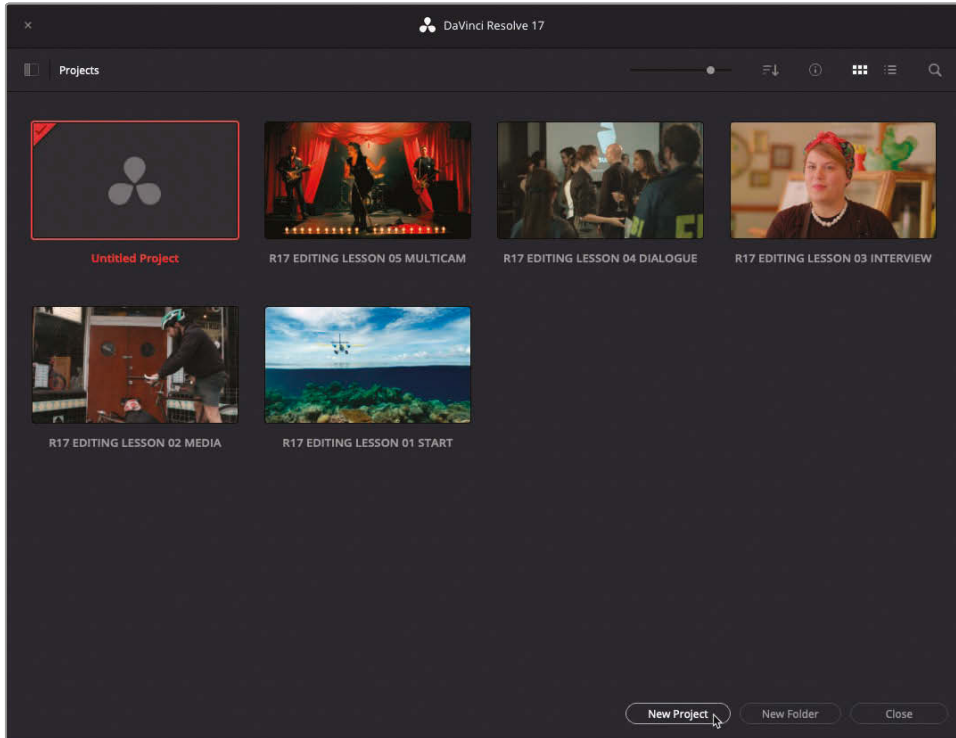
The DaVinci Resolve Editor Keyboard

The DaVinci Resolve Editor Keyboard is a full-sized keyboard designed for professional editors who need to work faster and turn around work quickly. More than just a regular keyboard, the Editor Keyboard has many of the functions of the Speed Editor, but also specific keys dedicated to viewing and sorting functions that the Speed Editor doesn't have room for. The advantage of the Editor Keyboard is that it can completely replace your regular keyboard and Speed Editor combination.

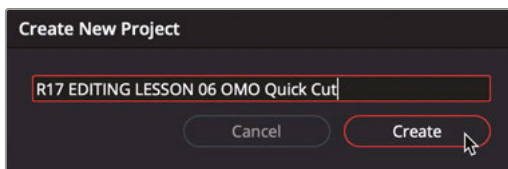
# Setting Up the Project

To start exploring the cut page, you'll create a new project and import some clips.

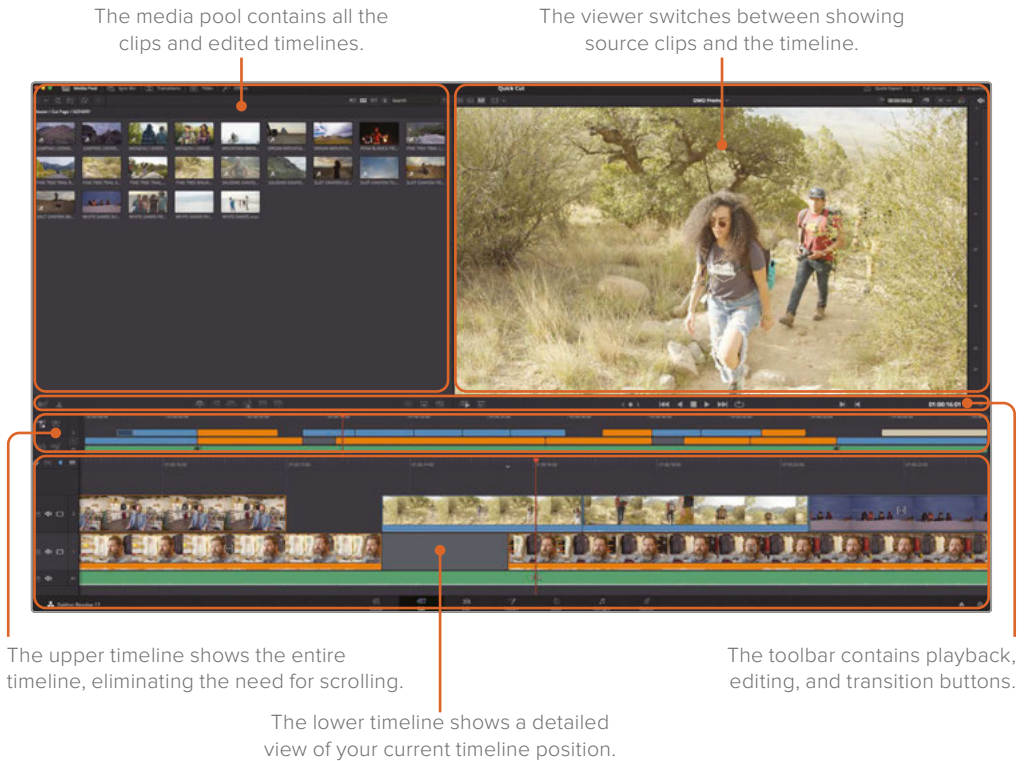
- 1 Start by launching the DaVinci Resolve application.



- 2 Click New Project and name your project **R17 EDITING LESSON 06 OMO Quick Cut** and click Create.



- 3 If necessary, click the Cut button at the bottom of the interface to switch to the cut page.



In designing the cut page, Blackmagic Design took a step back and put a lot of thought into how to innovate and make editing faster. The cut page and the edit page provide different interfaces for these two very different cultures of editors. The cut page removes wasteful steps and anything that could slow you down. Every click or action you perform on the cut page has a direct result. There are no wasted clicks or optional settings to configure. The page works hard at anticipating what you want to do and helps you get there faster.

In the upper-left area is the media pool. This is where all the clips in your project can be sorted, organized, and reviewed.

To give yourself a little more room to see the footage, you can easily resize the interface.

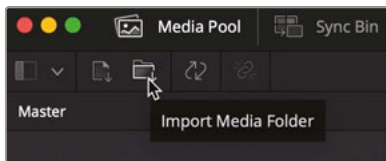
- 4 Click the Resize Timeline control below the audio meters and drag downward to give more space to the media pool and the viewer.





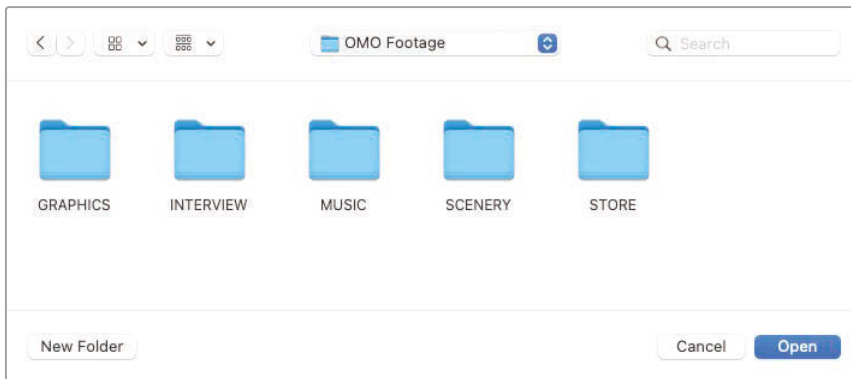
When starting a project, you import clips into the media pool using the buttons in the upper-left corner.

- 5 In the upper-left corner of the media pool, click the Import Media Folder button.



**TIP** The Import Media Folder button allows you to import one or more selected audio, video, or graphic clips.

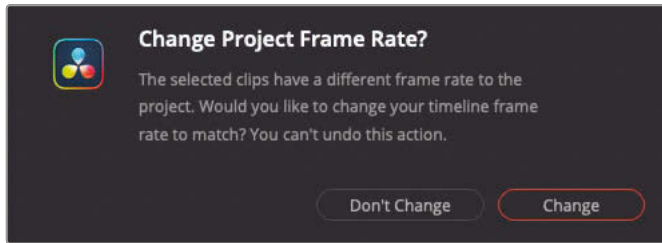
- 6 In the Open dialog, navigate to the R17 Editing / Media / OMO Footage folder.
- 7 Within that folder, select the OMO Footage folder.



This folder includes subfolders for interview clips, scenery clips, graphics, audio, and clips of the retail store. When you import a folder that contains subfolders with clips, the folder structure is retained.

- 8 Click Open in the dialog to import the folders and clips.

A useful dialog opens to inform you that the clips you're importing differ from the default frame rate for the project. Using this dialog, you can switch Resolve's settings to match the clips' format without opening the Project Settings window.



- 9 Click Change to have the settings in DaVinci Resolve match the frame rate of the incoming clips.

All the media imports into the media pool, and the folders are made into bins.

- 10 From the bin drop-down menu, select the INTERVIEW bin.



- 11 Click the bin list again and select Master to jump back to the Master bin for this project.

**NOTE** If you wish to move a clip from one bin to another, select the clip and drag it to the Bin List button. The bin list will open, and you can choose a bin to move the clip to.

# Reviewing Clips Using Source Tape

To date, most editing software requires you to review clips one at a time before you choose which portions of the clips to use in your edit. However, with so much footage being shot, even for short projects, the cut page has a unique way for allowing you to see and review your footage quicker than ever before.

- 1 At the top of the viewer window, click the Source Tape button.



The media pool immediately switches to a flattened view, to show you all the footage currently in your project.



In Source Tape mode, you can easily review the footage using the viewer.

- 2 Drag the playhead along the bottom of the viewer to scrub through the footage in your project.

As you go through the source tape, notice how the current clip is highlighted in the bin.

The white vertical lines in the viewer's scrubber bar indicate each clip in the source tape. You can easily jump forward or backward to the next or previous clip in the source tape.

- Click the Go To Next Clip button at the bottom of the viewer to jump to the start of the following clip or click the Go To Previous Clip button to jump to the start of the previous clip.



**TIP** You can also jump to any clip in the media pool by clicking the clip's thumbnail icon to highlight it.

To play any clip in the source tape, you can use the transport controls.

- Click the Play button to begin playback.



The current clip plays.

- Click the Play Reverse button.



The current clip plays backward.

- Click the Stop button to stop all playback.

You can also scrub through the selected clip for more accuracy when trying to find a specific point or action.

- Click and drag the Jog Wheel control to scrub slowly through the clip.



When using the jog wheel, the viewer displays a zoomed-in version of the waveform display for any clip that has attached audio.

Finally, you can very quickly review all the footage in the source tape using the Fast Review function.

- 8 Click the Fast Review button to begin the fast review playback.



The fast review plays through the clips, adjusting the speed automatically depending on the length of the clip. Longer clips are played faster than shorter clips so that it takes the same amount of time to fast review each clip. This gives you a quick and easy way to review new material without taking up a lot of time. Once the content is reviewed, you should have a good idea of a few highlights you might want to use when you start to assemble your promo video in the timeline.

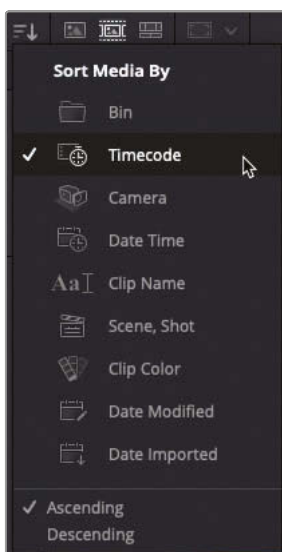
**TIP** The cut page also supports the traditional JKL shortcuts for playback you have previously been using in the edit page.

## Changing the Clips in the Source Tape

In addition to different ways of reviewing the clips, you can also change how the clips are ordered and displayed in Source Tape mode.

Source Tape mode will always display the footage from the current bin (including any bins inside the current bin) selected in the media pool and in the order the media pool is displaying the clips.

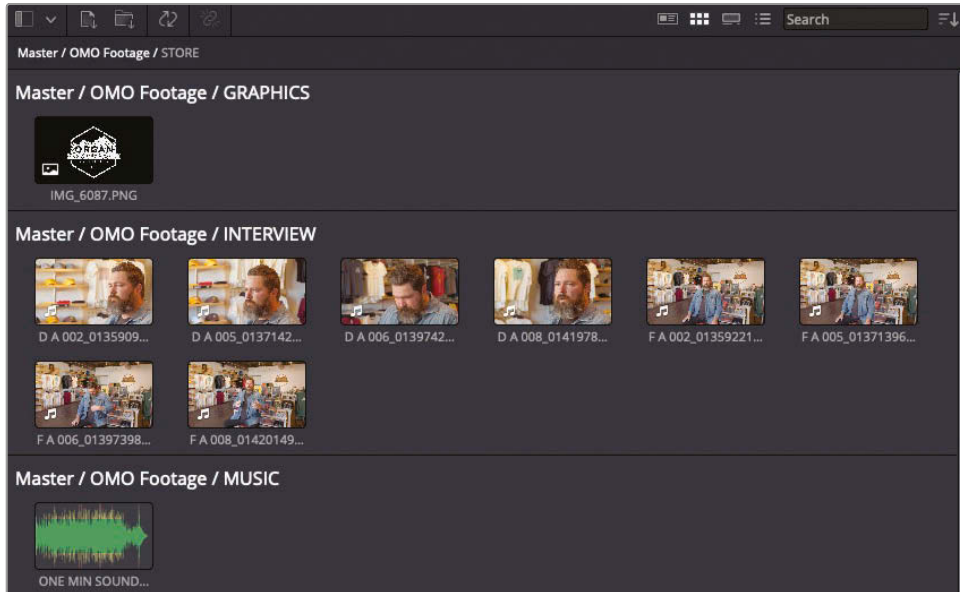
- 1 Click the Sort Media By menu at the top of the media pool.



By default, the clips are displayed in ascending order of their recorded timecode, so clips with an earlier timecode are displayed higher in the order than others.

- 2 Change the Sort Media By to Bin.

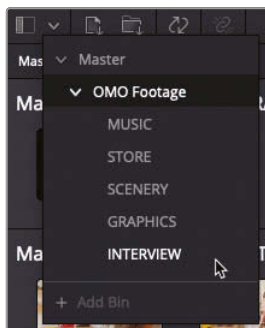
Now the clips are all displayed in the order of the bin they are in. Notice how the clips have also changed order in the source tape viewer, too.



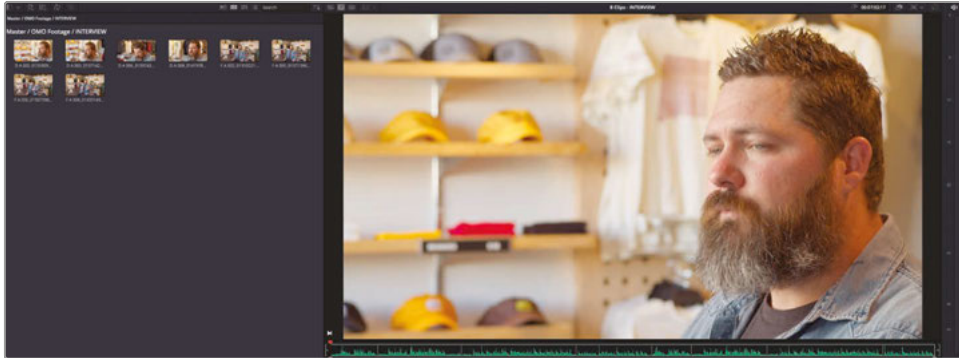
**NOTE** Audio-only clips such as music or sound effects will not be displayed in the source tape, but you can still access them in the media pool.

You can also choose to limit the amount of footage you're currently viewing in the source tape, which is very useful for projects with vast amounts of footage.

- 3 Click the bin list and select the INTERVIEW bin.



Both the media pool and the source tape now display only the clips in the INTERVIEW bin, organized by clip name and grouped by the hour of the starting timecode.



- 4 Use the bin list to return to the Master bin and display all the clips in the source tape.

**TIP** Another way to access the footage in a bin (or any of the groups of footage used by the different Sort Media menu options) is to click the Source Tape button again. This will then step you into that group of shots. Press ESC (Escape) to step back out.

You can also use In and Out points to specify the footage you want to view. In source tape, add an In and an Out point around the footage you want to focus on and click the Source Tape button again. This will just show you the marked duration in the source tape. Again, press ESC to return to the previous Source Tape view level.

You can also choose to display just one clip from the media pool in the viewer, which is very useful if you just want to focus on footage from one clip, such as an interview.

- 5 Scroll to the bottom of the media pool and select the **OMO STORE EXT FRONT** clip in the Master/OMO Footage/STORE bin.

The source tape moves the playhead to the start of this clip.

- 6 Click the Source Clip button at the top of the viewer to display just the **OMO STORE EXT FRONT** clip.



- 7 Click the Source Tape button to return to the whole source tape.

**TIP** You can switch between the last selected source mode and the timeline mode by pressing Q, and you can switch between source tape and source clip modes by pressing Shift-Q.

Excellent. You should now have a clear understanding of how the cut page can help you review your footage faster than you ever thought possible. Now the fun part begins, as you start to edit these clips together into a short promotional video for the company to use across social media.

## Reviewing Clips with the Speed Editor

The right side of the Speed Editor includes dedicated buttons to switch between the timeline and source tape modes.

The search dial can be spun fast to move up and down the footage quickly, with the three buttons directly above the dial used to configure its behavior.

**SHTL:** Use this (Shuttle) key to navigate longer clips quickly. Turning the dial slightly left of center moves the playhead backward; turning the dial slightly right moves the playhead forward. The greater the rotation from center, the faster the shuttle goes. Note that “center” is located wherever the indentation is positioned when you activate the SHTL button.

**JOG:** Use this key to navigate short distances with more accuracy and precision. Traditionally, you place your finger on the search dial indentation and rotate it to the left to go frame-by-frame in reverse or to the right to go frame-by-frame forward.

**SCRL:** Use this (Scroll) key as a “higher geared” jog mode. Rotating the wheel left reverses the play direction, while rotating it right moves forward. Scroll works in terms of seconds rather than frames. The speed at which you rotate the search dial determines how fast the playhead moves through the footage.

With the SNAP button enabled on the Speed Editor, rotating the search dial very slowly will cause the playhead to pause briefly at each edit point in the timeline.





# Assembling the Soundbites

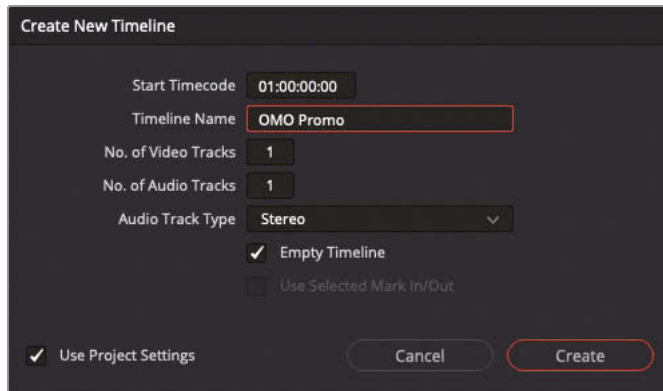
The goal for this edit is to create a 1-minute video for the outdoor fashion brand Organ Mountain Outfitters. The client has provided a series of clips of suitably attired folk enjoying the outdoor life, customers shopping in their retail outlet, a short interview with the company's founder, Chris Lang, together with a short piece of music and the company's logo as a PNG file.

You will begin by creating a new timeline.

- 1 Choose File > New Timeline or press Command-N (macOS) or Ctrl-N (Windows).

The Create New Timeline window appears.

- 2 Type **OMO Promo** in the Timeline Name field and click Create.



A new timeline is created, and you can see some additional controls appear on the left side of the timeline area.

**NOTE** By default, all new timelines created in the cut page are placed in the Master bin but do not show in the source tape. To see the new timeline you've just created, click the Timeline button at the top of the viewer.

To begin editing this footage, you will start by cutting together soundbites from Chris's interview.

**NOTE** The key philosophy behind the cut page is that you can add clips to the timeline very quickly. Once you have the clips in your timeline, you can then fully focus on adjusting them for the final edit. This is why the cut page does not automatically alternate between the source clip and the timeline as you edit, like other editing software (including the edit page).

- 3 Using the bin list, select the INTERVIEW bin and click the Source Tape button.
- 4 Ensure your playhead is at the start of the first interview clip in the viewer.



- 5 Play the first clip to review what Chris says.  
This is a good introduction to both Chris, the company, and their focus of supporting their local community. It may ultimately be a bit too long, but it's a good start!
- 6 Ensure that the playhead is still over the first clip in the source tape and then click the Append edit button at the bottom of the media pool.



The clip is added to the timeline.



## Adding More Soundbites

You've introduced Chris and Organ Mountain Outfitters, but now it's time to tell the audience a little more about Chris's passions.

- 1 Move to the start of the fourth interview clip in the INTERVIEW bin.



**TIP** You can use the Up and Down Arrow keys to jump to the start of the previous or next clip in the source tape viewer.

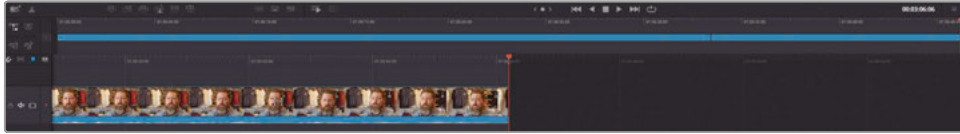
- 2 Play the clip until Chris says, “We want people to experience the Southwest...”  
This is where you want this interview clip to start. Rather than adding a clip in its entirety, you can add a specific part of a clip using In and Out points.
- 3 Press I to add an In point just before he says “We want....”



- 4 Play forward a stop after Chris says, “...the landscapes.”  
This is where you want the soundbite to end.
- 5 Press O to add an Out point here.



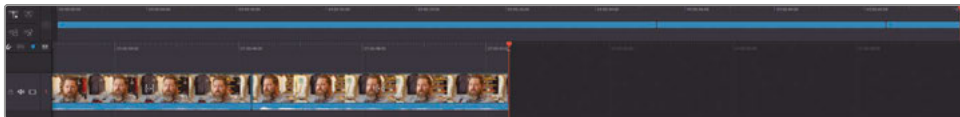
- 6 Click the Append edit button.



- 7 Continue playing the interview in the source tape and add an In point just before Chris says, “Our brand is really a reflection of...”
- 8 Add an Out point after he says, “...and who we are.”



- 9 Click the Append button or press Shift-F12 to perform an Append edit.



- 10 Continue playing the interview, adding an In point before Chris says, “The only way to do that...” and an Out point after he finishes speaking but before he blinks. Perform another Append edit.

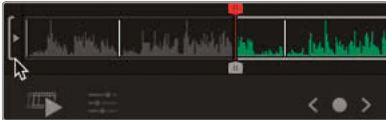


- 11 In the source tape viewer, move to the second interview clip. Play forward through this clip and add an In point before Chris says, “That’s really what inspires us...”



**TIP** This soundbite is toward the end of the interview clip, so instead of playing the clip at normal speed you can play at 2x normal speed to get through the interview quicker. Press L twice to increase to 2x speed.

This is a tight edit to try to find because he says “that’s” twice. To try to make sure you’re setting the In point after the first “that’s” you can use the Jog In control.



- 12 Use the Jog In control on the left side of the source tape scroll area to refine the position of your In point until you are happy. A corresponding control on the right side of the scroll area allows you to jog the Out point to refine it.



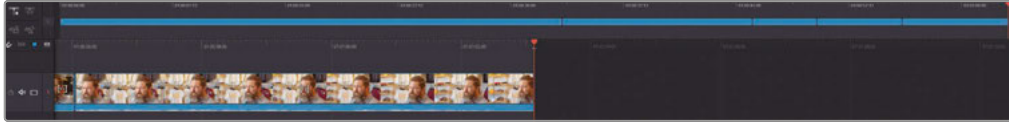
- 13 Add an Out point at the end of the interview clip after Chris says, “...where the design process starts” and append the clip in the timeline.



Notice how you were able to quickly work through the interview without having to switch back and forth between the source tape and timeline? That’s one of the advantages of the cut page: you can keep adding clips to your timeline and then when you’re ready you can turn your attention to refining the edit you have.

## Refining the Timeline Clips

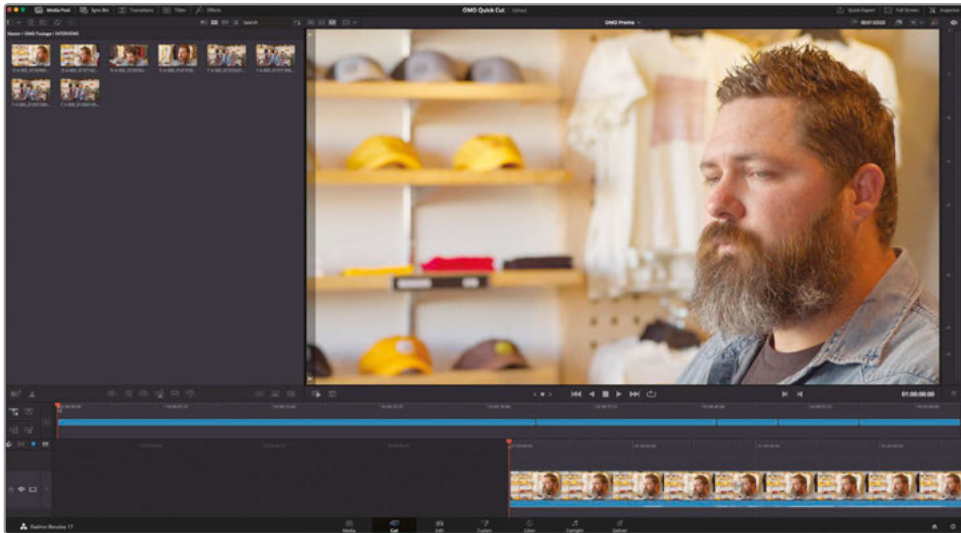
The cut page displays the timeline in two ways. The upper part of the timeline area always displays the whole edit and is useful to use for navigating around even the most complex timelines. The lower portion of the timeline area shows a detailed view of the timeline at the playhead position and is useful for performing precise editing to individual clips.



This dual timeline view reflects the Full Extent Zoom and Detail Zoom options in the edit page timeline. However, utilizing both of these views simultaneously means there is no time wasted zooming in or out of the timeline.

The clips displayed in the lower timeline also automatically change height depending on the space available. So, if you need the clips to be a little larger for complex timelines, simply use the Resize Timeline control to adjust the amount of screen space you're giving the timeline; the clips' heights will change dynamically to always fit!

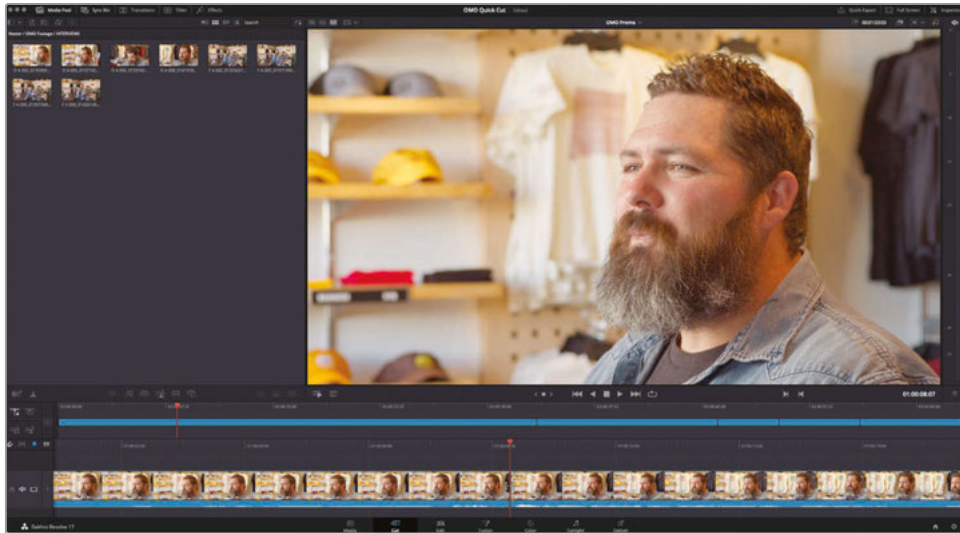
- 1 In the upper timeline, move the playhead to the start of the first clip.



The viewer instantly switches to timeline mode to show you the footage currently in the timeline.



- 2 Play the timeline until after Chris laughs but before he says, “My name is Chris Lang...” and stop playback.



You can see from the waveform display in the lower timeline where he starts to introduce himself.



You want to remove all the footage up to this point. The easiest way to do that is to cut the clip at the position of the playhead.

- 3 Click the Split Clips button at the top left of the timeline or press Command-B (macOS) or Ctrl-B (Windows).



An edit point is added to the clip at the playhead position.

- 4 In either timeline, select the first part of this clip.



- 5 Press Delete (Backspace) to remove the unwanted portion of the clip.



- 6 Continue playing Chris's interview and stop after he says, "... Las Cruces, New Mexico" but before he blinks.

While Chris goes on to talk about the good work the company is doing in the community by donating lunches with every sale, this particular edit is not concerned with that. Instead, you need to keep him on message about the kind of lifestyle embodied by his clothing brand.



- 7 In the lower timeline, right-click the top of the playhead and select the Split Clips option from the shortcuts to add another edit point at the playhead position.



- 8 Select the second part of the clip after the edit you just added.



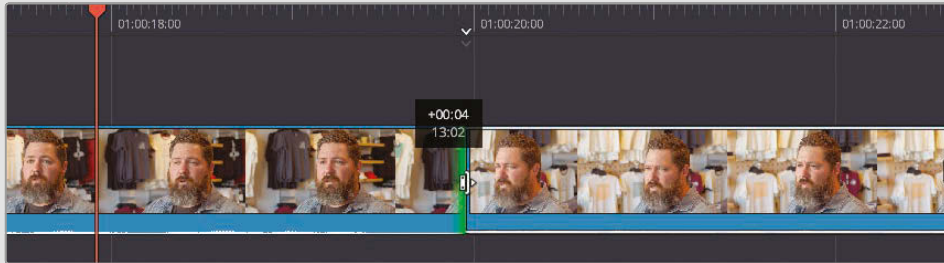
- 9 Press Delete (Backspace) to remove it from your timeline.



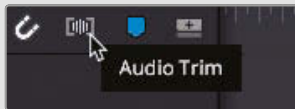
## Refining the Radio Edit with Audio Trim

When it comes to refining the radio edit of Chris's soundbites, the cut page has a couple of useful tricks up its sleeve.

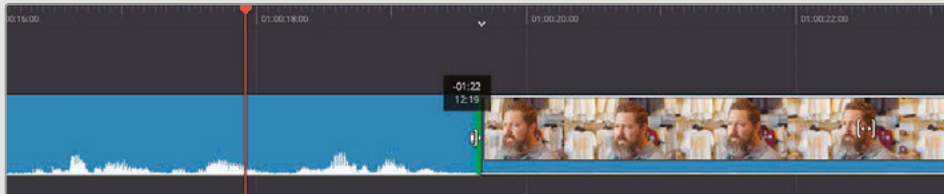
Firstly, there is no dedicated Trim Edit mode in the cut page. Simply select the incoming or outgoing side of an edit of any clip in Track 1 and drag to trim the clip and ripple the timeline.



Secondly, you can adjust the waveform displayed when trimming any clip by enabling the Audio Trim function.



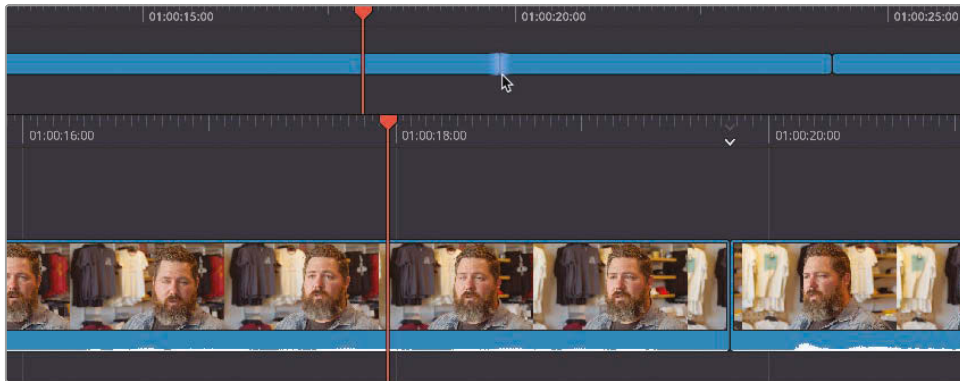
With audio trim enabled, you will be able to see a large waveform display to make it easier to see where Chris starts and stops speaking.



# Changing the Order of the Clips

The interview is coming along nicely, but when you listen back to the interview, you may realize that the last soundbite doesn't make any sense coming at the end. Thankfully, it's really easy to change the order of clips in the cut page.

- 1 In the upper timeline, select the last clip. This is the soundbite you will move to another position.
- 2 Drag the last clip back through the upper timeline to the edit point between the second and third clips.



The edit point becomes highlighted.

- 3 Hold the clip over the edit point until a gap appears in both the upper and lower timelines. Once you see the gap appear, you can release the mouse.



The fifth clip moves back and becomes the third clip in the timeline, and the rest of the clips shuffle up to make room for it.

As you can see, quickly adding and reordering clips on the timeline in the cut page is fast and intuitive.

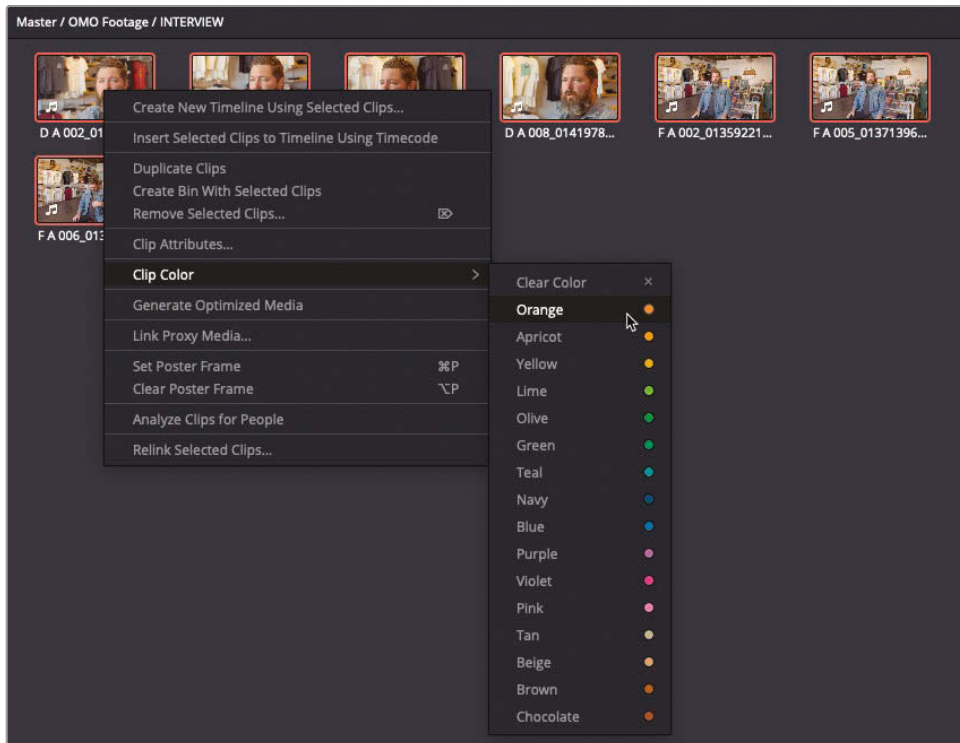
## Adding the B-Roll

Now that you've got the main soundbites of the interview in place, it's time to start adding some shots to support what Chris is saying and how the clothing and brand is inspired by and reflects the outdoor lifestyle. To do this, you will start by *inserting* some clips between the soundbites before adding some clips *on top* of the interview, so you hear his words but don't see him in the shot.

Before you begin adding more clips to the timeline though, you will color tag the interview clips, so they are easily recognizable in the timeline.

**NOTE** Color tagging the clips in this way is not necessary during your own editing but is used here as a powerful visual aid to direct you to specific parts of the timeline.

- 1 In the media pool, select all the clips in the INTERVIEW bin, and then right-click and choose Clip Color > Orange.



All the clips in the timeline change to an orange color to help you identify the interview clips.

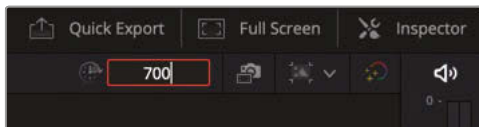
You will now add an opening shot of the eponymous Organ Mountain.

- 2 Click the Source Tape button or press Q to switch to the source tape viewer.
- 3 Use the bin list to jump to the SCENERY bin.
- 4 Scrub through the source tape to locate the Organ Mountain clip. Position your playhead at the start of this clip.
- 5 Press I to add an In point.



You now need a few seconds of this clip for the opening shot. Rather than playing the clip and counting in your head, you can specify a duration in the viewer.

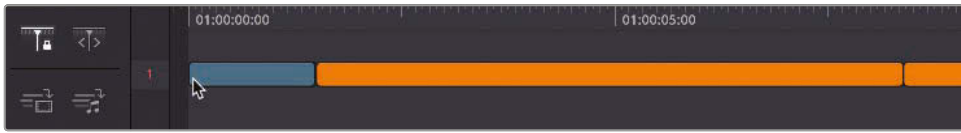
- 6 Click the duration timecode box at the top right of the viewer and type **700** and press Enter (Return).



An Out point is added 7 seconds after the In point.

Now that you have the clip marked, you can easily drag it to the point in the timeline where you want it to be.

- 7 Click and drag the shot from the viewer to the beginning of the upper timeline, wait for the edit to be highlighted and the gap to appear before letting go of the mouse and inserting the clip.



The director thinks this shot is so good it's worth using not only as an opening shot but also as a closing shot, bookending the whole piece.

- 8 Drag another copy of the Organ Mountain shot from the source tape viewer to the end of your timeline.

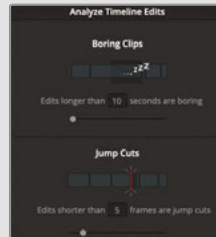




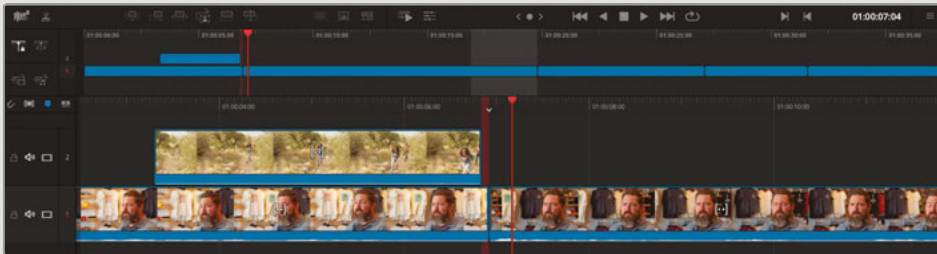
## The Boring Detector

The Boring Detector performs a live analysis of the duration of each clip in your timeline and highlights areas that may be either too long or too short.

When activated, the Boring Detector asks you to choose durations for “boring clips” and “jump cuts.”

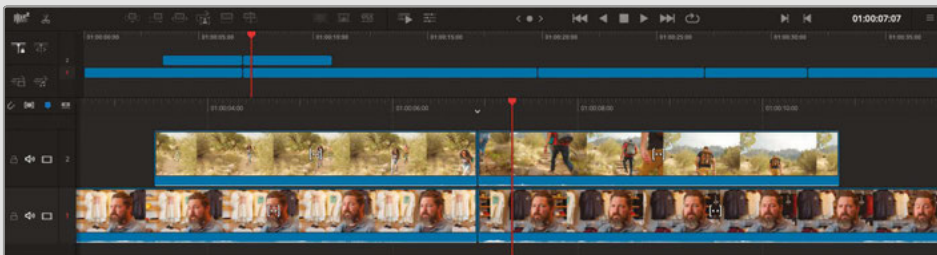


When you click Analyze, the Boring Detector highlights clips that fall outside these parameters.



Clips longer than the “boring clips” duration are highlighted in light gray. You may decide to trim these clips or add additional cutaways to keep the visual interest.

Clips that are shorter than the “jump cuts” duration are highlighted in red and indicate areas that may be prone to accidental “flash frames.” Check these areas for small gaps which can be easily left.



The Boring Detector will constantly update its analysis of the duration of clips as you continue to edit. You can disable the Boring Detector by clicking the Boring Detector button again. Re-enabling the Boring Detector re-opens the Analyze Timeline Edits windows, allowing you to update the durations for the boring clips and jump cuts.

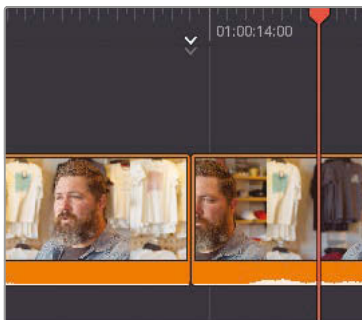
## Smart Insert

The cut page editing functions have a little extra intelligence built in to help you get the results you want without needing to worry about what is selected or the exact location of your playhead. Even the familiar edit types like Insert are given a bit more intelligence than you might normally expect.

- 1 In the upper timeline, move the playhead near the edit point between the first and second orange clips.



Notice the small down arrow icon at the top of the lower timeline. This is called a smart indicator.



The smart indicator points to where edits will be performed. Having the smart indicator means you often don't need to waste time placing In or Out points on the timeline. When you position the playhead in the timeline, the smart indicator automatically appears, showing you where the nearest cut is located. This allows you to work faster, as the smart indicator will move from edit to edit as you scroll the timeline.

- 2 Press Q or click the Source Tape button and scrub through to find the shot of three people walking up a path (**Pine Tree Walking.mov**).
- 3 Add an In point just as the girl in front comes into the shot from behind the trees.
- 4 Click the duration timecode field and type **200** to set a duration of 2 seconds for this clip.



- 5 Click the Smart Insert button in the toolbar (or press F9).

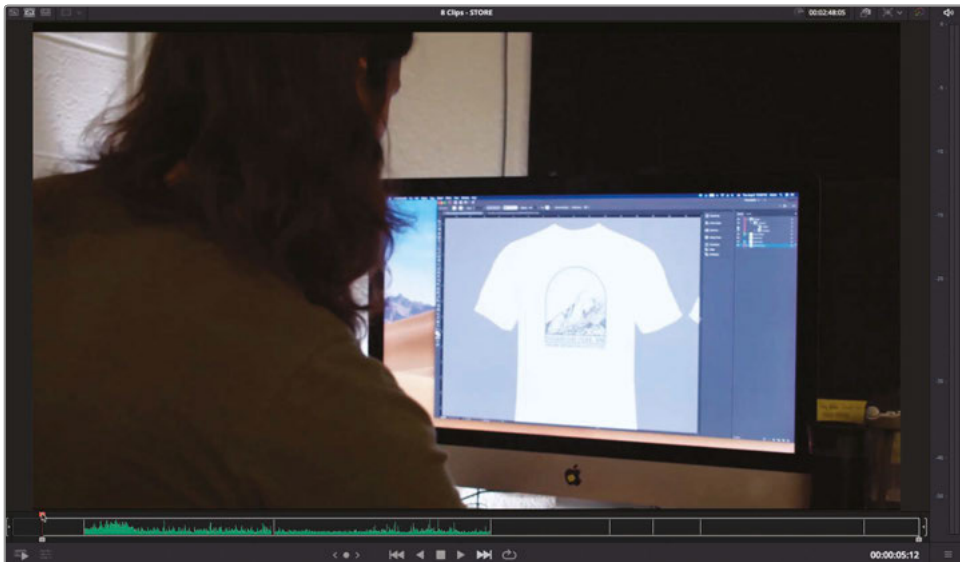


The Smart Insert inserts a clip at the edit point located nearest the playhead and pushes everything else down the timeline to make room for it.

- Using the upper timeline, move the playhead near the edit point after the third orange interview clip. This is the clip where Chris talks about the inspiration for the clothing designs.



- Press Q to switch to source tape and use the bin list to jump to the STORE bin. The first clip in this bin is of a guy designing a t-shirt on a computer.
- Set an In point just before the black circle appears on the design.



- In the duration timecode field, type **300** for 3 seconds.

- 10 Click the Smart Insert button or press F9 to insert the clip after the third orange clip.



## Using Extra Tracks

Instead of having all your clips arranged along a single track, you can use additional tracks to overlap edits for more sophisticated results.

- 1 Using the upper timeline, select the second blue clip and drag it upward to create a new track.



Track 2 is automatically created, and a gap is left in the space of the original clip.

- 2 Using the lower timeline, select the end of the blue clip on track 2 and trim it to the right until the white tooltip value reaches 1:15 (1 second and 15 frames).



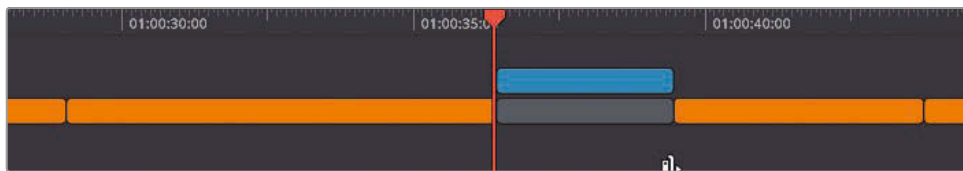
- 3 Use the upper timeline to return the playhead before the blue clip and play to review your changes.

The shot of the people walking now extends over the next part of Chris's interview as a J-cut. Also notice that when you trim any clip on any track other than track 1, the cut page will not ripple the timeline.

**TIP** You can also trim using the upper timeline, but for precise changes such as this, the lower timeline is much easier to use.

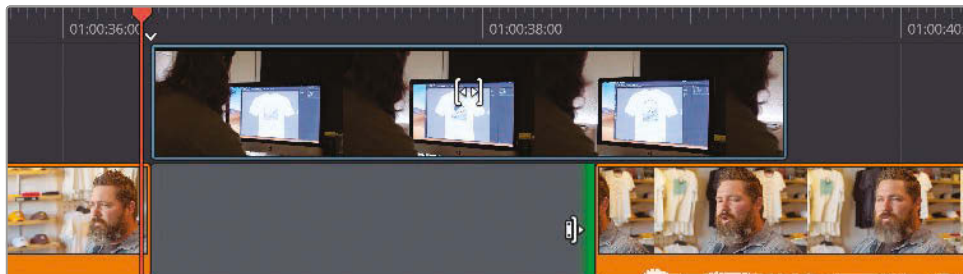
You will now make a similar change to the third blue clip.

- 4 In the upper timeline, select the third blue clip and drag it up to track 2, leaving another gap behind in its place.



This time, to create the split edit, you will trim the gap.

- 5 Using the lower timeline, trim the end of the gap backward by about 1 second to create the split edit. Play back to review your changes.



## Editing on Other Tracks

In addition to moving clips to the other tracks as you did in the previous steps, you can also edit directly onto any track. In the next few steps, you will add a graphic to the opening shot and a few cutaways to the end interview clips.

- 1 Using the upper timeline, return your playhead to the beginning of your edit.

- Press Q to return to source tape mode and select the GRAPHICS bin from the bin list.



This bin contains just one clip: a PNG file of the Organ Mountain Outfitter's logo. PNG files are useful, as they can preserve the transparency information, or *alpha channel*, so they can be placed on top of other clips.

- Click the Place on Top button.



The graphic gets added to track 2, above the opening clip. Whenever you add a graphic such as this to your timeline, Resolve will use a default duration of 5 seconds; however, you can always trim the graphic to whatever duration you need.

- Using the lower timeline, trim the end of the graphic to the same length as the clip below it on track 1.



- Return your playhead to the start of the timeline and play back to review the new opening shot with logo.

## Adding Cutaways

Another use for the Place on Top edit is to add cutaways to what Chris is saying. Cutaways are useful for several reasons—for example, they help keep the audience's interest and help to cover the jump cuts in the interview. Before you tackle the main part of the edit that needs cutaways, you will explore how to work with them on a simpler section toward the end.

- 1 Using the upper timeline, move the playhead until it snaps to the end of the third blue clip on track 2.

**NOTE** Snapping can be turned on and off using the magnet icon on the left side of the timeline or by pressing N at any time.

This is where you will add some additional cutaways to track 2.

- 2 Press Q to enter source tape mode and use the bin list to jump to the STORE bin.
- 3 Scrub through the source tape until you see an exterior shot of the Organ Mountain Outfitters store.
- 4 Set an In point where the man in white is entering the store.

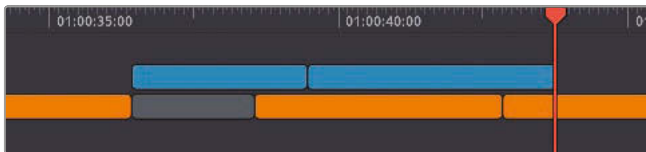




- 5 Set an Out point just as the girl in pink lets go of the door.



- 6 Click the Place on Top button.



The exterior shot is added to track 2 and nicely covers the jump cut at the end of this interview.

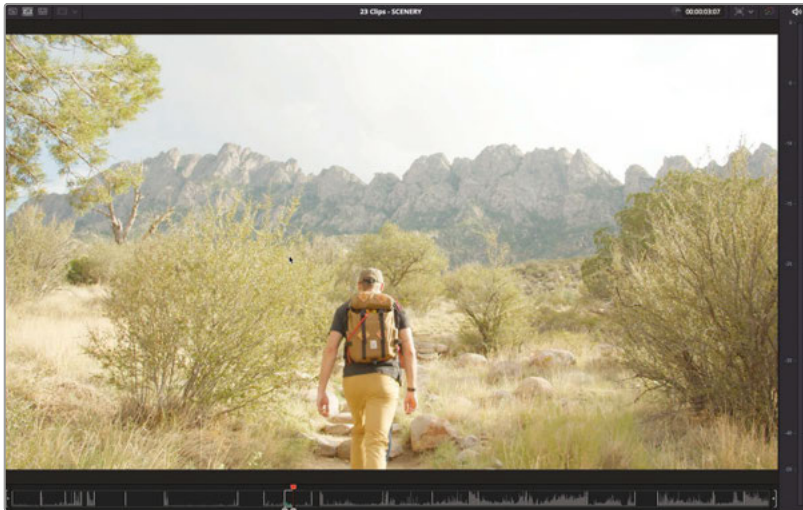
- 7 Using the upper timeline, move the playhead so it snaps to the second blue clip on track 2.

You will now add a series of cutaways to highlight what Chris is talking about: the inspiration he takes from the outdoors in the Southwest.

**TIP** You may want to review what Chris says during this part of the interview, as it may help you decide which shots you may or may not want to use from the different clips you have available.

- 8 Use the bin list to jump to the SCENERY bin and press Q to enter source tape mode. In this bin, you have a myriad of shots available to you. In the same way you may have reviewed Chris's interview, it's useful to be able to review all the clips available to you.
- 9 Click the Fast Review button.

- 10 Once Fast Review has finished, return the playhead to the shot of the group of people walking up some steps (**PINE TREE TRAIL STEPS.mov**).
- 11 Set an In point just before the third person walks into the shot.
- 12 Set an Out point when all three have walked into the shot, and you see the mountains in the distance (about 3 seconds later).



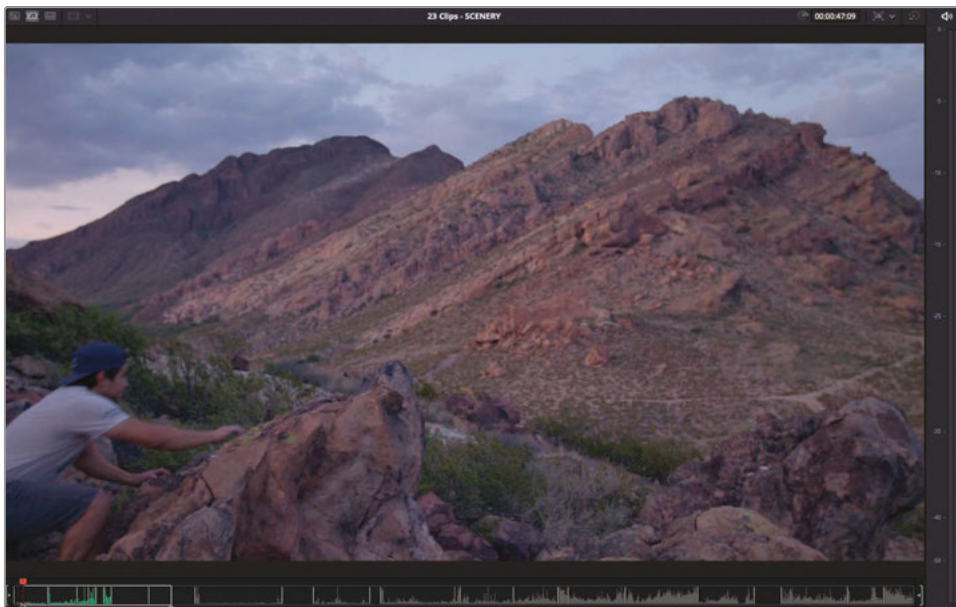
- 13 Click the Place on Top button or press F12.
- 14 Find the shot of the four friends sitting on the sand.
- 15 Set an In point where the girl in pink raises her hand and an Out point before she brings her hand back down. Press F12 to perform a Place on Top edit.



- 16 Locate the clip of the girl dancing with the fire sticks and mark any 3-second duration, and then press F12 to place on top.



- 17 Finally, return to the start of the source tape and set an In point as the guy jumps on the rock.



- 18 Mark a 4-second duration and place on top.



With that last edit, you have successfully hidden the last jump cut in the interview, but your work is still not over. Now you need to check to see whether your edits have worked and, where necessary, trim them further.

## Trimming the B-Roll

You've already finessed the interview clips in track 1 by adjusting the In and Out points, and you've seen how the timeline *rippled* to reflect the changing durations of each clip. However, when you trim clips on another track, they function slightly differently, as they won't ripple. Instead, you can adjust edit points by *rolling* them or adjust whole clips by *slipping* or *sliding* them. You will use the cutaways you've just added to explore these features.

**NOTE** The following steps may not be exactly the same as what you'll see on your timeline because it depends where exactly you placed the In and Out points of the clips, but if you've followed the steps in this lesson reasonably closely so far, you should see similar results.

- 1 Position your playhead on the edit point between the second and third blue clips on track 2.



- 2 Press / (slash) to preview the edit using the Play Around/To function.

These two clips are obviously the same group of people making their way up to the mountain. However, it could do with a bit of finessing to make it appear to be two shots of continuous action. To begin, you will *roll* the edit slightly.

- 3 In the lower timeline, place your mouse over the center of the edit and click to select both sides of the edit.



Both the outgoing and incoming shots to either side of the edit are selected, and the trim viewer is displayed.

- 4 Drag the edit backward until the incoming shot on the right side of the viewer is at the frame just as the second person is about to put his left foot on the step.

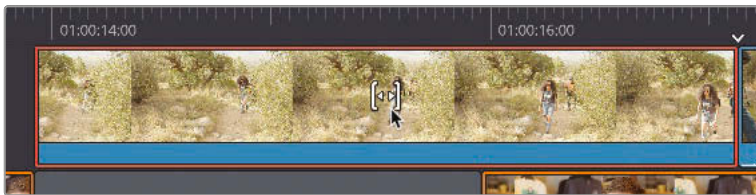


**TIP** You can trim one frame at a time by clicking the +1 or -1 trimming buttons in the trim viewer or by pressing , (comma) or . (period).

- 5 Press / (slash) to review the edit.

That's OK, but we want the first shot to end where the second person has his left foot forward. In this case, you can *slip* the first clip.

- 6 In the lower timeline, place your mouse over the slip icon of the first cutaway.



- 7 Click and drag to the left to slip the clip until the frame at the top right of the trim viewer shows the second person's left foot forward. When you are happy that you have the right frame, release the mouse and press / (slash) to review the change.



As these two clips were shot at different times the edit won't be seamless, but the general movement of the guy's steps should be enough to sell the edit.

## Sliding Clips

The next shot of the friends at White Sands works well, but it's a little short. Remember though: clips on any track other than track 1 won't ripple, so if you trim the end of the shot to make the clip longer, you will overwrite the following shot. You can, however, *slide* the following shot.

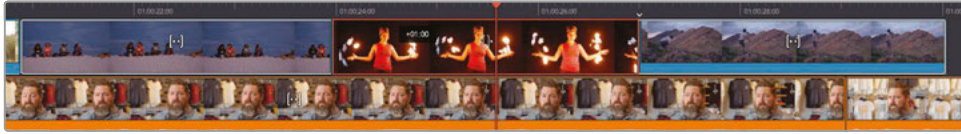
**NOTE** Sliding a shot is different from moving the shot, as it uses the handles available on the clips to either side to ensure that no gap is created, which you'd then need to fill.

- 1 In the lower timeline, select the clip of the fire dancer and press Shift.



The slip icon becomes a slide icon.

- 2 Drag the clip to the right until the tooltip reads 1:00.



You have slid the clip forward by 1 second, making the White Sands clip longer by 1 second and the following shot of the guy jumping on the rock shorter by 1 second. This means you now cut to the guy jumping part way through his jump! To fix this, you will now have to slip that clip.

**NOTE** This back and forth between trimming functions is a common feature of video editing as you try to get disparate kinds of footage to work seamlessly together in a single story.

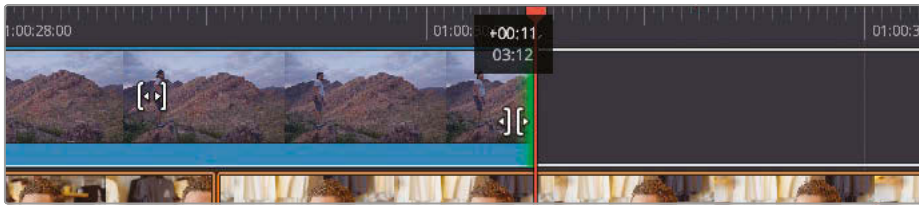
- 3 Using the lower timeline, slip the last cutaway clip so that the guy is already standing on the rock, and then press / (slash) to review the edit.



That's nice. By slipping the clip to remove the jump, you've now included the look that better fits Chris's words.



- 4 Finally, trim the end of this clip forward by about 10 frames so it ends after Chris says, “That’s what really inspires us...” and we cut back to Chris before he says, “...and we take that inspiration....”



Awesome! You have used the intuitive trimming functions of the cut page to refine the series of cutaways. What’s more, all the trimming functions in the cut page are always available, as there’s no specific trimming mode or trimming tools you need to select before making these changes.

### Trimming and Moving Clips with the Speed Editor

You can trim clips using the Speed Editor’s search dial, which allows a more tactile and connected feel to the trim than using a mouse and keyboard.

Holding any of the Speed Editor’s trimming buttons automatically selects the edit nearest the playhead as indicated by the smart indicator.



When trimming with the Speed Editor, you can press CAM 2 to select a cut on video track 2 or press CAM 3 to select a cut on video track 3, and so on.

If you want to move clips using the Speed Editor, select the clip, press and hold the SPLIT button, and rotate the dial. The upper timeline shows the selected clip changing position.



## Adding Other Camera Angles with Source Overwrite

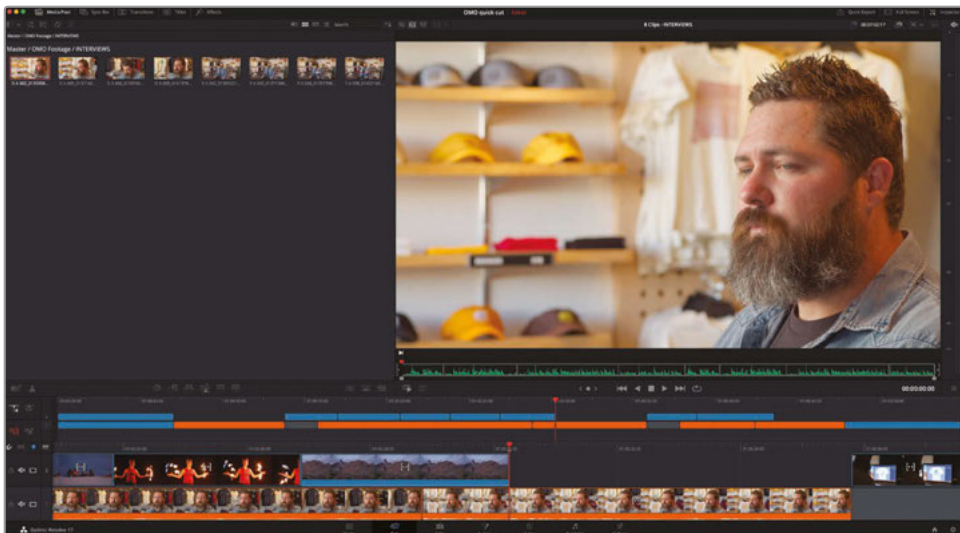
When capturing this interview, the crew used two cameras with matching timecode. This makes it easy to edit multicamera footage on the cut page using the source overwrite edit.

- 1 In the timeline controls, click the Video Only button, as you will not need the audio from the second camera.



**TIP** You can always disable any audio attached to a video clip in your timeline by right-clicking the clip in the lower timeline and choosing Mute.

- 2 From the bin list, select the INTERVIEWS bin.
- 3 Press Q or click the Source Tape button to enter source tape mode.



All the clips in the INTERVIEWS bin are displayed in the source tape.

- 4 Scrub through the source tape to locate the first of the wide angles of the interview with Chris.



This is the wide angle of the first of Chris's soundbites you used to introduce him.

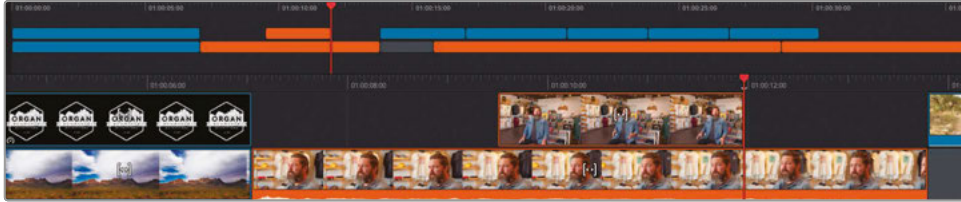
- 5 Set an In point after Chris has introduced himself, just before he says "We are located in..."
- 6 Set an Out point after just before he says, "Las Cruces, New Mexico."



- 7 In the toolbar, click the Source Overwrite button.



Holy smoke! The clip is edited into the timeline at the correct point of the opening interview so that as Chris mentions that he is in the store, we actually see the store!



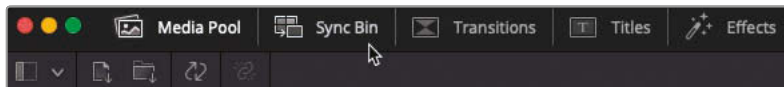
How did Resolve know where to place this clip so precisely?

The source overwrite is a very special editing function unique to the cut page that works specifically with clips with matching timecodes to automatically place the new camera angle on top of the existing video track. The angles line up perfectly, and the action remains in perfect sync!

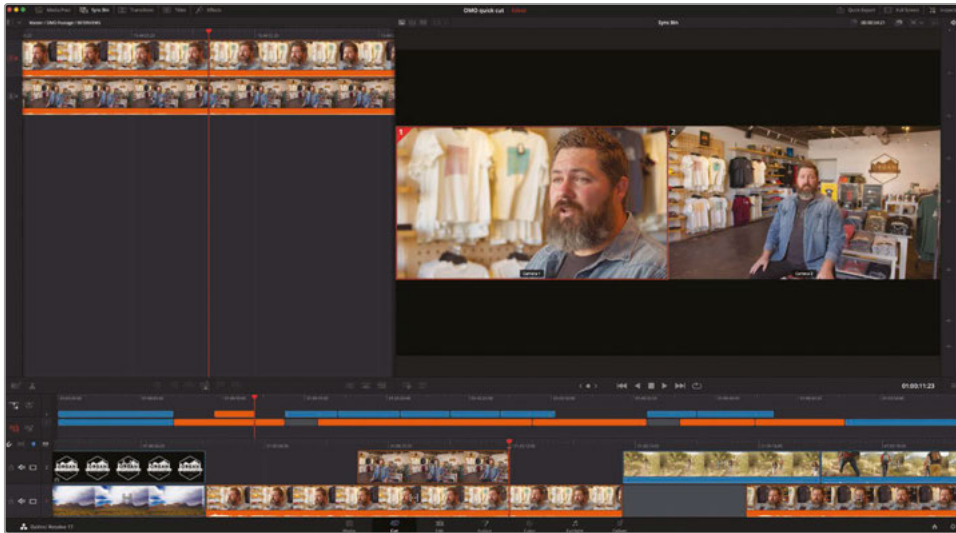
## Using the Sync Bin with Source Overwrite

You can also use the source overwrite in conjunction with the Sync bin. The Sync bin is another feature unique to the cut page that allows you to quickly see and choose matching camera angles for any point in your timeline.

- 1 Click the Sync Bin button above the media pool.



The Sync bin opens and instantly displays all clips that sync to the timeline, displaying them as filmstrips.



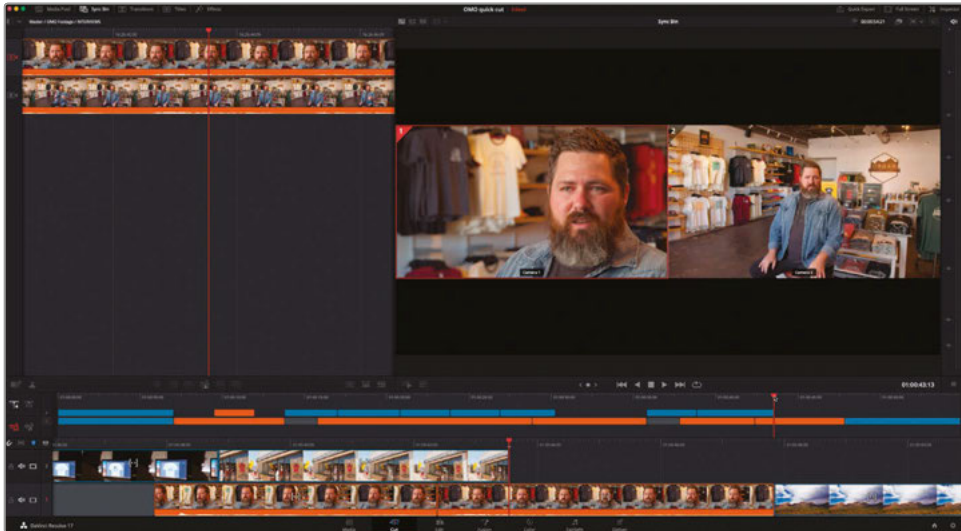
The two clips in the bin that match the current timeline location are displayed under the Sync bin playhead. The viewer displays a multi-view of the sync'd camera angles, highlighting the one currently used in the timeline. With the assistance of the Sync bin, selecting the camera angle you want to use is as easy as clicking in the viewer.

**NOTE** If there are no matching timecodes for any part of your timeline, the Sync bin remains blank.

- 2 Move your playhead so it snaps to the end of the last clip on track 2, the exterior shot of the store.



The Sync bin displays both camera angles for this part of the interview.



- 3 Click the image for the wide angle.



The wide shot opens in the source clip viewer with the In point set at the current playhead location in the timeline and the Out point set at the end of the clip.



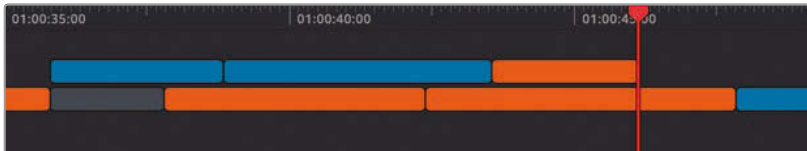
However, you do still want to cut back to Chris toward the end of this sound bite to deliver his final line in the close-up shot.

**NOTE** By default, when you select an angle from the Sync bin, the duration of the In and Out points are set at 5 seconds. In this example, the clip isn't long enough so the Out point is set at the end of the clip.

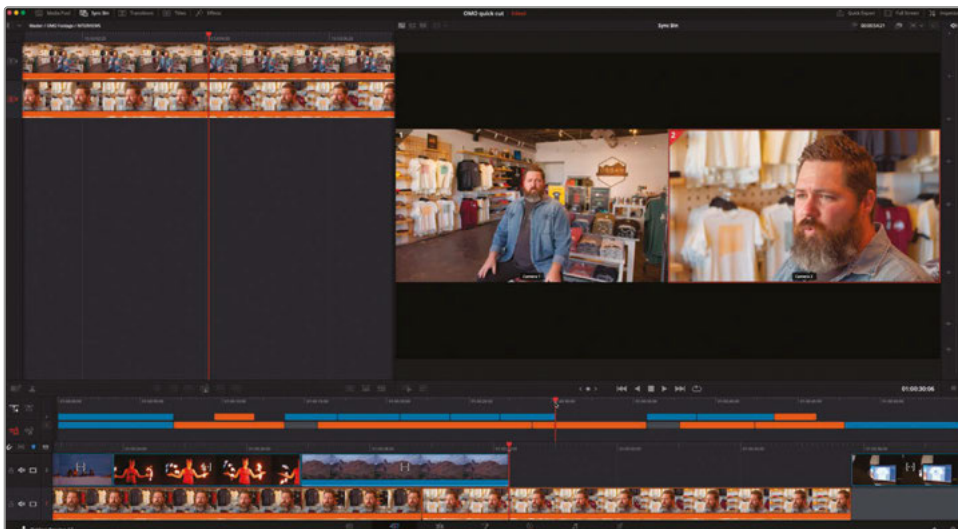
- 4 Play the marked clip in the viewer and set a new Out point just before Chris says “...we say experience the Southwest.”



- 5 Click the Source Overwrite button to add the clip to the timeline.



- 6 Move your playhead to the end of the series of five cutaway clips on track 2, where you see Chris back in the shot when he says, “...and we take that inspiration...”





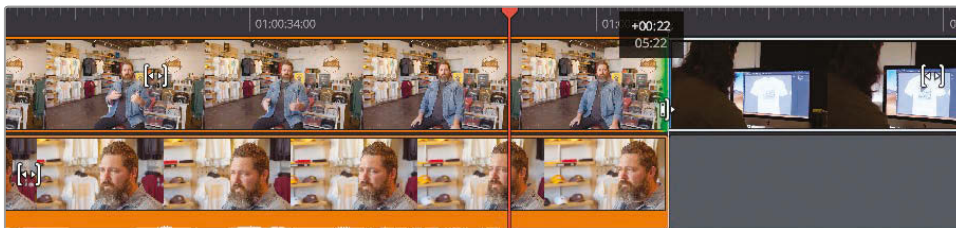
- 7 In the viewer, select the wide angle and click the Source Overwrite button.

The new angle is added to the edit.

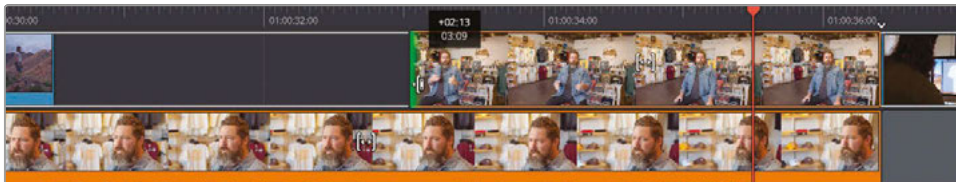


Don't forget, though, that you can always adjust any clip directly in the timeline to finesse your edit. Just be careful that you don't accidentally move, slip, or slide the clip or you will lose sync!

- 8 Click the Timeline Viewer button and trim the end of the new angle until it snaps to the start of the following blue cutaway clip.



- 9 Trim the beginning of the new clip by about 2 seconds, so it starts about halfway through the sound bite.



- 10 Review all your changes.

As you can see, working with footage shot on multiple cameras is as natural as editing any other type of footage, thanks to the cut page's unique Sync bin and source overwrite function.

## Live Overwrite on the Speed Editor

Live Overwrite is a feature unique to the Speed Editor. It gives you a faster way to make the precise edit you want when using the Sync bin for multicamera content.

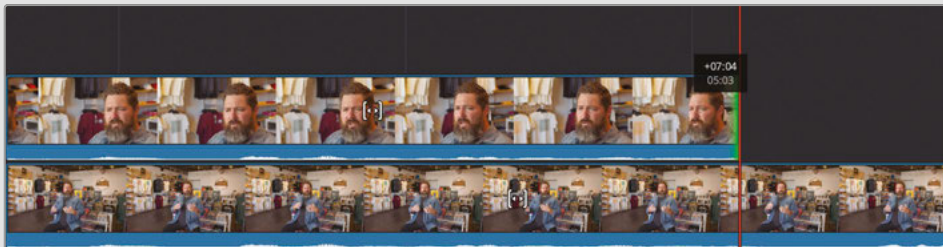
Press the SYNC BIN button to display the available angles in the Sync bin.



Press and hold the CAM # button on the Speed Editor for the camera number you want to live overwrite into the timeline.



Now, when you rotate the search dial to the right, the selected angle will be overwritten directly above the current timeline clip.



## Syncing Non-Timecode-Accurate Footage

You will not always have clips with matching timecode. So, built into the cut page is the Sync Clips window, which lets you sync non-timecode-accurate sources like action cams and mobile-phone clips, along with your professionally recorded content.

Select all the clips in the media pool that you wish to sync and then click the Sync Clips button.



The Sync Clips window shows the sync relationships between each of the selected clips. By default, this relationship is based on the clips' recorded timecodes, but you can choose to base it on audio waveform analysis or any In or Out points you have previously set.



Choose your syncing method and click Sync. You can use the Sync View on the left of the Sync Clips window to verify that the clips are in sync.

Click Save Sync to save and exit the Sync Clips window.

In the media pool, any sync'd clips now have colored badges to indicate their sync'd relationships. Different groups of sync'd clips will have different colored badges.



You can now access your manually sync'd footage in the Sync bin.

## Adding Music, Effects, and Titles

The edit is coming along nicely, so now you can concentrate on adding some music and finessing things with a few final flourishes.

- 1 Return the playhead to the start of the timeline.
- 2 From the bin list, select the MUSIC bin.

This bin contains one audio clip.



**NOTE** Audio-only clips do not show in the source tape, although they can still be selected in the media pool and displayed in the source clip viewer.

- 3 Deselect the Video Only button to allow editing audio clips into the timeline.



- 4 Select the **ONE MIN SOUNDTRACK.wav** clip and press F12 or click the Place on Top button.
- 5 Return your playhead to the start of the upper timeline and play to hear the music.

The music works well with the edited piece until Chris starts to speak. You need to *attenuate*, or lower, the audio level so you can better hear what Chris is saying.

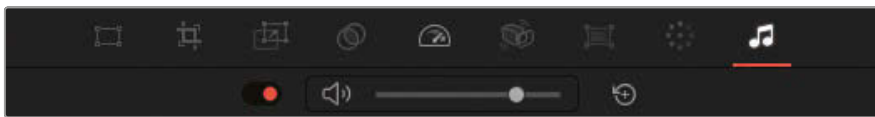
- 6 Return to the start of the timeline and select the green audio clip.



- 7 Click the Tools button.



The cut page's tools controls open below the timeline viewer. These controls provide quick access to several options. Because you have an audio clip selected, the audio levels controls are selected automatically.



**NOTE** The Tools menu is specifically designed to allow you to quickly access common clip adjustments and are specifically designed to work well on a small display such as a laptop. You can always access a more comprehensive set of controls for audio and video clips in the Inspector, or switch to the edit page to access features not available in the cut page (such as adding and adjusting audio keyframes in the timeline).

- 8 Begin playback and use the slider to adjust the audio level of the selected music clip so that you can clearly hear Chris's interview over the music.



## Ducking the Levels

It would be nice if you had the music levels start louder over the opening titles and then drop lower when Chris starts to speak. To do this, you can split the audio clip and add audio transitions.

- 1 With the green audio clip still selected, position your playhead on the first edit point where Chris's interview starts.
- 2 Click the Split Clips button or press Command-B (macOS) or Ctrl-B (Windows) to add an edit point to the music.
- 3 In the audio tools, click the Reset button to reset the levels of the selected part of the audio.
- 4 Play the first part of the music again and hear the difference in levels when you reach the edit point.

**TIP** You may want to slightly lower the levels for the first clip from their default. Most audio-only clips such as music are always too loud when compared to speech.

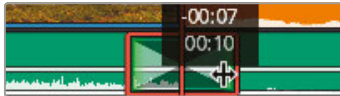
- 5 Select the edit point between the two music clips and choose Timeline > Add Transition or press Command-T (macOS) or Ctrl-T (Windows).



The standard audio transition is added to the selected edit point.

**TIP** All the video and audio transitions in the edit page Effects Library are also available in the cut page. Just click the Transitions browser button at the top of the cut page, from where you can drag and drop them directly to edit points in the timeline.

- 6 In the lower timeline, drag the edges of the transition to shorten its duration to 10 frames.



Great. That music has really helped set the overall tone for the edited video. Now you will use another transition to fade in the Organ Mountain Outfitters logo.

## Building the Opening Sequence

The director wants the logo to fade in a couple of seconds after the video has started.

- 1 Scroll the lower timeline so you can see the start of the Organ Mountain Outfitters logo clip clearly.
- 2 Trim the start of the logo to around 2 seconds.



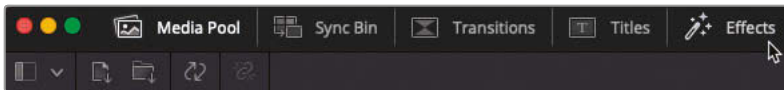
- 3 If the smart indicator is not pointing to the start of the logo clip, scroll the lower timeline until it is.



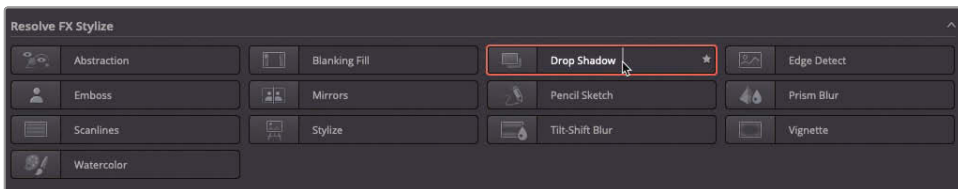
- 4 Click the Dissolve button to add the standard transition. This adds a 1-second cross dissolve to the edit point.
- 5 Review the changes to see the logo fade in.

To help the logo stand out a little more from the background, you will add a drop shadow from the Resolve Effects Library.

- 6 Ensure that the playhead is over the logo so you can see it in the viewer, and then click the Effects browser to reveal the different audio and video effects and generators that you can add to your projects.



- 7 In the video effects, scroll to the Resolve FX Stylize category and locate the drop shadow effect.



**TIP** You can live preview any content in the transitions, titles, and effects browsers by hovering your mouse over the item.



- 8 Double-click the drop shadow effect to apply it to the graphic and play back to review the changes.

The drop shadow just helps to lift the graphic off the brighter areas of the background clip.

**NOTE** Control for any effects can be found in the Effects Inspector.

## Adding the Closing Titles

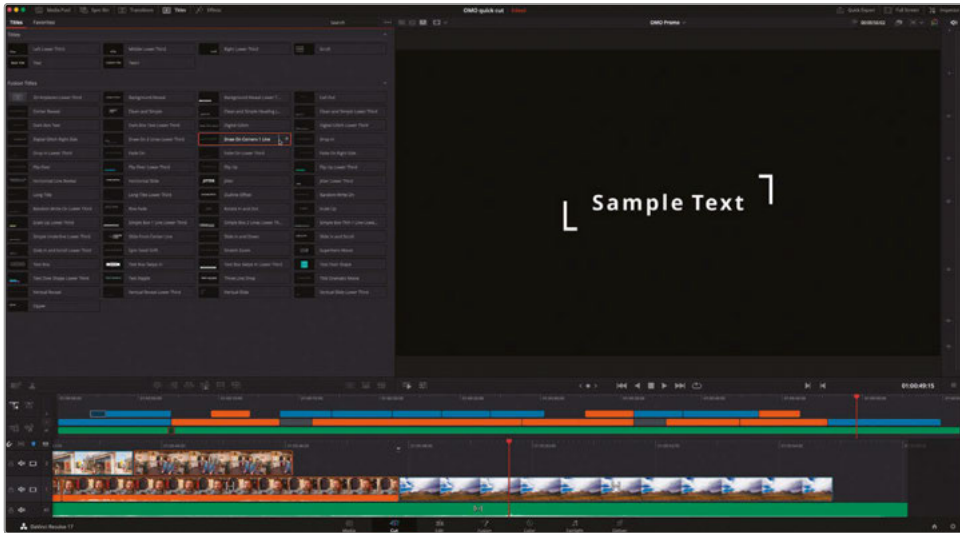
Since you were able to build the opening so easily, it's now time to turn your attention to the closing titles. For this, you will add a "call to action" by way of an animated Fusion title template.

- 1 Using the upper timeline, move your playhead to the edit between the last orange clip and last blue clip.
- 2 Play the last clip until you hear the guitar strum in the music (at around 50 seconds). This is the point where you will add your title.
- 3 Select the titles browser.



The titles browser contains a number of basic titles and more advanced Fusion title templates, many of which are animated and can be customized in various ways.

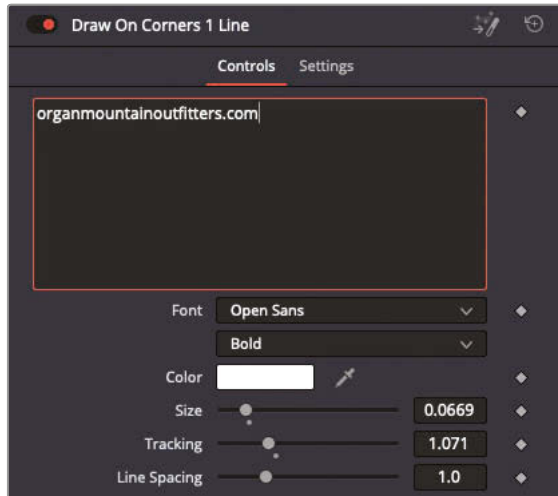
- 4 Select the **Draw On Corners 1 Line** template and move your mouse left and right to preview this template.



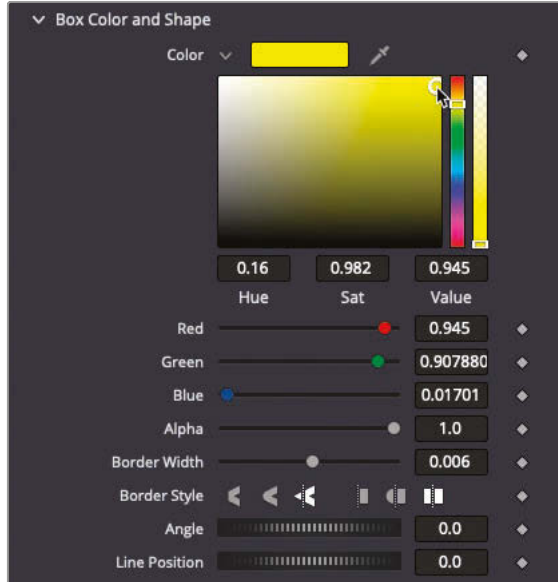
- 5 Click the Place on Top button or press F12 to add the 2-second title template above the Organ Mountain clip.
- 6 Scroll the lower timeline so the title is centered on the playhead.  
To adjust the title template, you need to open the Inspector.
- 7 Click the Inspector button to reveal the title's controls.



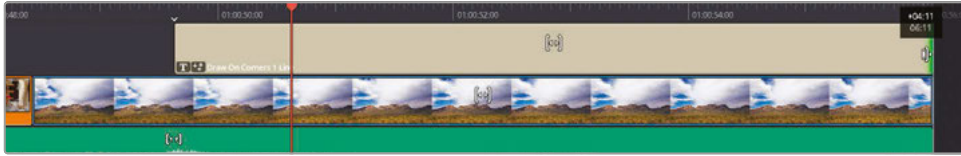
- 8 In the text box, highlight the default “Sample Text” and type **organmountainoutfitters.com**.



- 9 Click the disclosure arrow to reveal the Box Color and Shape controls.
- 10 Open the color picker controls and change the color of the animated highlights to a bright yellow.



- 11 When you are happy with the results, close the Inspector to hide the controls.
- 12 Trim the ends of both the Organ Mountain shot and the title to the end of the music clip.



- 13 For extra credit, see if you can fade the music up after Chris's final soundbite.

Well done! You have successfully edited the short video for Organ Mountain Outfitters. Take the opportunity to watch the edited piece and admire your hard work.

**NOTE** If you want to compare your timeline with a version put together following the above steps, you can import the finished timeline by choosing File > Import > Timeline and selecting the R17 Editing / Lessons / Lesson 06 Cut Page / OMO PROMO FINISHED.drt

### Adding Transitions with the Speed Editor

Using the Speed Editor, press the DIS button in the lower-left bank of buttons to add the standard transition to the edit indicated by the smart indicator. To adjust the transition duration, hold down the TRANS DUR button and rotate the dial.



Well done! You have successfully completed this lesson and learned how the cut page approaches the tasks of editing differently from the edit page. Ultimately, the cut page is all about being able to work fast and accurately, allowing you to edit your footage without having to worry about some of the minutiae and finer points of editing, such as which frame your playhead happens to be on.

And remember, the edit and cut pages are not mutually exclusive, so it's never a matter of having to choose one over the other. As with all pages in DaVinci Resolve, you can move freely from one to the other and back again at any time, enabling you to utilize the best page for the task at hand.

## Lesson Review

- 1 In the cut page, which editing function is used to edit in a different angle of a synchronized clip?
  - a) Smart Insert
  - b) Overwrite
  - c) Source Overwrite
- 2 True or False? The cut page has only three transitions to choose from: cut, cross dissolve, and smooth cut.
- 3 True or False? Once you select the Trim mode in the cut page, you can ripple trim any edit.
- 4 True or False? Clips edited in the edit page using edit page-specific functions such as fit-to-fill or replace do not appear in the cut page.
- 5 What hardware has been designed to make working in the cut page even faster? (Choose all that apply.)
  - a) The DaVinci Resolve Editor Keyboard
  - b) The DaVinci Resolve Quick Keyboard
  - c) The DaVinci Resolve Speed Editor

## Answers

- 1 c) Source Overwrite is the only edit function in the cut page that takes advantage of synchronized clips.
- 2 False. The transitions browser includes all the same transitions as the edit page.
- 3 False. There is no Trim mode in the cut page. When you trim any clip on Track 1, this will automatically ripple the timeline. Any clip trimmed on any other track will not ripple the timeline.
- 4 False. All clips added in the edit page or the cut page appear in the other page.
- 5 a) The DaVinci Resolve Editor Keyboard and c) the Davinci Resolve Speed Editor.

## Lesson 7

# Compositing in the Edit Page

Multilayered promotional videos or promos combine video, audio, motion graphics, and text into a seamless animated short video. While creativity and imagination make every promo unique, the ultimate goal is always about conveying the message. You can apply the layering, graphic, and animation techniques you learn in this lesson to commercials in which you need to persuade viewers quickly to engage with a business. These techniques also come into play when creating educational content that needs to explain difficult or complicated concepts in an easy-to-understand way.

This lesson will introduce the compositing and animation features available to you in DaVinci Resolve 17's edit page. These days, editors often need to build composites and apply some level of keyframe animation, either as pre-viz (previsualization) for motion graphics or as the final content.

### Time

This lesson takes approximately 75 minutes to complete.

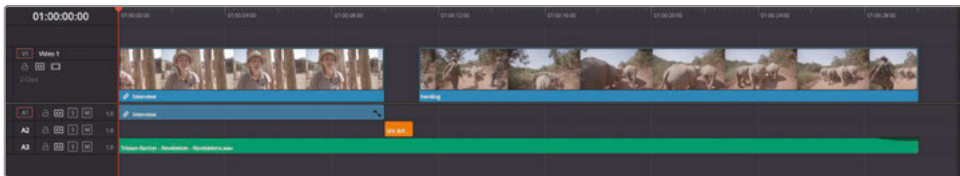
### Goals

<b>Stabilizing the Interview</b>	336
<b>Editing to Different Video Tracks</b>	340
<b>Creating a Compound Clip</b>	351
<b>Animating the Compound Clip</b>	352
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<b>Adding Effects to a Compound Clip</b>	379
<b>Working with Traveling Mattes</b>	382
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<b>Using FairlightFX in the Edit Page</b>	400
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To ensure the clarity of your multilayered promo, you must have a vision for the project before you even begin. Unless you fully define what you need to communicate, it is tough to choose the right approach.

The goal for this promo is to create a simple multilayered, 30-second promo for a documentary on the work of a rhinoceros conservation organization.

- 1 Open DaVinci Resolve, and in the Project Manager, right-click an empty space and choose Import Project. Navigate to R17 Editing > Lessons > Lesson 07 Compositing, select the **R17 EDITING LESSON 07 COMPOSITING.drp**, and choose Open.
- 2 Open the project and click the edit page button, if necessary. Relink the media files.
- 3 Choose Workspace > Reset UI Layout to reset the interface to its default setting.
- 4 From the Timelines bin, double-click the **DISUNITY PROMO START** timeline and play it.



This timeline uses two clips and a title that form the foundation of your 30-second promo. You'll work on both clips to enhance their appearance, and even enhance the rifle sound you hear in the gap between the two clips.

## Stabilizing the Interview

The first thing that the director would like is for you to try to stabilize the opening interview clip.

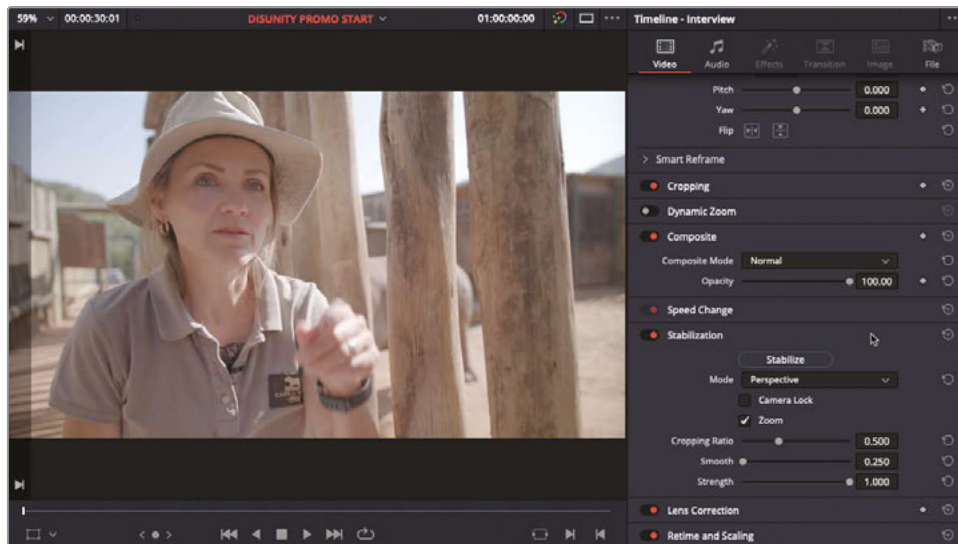
- 1 With the playhead at the start of the timeline, play the first clip.





This short soundbite from one of the lead conservationists was shot with a handheld camera, so it has a little too much movement for the director's liking. You will use Resolve's Stabilization function to reduce this movement.

- 2 Place the playhead anywhere over the first clip.
- 3 If necessary, open the Inspector and select the Video tab.
- 4 Click the Stabilization bar to expand the controls.



The Stabilization controls revealed here in the edit page are the same controls you have available in the cut and color pages. The only difference is that you have access to the stabilization graph in the color page's Tracker panel if you need to refine the results.

- 5 Click the Stabilize button.



Resolve analyzes the movement in the image and attempts to reduce the movement of the camera.



- 6 Play the interview again to review the results.

The image appears to be a little more stable than before, but there's a distracting “pulsing” that's been introduced to the background behind the conservationist due to the parallax differences between the background and foreground. You'll need to change some of the settings to minimize this effect.

**TIP** To see the results better, press Command-F (macOS) or Ctrl-F (Windows) to play the timeline viewer back at full screen. Press Esc to return to the Resolve interface.

- 7 Change the Stabilization control's Mode pop-up menu to “Similarity.”



**NOTE** The Mode pop-up menu has three options to choose from: Translation, which enables pan and tilt analysis and stabilization and is useful when you want to stabilize movement along the X and/or Y axis only; Similarity, which enables pan, tilt, zoom, and rotational analysis and stabilization; and Perspective (the default setting), which enables pan, tilt, zoom, rotation, and perspective analysis and stabilization. The perspective stabilization is causing the “pulsing” background.

- 8 Press Stabilize again.
- 9 Return the playhead to the start of the clip and press Command-F (macOS) or Ctrl-F (Windows) to view the results.

The “pulsing” is not as evident, but the movement is still noticeable.

- 10 Press Esc to return to the Resolve interface.
- 11 Increase the Smooth slider to around 0.9.

The higher Smooth value reduces the camera movements further.

- 12 Reduce the Strength value to about 0.75.



Reducing the Strength loosens the stabilization slightly, allowing a little more of the original camera movement back in to the shot.

- 13 Click Stabilize once more.
- 14 Press Command-F (macOS) or Ctrl-F (Windows) to see the results full-screen once more. If necessary, continue to refine the Smooth and Strength settings to your satisfaction.

**NOTE** You're not trying to eliminate all the camera movement; you're, just trying to make it less noticeable.

Once you're happy that the camera movement of this shot is less distracting, you're ready to start fulfilling the director's creative vision for this short promo.

## Editing to Different Video Tracks

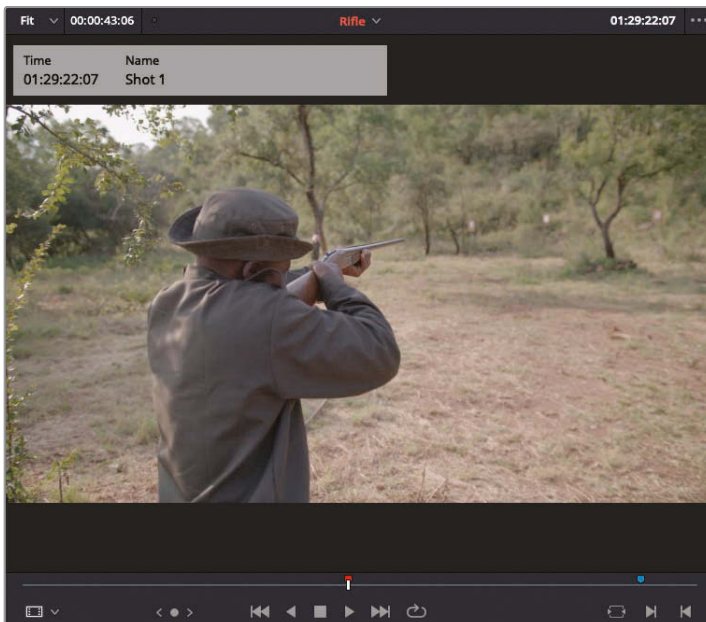
So often in promos such as this, the complexity isn't in the number of clips added one after the other in the timeline, but rather it's in the number of clips you need to layer vertically on different tracks in the timeline.

Creatively, the director wants one shot of a ranger firing a rifle juxtaposed against another shot of a rhino onscreen, as the conservationist talks about rhinos. To achieve this, you'll begin by stacking up clips that work well together onscreen to evoke a dramatic reaction.

- 1 From the Video bin, double-click the **rifle** clip to load it into the source viewer.

In this clip, the rifle is fired twice. Markers have been placed on this clip to indicate where the shots occur. You want to make sure that you do not include that part of the clip because you already have the sound of the rifle occurring later in the gap between the two existing clips.

- 2 Press Shift-Down Arrow to move forward to the red marker.



Because you want to avoid the image of the rifle shooting, you'll back up the playhead by 1 second to set the input.

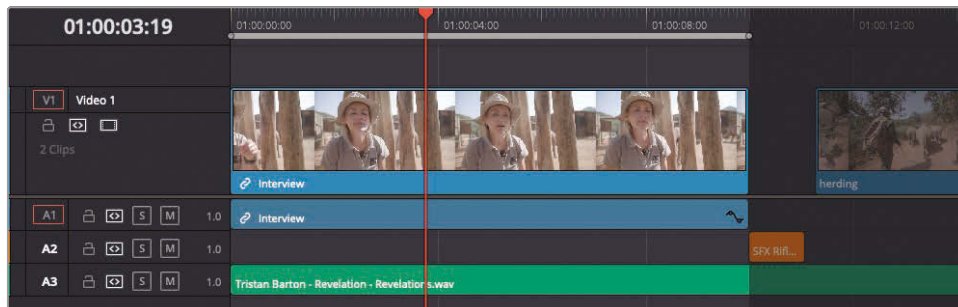
- 3 On your keyboard, type **-1.** (minus 1 period) and press Enter to move the playhead back 1 second. Then mark an Out point.



**NOTE** When typing timecode values, using “.” (period) can be used instead of typing “00”.

Now you'll mark the duration based on the first clip in the timeline.

- 4 In the timeline, move the playhead anywhere over the first clip and press X to mark In and Out points around the clip.



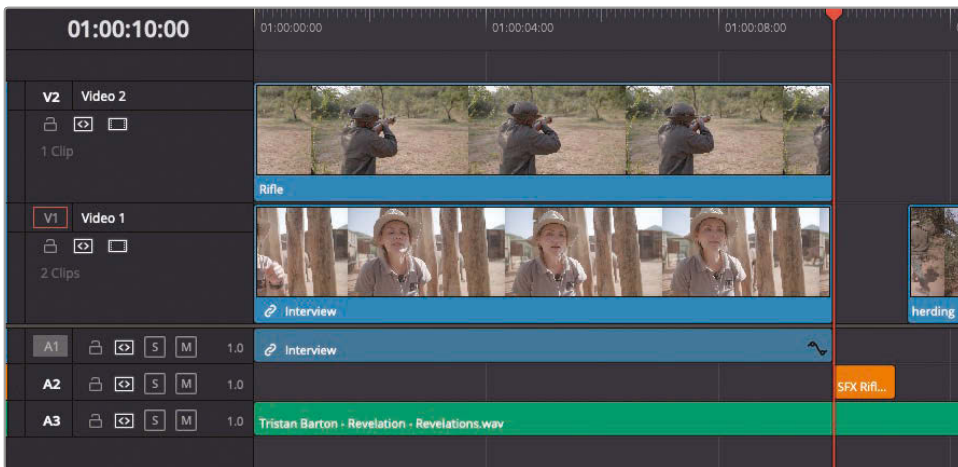
Because you do not want the rifle clip to be heard, you'll disable the audio.

- In the audio 2 track header, click the A1 destination track control or press Option-Command-1 (macOS) or Alt-Ctrl-1 (Windows) to disable the audio from the source clip.



With the duration correctly marked and the right tracks targeted, you are ready to perform the edit.

- Press F12 to perform a Place on Top edit.

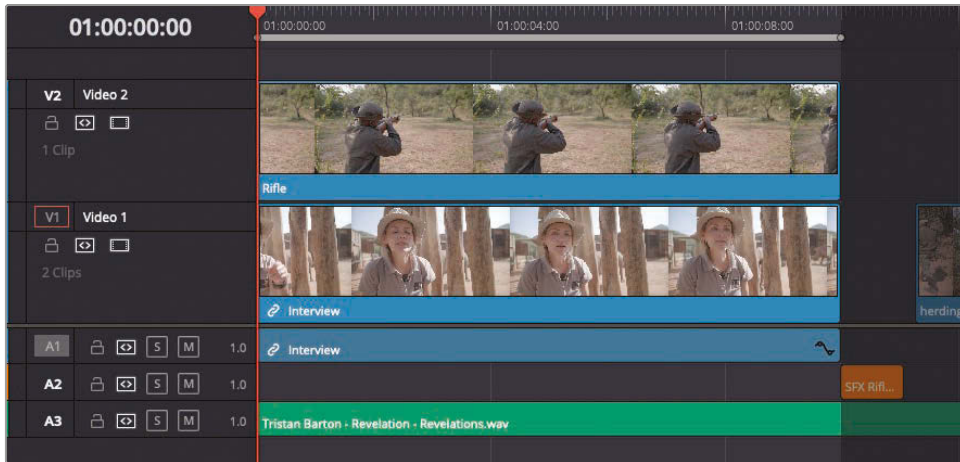


Video track 2 now contains the backtimed rifle clip without any audio. You now need to add one more video clip of a rhino.

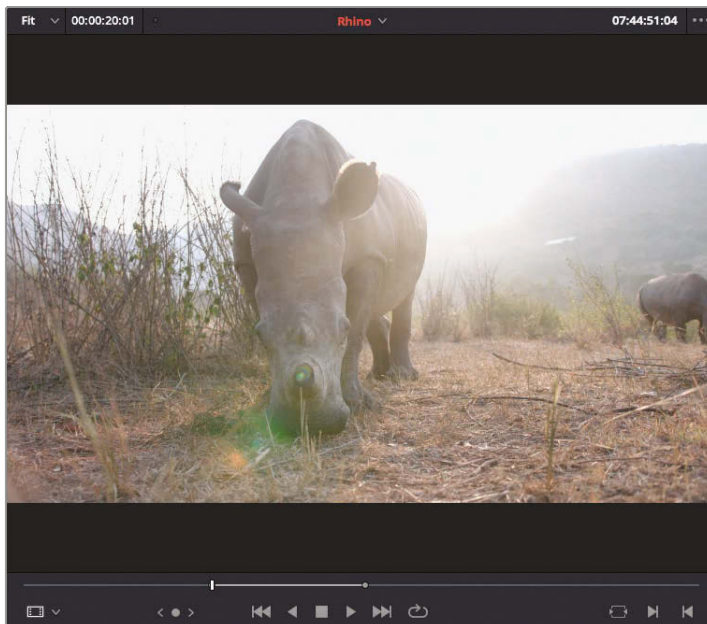
## Editing with Fit to Fill

*Fit to Fill* is a four-point edit in which both the source clip and timeline have different marked durations. DaVinci Resolve will automatically calculate the rate of speed adjustment required to make the marked duration of the source clip fit into the marked duration of the timeline. This automatic speed change is helpful where you want a particular action to happen within a specific time, such as within a musical phrase or during a specific voiceover section.

- 1 Move the playhead back to the start of the timeline, and then press X to mark the In and Out points for the next clip.



- 2 From the Video bin, double-click the **Rhino** clip to load it into the source viewer.

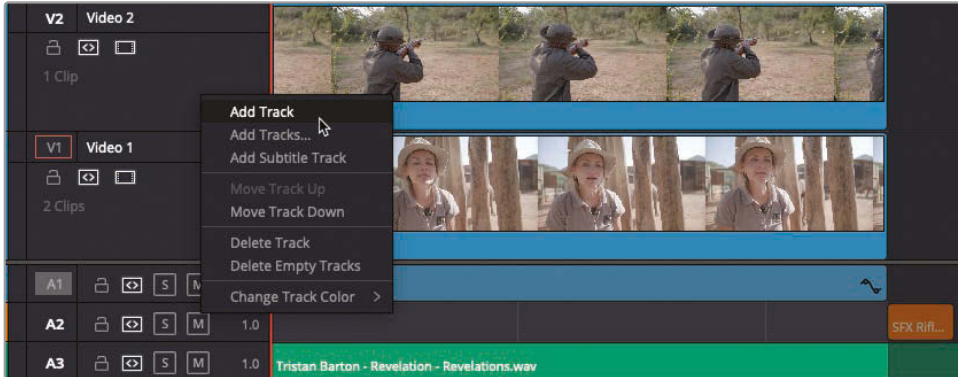


This clip contains In and Out points that mark a 20-second duration.

- 3 Press Option-/ (slash) on macOS or Alt-/ (slash) on Windows to play from the In to the Out point before returning the playhead to its current frame.

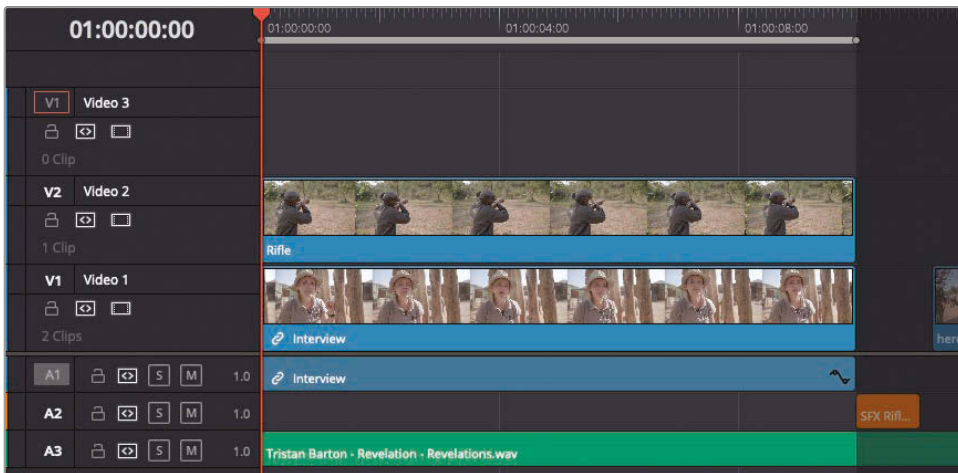
The rhino in this shot moves very slowly. You will speed up the shot because you want to fit the full action of the rhino into the 10-second duration you just marked on the timeline.

- 4 In the timeline track header, make sure the A1 destination control is still disabled so you edit only the video track. Because no other video tracks are available, you'll need to add a new video track.
- 5 In the timeline header, right-click the Video 2 track header and choose Add Track.



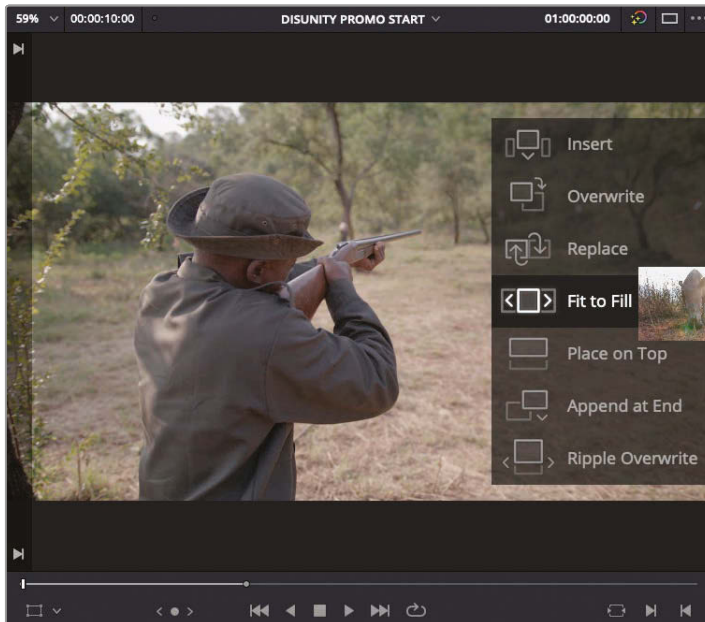
A new Video 3 track is added above Video 2. Now you'll patch the video from the source clip onto the Video 3 track.

- 6 Press Option-3 (macOS) or Alt-3 (Windows) to patch the source video to Video 3 in the timeline.





- 7 Use the timeline viewer overlays or press Shift-F11 to perform a Fit to Fill edit.



The new clip is added to the timeline, and its speed is increased to fit the 20-second source clip into the 10-second marked portion of the timeline.



- 8 Return to the start of the Rhino clip in the timeline and watch the edit.

Rather than overwriting a clip and then using the retime controls to set the speed, if you know the duration you want to use of the source clip, and the duration in the timeline, a Fit to Fill edit can save you a few unnecessary steps.

## Scaling and Positioning Clips

Currently, each clip fills the entire frame, the one on top hiding the tracks below it. Using the onscreen scale and position controls, you can place the rhino and ranger clips so they are visible as picture-in-picture effects.

- 1 Move the timeline playhead over the middle of the **Rhino** clip and click the **Rhino** clip to select it.

You'll use the onscreen controls to scale and position this **Rhino** clip as a picture-in-picture located in the lower right of the frame.

- 2 In the lower-left corner of the timeline viewer, click the Transform button or press Shift-<sup>⌘</sup> (grave accent) to show the onscreen transform controls in the viewer.



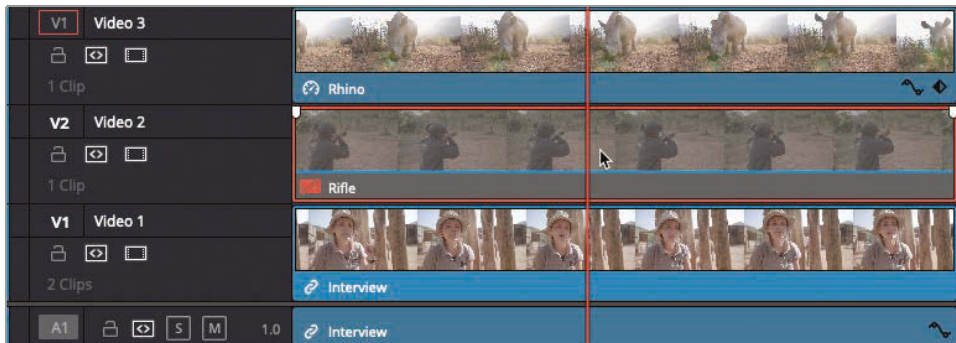
- 3 Drag any of the onscreen control's corner handles to scale down the image and locate it in the lower-right quadrant of the frame.



**NOTE** If you try to resize using the handles along the edges instead of the corners, you will adjust the clip's Zoom X or Y values separately. Use the corner controls if you do not want to change the clip's aspect ratio.

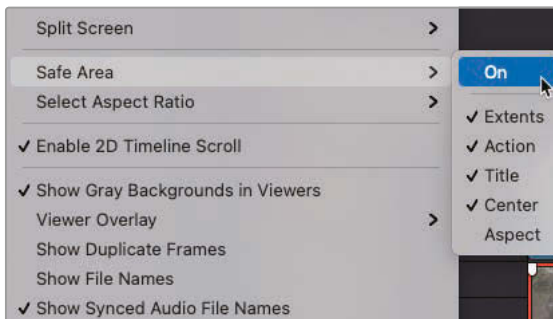
To better judge the correct positioning of this clip against the background interview clip, you'll need to disable the **Rifle** clip.

- 4 Select the **Rifle** clip in the timeline, and then press D. The clip is disabled on the timeline.



When creating this kind of multi-layered composite, it's useful to have a guide for the *Title Safe Area*. Title Safe refers to the portion of the screen that will be visible on a standard TV screen.

- 5 Choose View > Title Safe > On.



The title safe guides appear in the timeline viewer.



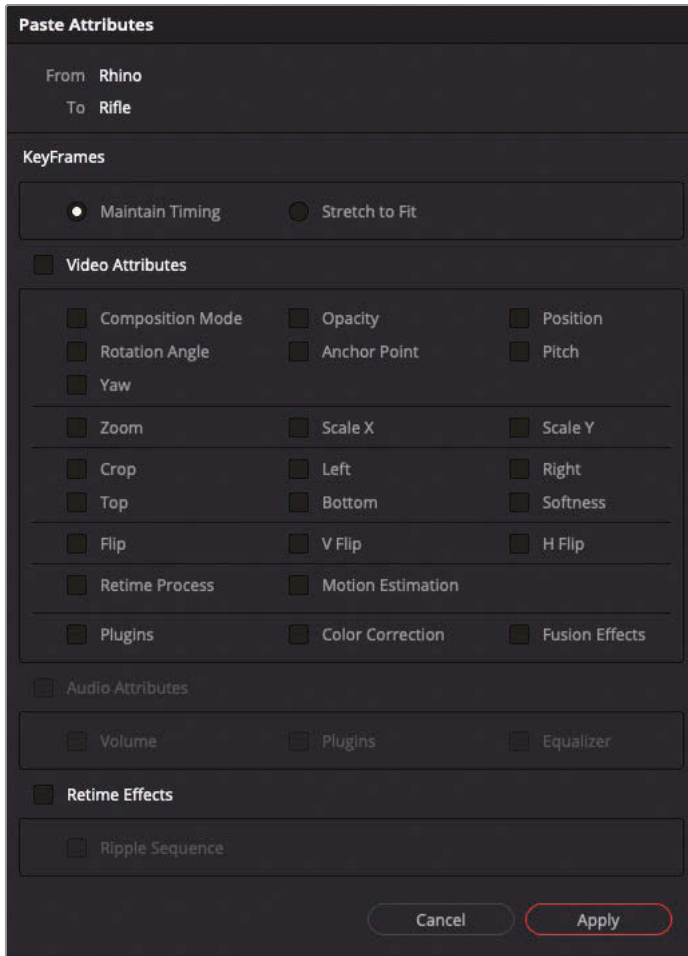
- 6 Reselect the **Rhino** clip in the timeline and use the onscreen transform controls to refine the scaling and position of the clip until you are happy that the result looks something like the image above.

**NOTE** Ensuring that the resized image remains inside the inner safe area box (referred to as Title Safe) ensures that the resized image will be visible if your audience is watching your work on a TV screen.

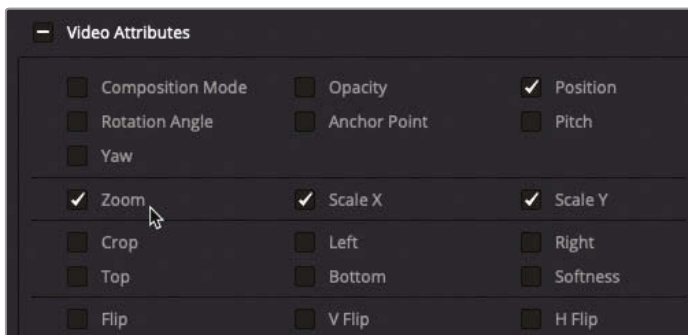
Next, you'll make the **Rifle** clip the same size but positioned in the upper-right quadrant of the frame. The easiest way to match size is to copy and paste the attributes.

- 7 Make sure **Rhino** is still selected in the timeline, and then choose Edit > Copy or press Command-C (macOS) or Ctrl-C (Windows).
- 8 Select **Rifle** in the timeline, and press D to re-enable the clip in the timeline.
- 9 Choose Edit > Paste Attributes or press Option-V (macOS) or Alt-V (Windows).

The Paste Attributes command opens a window where you can select the attributes you want to apply to the selected clip.



- 10 In the Paste Attributes window, select the Position and Zoom checkboxes.



**NOTE** Activating the Zoom checkbox automatically enables both the Scale X and Scale Y parameters checkboxes.

- 11 At the bottom of the window, click Apply.  
**Rifle** is scaled down to the exact size and position as the **Rhino** clip. You can adjust its position by dragging it in the viewer.
- 12 Shift-drag the onscreen controls to move the Rifle shot to the upper-right quadrant, keeping it horizontally aligned with the Rhino clip.



Scaling the two picture-in-picture (PIP) clips allows you to see the background interview. If you want to animate the picture-in-picture clip or add an effect to them, it can be easier to do that if you collapse them into a *compound clip*.

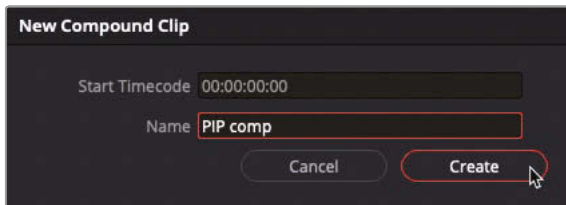
# Creating a Compound Clip

You'll want to animate these two picture-in-picture (PIP) clips onscreen and offscreen. Of course, while you could animate each clip individually in your timeline, the process would be much easier if you could treat both layers as one. By doing so, you could animate just a single element rather than having to manipulate each different layer. By collapsing all your tracks into a *compound clip*, you enjoy the ease of managing a single clip while still retaining access to all your edits.

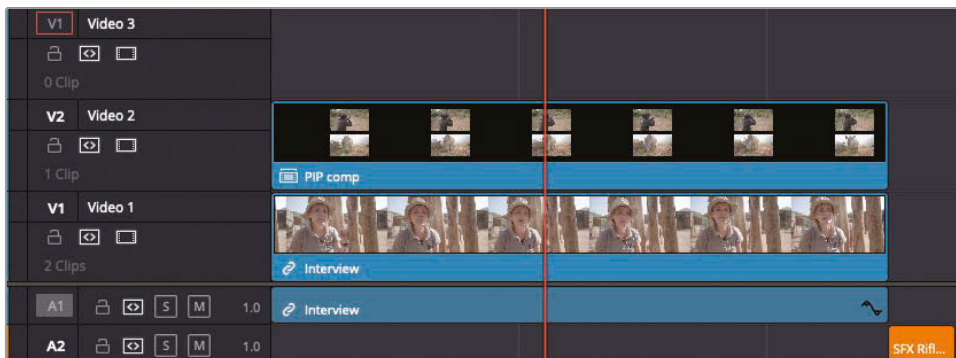
- 1 Select both the Rhino and the Rifle clips in the timeline.



- 2 Choose Clip > New Compound Clip or right-click one of the clips and choose New Compound Clip. A dialog appears asking you to name the compound clip.
- 3 Name the compound clip **PIP comp** and click Create.



Both video clips collapse into a single new compound clip in the timeline.



The compound clip is also added to the selected bin in the media pool.



Compound clips are treated just like regular source clips but are not a flattened “mixdown” of your video and audio clips. It is a container of all your edits, which remains “live,” so you can still access the contents at any time.

**TIP** Deleting a compound clip from a bin deletes it from any timeline into which it was edited, just as with a normal source clip.

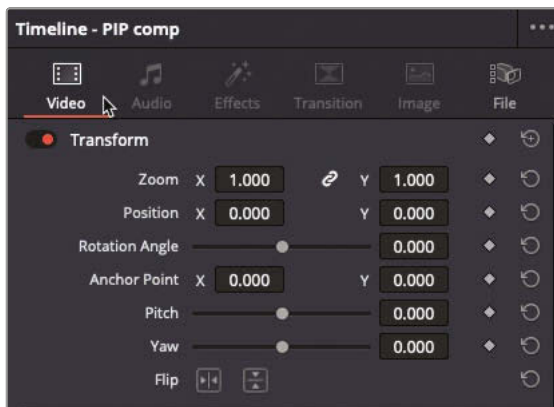
## Animating the Compound Clip

Animating in DaVinci Resolve may be familiar to you if you have used keyframe animation in another application. Once you have enabled keyframing for any parameter in the Inspector, you can reposition or scale clips in the Inspector, timeline, or directly in the viewer.

- 1 Move to the start of the timeline.

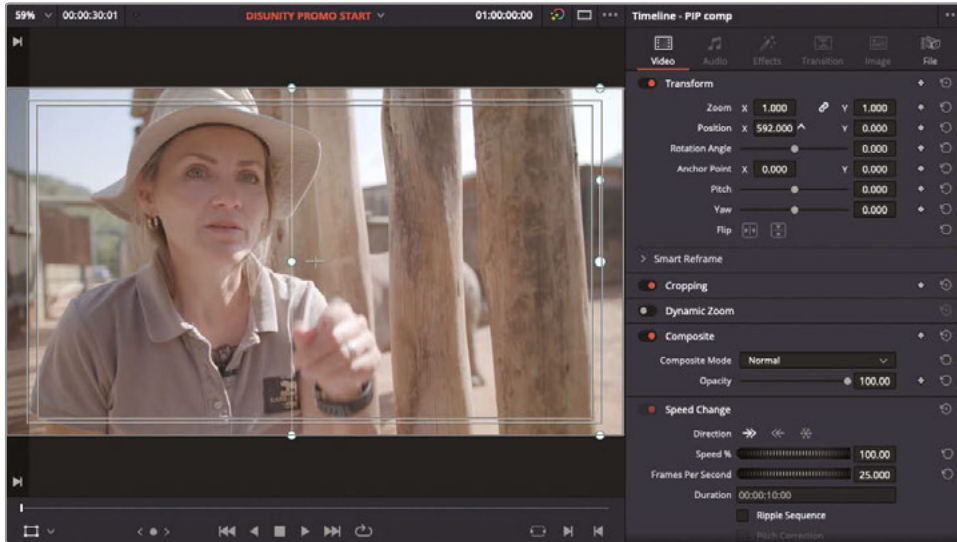
This is where you will create the first keyframe to begin your animation.

- 2 In the Inspector click the Video tab.



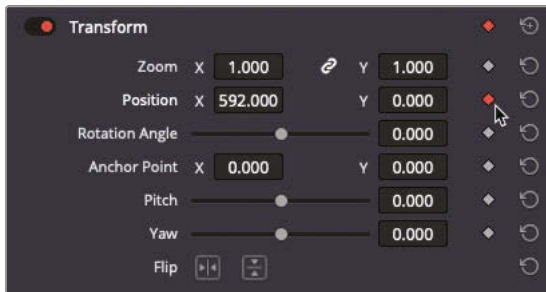


- 3 Drag right in the Position X number field until the clips are completely out of frame.



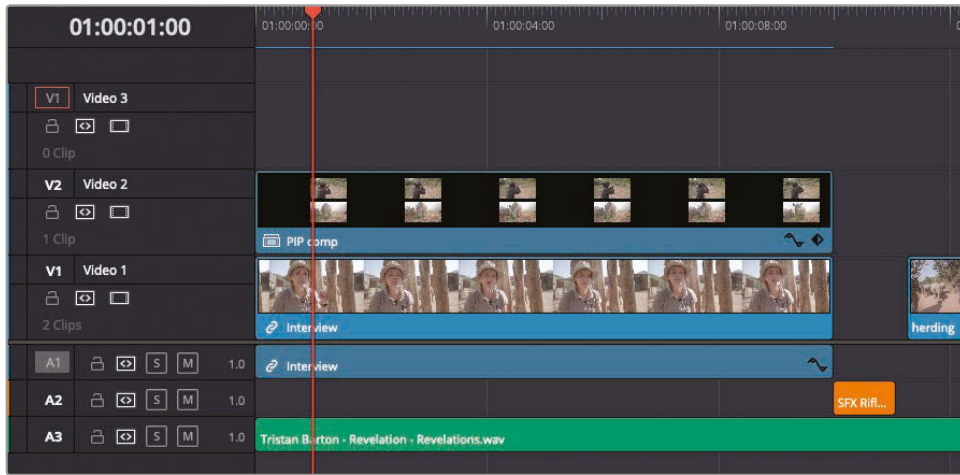
**TIP** You don't necessarily need to select a clip on the timeline to be able to adjust its parameters in the Inspector. DaVinci Resolve will automatically display the controls in the Inspector for the clip on the highest video track at the playhead position. However, if you are unsure which clip you are adjusting, then selecting the clip on the timeline is a good way of avoiding any doubt.

- 4 To the right of the position parameters, click the Keyframe button.



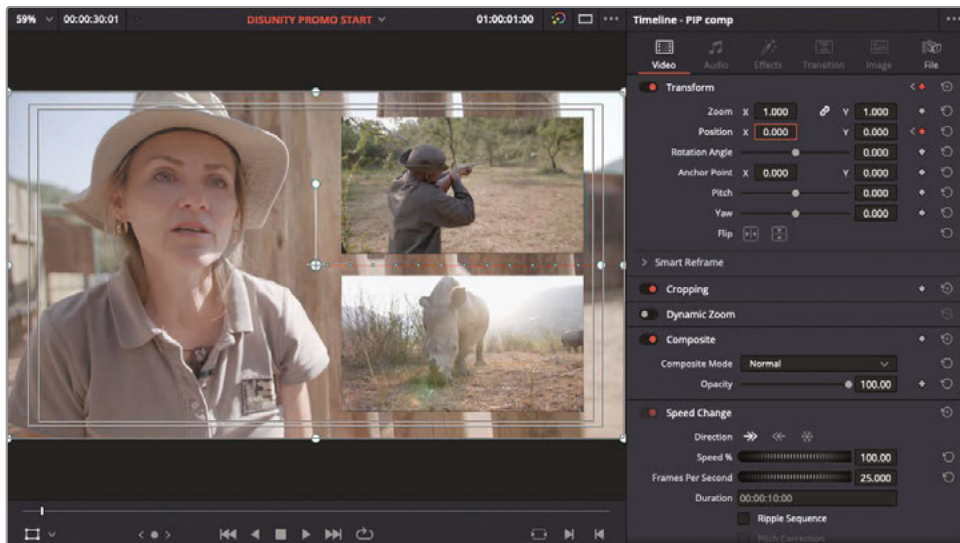
A keyframe is added to the X and Y position parameters in the transform category. To finish your animation, you now need to move to the frame where you want the two clips to land in the frame.

- 5 Still with nothing selected in the timeline, type **+1.** (plus 1 period) and press Enter.



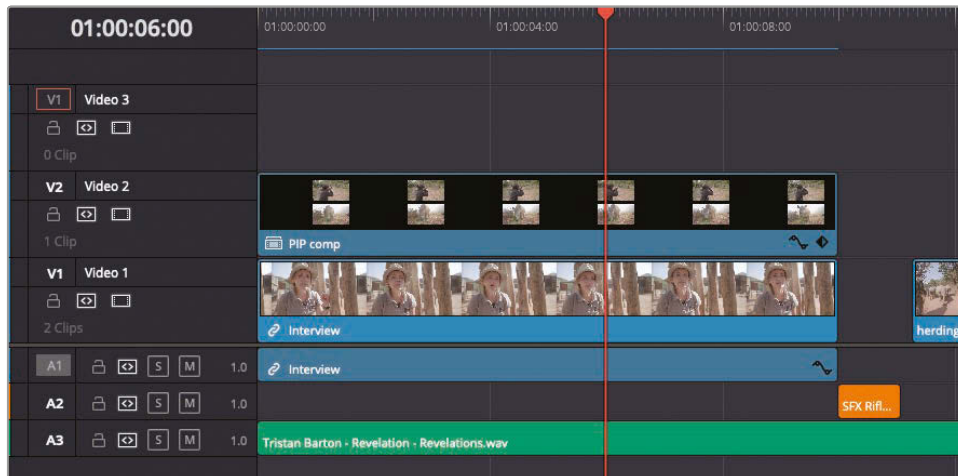
The playhead moves 1 second forward. This is where you will place the “landing” keyframe.

- 6 Drag left in the position X data field until the two clips are fully in the frame or type **0** in the number field and press Enter.



**NOTE** You could use the onscreen controls to change the X position of the compound clip in the same manner you changed the zoom and position values of the two original clips. However, using the parameters in the Inspector often results in a greater degree of accuracy and control.

- 7 Move to the beginning of the timeline and press Spacebar to play the results. The two clips are animated onscreen together from the right side. Next, you will animate the compound clip so the two clips shrink in size.
- 8 With the playhead at the time where the animation ends, and the **PIP comp** clip not selected, type **+5.** (plus 5 period) to move it forward another 5 seconds.



- 9 In the Video Inspector, click to add a keyframe for the Zoom parameter.



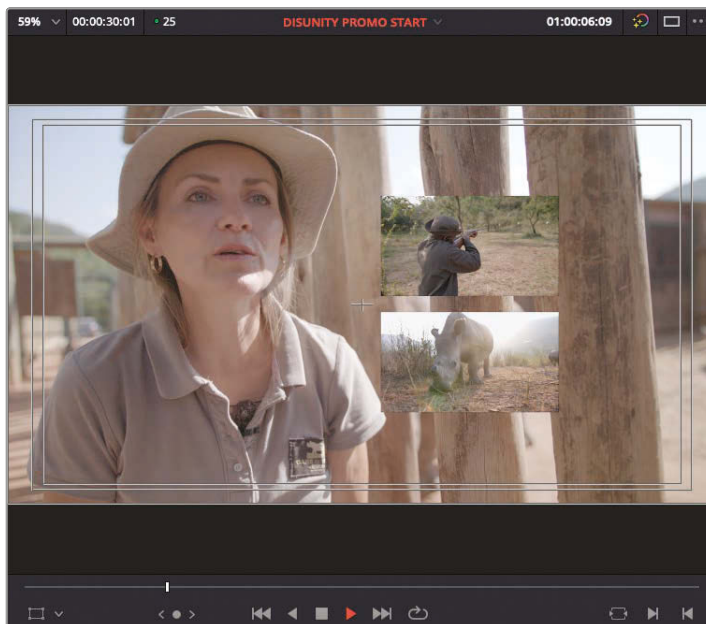
- 10 Type **+1.** (plus 1 period) to jump forward another 1 second.

- 11 Change the Zoom X or Y parameter to 0.



**NOTE** By default, the Zoom X and Y parameters are linked. You can unlink the values using the Link button to animate or adjust the Zoom X and Y values independently.

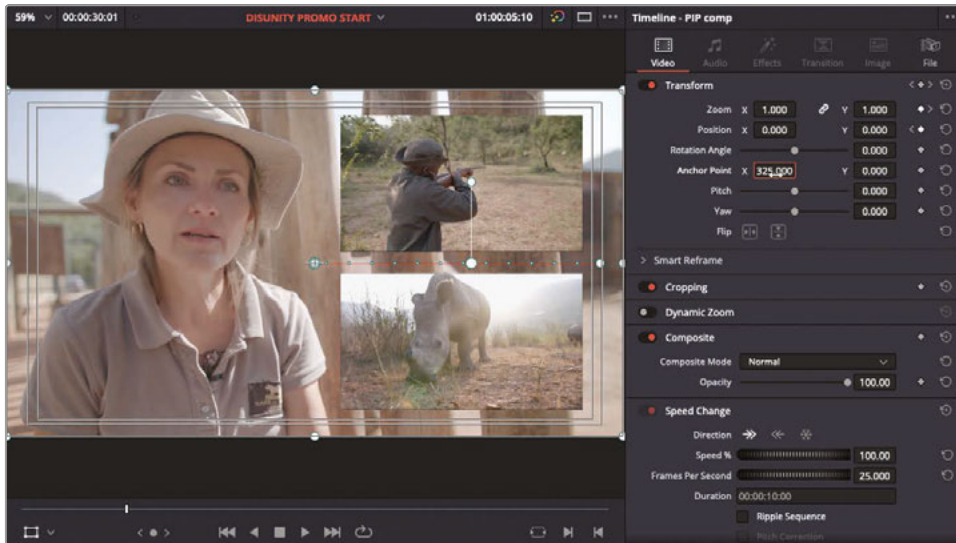
- 12 Play the new animation.



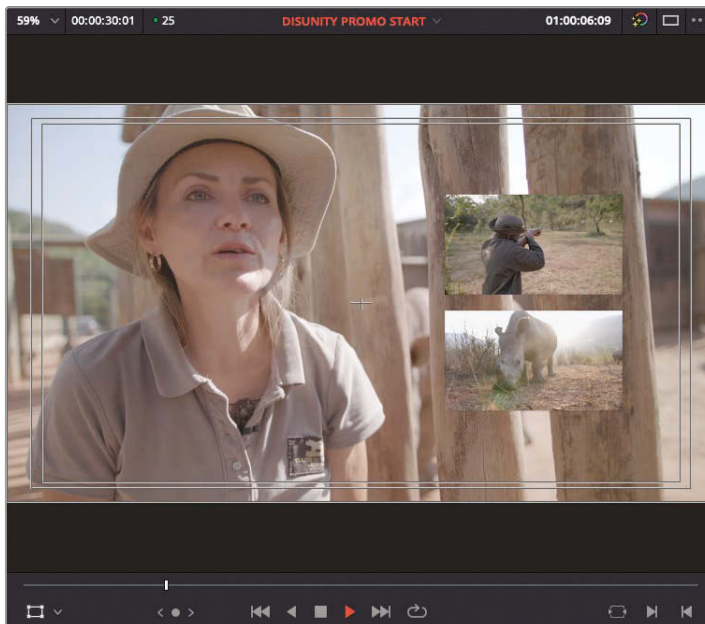
Do you see how the two clips animate toward the center of the viewer? This is because this is the location of the *Anchor Point* of the compound clip. The anchor point is the location around which a clip will zoom and rotate. By default, all clips have an anchor point that is set at the center of the clip's image.

- 13 Move the playhead back to the point before the zooming animation starts.
- 14 Click the compound clip in the timeline. The onscreen Transform controls should display in the timeline viewer.

- 15 In the Video Inspector, click and drag the Anchor Point X value to the right until the onscreen rotation control appears in the middle of the two picture-in-picture images (about 300 pixels, depending on the size of the pictures within the compound clip).



- 16 Play the zooming animation again to see the difference.

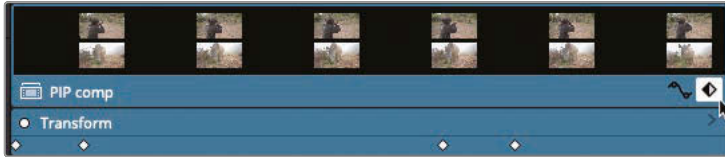


Adjusting the anchor point is important to be able to correctly adjust the animation of a clip with the least number of keyframes.

## Changing the Timing of the Animation

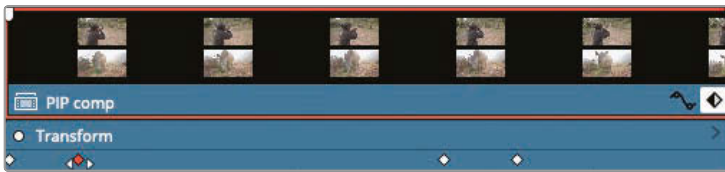
The animation is a little rigid and could probably do with being a little slower. To adjust the timing of the movement, you'll need to change how far apart the keyframes are from each other. To do that, you'll need to show the keyframe track for the clip in the timeline.

- 1 In the timeline, click the small diamond button to the bottom-right of the compound clip. Clicking this button reveals the clip's keyframe track. The four keyframes you've added to this compound clip appear as small diamonds.



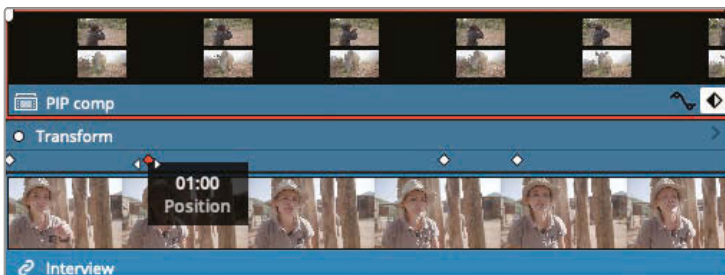
**NOTE** This small diamond button appears only if the timeline clip has one or more keyframes applied.

- 2 In the keyframe track, click the second keyframe diamond.



The keyframe turns red, indicating that it is selected.

- 3 Drag the selected keyframe to the right so the tooltip reads 01:00 for Position.

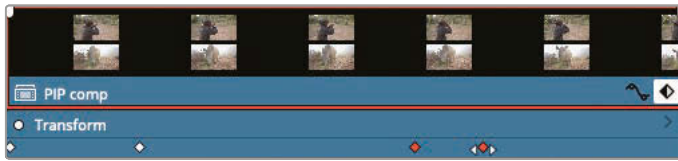


This indicates that you are moving the position keyframe forward by 1 second.

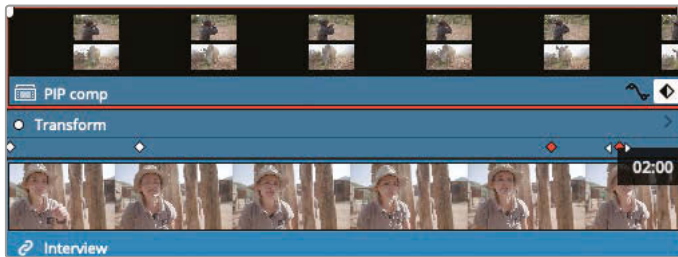
- 4 Return the playhead to the start of the timeline and play to review the slower animation.

The slower animation works much better.

- 5 Click the third keyframe and then Shift-click the fourth keyframe.

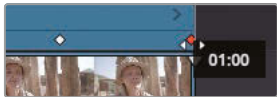


- 6 Drag both selected keyframes forward until the tooltip reads 2:00.



This moves the selected keyframes forward by 2 seconds each.

- 7 Deselect both keyframes, and then click the fourth keyframe again to select it.
- 8 Drag the fourth keyframe forward until the tooltip reads 1:00.



This moves the fourth keyframe forward by another 1 second.

- 9 Return to the start of the timeline and play through the adjusted animation.

Now that you have adjusted the timing of the animation, you can address the sudden changes as the two clips stop and start their different movements.

## Smoothing the Animation

To make the end of the first animation smoother, you can adjust the acceleration in either the Inspector or the viewer.

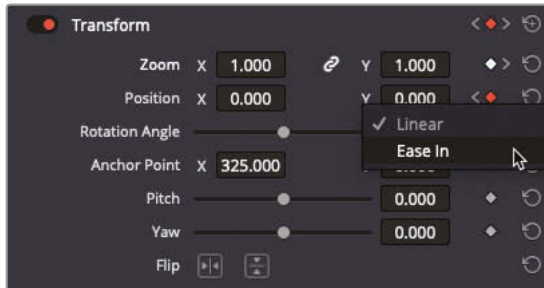
- 1 Move back to the beginning of the timeline.

There is no point in adjusting the acceleration for the first keyframe as the movement starts offscreen, so you will jump to the second keyframe, when the first part of the animation ends.

- In the Inspector, click the Go to Next Keyframe button or press ] (right square bracket) to move to the next keyframe in the timeline.



- In the Inspector, right-click the red keyframe on the Position parameter and choose Ease In.



**NOTE** Ease In is available only if you have a keyframe to the left of the selected keyframe and affects the acceleration playing to the selected keyframe (that is, from the left). If you have any keyframes to the right of the selected keyframe, you will have an option to Ease Out that will adjust the acceleration when playing from the selected keyframe. If you have keyframes on either side, the option will be to Ease In and Out, affecting both sides of the keyframe simultaneously.

- Move to the beginning of the timeline and play forward to see the results.  
The animation comes to a slightly smoother end but could be even smoother. To change the amount of easing being applied to the animation, you'll need to adjust the *motion path* in the viewer.
- Press [ (left square bracket) to jump back to the second keyframe and select the compound clip in the timeline.



**TIP** If your playhead is currently before the keyframe in the timeline rather than after it, then you can press ] (right square bracket) to jump forward to the next keyframe.

- At the bottom of the timeline viewer, make sure the transform onscreen control button is still enabled.

With the onscreen controls active and the clip selected, the compound clip's motion path is visible in the viewer. This represents the clip's progression as it moves across the screen.



At the current keyframe position, the viewer shows two handles on the motion path.



The larger outer handle on the right allows you to modify the shape or *curvature* of the path, adjusting the route the clip follows as it moves across the screen. The smaller, middle handle controls the *acceleration* of the animation.

- 7 Drag the middle control to the left, bringing it closer to the keyframe.



Moving the middle handle toward the keyframe increases the amount of smoothness applied to the animation coming into the keyframe. This is indicated by the dots along the motion path getting closer together. To compensate, other dots elsewhere along the motion path must become more spaced out, indicating that those parts of the animation will occur quicker to make up for the slower part coming in to the second keyframe. Using this control does not adjust the timing of the start and end of this animation, but rather just the speed it travels along the defined motion path.

- 8 Move to the beginning of the timeline and play the results.

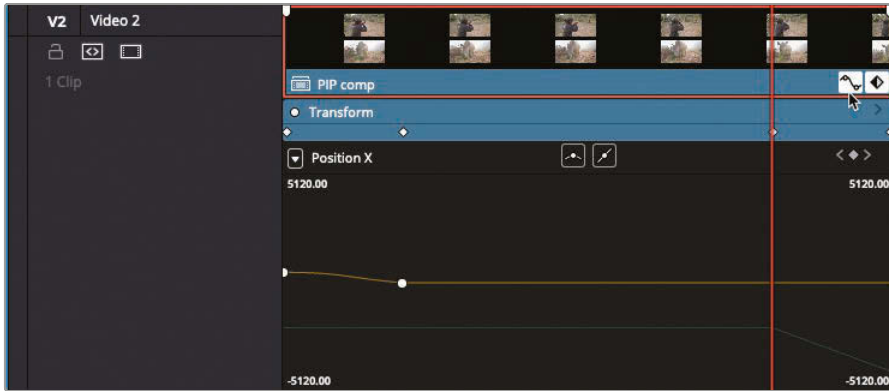
The result is a smoother, more natural movement to the end of your animation.

You will now apply a similar interpolation to the beginning of the zooming animation.

- 9 Press [ (left square bracket) or ] (right square bracket) as appropriate to move to the third keyframe on the compound clip.

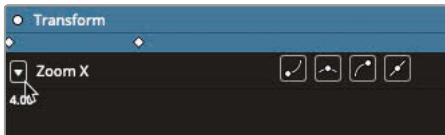
As this animation employs *temporal* rather than *spatial* keyframes, the acceleration curve must be adjusted using the clip's animation curve controls in the timeline.

- 10 In the lower-right corner of the compound clip in the timeline, click the Animation Curve to the left of the keyframe button.

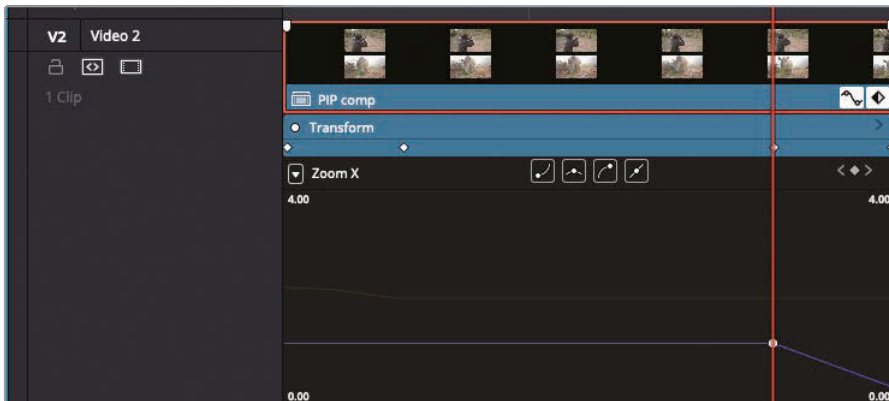


The clip's animation curve opens below the clip's keyframe track in the timeline.

- 11 In the Curve pop-up menu in the top left, select Zoom X.

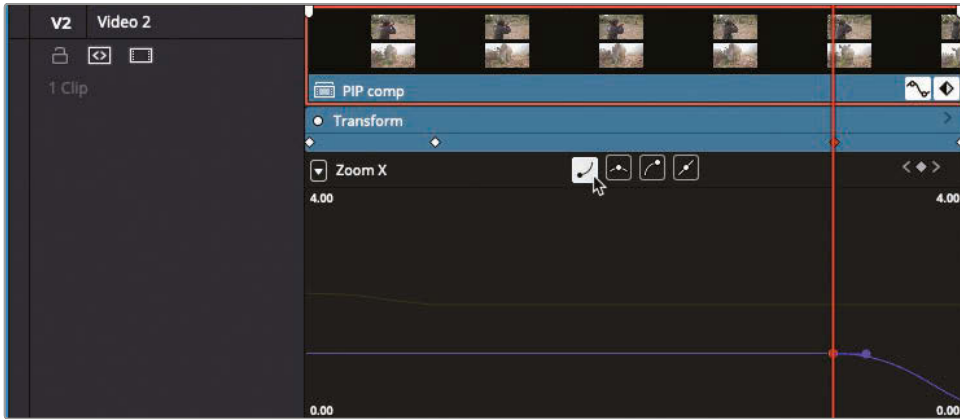


This displays all the Zoom X keyframes in the curve.



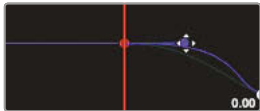
**NOTE** By default, the Zoom X and Zoom Y parameters are linked so that when you adjust one, the other will also adjust to preserve the clip's aspect ratio. You can override this behavior and change the Zoom X and Zoom Y parameters separately by clicking on the Link icon between the Zoom parameter fields in the Video Inspector.

- 12 Click on the first of the Zoom X keyframes.
- 13 Click the Ease Out button above the curve.



Bézier handles appear on the right side of the keyframe. You can use these to adjust the speed of the animation's start.

- 14 Drag the Bézier handle to the right to slow the start of the animation.

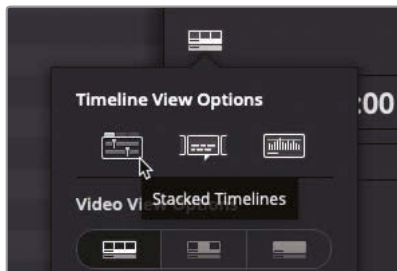


- 15 When you are satisfied with the result, click the buttons to hide the animation curve and keyframe track and press Shift-` (grave accent) to turn off the onscreen transform controls.

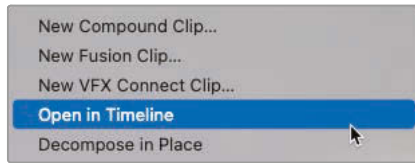
## Opening a Compound Clip

Utilizing compound clips makes it easier to apply effects and animations to all the clips contained within that compound clip. However, to change any of the components of a compound clip, you must open it in its own timeline.

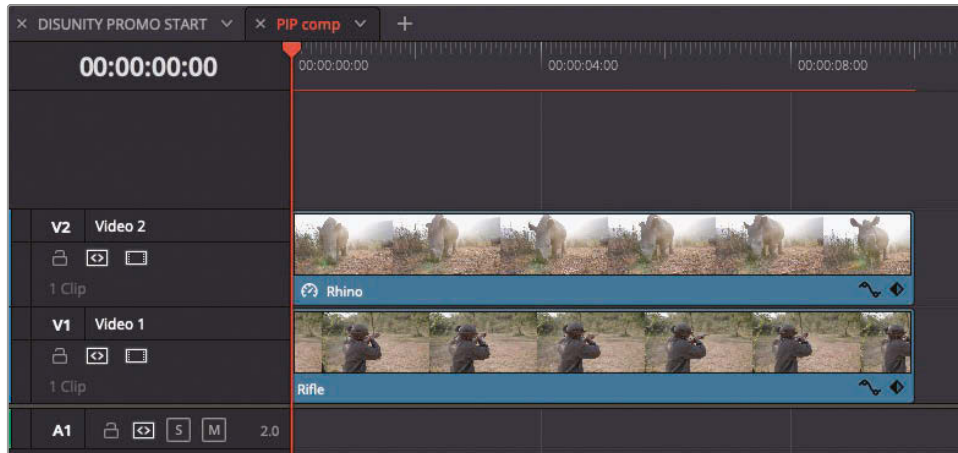
- 1 In the Timeline Layout menu, enable Stacked Timelines.



- 2 Choose Clip > Open in Timeline.



Selecting Open in Timeline for a compound clip displays the contents of the compound clip in the timeline panel.



- 3 In the timeline, select the **Rifle** clip.

This shot has a bit of a shaky handheld camera style that you would like to reduce.

- 4 Click the Video tab in the Inspector and click the Stabilization header to display the stabilization controls.
- 5 Click the Camera Lock checkbox, and then click the Stabilize button.



**NOTE** With the Camera Lock option enabled, Resolve will attempt to remove all movement from the shot. However, this does not mean that you never need to use a tripod when filming!

After the brief analysis, you can play the results.

- 6 Play the clip to see the results.

To refresh your memory of the original shot, you can turn off the stabilization.

- 7 Click the red switch to the left of the name to disable the stabilization, and then play the clip. Re-enable stabilization when done reviewing.

Now that you've stabilized the **Rifle** clip, you can try to remove the camera movement in the **Rhino** clip.

- 8 Select the **Rhino** clip in the timeline, and in the Video Inspector, open the Stabilize controls and click Stabilize.

**TIP** You can use this clip to practice working with the Stabilization in DaVinci Resolve. Try using some of the options you've been exploring in this lesson to see what results you can achieve. To reset the stabilization controls, simply click the Reset button in the top right of the control.

With the stabilizations completed, it's time to return to the full timeline.

- 9 Close the compound clip timeline tab.



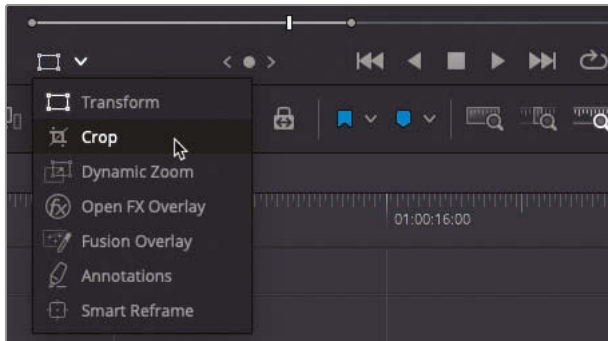
**NOTE** If you did not enable stacked timelines, you can still return to the **01\_Start timeline** by double-clicking its name in the path control in the lower-left corner of the compound clip's timeline.

Because the compound clip in the timeline has changed, the associated compound clip in the bin and used in the **01\_Start timeline** was also updated. Compound clips saved to a bin have a live link to the compound clip edited in the timeline, therefore inheriting all the same changes.

# Cropping the Interview

Rather than simply having the interview clip as a background, the director wants the interview to appear as a picture-in-picture to the left of the two smaller clips. To achieve this, you will use the cropping options available in DaVinci Resolve. You will begin by cropping the image to the correct size.

- 1 Select the interview clip in the timeline, and in the timeline viewer onscreen controls pop-up, select Crop.



The handles of the bounding box around the selected clip in the timeline viewer now allow you to crop the sides of the clip.

- 2 Drag the handle on the right edge of the onscreen controls to the left to just beyond the left side of the **Rifle** and **Rhino** clips.



- Using the bottom middle handle, crop the bottom of the **Interview** clip so it is aligned with the bottom of the **Rhino** clip.



**TIP** To make sure the two edges are aligned correctly, it's useful to zoom in closer in the timeline viewer. Position your mouse pointer over the timeline viewer and use the scroll wheel to zoom in and the middle mouse button to pan around so you can clearly see if the edges are aligned properly. When you're finished, press Z to quickly reset the timeline viewer zoom.

- Repeat with the top edge of the **Interview** clip, cropping it in line with the top of the **Rifle** clip.
- Finally, crop the left side of the Interview clip so it is inside the inner title safe area.





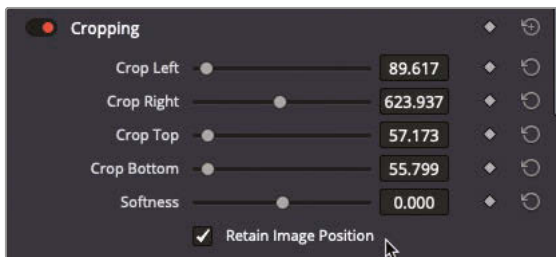
## Retaining Cropped Image Position

Unfortunately, although the cropping fits well with the overall composition, the cropped image itself isn't best framed within the crop.

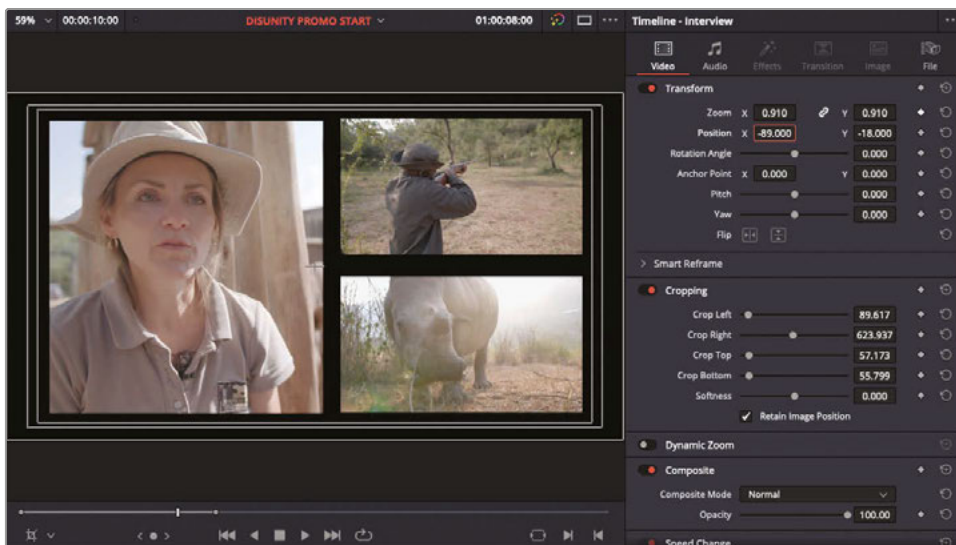
- 1 With the **Interview** clip still selected in the timeline, locate the Cropping controls in the Video Inspector.

**TIP** You can use the sliders for Crop Left, Right, Top, Bottom and softness to refine your cropping precisely.

- 2 In the Cropping controls of the Video Inspector, click the checkbox to Retain Image Position.



- 3 In the Transform controls of the Video Inspector, use the Zoom and Position parameters to reframe the interviewee within the cropped area.



**TIP** You may find it useful to turn off the onscreen controls by pressing Shift-` (grave accent) to see how your changes are affecting the image in the timeline viewer. Alternatively, you can turn on the transform onscreen controls to enable you to drag the image around within the cropped area directly in the timeline viewer.

The Retain Image Position option overrides the default order of when the cropping is applied to the image. The normal order of operations will apply the Transform settings to the clip *before* applying the crop, even if the Transform controls were adjusted after the crop; the result being you would have to position the image first, and then crop to achieve the result you want. Using the Retain Image Position option means that the cropping is applied to the clip first, before the Transform settings, resulting in an easier way to achieve the desired composite.

## Creating an Animated Background

Now that you have the images positioned onscreen, it's time to fill the rather uninspired blank background. For this, you will use and adjust one of the default Fusion Generators, and to start you will explore the controls by editing the generator into a new timeline, before copying it to the main timeline.

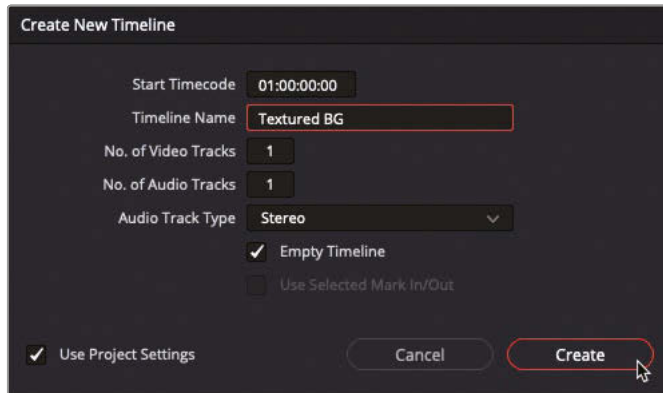
- 1 In the media pool, select the Master bin and press Shift-Command-N (macOS) or Shift-Ctrl-N (Windows) or choose File > New Bin to add a bin.
- 2 Highlight the New Bin name and type **Textured Background** to rename the bin.



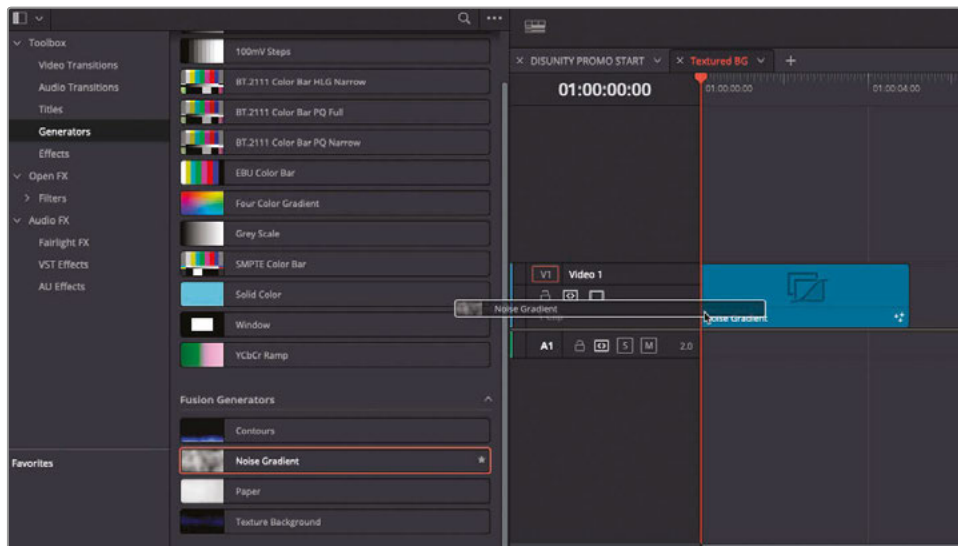
You will place the elements you'll work on in the next few steps in their own bin to keep the project organized.

- 3 With the Textured Background bin selected, press Command-N (macOS) or Ctrl-N (Windows) or choose File > New Timeline to create a new Timeline.

- 4 In the New Timeline dialog, type **Textured BG** in the Timeline Name box and click Create.

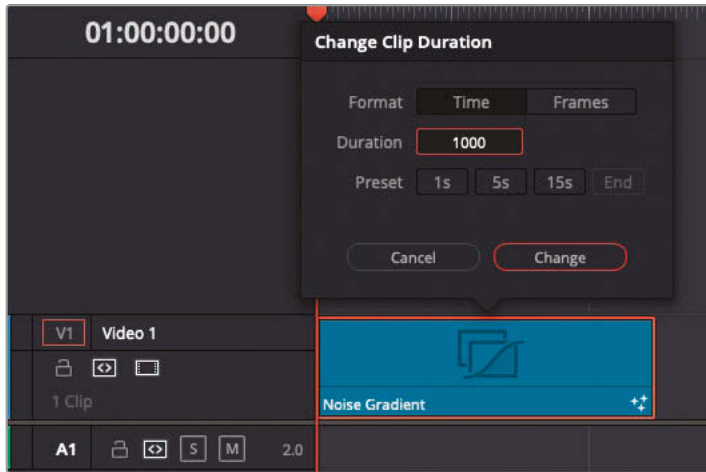


- 5 Open the Effects Library, select the Generators category, and scroll to the bottom to see the default Fusion Generators.
- 6 Select the Noise Gradient generator and edit it into the new timeline.

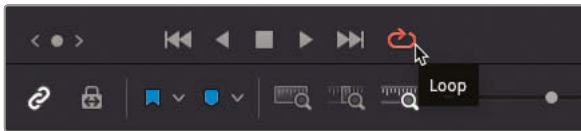


**TIP** You can use drag and drop editing techniques to edit generators and titles into the timeline. Alternatively, you can drag a generator from the Effects Library panel directly to the timeline viewer and use the standard editing functions of Overwrite, Insert, etc., together with timeline In and Out points for effective three-point editing.

- 7 Right-click the generator in your timeline and choose Change Clip Duration or press Command-D (macOS) or Ctrl-D (Windows).
- 8 Change the Duration to 10:00 and click Change.



- 9 In the timeline viewer, click the Loop Playback button or press Command-/ (macOS) or Ctrl-/ (Windows) and then start playback.



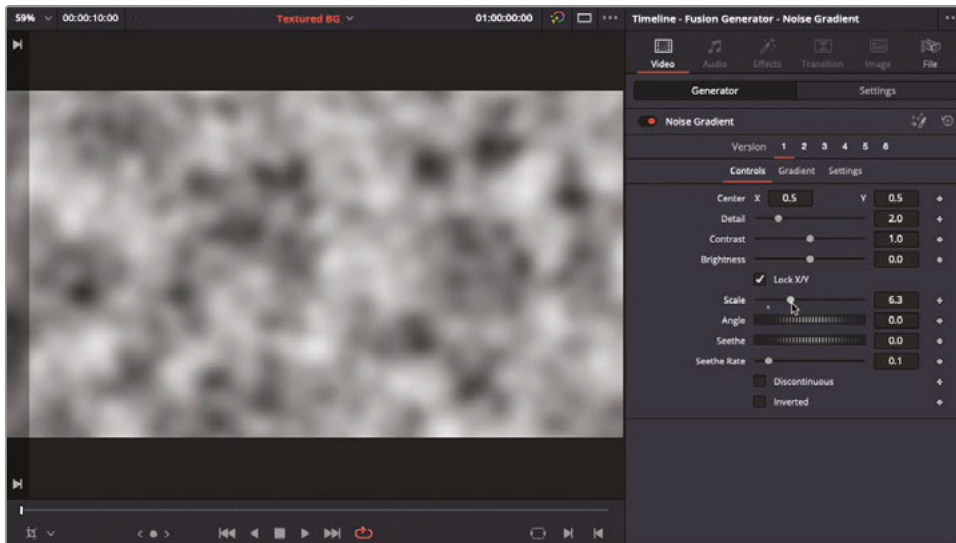
The timeline begins to play, and when the playhead reaches the end it automatically returns to the beginning to loop the timeline.

- 10 If necessary, open the Inspector to reveal the Generator controls in the Video tab.



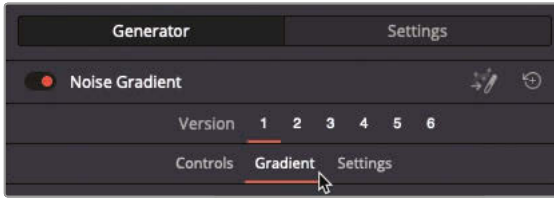
These controls are the same controls you would see in the Fusion page. You will use them to create a custom background for your picture-in-picture composite you've been working on. First, you need a little more texture to play with.

- 11 In the Inspector, increase the Scale parameter to 6.



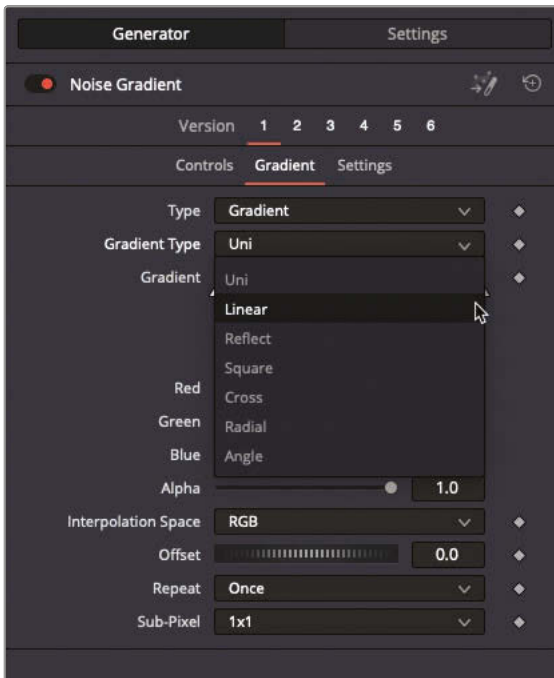
The amount of noise is increased.

- 12 Select the Gradient tab in the Generator Inspector.

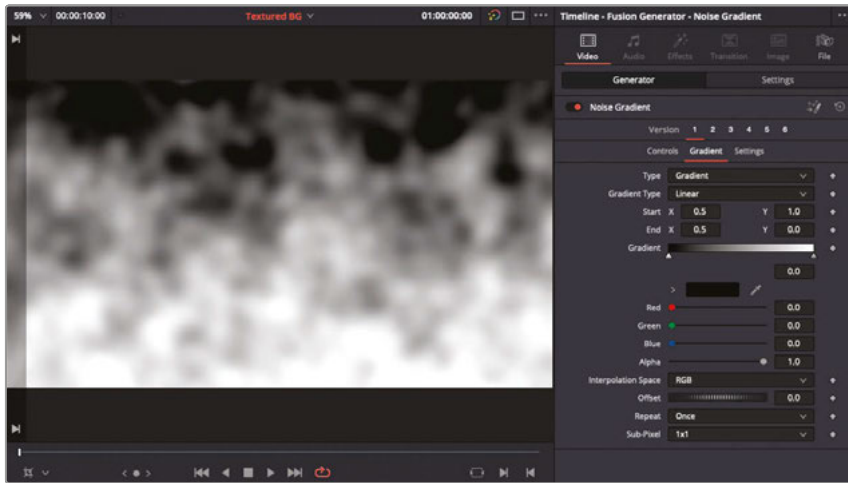


This is where you can change the properties of the simple back-and-white gradient being used for the Noise Generator by default.

- 13 Change the Gradient Type to Linear.



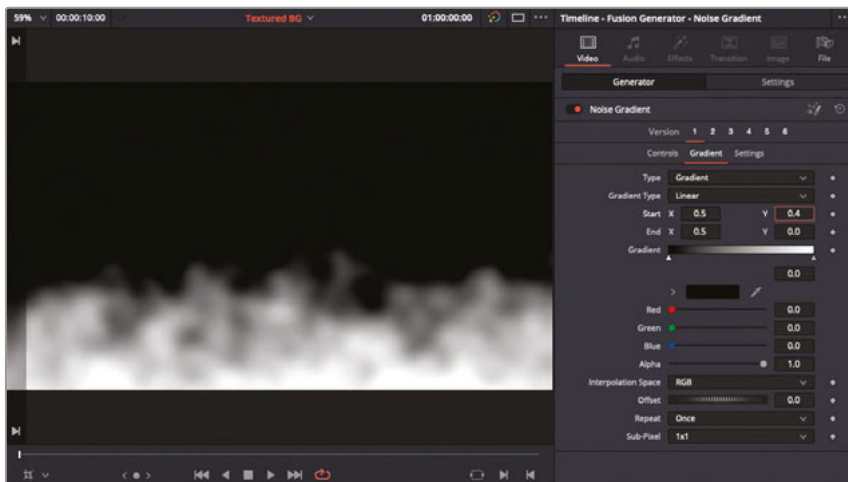
The Gradient now starts at the top of the timeline viewer and progresses down vertically to the bottom. Notice how there is more black at the top of the timeline viewer and white at the bottom. This is reflected by the Gradient color controls in the Inspector.



**NOTE** The start and end values for the gradient don't use the usual X and Y coordinate system typical of the edit page. This is because these values of 0 to 1 are used by Fusion, so they can be applied uniformly no matter what resolution you're working at.

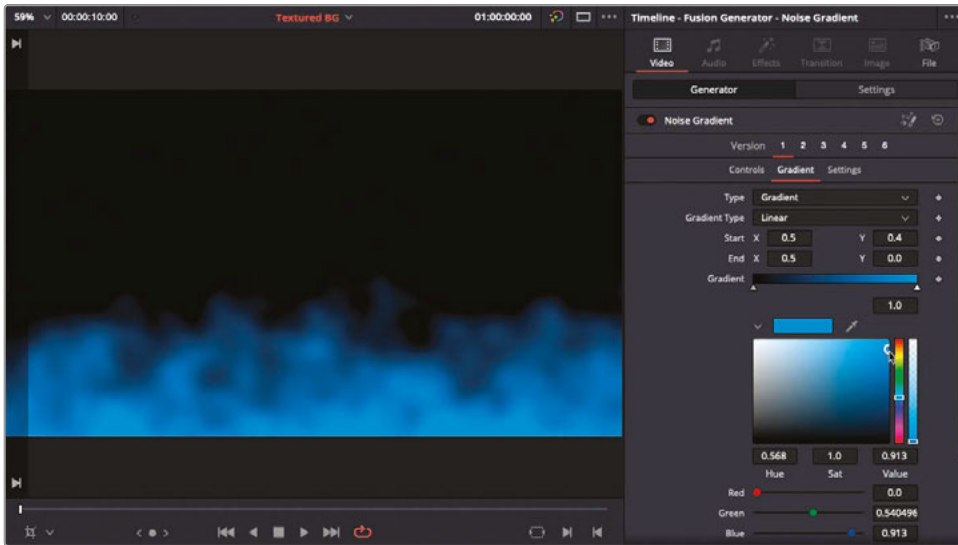
Therefore, if Start X is 0, it means that the start point is located at the left edge of the timeline viewer; if Start X is 1, it means it is at the right edge of the timeline viewer. Similarly, a 0 value for Y places the point at the top of the viewer, and 1 is at the bottom of the viewer.

- 14 Click and drag the Start Y parameter value to the left until it's about 0.4.



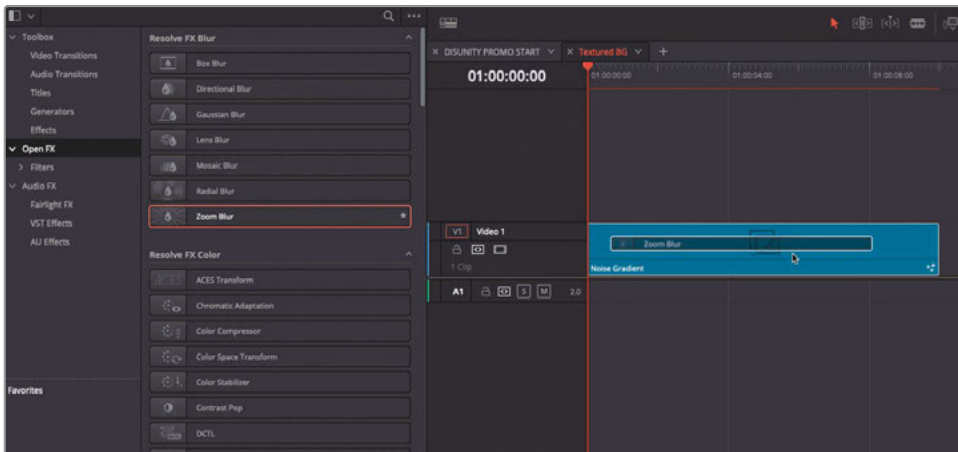
Now it's time to add a little color to the noise.

- 15 Click the triangle on the right side of the Gradient color bar, and then click the disclosure arrow next to the color box and use the hue and color swatch to select a bright blue color.



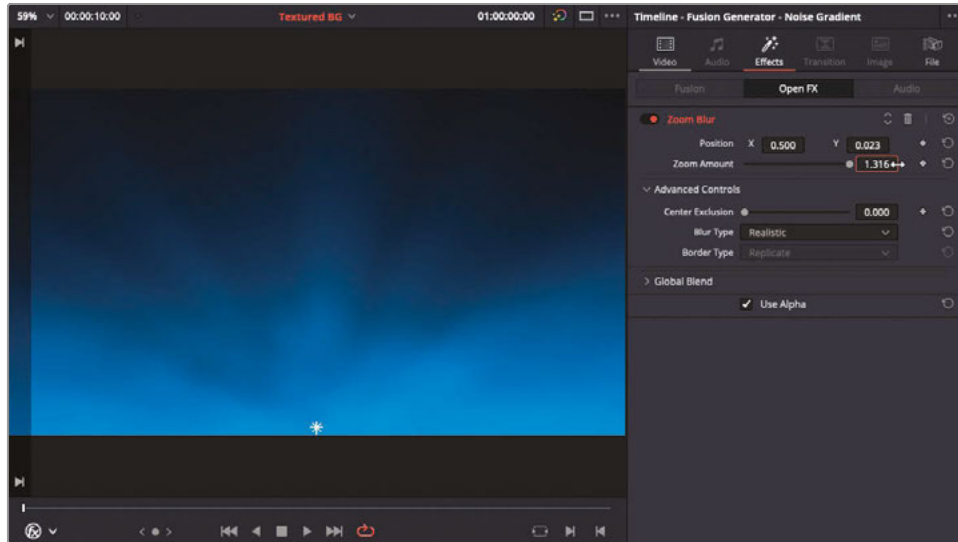
The generator now looks like a swirling, low lying fog.

- 16 In the Effects Library, select the OpenFX group from the sidebar and locate the ResolveFX Blur category (located near the top of the Effects Library's OpenFX filters). Drag the Zoom Blur filter to the Noise Generator in your timeline.





- 17 Click the Effects tab of the Inspector to reveal the Zoom Blur controls and change Position Y to 0.02 and the Zoom Amount to 1.3.

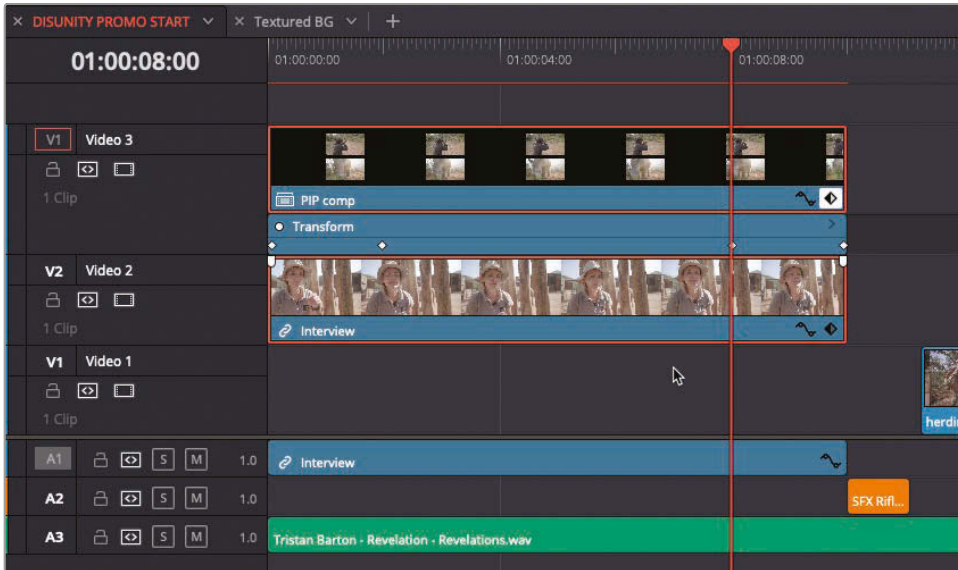


**TIP** Even though the Zoom Amount slider only allows you to increase the parameter to 1.0, you can increase it further by clicking and dragging in the value field. Or you can type a value in manually by highlighting the value field.

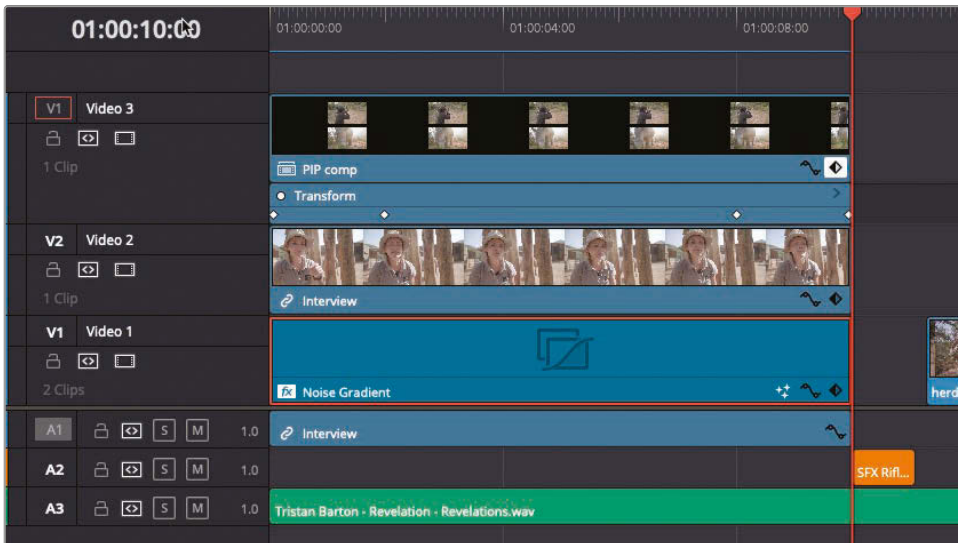
Now your Noise Generator is looking much more appropriate as a background texture, as it now looks like the fog is lit from below. You now need to simply copy and paste it into the correct timeline.

- 18 Select the Noise Generator in the timeline and press Command-C (macOS) or Ctrl-C (Windows) to copy the clip, then, using the timeline viewer pop-up menu, select the previous timeline you were working on, **DISUNITY PROMO START**.
- 19 If necessary, disable Linked Selection in the timeline by pressing Shift-Command-L (macOS) or Shift-Ctrl-L (Windows) and select the **Interview** and **PIP Comp** clips.

- 20 Press Option-Up Arrow (macOS) or Alt-Up Arrow (Windows) to move the selected clips up one video track.



- 21 Return the playhead to the start of the timeline and press Command-V (macOS) or Ctrl-V (Windows) to paste overwrite the copied generator into place on V1. The generator should be the correct length, but if necessary, trim it to the correct duration of the **Interview** clip.



- 22 Press Shift-Command-L (macOS) or Shift-Ctrl-L (Windows) to re-enable Linked Selection and turn off Loop in the timeline viewer.



Using the Noise Generator for a background in this manner is just one of the almost limitless possibilities you have for creating these types of textured backgrounds in DaVinci Resolve. Feel free to revisit some of the generator's controls in the Inspector to see how you can adjust the animation further.

## Adding Effects to a Compound Clip

The opening composite is working quite well but adding a slight fade to the clips on the right and a soft drop shadow to all three picture-in-picture clips will add a nice finishing touch.

As compound clips act and function just like a regular clip, you can add transitions and ResolveFX to a compound clip just as you would to any other clip. This is especially useful, as it saves you having to add multiple instances of an effect to each of the clips individually.

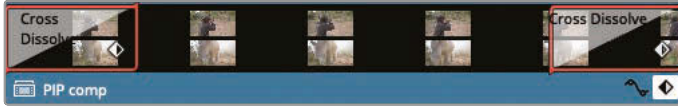
- 1 Select the **PIP Comp** compound clip in the timeline.  
You'll add a fade-in and a fade-out to this compound clip in one go.
- 2 Choose Timeline > Add Transition or press Command-T (macOS) or Ctrl-T (Windows).



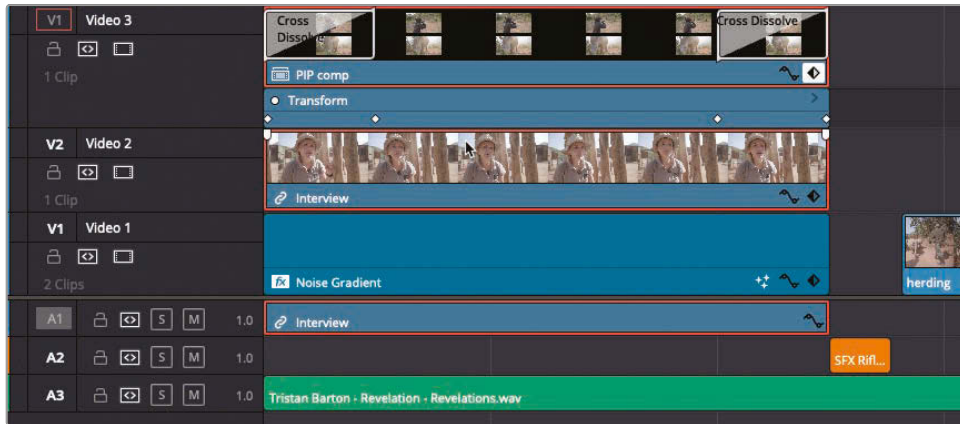
The cross-fades are added to both ends of the compound clip.

- 3 Command-click (macOS) or Ctrl-Click (Windows) both transitions in the timeline to select them and press Command-D (macOS) or Ctrl-D (Windows).
- 4 In the Change Transition Duration window, type **200** in the Duration field and click Change.

Both transitions change to the new duration of 2 seconds.

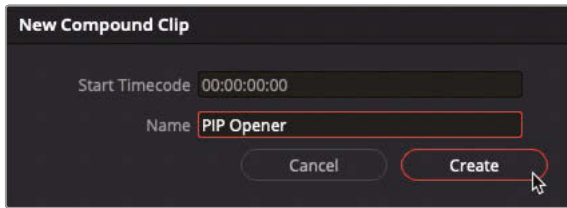


- 5 Move the playhead to the start of the timeline and play the results.  
Now you will add the final flourish of a drop shadow to all three clips using yet another compound clip and an OpenFX filter.
- 6 Select the **PIP Comp** and **Interview** clips in the timeline and choose Clip > New Compound Clip or right-click the selected clips and choose New Compound Clip.

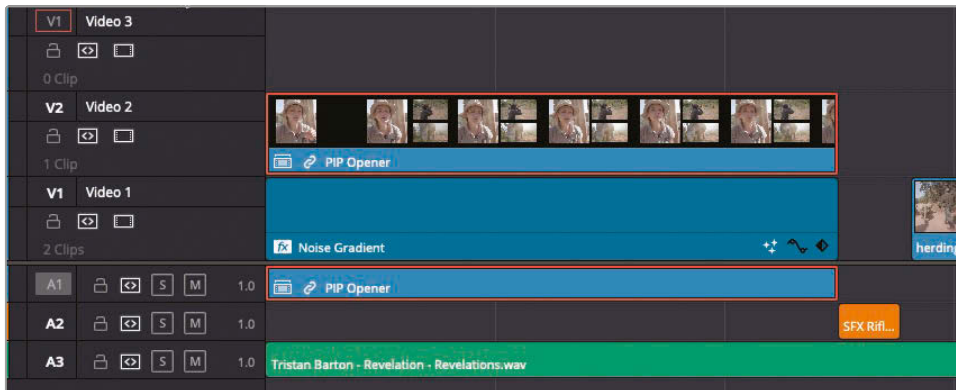


**NOTE** While there is no limit to the number of times you can nest compound clips inside other compound clips, it is all too easy to fall into a compound clip “rabbit hole,” similar to what happens in the film *Inception*. It’s always a good idea to name your compound clips correctly to prevent you becoming confused as to which level you’re working at.

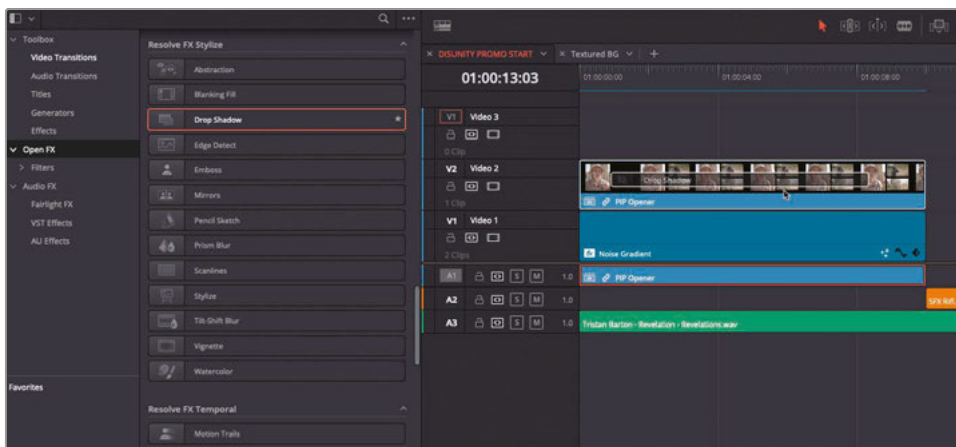
- In the Name field, type **PIP Opener** and click Create.



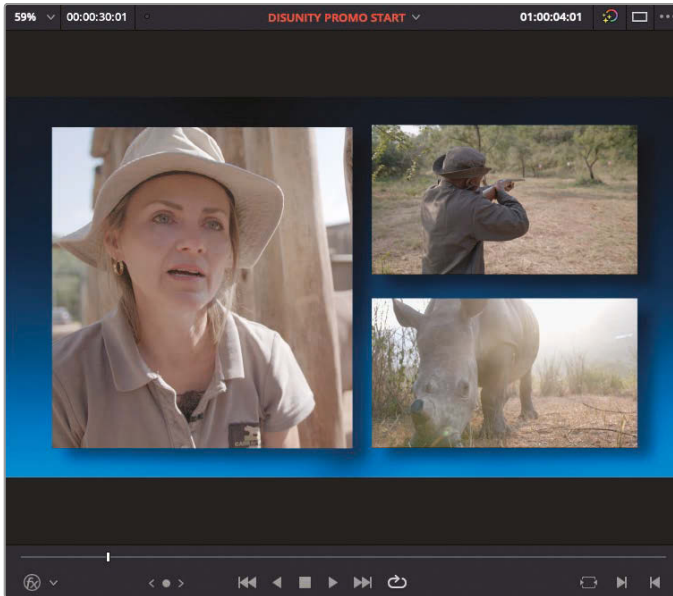
The new compound clip is added to the timeline and the currently selected bin in the media pool.



- In the sidebar of the Effects Library panel, select OpenFX and scroll down to the ResolveFX Stylize category.
- From the Effects Library, drag the Drop Shadow effect to the compound clip in the timeline.



- 10 In the Effects tab in the Inspector, increase the Shadow Strength to about 0.7, decrease Drop Distance to about 0.02, and decrease Blur to 0.3.



All three picture-in-picture clips now have a noticeable, uniform drop shadow applied that helps them stand out from the background. More to the point, it's easy to make any changes to the drop shadows at any point; it's just one set of controls, on one filter, applied to one compound clip.

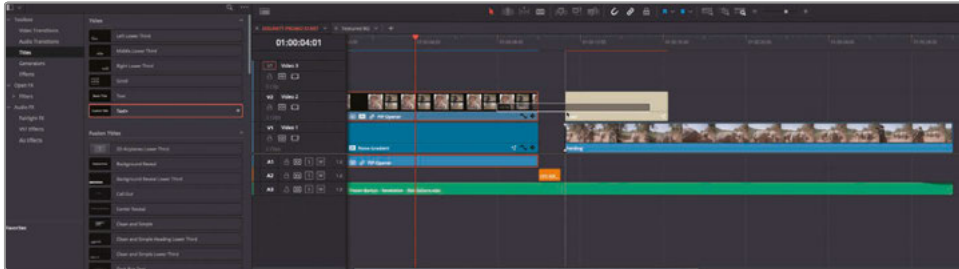
## Working with Traveling Mattes

Working with masks and mattes to combine multiple images into a single image has always been a staple of photography and filmmaking. These days, compositors and effects artists often use *traveling mattes* in compositing software in much the same way. The term *traveling matte* refers to a matte that changes over time. While previous versions of DaVinci Resolve have had the ability to composite images in this manner in either the Color or Fusion pages, DaVinci Resolve 17 now allows you to achieve the same results in the edit page using externally or internally generated elements that can be used as the matte.

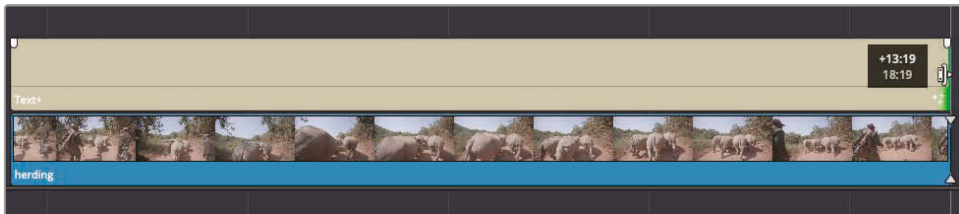
**NOTE** In the following example, you will use a Text+ generator to create the traveling matte; however, you can also generate the necessary mattes using other third-party graphics or animation tools. A simple black-and-white image is suitable if you want to use the luma composite mode, or an image file that supports an alpha layer, such as TGA, TIFF or PNG, if you want to use the alpha composite mode.

To start, you will create a simple text element using the Text+ generator.

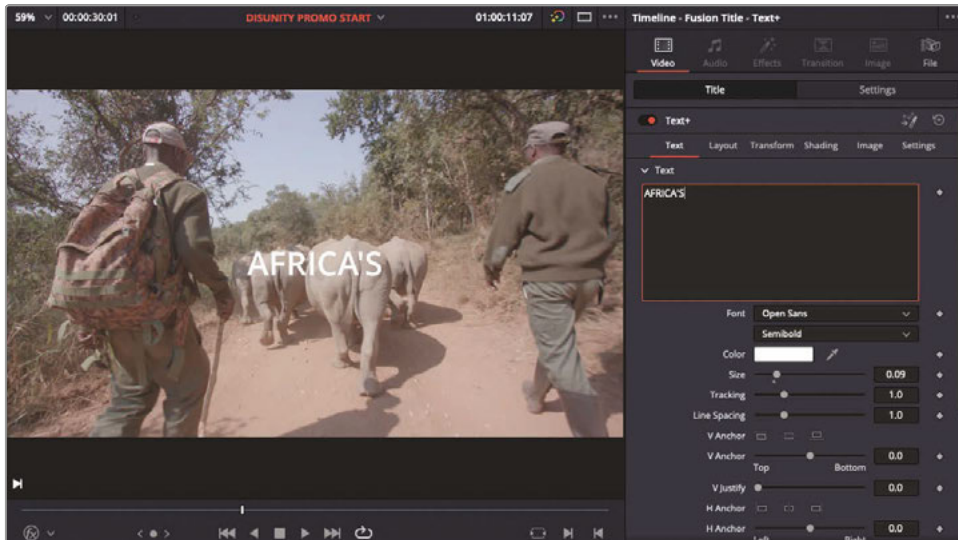
- 1 From the Effects Library, select Titles in the sidebar and select the Text+ title.
- 2 Drag the Text+ from the Effects Library to the V2 track above the **herding** clip, using the orange marker at the top of the timeline as a guide.



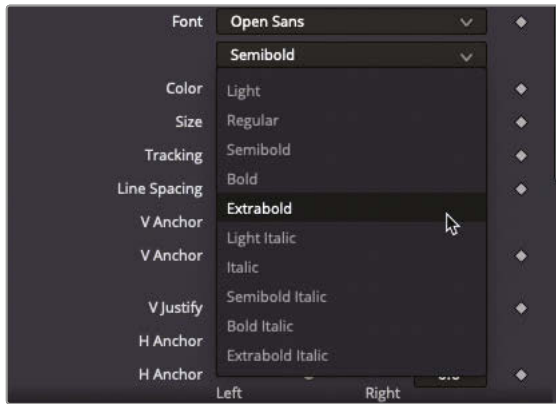
- 3 Trim the Text+ generator clip to the end of the **herding** clip.



- 4 Place your playhead at the start of the Text+ clip.
- 5 In the Inspector, select the Custom Title text in the text box and type **AFRICA'S** in capital letters.



- Keep the font set to Open Sans but change the format to Extrabold.



**TIP** If you click on the font name and scroll through the list of fonts on your system, DaVinci Resolve dynamically updates the text to follow the mouse pointer in the list of fonts. This makes it much easier to select from the multitude of fonts you may have installed on your system.

- Change the Size to about 0.35 (ensuring the text stays within the inner title safe area).



The text needs to fill the screen more.

- At the top of the Text+ Inspector, click the Settings tab. This switches to the familiar Video Inspector controls.



- Click the link icon between the Zoom X and Y controls and change the Y value to 3.0.

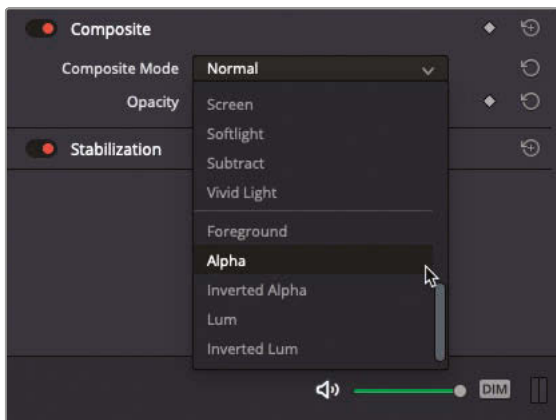


This scales the text vertically, filling the timeline viewer better.

## Changing the Composite Mode

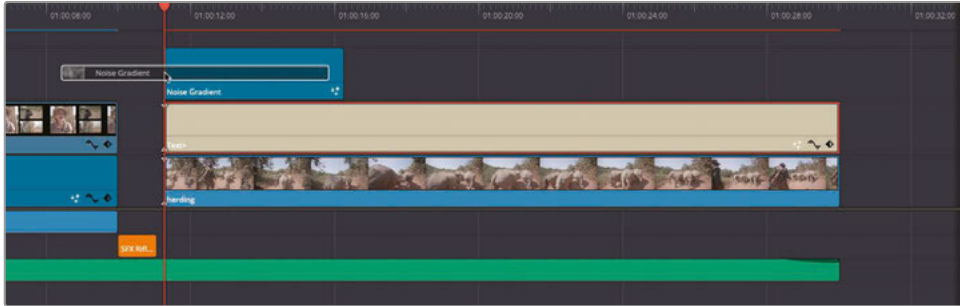
Excellent. This has created the basis of the matte you will use. Now, you will need to tell Resolve that you want to use this to composite with.

- In the Video Inspector for the Text+ generator, scroll down to the Composite controls. Because the Text+ generator contains an alpha channel so that text can be placed above other video clips, you will use that as a starting point.
- In the Composite Mode pop-up menu, scroll to the bottom of the list and select Alpha.

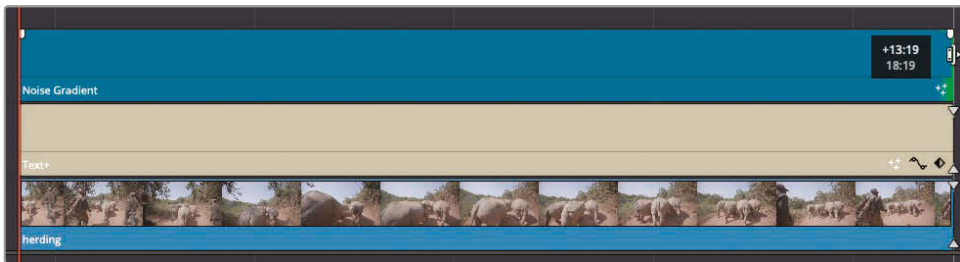


Nothing appears to change. To use the Text+ clip as a matte, you need to edit another clip onto the track above and change its composite mode to foreground. For this example, you will create another texture using the Noise Generator.

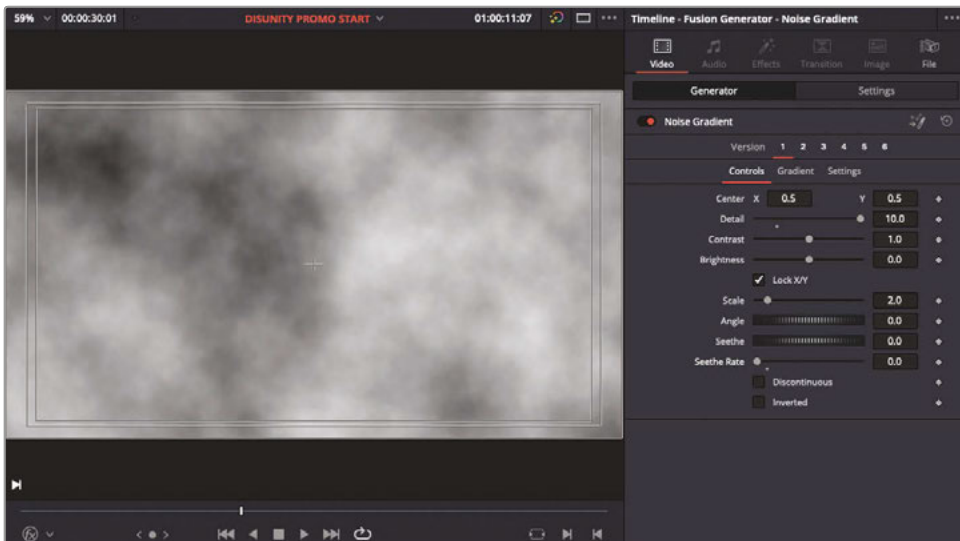
- From the Generators category in the Effects Library, drag the Noise Gradient generator to the Video 3 track, starting at the beginning of the Text+ title.



- Trim the Noise Gradient to the same length as the Text+ title.



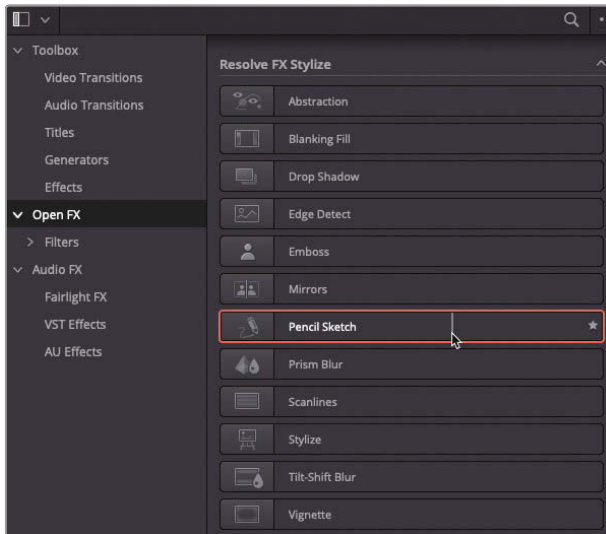
- In the Generator controls of the Video Inspector, change Detail to 10.0 and Seethe Rate to 0.0.



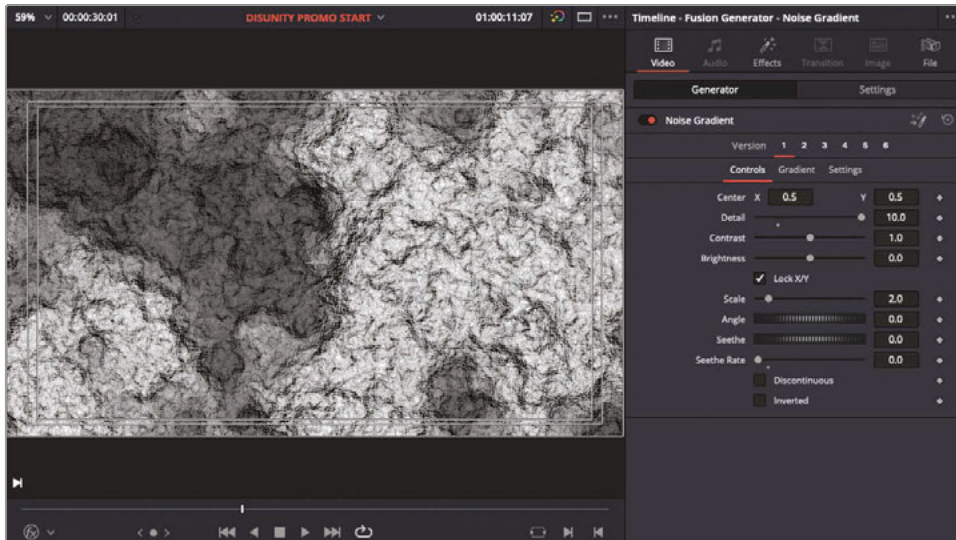
Increasing the Detail adds more noise to the generator. The Seethe Rate controls how fast the noise moves; with a Seethe Rate of 0, you've just created a noise generator that doesn't seethe (move).

We want this noise generator to be a bit more stylized, however. You will achieve this with an OpenFX filter.

- 6 In the Effects Library, select the OpenFX category in the sidebar and scroll down to the ResolveFX Stylize group.

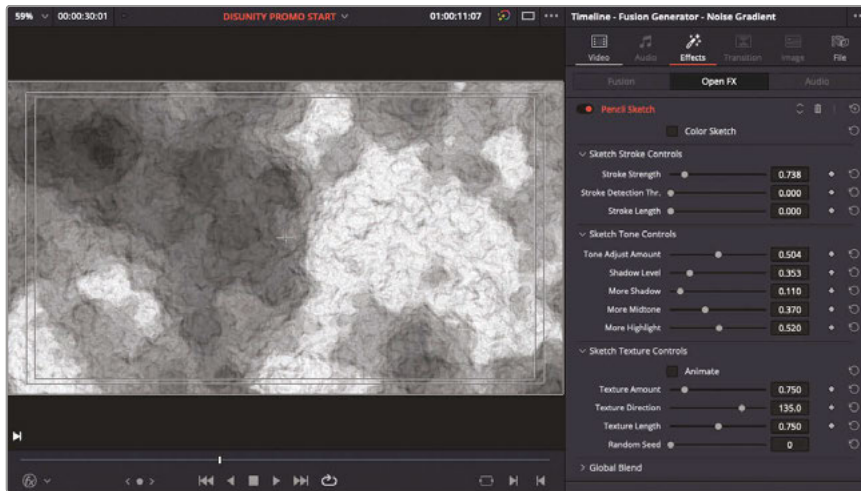


- 7 Drag the Pencil Sketch filter to the **Noise Generator** clip on V3.



This dramatically changes the look of the **Noise Generator** clip!

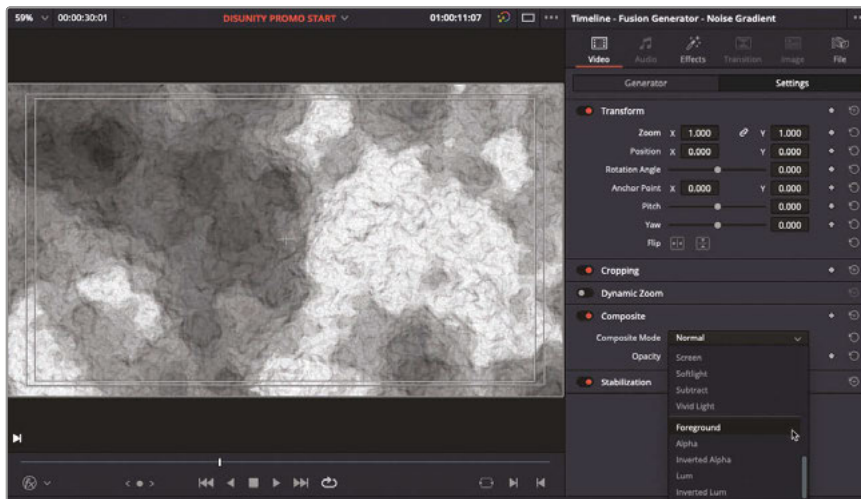
- 8 Click on the Effects Inspector to access the Pencil Sketch controls. Reduce Stroke Strength to about 0.7, Stroke Length to 0, and reduce the Tone Adjust Amount to 0.5. The above values reduce the harshness of the overall Pencil Sketch filter.
- 9 Finally, to disable any inadvertent animation, deselect the Animate checkbox in the Sketch Texture Controls.



The Noise Generator now resembles something a little more like a rocky surface.

You will now tell Resolve you wish to composite this using the Text+ generator you have already specified as being the matte.

- 10 Switch to the Video Inspector for the Noise Generator and select the Settings tab.
- 11 In the Composite controls, click the Composite Mode pop-up menu, scroll to the bottom of the list, and select Foreground.



Awesome! The texture you have created using the Noise Generator appears *inside* the text of the Text+ clip.



**NOTE** If you wanted the generator clip to appear outside the text, you can change the Text+ clip's composite mode to "Inverted Alpha."

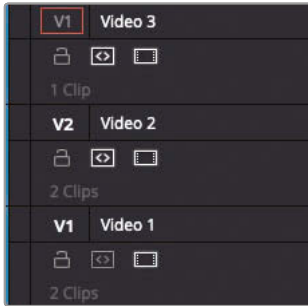
## Changing the Titles

Now that you have created a textured feel to the text, it's time to put the finishing touches on this title. You'll start by adding a couple of edit points to change the titles.

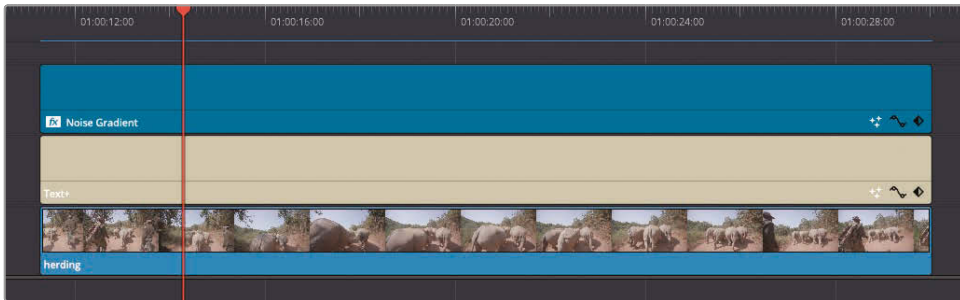
- 1 Shift-click the Auto Select control for any of the audio tracks to disable the Auto Select control for all audio tracks.



- 2 Press Option-F1 (macOS) or Alt-F1 (Windows) to disable the Auto Select for Video 1.

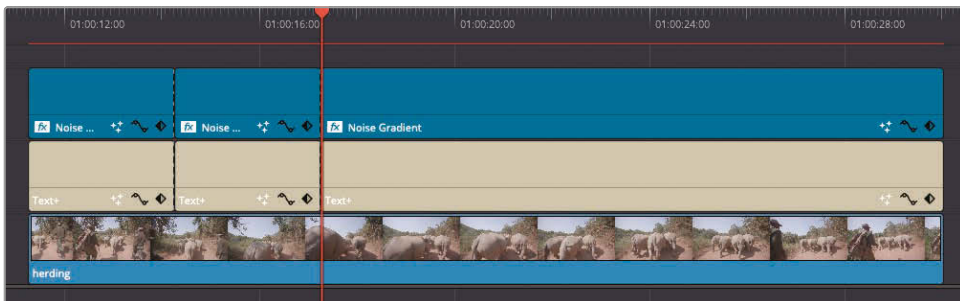


- 3 Position your playhead at the start of the Text+ clip and, ensuring you have nothing selected in the timeline, type **+3.** (plus three period) and press Enter.

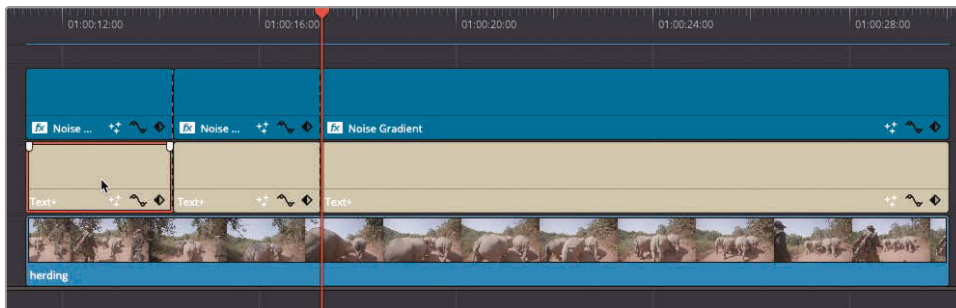


The playhead moves forwards 3 seconds.

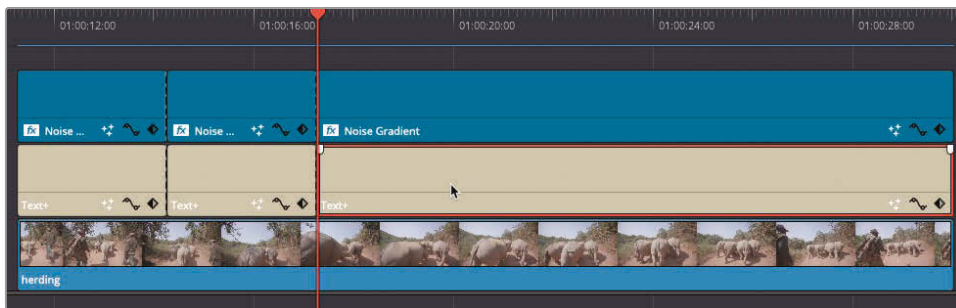
- 4 Press Command-B (macOS) or Ctrl-B (Windows) to add an edit to the clips on the Auto Select-enabled tracks.
- 5 Type **+3.** (plus three period) followed by Enter again to move the playhead forward another 3 seconds and press Command-B (macOS) or Ctrl-B (Windows) again to add a second edit to the Auto Select-enabled tracks.



- 6 Select the first of the three Text+ clips in the timeline, and in the Video Inspector, select the Title, then the Text tab, highlight the word AFRICA'S in the text box, and type **SAVING**.



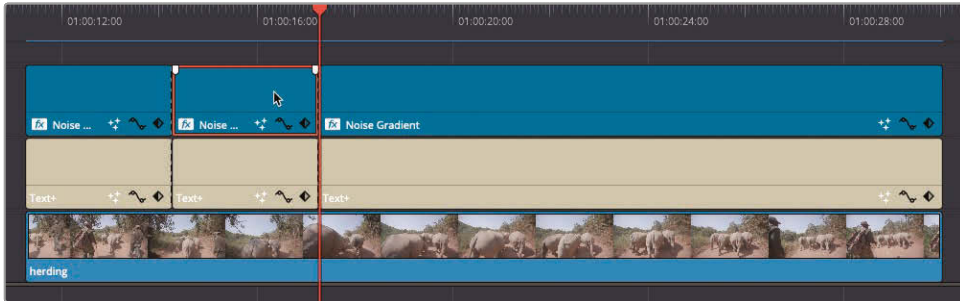
- 7 Select the third Text+ clip in the timeline.



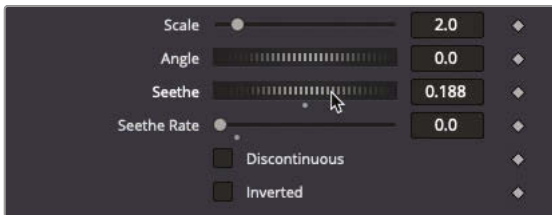
- 8 Highlight AFRICA'S in the text box and type **RHINOS**.



- 9 Select the second Noise Generator clip on Video 3.



- 10 In the Video Inspector, on the Generator controls, adjust the Seethe control to adjust the pattern of the texture. (The value doesn't matter, just as long as it is different to the original value.)

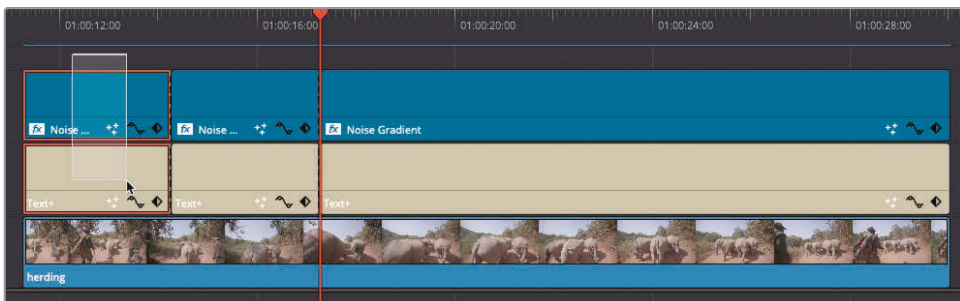


- 11 Select the third and final Noise Generator clip and adjust its Seethe control to adjust its pattern. (Again, the value doesn't matter. Try dragging the control to left for a negative value.)

The matte now changes at the edits to fulfill the director's vision. Feel free to roll the edit points you've just added to adjust the timings of each of the words as you think necessary.

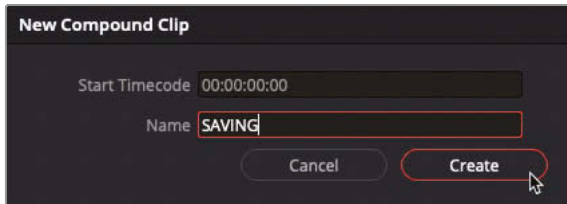
You now have six clips on the timeline, creating three titles. To simplify things in the timeline and make it easier to work with these elements, you will nest each of the titles and their textures into their own compound clip.

- 12 In the timeline, select the first Text+ and Noise Generators and choose Clip > New Compound Clip.



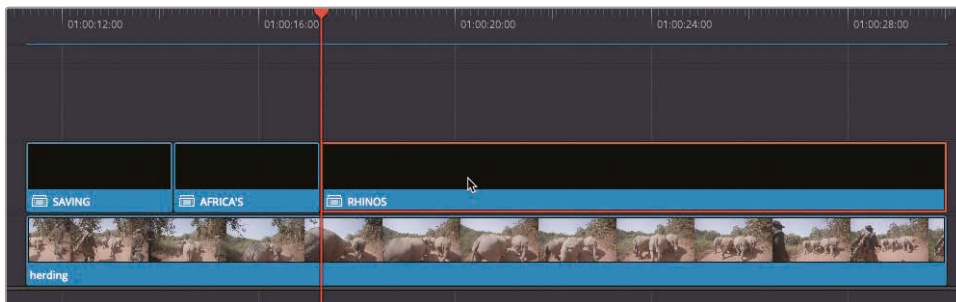


- 13 In the Name field of the New Compound Clip dialog box, type **SAVING** and click Create.



The new compound clip is created and added to the timeline and the currently selected bin.

- 14 Select the next Text + and Noise Generators, and then right-click the selected clips and choose New Compound Clip.
- 15 In the New Compound Clip dialog, rename this new compound clip as **AFRICA'S** and click Create.
- 16 Select the last Text+ and Noise Generator, and then create a final compound clip called **RHINOS**.

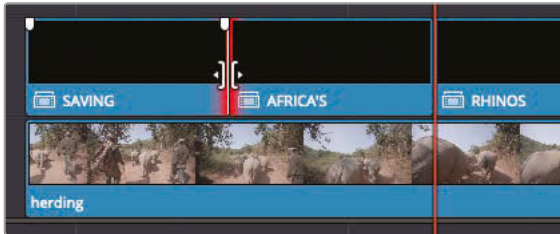


**TIP** While no shortcut exists by default for creating a new compound clip, don't forget you can always create your own using DaVinci Resolve > Keyboard Customization. In fact, if you ever find yourself repeating the same command several times, it's a good opportunity to learn the shortcut or create your own if one doesn't already exist.

## Creating Handles for Transitions

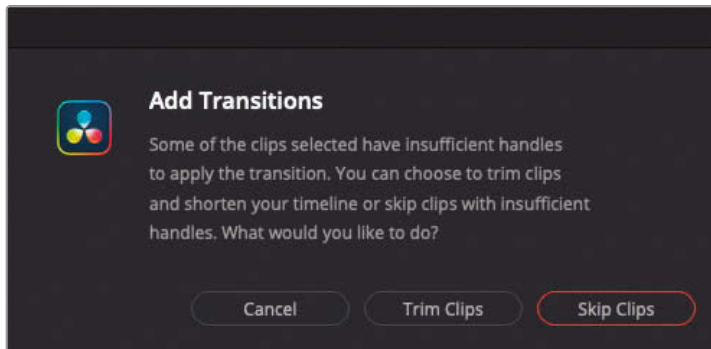
Next, instead of simply cutting between the titles, you'll add some transitions. However, because you have now nested each title into its own compound clip, this limits the clips to the duration of the content of the compound clip.

- 1 Select the edit point between the SAVING and AFRICA'S compound clips.



Notice the red trim indicators on both sides of the edits. As you know, this means there are no *handles* available to create the transition.

- 2 Press Command-T (macOS) or Ctrl-T (Windows) to see what happens when you try to create transitions without appropriate handles.



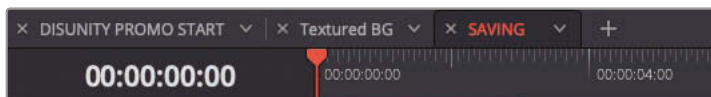
The transition warning appears, confirming that you won't be able to create the transitions without adjusting the duration of the clips.

- 3 Click Cancel.

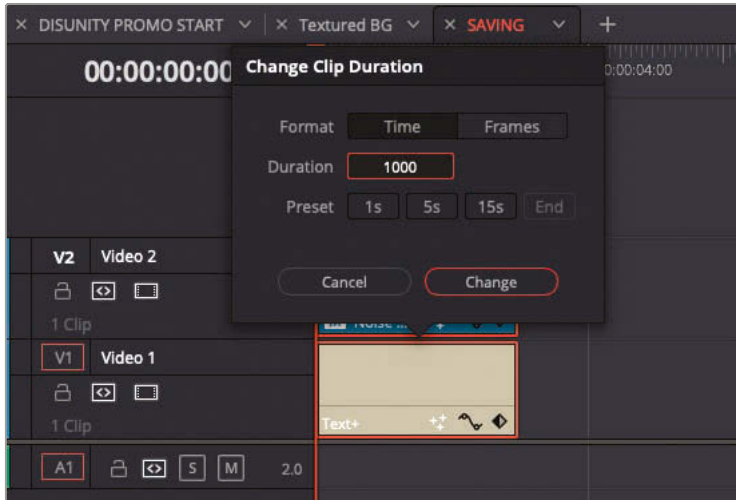
Although the compound clips themselves don't currently have handles, you can cheat by adding more content within the compound clip.

- 4 Right-click the SAVING compound clip in the timeline and choose Open in Timeline.

The SAVING compound clip opens in its own tab.



- 5 Select both generators in this timeline, then press Command-D (macOS) or Ctrl-D (Windows), type **1000** in the Change Clip Duration box, and click Change.

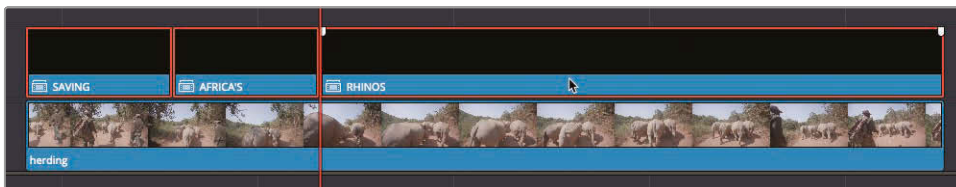


The clips change to 10-second durations.

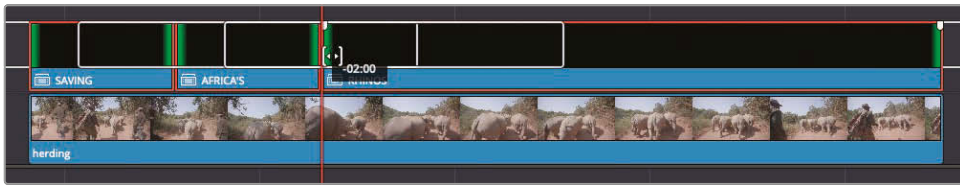
- 6 Select the **DISUNITY PROMO START** timeline tab.
 

Even though you have adjusted the length of the clips inside the compound clip, the compound clip itself hasn't changed duration in the main timeline.
- 7 Right-click the **AFRICA'S** compound clip and choose Open in Timeline.
- 8 In the **AFRICA'S** compound clip timeline, select both clips, press Command-D (macOS) or Ctrl-D (Windows), type **1000** in the Duration box, and click Change.
- 9 Return to the **DISUNITY PROMO START** timeline and repeat the above steps to change the duration of the clips inside the **RHINOS** compound clip to 20 seconds.
 

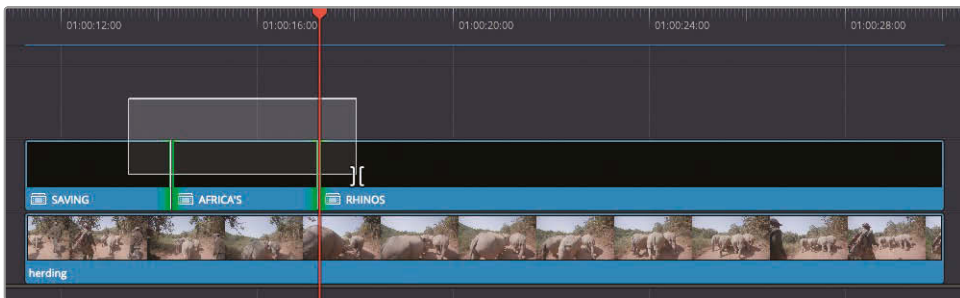
Now that you have added handles to each of the compound clips, you just need to slip the compound clips.
- 10 In the **DISUNITY PROMO START** timeline, select the **SAVING**, **AFRICA'S**, and **RHINOS** compound clips.



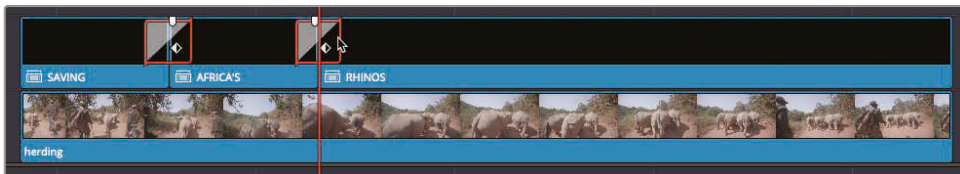
- 11 Press T to enter Trim Edit mode.
- 12 Click and drag left on any of the selected compound clips to slip the clips backward until the tooltip reads -02:00.



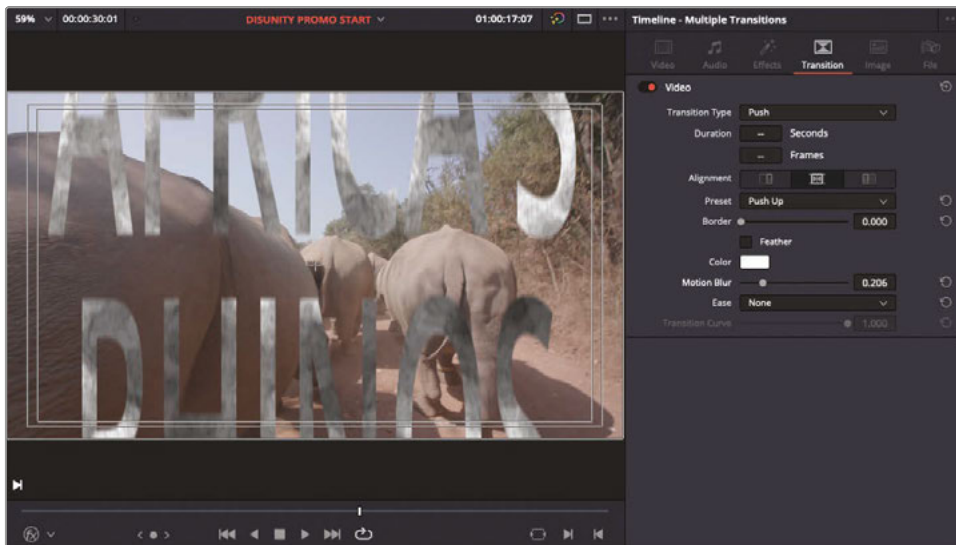
- 13 Still in Trim Edit mode, drag a lasso across the two edit points between the three compound clips.



- 14 Press Command-T (macOS) or Ctrl-T (Windows) to add a standard transition.
- 15 Press A to switch to Selection mode and Command-click (macOS) or Ctrl-click (Windows) to select the two transitions you've just added.



- 16 In the Inspector, change the Transition Type to Push, keep the Duration set to 1.0 seconds, change the Preset to Push Up, adjust the Motion Blur slider to 0.2, and set the Ease menu to In & Out.

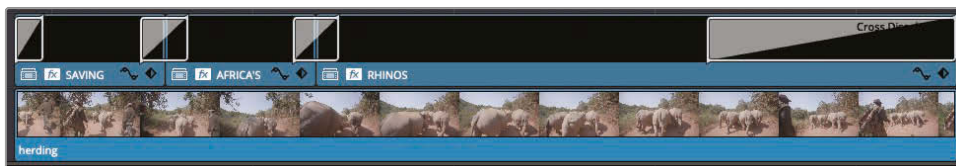


**TIP** Motion blur controls the amount of blur applied in the direction of moving objects and simulates the blurred images captured by film and video cameras at all but the highest shutter speeds.

Play back the results.

Finally, it's time to fade this title sequence in and out.

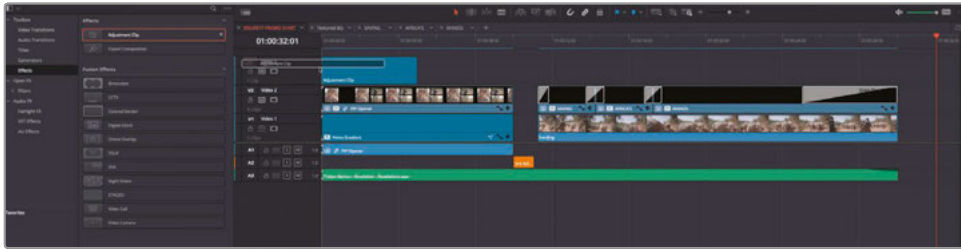
- 17 Add a 15-frame cross dissolve transition to the beginning of the SAVING compound clip.
- 18 Add a 5-second transition to the end of the RHINO compound clip.
- 19 Finally, select all three compound clips and add a Drop Shadow filter from the OpenFX category in the Effects Library.



# Adjustment Clips

Compound clips provide a powerful way to make changes to multiple clips. *Adjustment clips* are another method. Using an adjustment clip, you can apply effects to multiple clips in the timeline without collapsing them into a compound clip. The adjustment clip does not include any content of its own. When you edit it onto a timeline track, any effects or adjustments applied to the adjustment clip are passed on to all clips located on the timeline tracks beneath it.

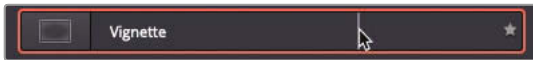
- 1 In the Effects Library, from the Effects category, drag the adjustment clip to the start of the timeline on Video 3.



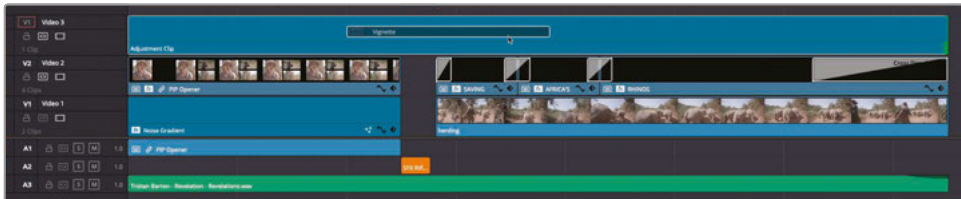
- 2 Trim the end of the adjustment clip until it covers all the clips in the timeline.



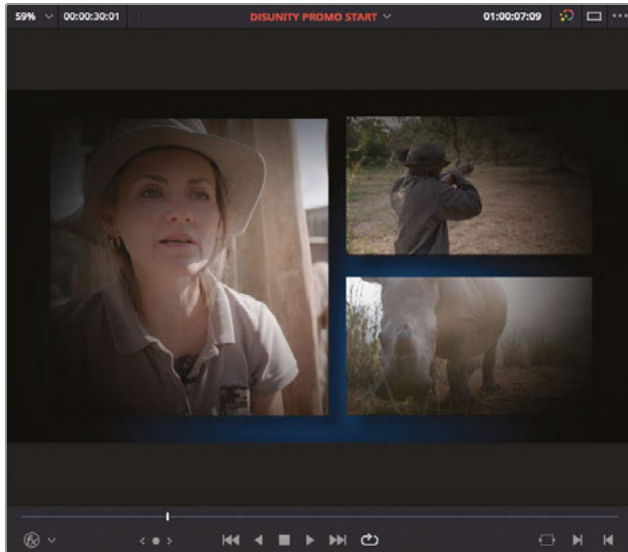
- 3 In the Effects Library, select OpenFX and scroll to the ResolveFX Stylize category.



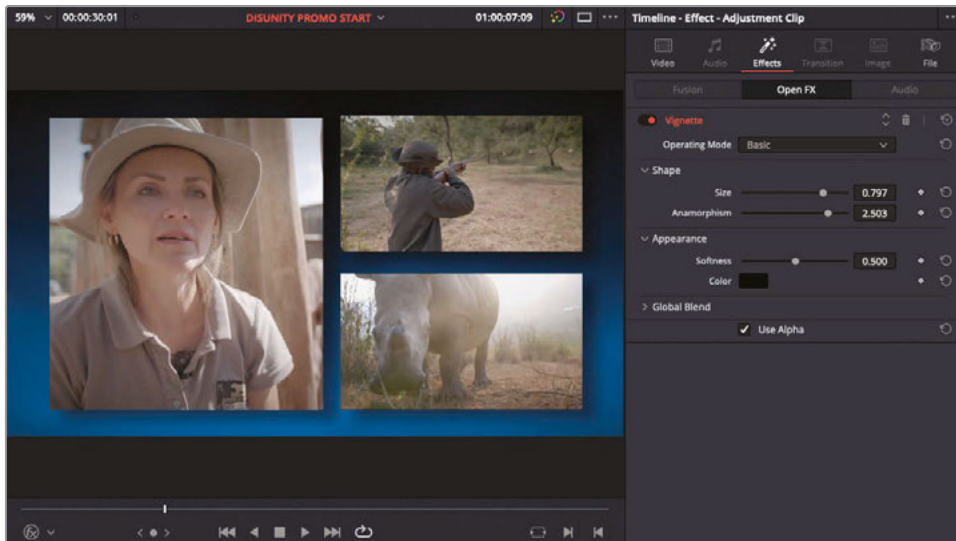
- 4 Drag the Vignette filter from the Effects Library onto the adjustment clip in the timeline.



The vignette adds a customizable dark shading around the edges of the frame that suggests lens imperfections.



- 5 Select the adjustment clip and click the Effects Inspector to view the vignette controls.
- 6 Change the Softness to 0.0 to see the shape of the vignette.
- 7 Increase the size to around 0.8 and the anamorphism to 2.5 so the vignette is not as pronounced around the frame.
- 8 Reset the Softness control to its starting value of 0.5.



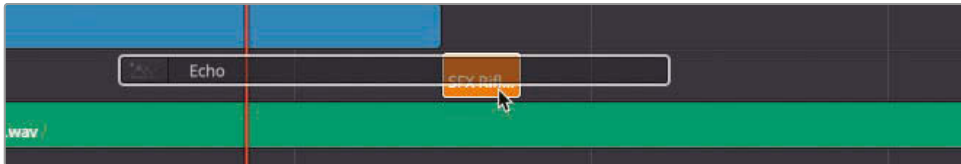
The effect applies to all the clips on tracks below the adjustment clip.

If you are unsure about any of the changes made on an adjustment clip, disabling the clip or muting the track the adjustment clip is on displays the original clips again.

## Using FairlightFX in the Edit Page

As well as a plethora of visual effects, DaVinci Resolve also includes a suite of audio effects that you can use to enhance your audio. In a later lesson, you will explore the power of the Fairlight page, which enables you to perform professional digital audio mixing and sound design. First, though, you will discover how the FairlightFX can be used in the edit page to enhance the gunshot sound effect on Audio track 3.

- 1 In the Effects Library, select the FairlightFX category and drag the Echo effect onto the **SFX Rifle Shot 02.wav** clip on Audio 3.



As soon as you apply the effect to the audio clip, the Echo window opens and displays controls for customizing the effect.



It would be a dramatic point in this promo if you made the rifle shot echo a few times as the herding clip comes onscreen.



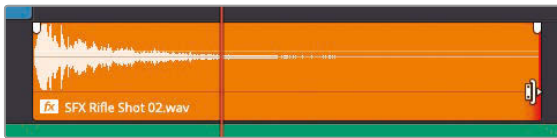
- Lower the Delay to 0, the Feedback to 50, and the Wet/Dry to 100.



- Click in the upper-left corner of the Echo window to close it.
- Play the **SFX Rifle Shot 02.wav** clip in the timeline to hear the echo effect you added to the rifle sound.

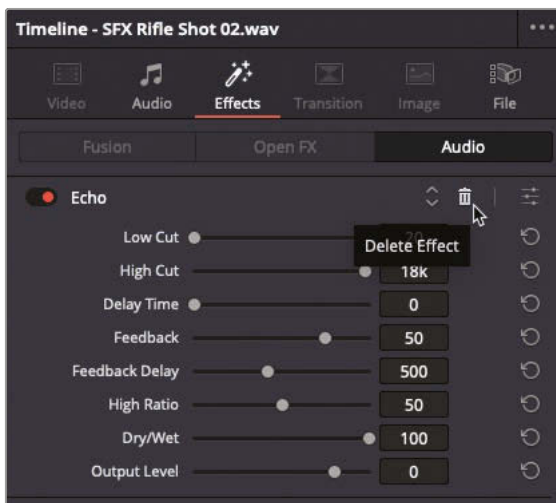
The echo lasts only for the length of the clip and is cut off abruptly once the playhead reaches the end of the clip. To extend the echo, the clip must be longer.

- Select the Out point of the **SFX Rifle Shot 02.wav** clip.



Unfortunately, you can tell straightaway, by the red trim indicator, that there are no additional handles available for this clip. You will need to create handles from somewhere. In this case, you will use a compound clip.

- Click the Effects Inspector and delete the Echo effect from the clip.



**NOTE** If you didn't remove the effect before creating a compound clip, you would still have the effect applied to the clip within the compound clip, so you'd be no better off!

7 With the **SFX Rifle Shot 02.wav** clip still selected, choose Clip > New Compound Clip or right-click the clip and choose New Compound Clip.

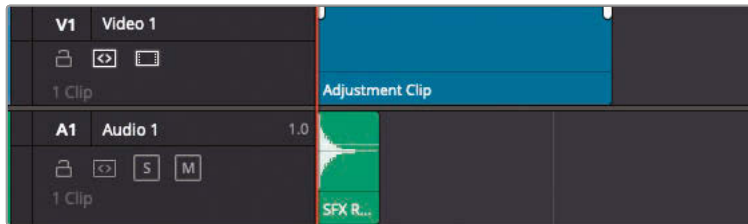
8 Name your new compound clip **Gunshot extended** and click Create to add the compound clip to the timeline and the selected bin.

To be able to lengthen this compound clip, you'll need to open it in its own timeline.

9 Right-click the **Gunshot extended** compound clip and choose Open in Timeline.

The compound clip opens in a new timeline tab. To be able to lengthen the compound clip in the main timeline, you just need to add an additional clip that's longer than the current gunshot clip. While any clip could be used here, the best type of clip would be an adjustment layer, as it has no audio and is effectively an empty video clip!

10 Click the Effects category in the Effects Library, select the Adjustment Clip, and drag it into the **Gunshot extended** timeline.



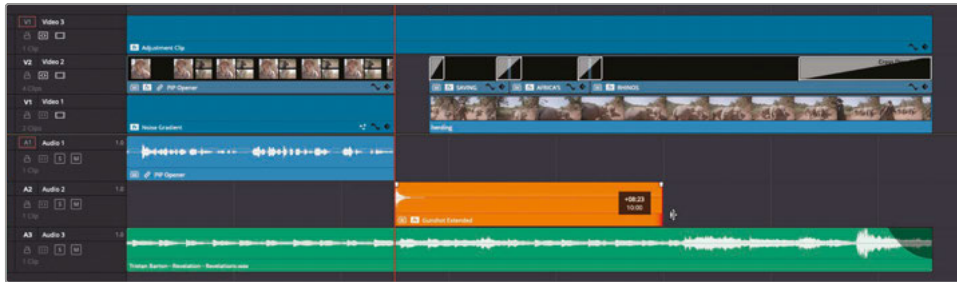
The compound clip automatically creates a new video track.

11 Change the duration of the adjustment clip to 10:00 (10 seconds) and then close the **Gunshot extended** timeline to return to the **DISUNITY PROMO START** timeline.

12 Once again, add the Echo effect from the FairlightFX in the Effects Library, but to the **Gunshot extended** compound clip.

13 Again, lower the Delay to 0, the Feedback to 50, and the Wet/Dry to 100.

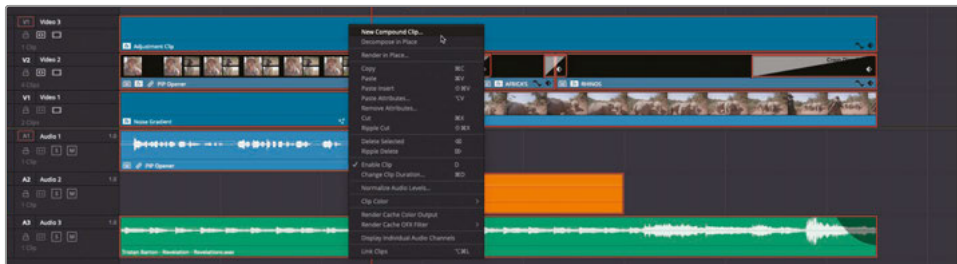
- 14 Trim the **Gunshot extended** compound clip to 10:00 (10 seconds) to hear the gunshot echo and then fade away.



## Render in Place

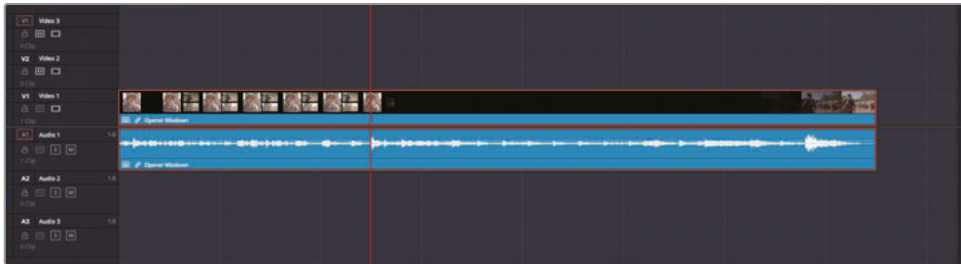
Now that you have successfully created your short multilayered, keyframed opener, you are presented with a fairly complex timeline. One of the final things you can do when dealing with parts of your edit that have several layers interacting with each other is to create a *mixdown* using DaVinci Resolve's Render in Place feature.

- 1 In the **DISUNITY PROMO START** timeline, press Command-A (macOS) or Ctrl-A (Windows) to select all clips.
- 2 With all the clips in the timeline selected, choose Clip > New Compound Clip or right-click any of the selected clips and choose New Compound Clip.



- 3 In the Name field of the New Compound Clip dialog, type **Opener Mixdown** and click Create.

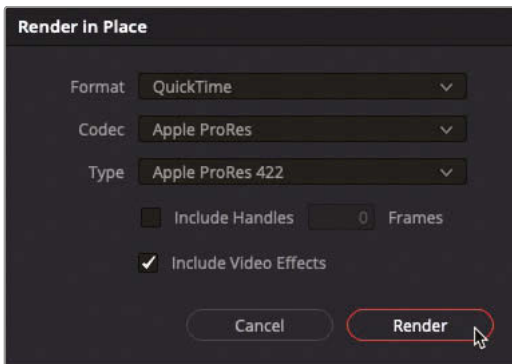
The clips are collapsed into another compound clip, which is also added to the selected bin in the media pool.



- 4 In the timeline, right-click the **Opener Mixdown** compound clip and choose **Render in Place**.



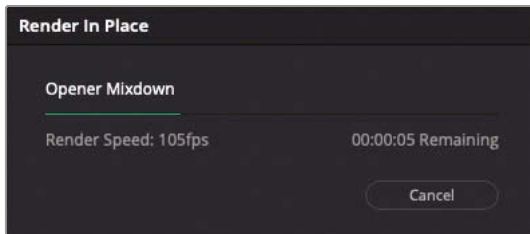
The Render in Place dialog appears.



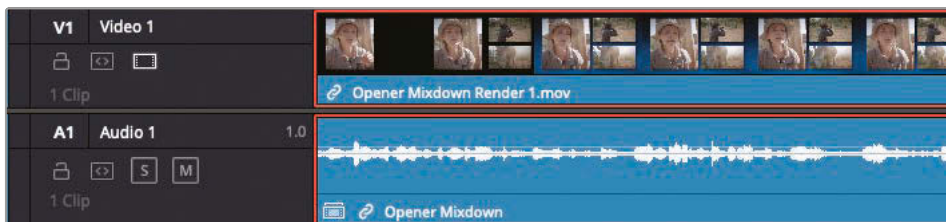
- 5 Leave all the options at their defaults and click **Render**.

A window opens asking you to choose a location for the rendered file you are about to create.

- Choose an appropriate location on your system to create the file and click Open. DaVinci Resolve renders the compound clip into a new, self-contained video file.



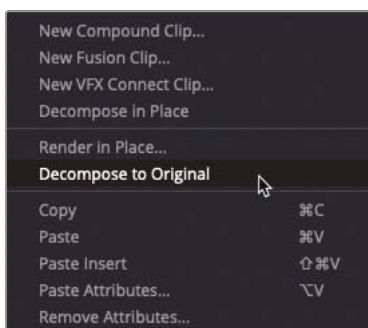
The new file is used in place of the compound clip in the timeline and added to the currently selected bin in the media pool. Using Render in Place is very useful for flattening complex parts of your timeline into a single video file that is easier for DaVinci Resolve to play back.



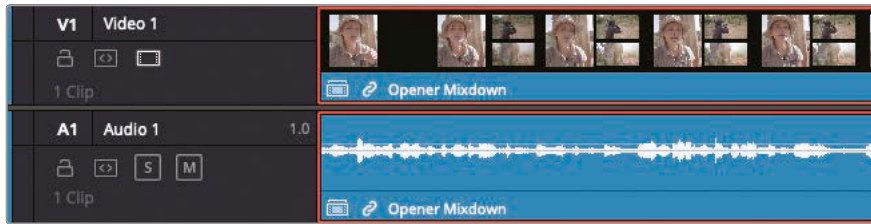
**NOTE** Render in Place will not render the audio as part of the new video clip.

Even though you have now created a mixed-down version of your compound clip, you can still adjust it.

- In the timeline, right-click the **Opener Mixdown Render 1.mov** and choose Decompose to Original.



The **Opener Mixdown Render 1.mov** video clip is removed from the timeline, leaving the original **Opener Mixdown** compound clip in its place ready for you to make any further changes.



**TIP** Each video clip created using the Render in Place function has “Render 1”, “Render 2”, “Render 3”, etc. appended to the filename. This makes it easy to create a Smart Bin to group each of these renders together to allow you to locate them all quickly. It’s also useful to change the color tag for any clips you choose to render in place as then it’s easy to identify them in the timeline at a glance.

Editing multilayered promos is so full of creative possibilities that it can be tempting to add elements, effects, and animation just for the sake of watching them on the screen. However, unnecessary elements can often increase confusion when they should bring clarity to your message.

As a result, when you create a motion graphics animation for promos, think through every visual element and the way it moves. Make sure that each creative and technique choice benefits the overall communication of the project. By doing so, you should be able to create a more appealing design and maximize its impact.

# Lesson Review

- 1 What will happen to a 4-second source clip edited into a 2-second marked section of the timeline using a Fit to Fill edit?
  - a) Only the first 2 seconds will be used in the timeline.
  - b) The clip will be retimed to 50 percent of its original speed.
  - c) The clip will be retimed to 200 percent of its original speed.
- 2 True or False? To display scaling and positioning controls in the viewer, you need only to select the clip in the timeline.
- 3 True or False? To create a compound clip, set In and Out points around the clips in the timeline and choose Clip > New Compound Clip.
- 4 True or False? Compound clips can only contain video clips and any selected audio clips will be ignored?
- 5 True or False? Adjustment clips affect only one video track located directly above the adjustment clip.

## Answers

- 1 c). The clip will be retimed to 200 percent of its original speed.
- 2 False. To display scaling and positioning controls in the viewer, you must enable the transform onscreen controls button.
- 3 False. To create a compound clip, you must select the clips in the timeline, right-click them and choose New Compound Clip.
- 4 False. Compound clips can contain both video and audio clips. Render in Place, however, will only render out a video file, leaving any selected audio clips untouched in the timeline.
- 5 False. Adjustment clips affect all video tracks located directly under the adjustment clip.



## Lesson 8

# Edit Page Effects

In the previous lesson, you explored some of the techniques you can use in DaVinci Resolve 17 to composite different clips for creative results. In this lesson, you will explore some of these techniques further and learn how to utilize some of DaVinci Resolve 17's specialized effects.

### Time

This lesson takes approximately 45 minutes to complete.

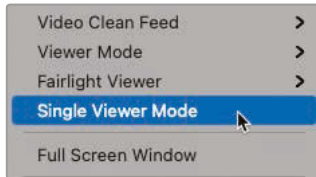
### Goals

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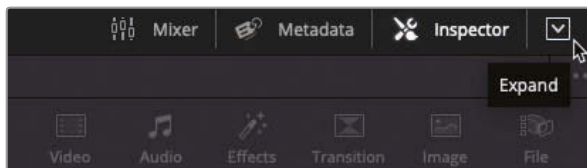
# Setting Up the Project

To begin this lesson, you will import a DaVinci Resolve project and configure the edit page workspace for working with effects.

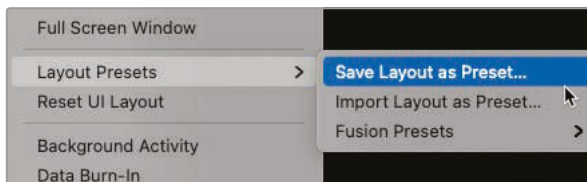
- 1 Open DaVinci Resolve, and in the Project Manager, right-click an empty area and choose Import Project. Navigate to R17 Editing > Lessons > Lesson 08 Effects.
- 2 Select the **R17 EDITING LESSON 08 EFFECTS.drp** project file and choose Open.  
The Project is imported and added to the Project Manager.
- 3 Open the project, click the edit page button, if necessary, and relink the media files.  
To make the interface a little more streamlined for the type of work you will undertake in this lesson, you will start by adjusting the workspace of the edit page and save a new layout.
- 4 Choose Workspace > Reset UI Layout to reset the interface to its default setting.
- 5 In the top left of the interface, click the Media Pool button to close the media pool, and click the Effects Library button to reveal the Effects Library.
- 6 Choose Workspace > Single Viewer Mode to close the source viewer.



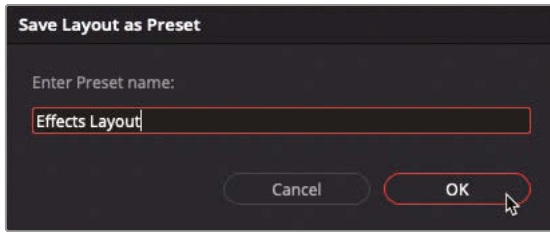
- 7 In the top right of the interface, click the Inspector button to open the Inspector, and then click the Expand button to expand the Inspector to full-height, making it easier to access the different parameters.



- 8 Choose Workspace > Layout Presets > Save Layout as Preset.



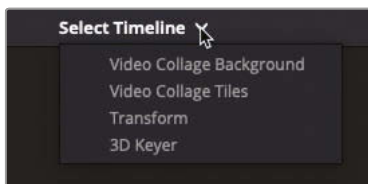
- 9 In the Save Layout as Preset dialog, type **Effects Layout** in the Enter Preset Name field and click OK.



**TIP** To restore the default edit page layout, choose Workspace > Reset UI Layout. To recall your saved preset, choose Workspace > Layout Presets > Effects Layout > Load Preset. Additionally, if you later decide to make a change to the layout preset, you can choose Workspace > Layout Presets > Effects Layout > Update Preset to save the changes to the preset.

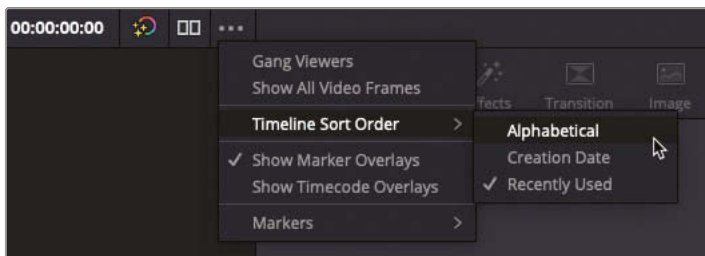
Finally, as you will be switching between different timelines throughout this lesson, it will be useful to arrange the Timeline Sort Order to be alphabetical.

- 10 Click the Select Timeline pop-up menu above the timeline viewer.



The Timeline pop-up menu lists all timelines in the current project and can be a useful way of easily switching timelines. This project has just four timelines, but other projects may have many more. By default, Resolve arranges this list of timelines in Recently Used order, so recently accessed timelines are toward the top of the list.

- 11 Click the timeline viewer Options menu and choose Timeline Sort Order > Alphabetical.



- 12 Click in the Select Timeline pop-up again to view the sort order change and select 3D Keyer to open the first timeline.



**TIP** You can also access the timeline sort order options in DaVinci Resolve > Preferences > User > UI Settings and change the Timeline Sort Order pop-up menu.



With the Project Archive successfully restored and your interface arranged appropriately, you are now ready to start the first exercise in this lesson.

## 3D Keyer FX

A common effects task many editors are faced with is having to work with green- or blue-screen footage. This footage is designed to be *keyed* against a background plate and is a common technique used in fantasy and science fiction films, as well as in many TV shows and online videos, where you may want your talent to appear against a virtual background.

In previous versions of Resolve, this was achieved by editing the foreground and background clips in the edit page, before using the Fusion page (or color page) to composite the footage together. However, in DaVinci Resolve 17 you can now create a finished, composited shot directly in the edit page.

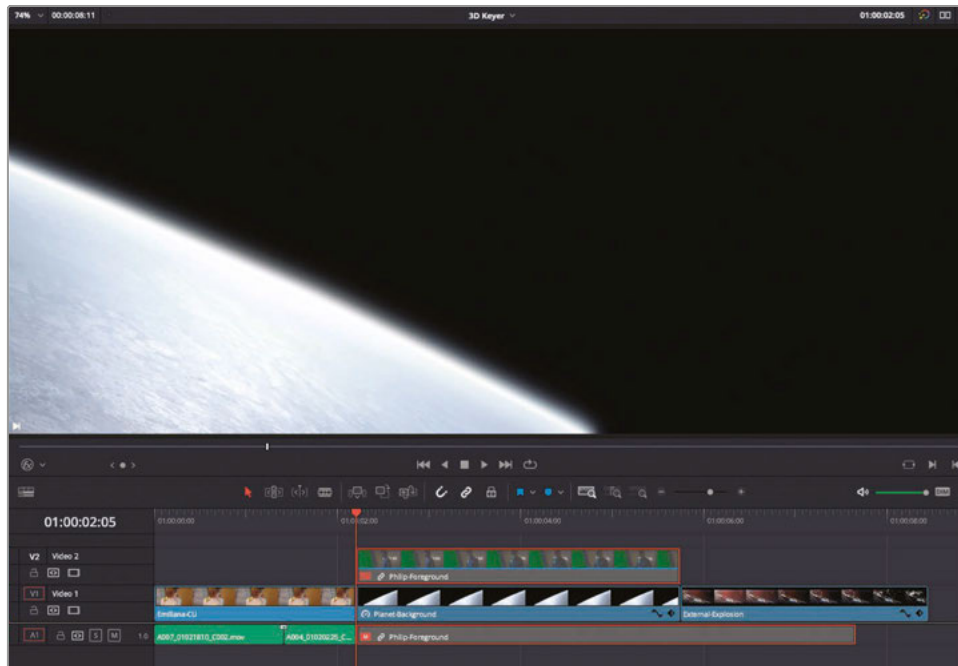
Alternatively, even if the shot will be finalized later by a dedicated visual effects artist, the editor may still need to create a temporary version of the composite to see how effectively the foreground and background elements will work together. If the shots can't be readily combined as planned, it is so much easier for the editor to swap takes or edit around the identified problems than it would be for the VFX artist.

In this exercise you will use the new 3D Keyer effect to composite a shot from the short sci-fi film *Hyperdrive*.

- 1 Play the 3D Keyer timeline to review the short scene that's been edited for you, and then return your playhead to the start of the clip on Video 2.

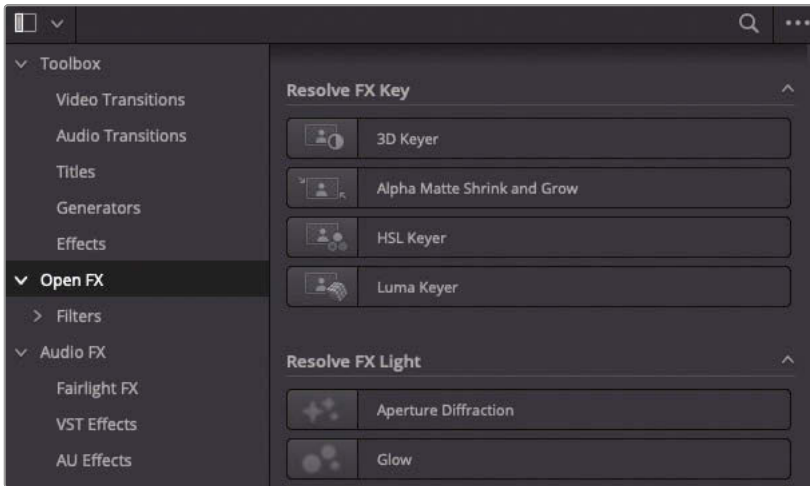
Obviously, the second shot of the man against the green screen somewhat ruins the conceit that these two characters are supposed to be in a spaceship orbiting a planet.

- 2 Select the clip on Video 2 and press D to disable the clip in the timeline and reveal the background plate of the planet.



This is the view that the man should have outside the window of the spaceship. To achieve this, you need to apply the 3D Keyer filter.

- 3 Press D again to re-enable the clip in the timeline.
- 4 In the Effects Library, select the Open FX > Filters group and scroll through the list of filter categories to locate the Resolve FX Key filters.



**NOTE** Each of the Resolve FX Key filters is based on the appropriate color page qualifiers; indeed, these filters are effectively the respective controls from the color page packaged and made available in the edit page. There are two color key filters you can choose to work with.

For this exercise, you will use the 3D Keyer but, even though the controls are broadly the same, the HSL Keyer is useful if you want to specifically target different combinations of hue, saturation, and brightness for a more refined key.

The Luma Keyer is used for performing keys on just the luminance (brightness) of a clip and is often used in conjunction with composite modes.

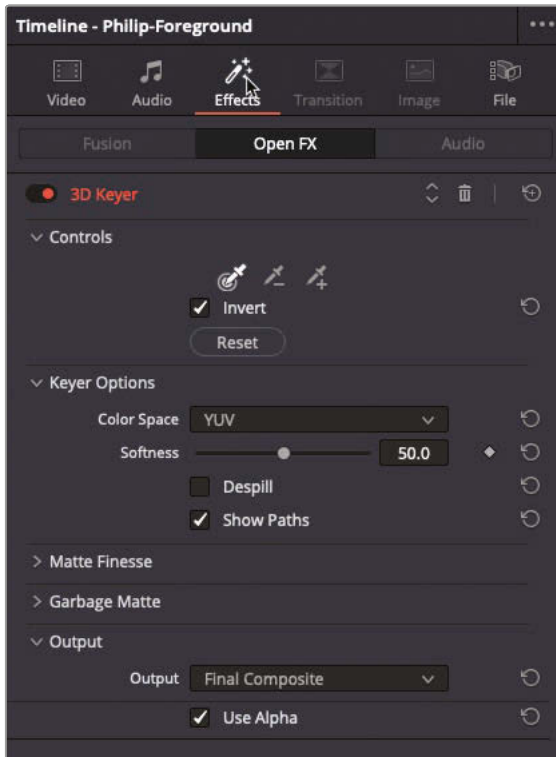
The Alpha Matte Shrink and Grow filter can be used to further refine the keys created using the other filters.

- 5 Double-click the 3D Keyer filter to apply it to the selected green-screen clip of the man on Video 2.

The only indications that the effect has been applied is the appearance of the FX badge in the timeline clip's information and the Effects tab of the Inspector being highlighted.

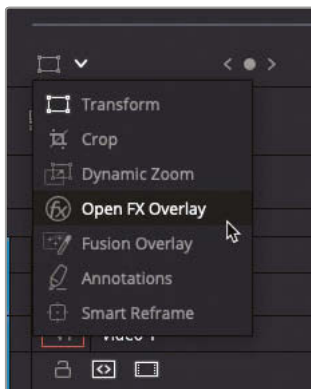


- 6 Select the Effects tab in the Inspector to reveal the control for the 3D Keyer filter.



To begin the process of compositing this shot with the background plate, you will need to enable the viewer's onscreen effect controls.

- 7 In the timeline viewer's onscreen controls pop-up, click the Open FX Overlay.



This enables the onscreen controls for any effects that have controls you can access in the viewer.

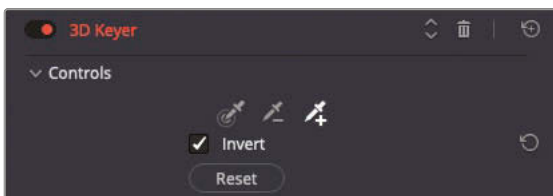
- 8 With your mouse pointer, click and drag across the center area of the green screen.



This process samples the main hue, saturation and luminance values of the green screen highlighted by the blue onscreen control. However, you'll notice some parts of the green have fallen outside of this selection.



In the Effects Inspector, notice that the Eyedropper tool of the 3D Keyer has automatically switched to the Add control.





This allows you to add additional areas of the green screen that fell outside of your initial selection.

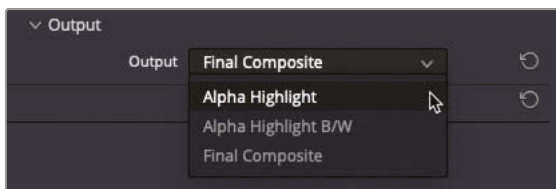
- 9 Click and drag again to create two additional selections for the key across the areas of green to the left and right of your first selection.



**TIP** If you find that you have been too aggressive in your selection and parts of the shot outside the green have been selected, you can attempt to remove those areas from the selection by using the Subtract Eyedropper tool.

With additional parts of the green screen added to your selection, you'll probably notice that a green edge remains near the side of the window. To refine the key further, you'll want to see a bit more detail as to what you are selecting.

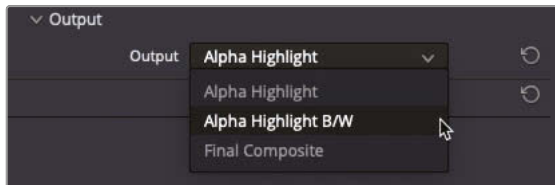
- 10 At the bottom of the 3D Keyer controls in the Effects Inspector, change the Output pop-up menu to Alpha Highlight.



Alpha Highlight displays the selected part of the key as a flat, gray area and enables you to easily identify the areas of green that remain around the edges of the window.



- 11 Change the Output pop-up menu to Alpha Highlight B/W.



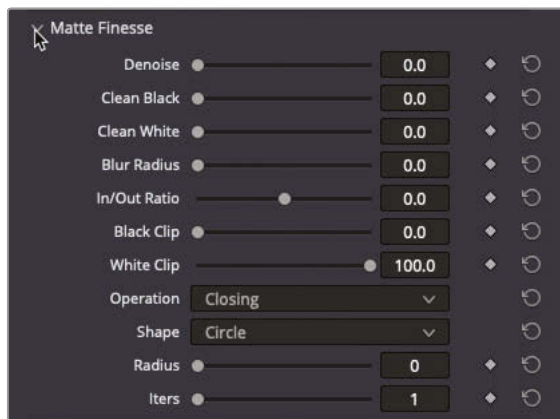
In this view, the alpha channel you are creating for this clip is displayed. White represents a solid area where you won't see the background plate, black represents areas of transparency where the background plate is fully visible, and any areas of gray represent areas of partial transparency.



**TIP** To get a better view of the key you are working on, especially if you are not using a dedicated monitor to display your viewer's output, press P to enable Cinema mode and see your viewer as a full-screen output. Press P again to disable Cinema mode and return to the Resolve interface.

To refine the key, you need to access the Matte Finesse controls.

- 12 In the Effects Inspector, click the disclosure triangle for the Matte Finesse controls.



The Matte Finesse controls contain familiar parameters for adjusting the cleanliness of the key. In this case, you just want to clean up the black areas of the key.

- 13 Increase the Clean Black slider to about 14.0 to further refine the key and include the final, wayward portions of the green screen in your selection.

**TIP** Use the scroll wheel on your mouse to zoom in and the middle mouse button to pan around the clip in the timeline viewer to get a better look at the matte refinements you're making. Press Z to fit the whole of the shot back in the timeline viewer when you're happy with your results.

- 14 Change the Output pop-up menu back to Final Composite and press Shift-` (grave accent) to turn off the onscreen FX controls to see the results so far.



## Enabling Despill

So far, it seems that you have achieved an acceptable result, and the director is at least happy that the foreground and background elements sort of work together as planned. However, as always, there are ways this composite can be improved to help sell the shot further. The first is by removing some of the spill from the green screen.

**NOTE** As most keying filters rely on selecting a range of hue, saturation, and luminance values to create the key, the process of selecting the correct HSL values can be made slightly easier by having the green screen flooded with light when it is filmed. Unfortunately, depending on the rest of the shot's proximity to the green screen, this can result in unwanted reflection, or spill, of the green on the foreground elements.

- 1 Play through the clip on Video 2 until the man turns away from the window.



Look carefully and you should see that the man's face is reflecting some of the green. Moreover, the upper-right portion of the man's uniform (where the USEF logo is) isn't supposed to be that green as it also is reflecting light from the green-screen background.

- 2 In the Effects Inspector, click the Despill checkbox in the Keyer Options controls to enable the despill option.

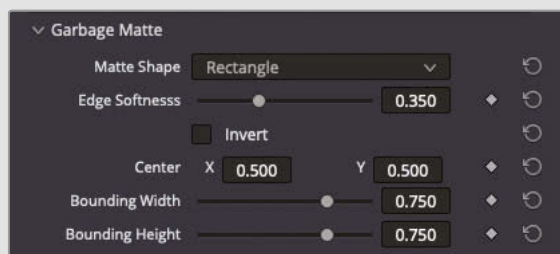


The Despill checkbox turns on an automatic color correction that quickly eliminates the spill from the image while retaining the image's original color.



## Garbage Mattes

Another common technique used in compositing shots using color keyers like this is to use a *garbage matte* to exclude portions of the shot. This is especially useful if the green screen doesn't cover the full area within the frame, or you have an errant light or microphone in shot. This shot from *Hyperlight* you are working on has no requirement for a garbage matte, but the ResolveFX Keyer filters do have options for adding simple rectangular or circular mattes.



## Applying the Final Touches

With the green screen keyed out, and the despill helping to clean up the composite, there's just a couple of final touches to be applied to really make the most of this shot, mainly so the audience will be in no doubt that this man is on a spaceship, overlooking the planet below.

To begin with, you will reposition the foreground clip to the right to reveal more of what the man can see through the window.

- 1 In the Inspector, click the Video tab.
- 2 In the Video Inspector, click and drag right in the Position X field until the value is about 90.0 to move the foreground clip slightly to the right.



**TIP** The great thing about working with keyed clips such as this is that you can have full control of how the foreground and background clips are positioned in relation to each other.

As you move the foreground clip further to the right, more of the planet is revealed behind him.

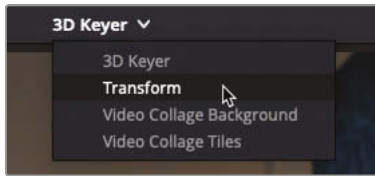
Excellent job! You've now seen how easy it is to create a composited shot directly in the edit page using the new 3D Keyer filter.

## Transform FX

Another common compositing task many editors need to undertake is adding elements to enhance shots such as logos on the side of trucks or placing content on screens to make them more relevant to the scene. In the previous lesson, you learned how to quickly scale and position a shot for a picture-in-picture effect. However, it's very rare that if you're wanting to add an element to a shot that it will be dead-straight on to the camera. In this case, you'll need to use the Transform filter to be able to *corner pin* the image into place.

You'll explore this technique by adding the Citizen Chain logo to the opening shot of Sasha arriving at the shop.

- 1 From the timeline viewer pop-up menu, select the Transform timeline.



This timeline contains three shots. The first shot has a .png version of the Citizen Chain logo edited over the top of it.



- 2 In the timeline, select the **CC-Logo.png** clip and press D to disable the graphic to view a clearer shot of the underlying clip.

The director has asked for the logo to be composited so that it appears to be painted onto the window on the far left of the frame.

- 3 Press D again to re-enable the **CC-Logo.png** clip in the timeline.

- From the Effect Library, locate the Resolve FX Transform group of filters.



- Double-click the Transform filter to apply it to the **CC-Logo.png** clip in the timeline and click the Effects tab in the Inspector.



At first glance you'd be forgiven for thinking that the Transform filter has very similar controls to the standard transform parameters available in the Video Inspector of any clip. However, this filter does add some additional controls over the standard transforms by offering advanced options that include motion blur, edge behavior, and cropping controls.

However, the Transform effect has three different control modes to choose from.



- 6 Change the Control Mode pop-up menu to Interactive – Canvas.



- 7 Enable the viewer's Open FX overlay by pressing Shift-` (grave accent).

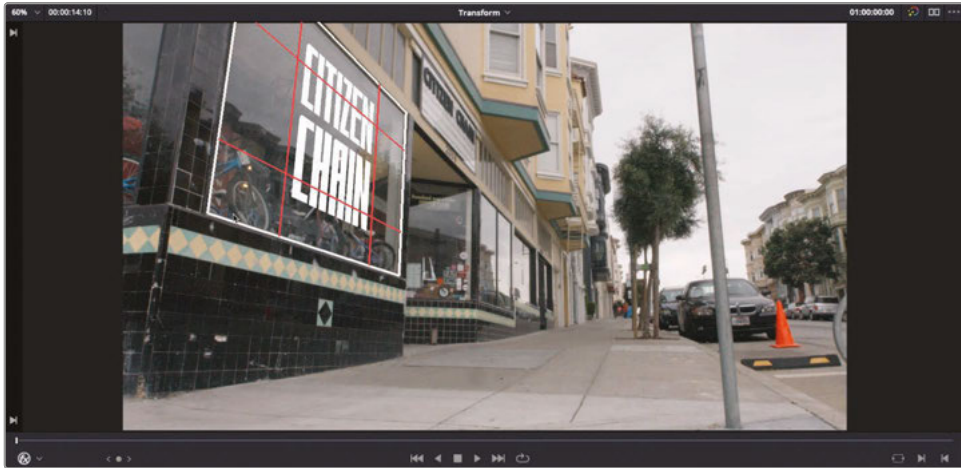


**NOTE** You may need to manually select the Open FX overlays from the onscreen controls' pop-up menu if you are not following along from the previous 3D Keyer exercise.

The Interactive – Canvas mode moves many of the Transform filter's controls from the Inspector to the timeline viewer, as represented by the white outline and red vertices. You can drag these onscreen controls to distort the image in a variety of ways.

**TIP** To reset any changes you have made to the onscreen controls, click the Reset button for the filter's Control Options in the Effects Inspector.

- 8 Ensure that your playhead is at the start of the timeline and, using the corner areas, drag the controls so that the corners and edges of the graphic align with the corners and edges of the window in the underlying video clip.



**NOTE** You will need to judge where the top-left corner will sit based on how the graphic's edges align with the edges of the window as, of course, the top-left corner of the window is not visible in this shot.

- 9 When you are happy with the way the graphic aligns with the window, start playback.



Oh dear. Now you can see that although the graphic is aligned perfectly, because the camera tracks right as Sasha arrives, the window doesn't stay still within the frame, but the graphic does.

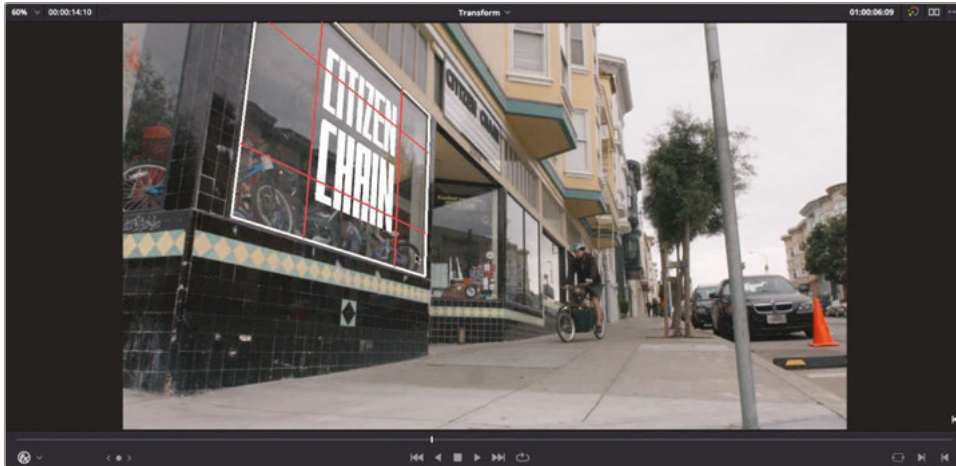
No problem. A couple of keyframes should help things out a little.

- 10 Return your playhead to the start of the timeline and, in the Effects Inspector, click the keyframe button for the Canvas Keyframe control.



The keyframe button turns red to indicate a keyframe has been applied at the start of the clip.

- 11 Move your playhead to the last frame of the **CC-Logo.png** clip in the timeline and adjust the corner areas of the onscreen controls to align the graphic with the window once more.



Another keyframe is automatically added at the end of the clip.

- 12 Press Shift-` (grave accent) to disable the timeline viewer's onscreen controls and review the results of the keyframing.

Perfect! The graphic now looks like it's part of the shop's window display. The keyframes allow the graphic to follow the movement of the camera. Thankfully, the camera movement is smooth and consistent. If it wasn't, then more keyframes would simply have been needed.

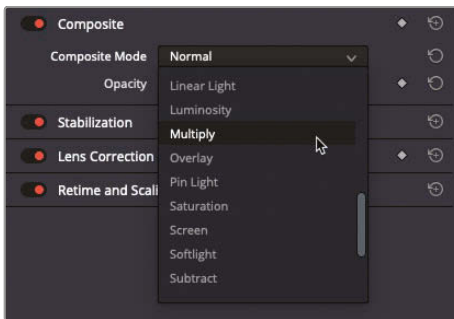
One final touch will really help sell this effect. You can change the composite mode of the graphic to integrate it with the background clip better.

## You Can Categorize Composite Modes Based on the Way the Math Impacts the Two Clips

- Darken colors: Darken and multiply
- Lighten colors: Add, lighten, and screen
- Increase color contrast: hardlight, overlay, and softlight
- Cancel out colors: Subtract (a simple version of difference)
- Invert colors: Difference (similar to subtract but with negative results)

In many cases, the best way of working with composite modes practically is to set some of the main ones and see how they impact the clips!

- 13 Click the Video tab in the Inspector for the **CC-Logo.png** clip and, in the Composite controls, change the Composite Mode pop-up to Overlay.



The Overlay composite mode increases the contrast of the underlying video clip where the graphic is the brightest (there is no change to the contrast of the clip where the .png is transparent).

- 14 Reduce the Opacity slider to about 65.0 to reduce the intensity of the graphic and integrate it further with the video clip.



**NOTE** The final control mode for the Transform filter is Interactive – Pins. Adjusting the image in this mode is done by manually placing control points, called pins, in the timeline viewer.

Adding one pin only gives you position control. At least two points are required for scaling and rotation. Dragging on one of the pins scales or rotates the image around the other pin.

Using three pins, you can create perspective distortions by dragging any one of the pins. You can add up to four pins for unique corner-pinning distortions that don't rely on the regions specified by the Interactive – Canvas mode.

Congratulations! You have now learned how you can distort and keyframe a clip to composite onto other shots, no matter what the camera angle!

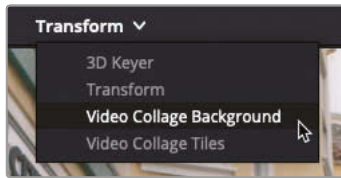
## Video Collage

The final Resolve FX you will work with in this lesson is the Video Collage filter. In the previous lesson, you learned how to use the Transform parameters in the Video Inspector to adjust the Zoom and Position of a clip to create a picture-in-picture effect. The Video Collage filter is designed to make it easier to create uniform, grid-based picture-in-picture and other split-screen layouts. It is ideal for creating a “video wall” effect, which requires the scaling and positioning of many clips.

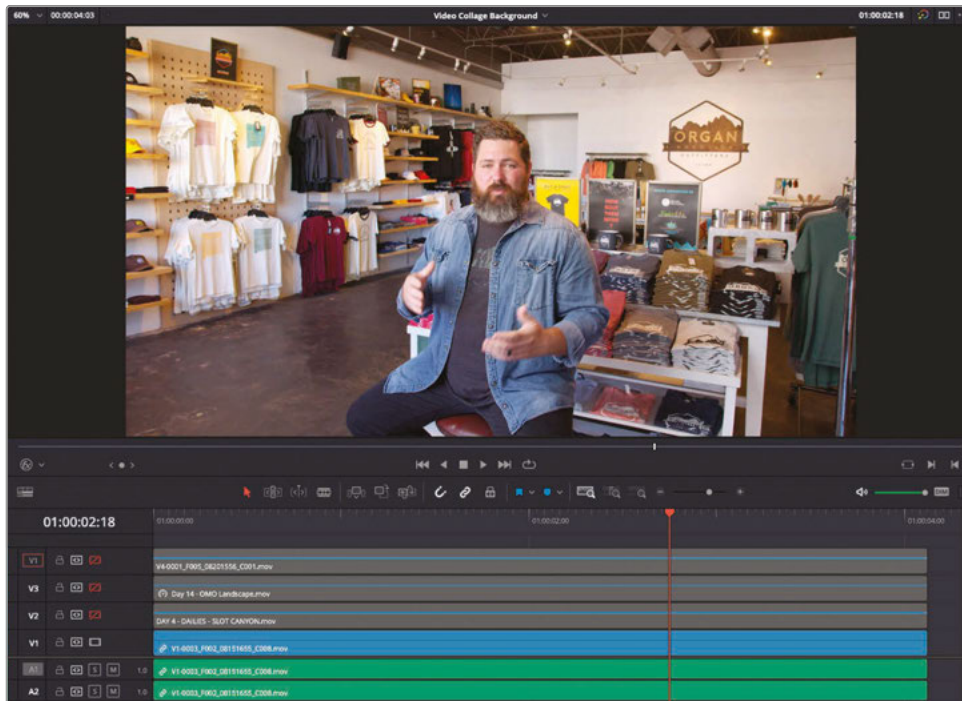


The Video Collage filter works in two main ways. The default is Create Background, which you'll explore first.

- 1 From the timeline viewer pop-up menu, select the Video Collage Background timeline.



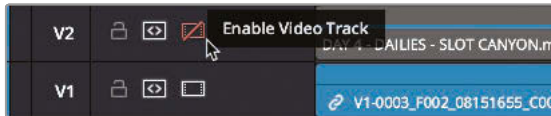
This timeline consists of several video clips stacked on top of each other on different tracks. To help you become familiar with the content, all tracks except Video 1 have been disabled. You will start by enabling the other tracks one by one.



**NOTE** Disabling tracks is different from disabling individual clips, as it disables all the clips on the track simultaneously, similar to how the Mute control works for audio tracks.

The clip on Video 1 is a short soundbite from Chris Lang, the owner of Organ Mountain Outfitters.

- 2 Play the interview clip to familiarize yourself with it, and then return your playhead to the start of the timeline.
- 3 Click the Enable Video Track control for Video 2 to enable that track, and play the timeline again to review the clip on Video 2.



- 4 Repeat step 3 for Video 3 and Video 4, so all four tracks are enabled, and you are familiar with each clip.

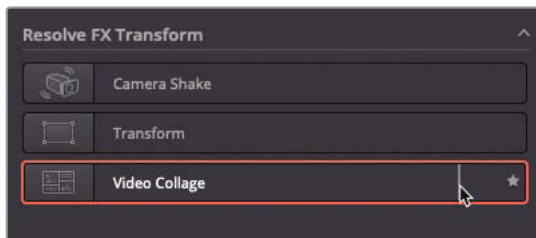
**TIP** Shift-clicking a disabled track button will enable all disabled tracks for the timeline.



You will now utilize the Video Collage filter to build a stylized picture-in-picture effect.

Typically, to create a picture-in-picture effect, as you did in the previous lesson, all the clips on the upper video tracks would need to be scaled and positioned accordingly. However, by default the Video Collage filter uses the *topmost* clip as the background, using this clip as a “frame” and creating holes in this frame to reveal the clips on the lower tracks.

- 5 From the Effects Library, locate the Resolve FX Transform group of filters and double-click the Video Collage filter to apply it to the clip on Video 4.



The clip on Video 4 now displays the clip on Video 4 within four boxes. These four boxes are the holes created in the Video 4 clip by the Video Collage filter.

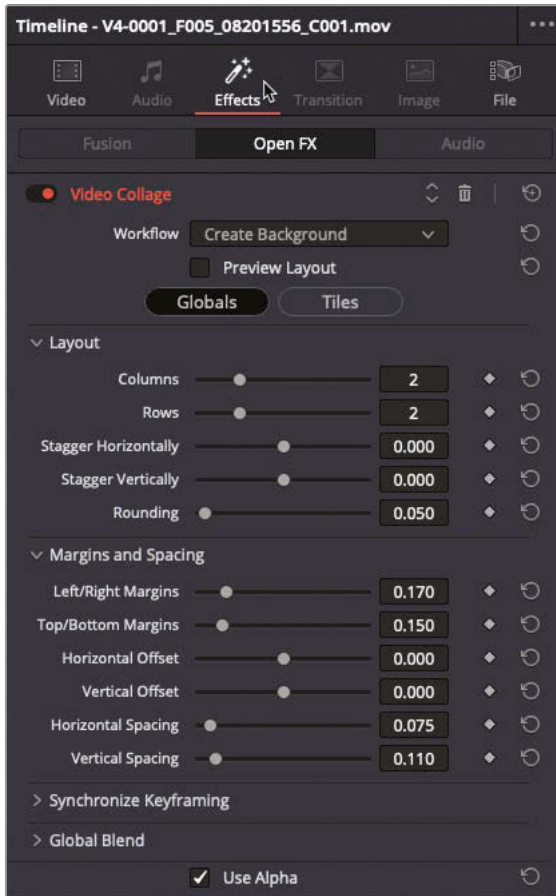




## Setting the Layout

The first step in configuring the Video Collage filter is to arrange the “holes” (referred to as *tiles*) using the controls in the Inspector.

- 1 Click the Effects Inspector to reveal the Video Collage controls.



- 2 Click the Preview Layout checkbox.



Each of the tiles is now clearly highlighted and denoted by a number. The actual number of tiles is dictated by the columns and rows controls in the Inspector. The tiles with the darker shaded areas indicate the currently selected tile.



- 3 In the Inspector, increase the number of Columns to 5 and the number of Rows to 5.



**NOTE** The sliders for the numbers of columns and rows allow you to create a grid of tiles up to 5 x 5 in size (25 tiles in total). If required, though, you can specify higher numbers by typing them directly in the number field of the appropriate control. However, anything over a 10 x 10 grid (100 tiles) probably becomes a little unwieldy!

- 4 Adjust the Stagger Horizontally and Stagger Vertically sliders to see how these adjust the layout of the grid.



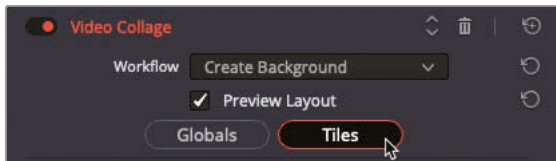
In this case, you'll need to start with an even grid that is 2 columns x 2 rows.

- 5 Change the number of Columns to 2 and the number of Rows to 2.
- 6 Reset the Stagger Horizontally and Stagger Vertically values to 0.0.
- 7 Increase the Rounding slider to about 0.15 to further round off the corners of the tiles.



Now that you have the basic layout set, you can turn your attention to the individual tiles.

- 8 In the Inspector, click the Tiles button to switch to the tiles controls.



These controls allow you to customize the tiles either as a group or individually. As you won't be needing Tile 4, you might as well remove it from the layout.

- 9 Click the Active Tile pop-up menu and choose Tile 4.

In the Layout, Tile 4 becomes the active tile, as indicated by the shaded lines in the layout.



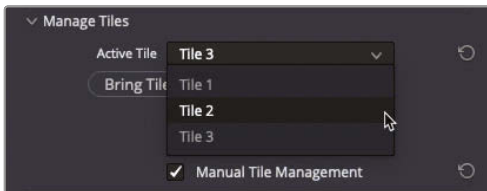
- 10 Click the Manual Tile Management checkbox.
- 11 Click Delete Tile to remove Tile 4 from the layout completely.



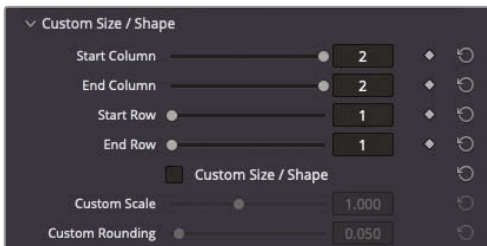
With no Tile 4, Tile 3 now becomes the currently active tile by default.



- 12 From the Active Tile pop-up menu, choose Tile 2 to make it the currently active tile.

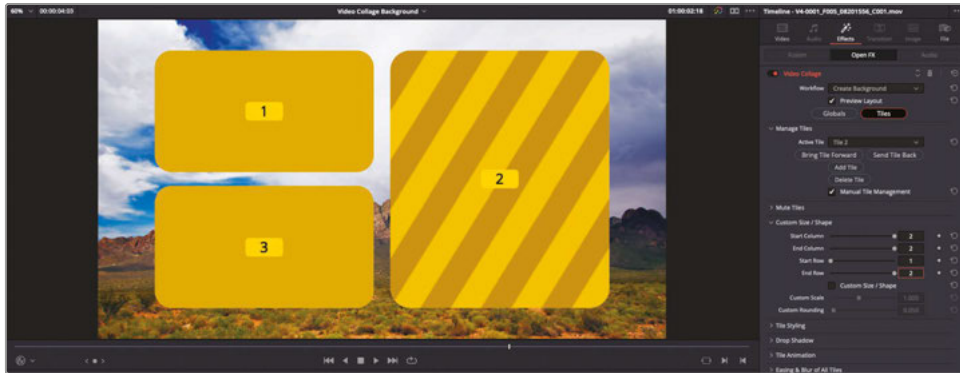


- 13 Click the disclosure arrow for Custom Size/Shape to reveal the controls.



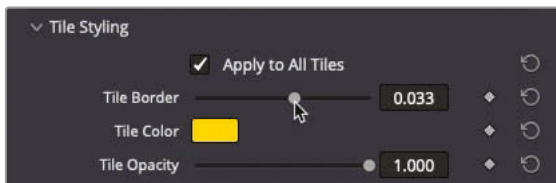
Currently, Tile 2 is occupying only one part of the grid: Column 2 and Row 1.

- 14 Change the End Row value to 2 to expand Tile 2 into the space formerly occupied by the deleted Tile 4.



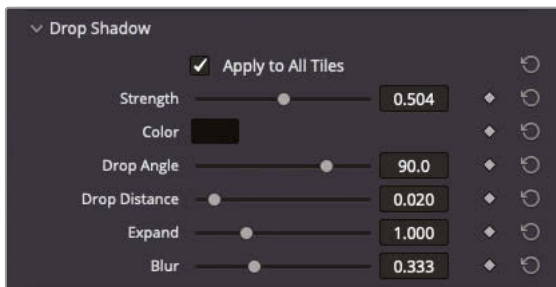
With the layout of the tiles now set, you will customize the look of them all together.

- 15 Click the disclosure arrow next to Tile Styling to reveal the controls.
- 16 Increase the Tile Border to about 0.03 to add a consistent border around all the tiles.



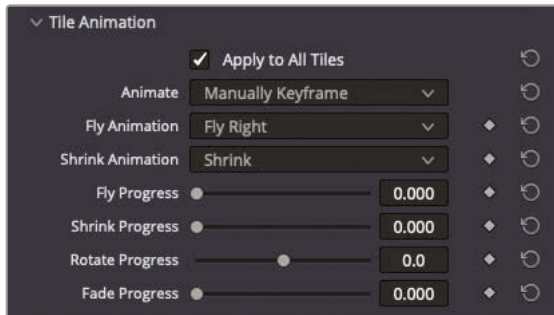
**TIP** You can uncheck the Apply To All Tiles checkbox to customize the border settings for the currently selected tile further, if required.

- 17 Click the disclosure arrow for the Drop Shadow controls and increase the Strength value to around 0.50 and the Drop Angle to about 90.0 to customize the drop shadow around each tile.

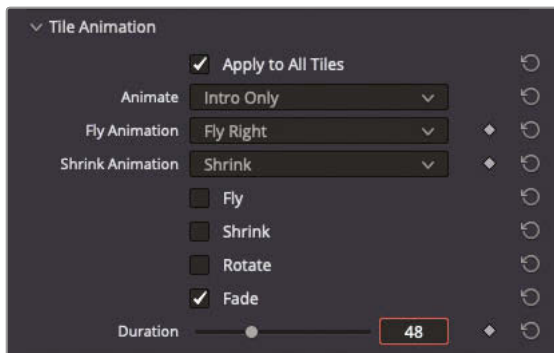


Finally, one of the more powerful aspects of the Video Collage filter is the ability to create animated intros and outros quickly and easily for each tile. These animations can be either manually keyframed or automatically generated over a customizable duration. There are four types of animations to choose from: Fade, Fly, Shrink, and Rotate. In Create Background mode, however, only the holes created by the tiles are animated, rather than their content, so Fade or Shrink are good choices here.

- 18 Click the disclosure arrow to reveal the Tile Animation controls.



- 19 Change the Animate pop-up to Intro Only.
- 20 Uncheck the Shrink checkbox and select the Fade checkbox.
- 21 Change the Duration slider to 48 to create a 2-second fade for the tiles (this timeline is set to 24 fps).



- 22 Play the timeline to preview the effect so far, including the fade in uniformly applied to all tiles.

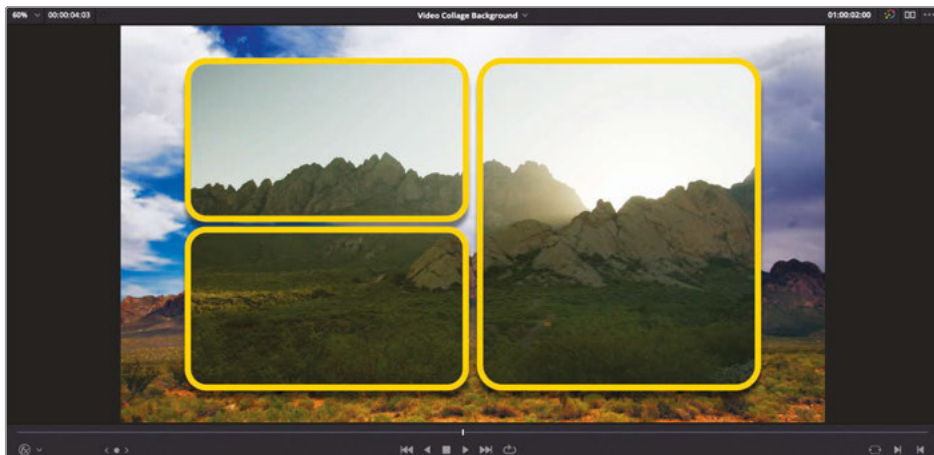


Cool. Now it's time to fill the holes created by the Video Collage effect.

## Resizing the Content

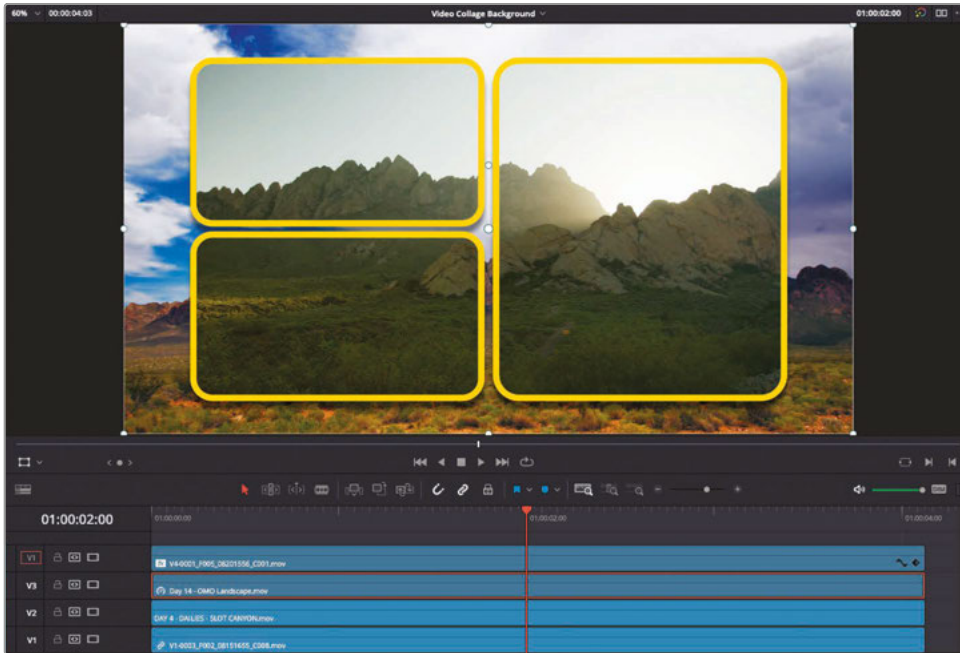
Now that you have used the Preview Layout to set up the grid, look, and animation of the Video Collage effect, it's time to turn off the Preview mode and scale the underlying clips to fill the holes in the background clip.

- 1 Position your playhead about halfway through the timeline (at about 2:00), so that you can clearly see the three tiles, after their 48-frame fade in.
- 2 At the top of the Video Collage controls, uncheck Preview Layout.

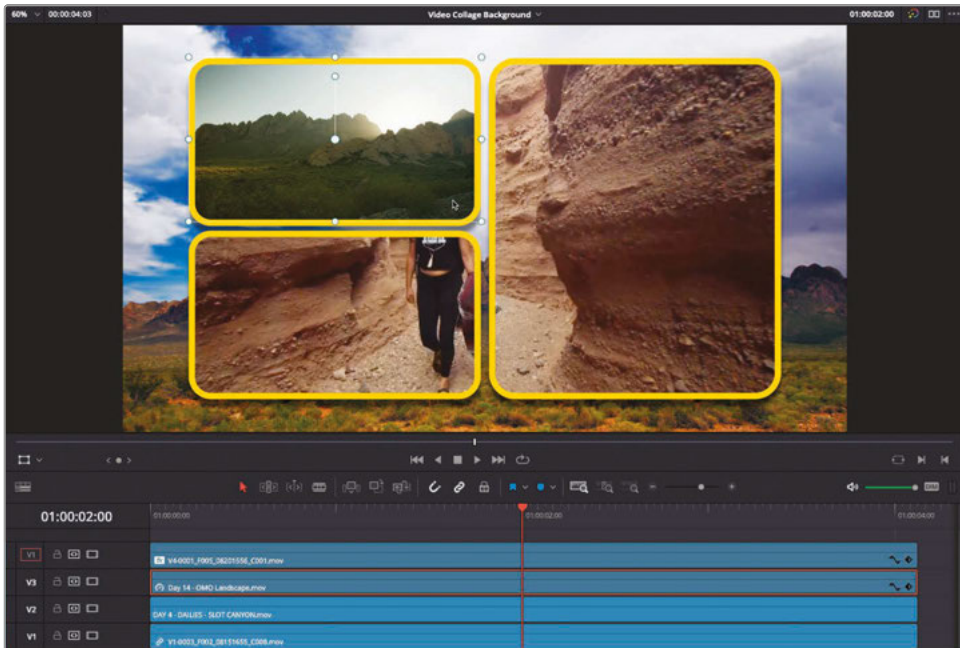


Once again, the clip on Video 3 becomes visible through the holes created by each tile. You now need to scale the clip to fit the hole created by Tile 1.

- 3 Select the clip on Video 3 and enable the timeline viewer's onscreen Transform controls.

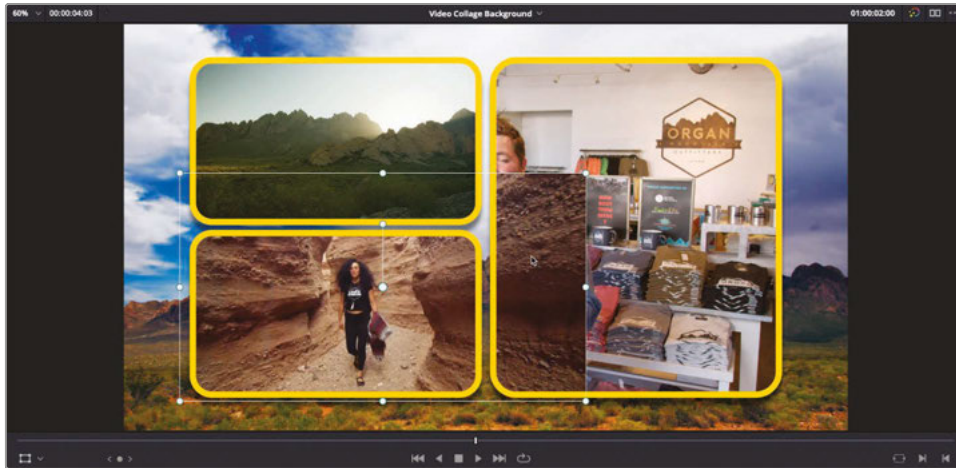


- 4 Use the onscreen controls to adjust the zoom and position of the clip on Video 3 so it fits in the hole created in the top left of the grid.

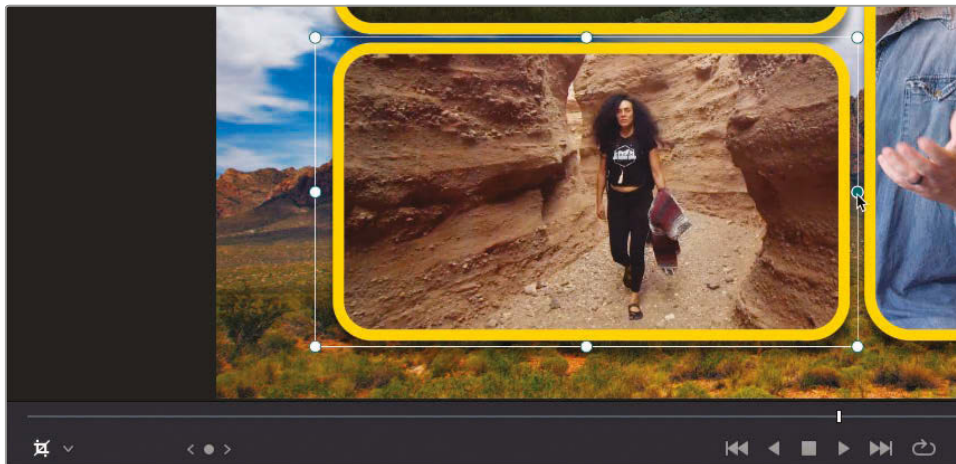




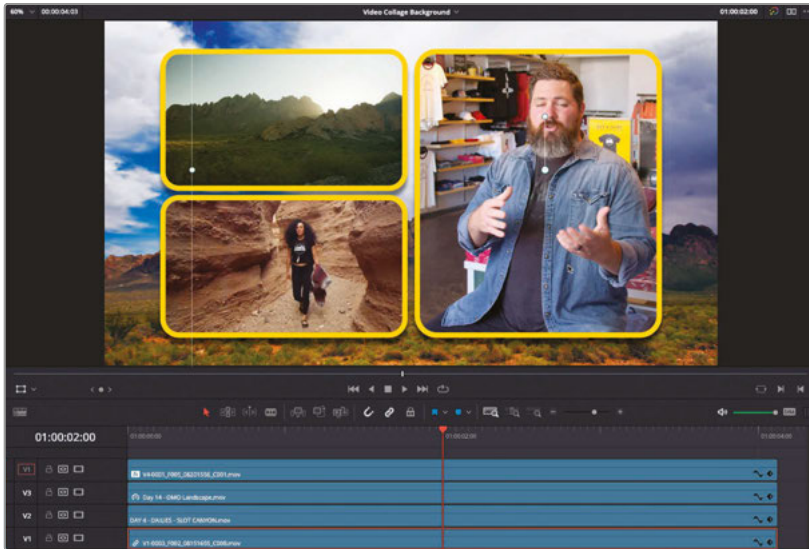
- 5 Select the clip on Video 2 and, again, use the onscreen controls to size and position the clip in the hole created by Tile 3.



- 6 As the clip's edges extend untidily beyond the edges of the tile, change the onscreen controls to Crop and use the onscreen controls to remove the excess from around the outside of the tile.



- 7 Finally, change the onscreen controls back to Transform, select the clip on Video 1, and resize the interview in the hole created by Tile 2.



- 8 When you have each clip placed correctly within the correct holes, press Shift-` (grave accent) to turn off the onscreen controls and review the timeline.

Awesome! However, as always, there's one last final touch to add.

## Stacking and Reordering Effects

The effect you've built using the Video Collage filter is looking great, but to really emphasize the foreground clips you may want to add a slight amount of blur to the background.

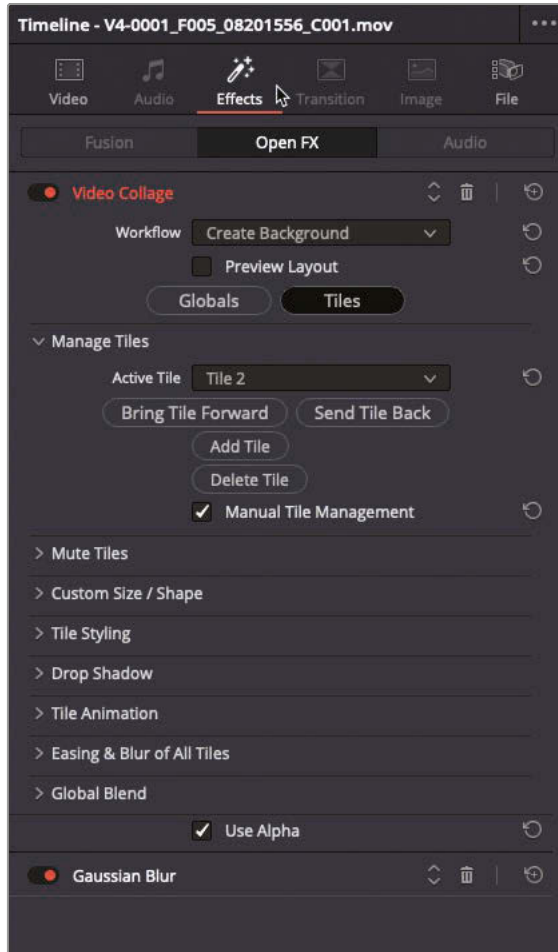
- 1 Deselect all clips in the timeline and, in the Effects Library, scroll to the top of the Filters list to the Resolve FX Blur category. Double-click the Gaussian Blur filter to the clip on Video 4.



Ah... By adding the blur filter, you're simply blurring everything on that clip—including the edges of the tiles and the drop shadow!

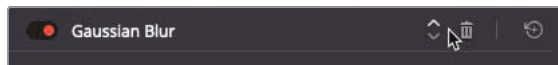
You'll need to reorder the effects on the clip to keep those elements sharp and just blur the image of the mountains.

- 2 Click the Effects tab in the Inspector.



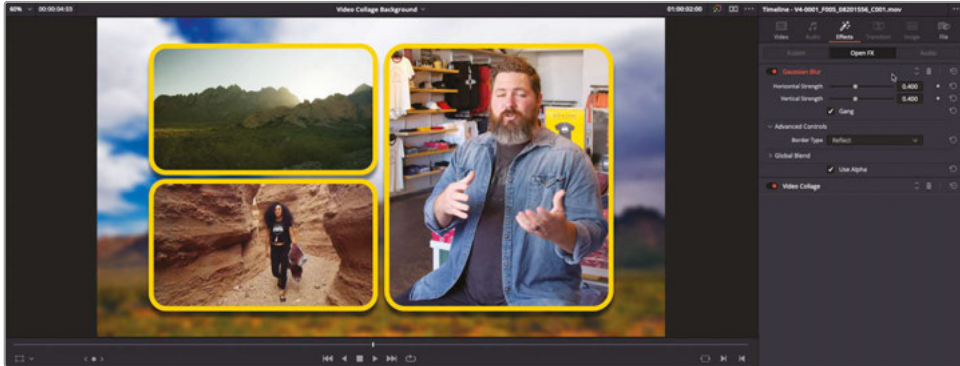
Notice how the Gaussian Blur filter is listed below the Video Collage filter because it was applied after the Video Collage.

- 3 Click the Up Arrow control for the Gaussian Blur filter to move it above the Video Collage filter.



The background image remains blurred, but now the edges of the tiles are not blurred because you have now specified that this is the order in which these effects should be applied.

- 4 Click the Gaussian Blur filter in the Effects Inspector to access its controls and adjust the amount of blur to your liking.



**NOTE** In the edit page, only the controls for one filter can be displayed in the Effects tab at any one time; however, you can always access the controls for other effects by clicking their names as you have just done for the Gaussian Blur filter.

Excellent. You've seen how the Video Collage filter can be used to create effective picture-in-picture effects over and above just using the transform controls available in the Video Inspector in Create Background mode. Next, you will explore how you can use it in Create Tile mode.

## Creating Tiles with Video Collage

An alternative way of employing the Video Collage filter is to use it to create and animate clips as individual tiles. This follows much more the traditional way of setting out a composite by having the background layer on the lowest video track and subsequent layers edited above this.

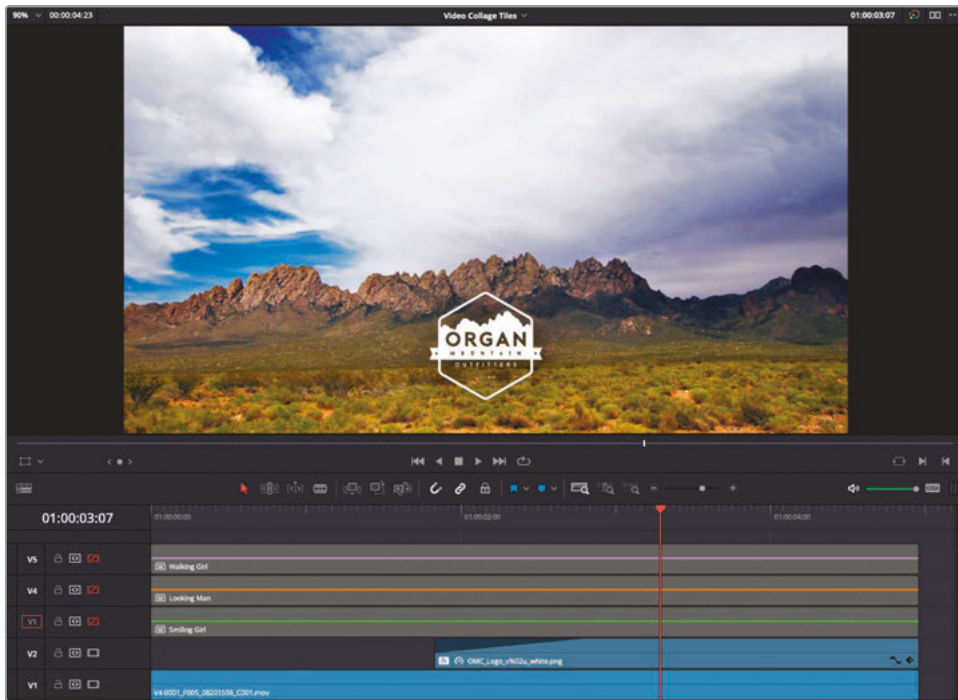
In this case, it's best to set up the Video Collage on one clip using the Layout Preview mode and, once you are happy with the layout and animations, copying the effect to other clips where you can then adjust them further.

Much like editing in general, there may seem to be many complex steps involved, but once you have things set up, the payoff is well worth it!

- 1 From the timeline viewer pop-up menu, select the Video Collage Tiles timeline.



Similar to the last timeline, this timeline has been set up with the same “background” clip on Video 1, and a logo that fades in on Video 2. Video 3 through 5 are currently disabled, but all have clips that you will use to build a custom animated intro for Organ Mountain Outfitters.



- 2 Enable Video 3 in the timeline and review the shot of the girl in the hat.

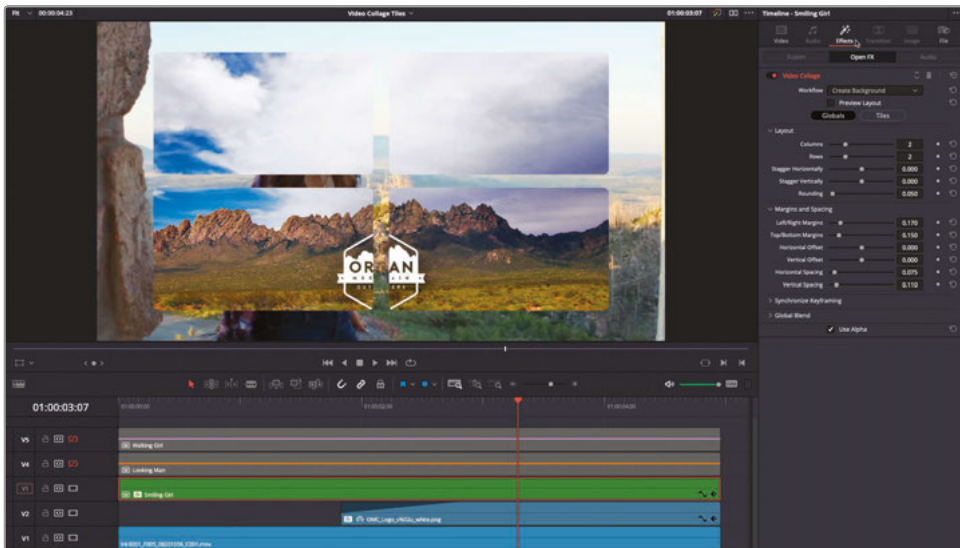
- 3 Move your playhead to the point at which she has turned to look at the camera (at about 3:00).



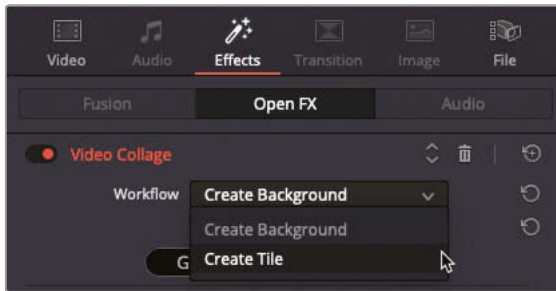
- 4 From the Effects Library, locate the Resolve FX Transform group of filters and apply the Video Collage filter to the clip on Video 3.

As before, the filter defaults to showing a 2 x 2 grid displaying the clips on the lower two video tracks.

- 5 Select the clip on Video 3 and click the Effects tab in the Inspector.



- 6 Change the Workflow pop-up menu to Create Tile.



The girl in the hat now displays as a picture-in-picture.



- 7 Click the Preview Layout checkbox to view the familiar tile preview.



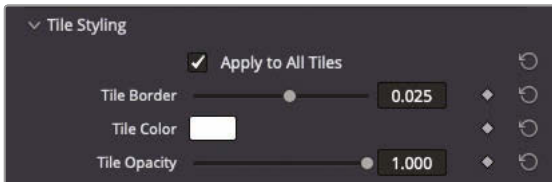
- 8 Change the number of Columns to 3 and number of Rows to 1.  
 9 Increase the Rounding to 1.0 to create three circular tiles.  
 10 Change the Vertical Offset to about 0.22 so the tiles sit above the mountain range.

- 11 Increase the Horizontal Spacing to about 0.15 to reduce the size of the tiles.



**NOTE** The size of the tiles is based on the Left/Right Margins and Top/Bottom Margins, with the outermost tiles placed at these margins and any additional tiles distributed evenly between those outermost tiles. Therefore, increasing the Horizontal Spacing between each tile results in each tile being made smaller, as the outer margins haven't changed.

- 12 Click the Tiles button and open the Tile Styling controls. Increase the Tile Border to about 0.025, and then click the Tile Color chip and use the system Color Picker to select a white border to match the Organ Mountain Outfitters logo.



- 13 Open the Drop Shadow controls and change the Strength to about 0.35, the Drop Angle to 90.0, the Drop Distance to about 0.03, and the Blur to about 0.5 to create a subtle, diffused drop shadow.

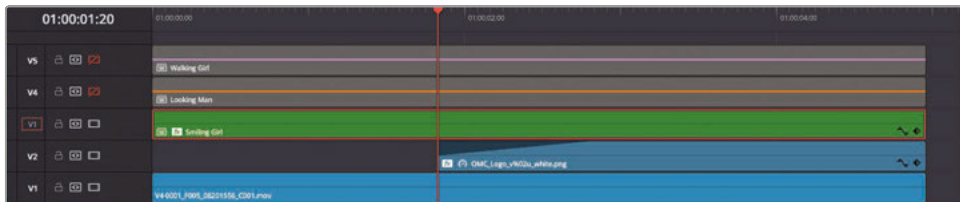




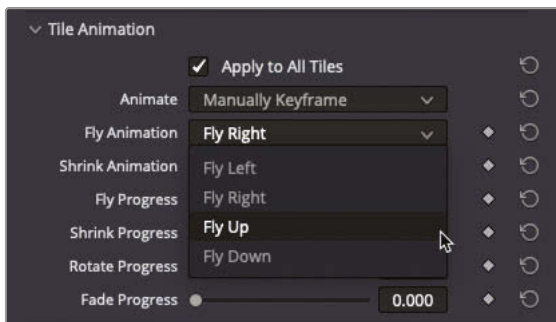
With the tiles styled and positioned nicely, it's time to consider how they will animate onscreen.



- 14 Return your playhead to the start of the clip on Video 2 and open the Tile Animation controls.



- 15 Change the Fly Animation pop-up to Fly Up. This specifies that the direction of the animation will be from the *top* of the screen.



- 16 Click the Add Keyframe button for the Fly Progress control.



- 17 Move your playhead to the start of the timeline and increase the Fly Progress slider until all the tiles have disappeared off the top of the screen (a value of about 0.55).



## Easing the Animation and Adding Motion Blur

With the general animation set up, you'll just want to ensure that you ease the movement to a gentle rest. Adding a small amount of motion blur will also help achieve a slightly more organic result to the final animation. For these steps, it's best to be able to see how you are affecting the actual clip that the effect is applied to.

- 1 Deselect Preview Layout.



- 2 Open the Easing & Blur of All Tiles controls.



The Motion and Size Ease pop-up specifies the type of easing for any keyframes applied to the Tile Position and Size parameters. The Animation Effects Ease specifies the easing applied to the Tile Animations controls.

- 3 Change the Animation Effects Ease pop-up menu to Out. This applies a curve to the end of the animation, bringing the tiles to a gentle rest above the logo.

**NOTE** The amount of easing applied to this setting can be controlled by the Ease Amount slider; the greater the value, the more easing is applied.

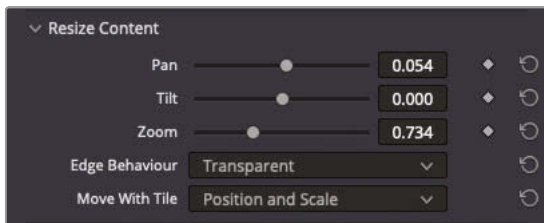
- 4 Increase the Motion Blur to about 0.50.

Adding motion blur will make the animation look a little smoother by blurring the pixels of the tiles in the direction of the movement, simulating the shutter on a video camera.



That takes care of the majority of the animation. However, the clip has yet to be centered in the circular tile.

- 5 Open the Resize Content controls and adjust the Pan to about 0.05 and the Zoom to about 0.7 to reframe the girl in the circle.



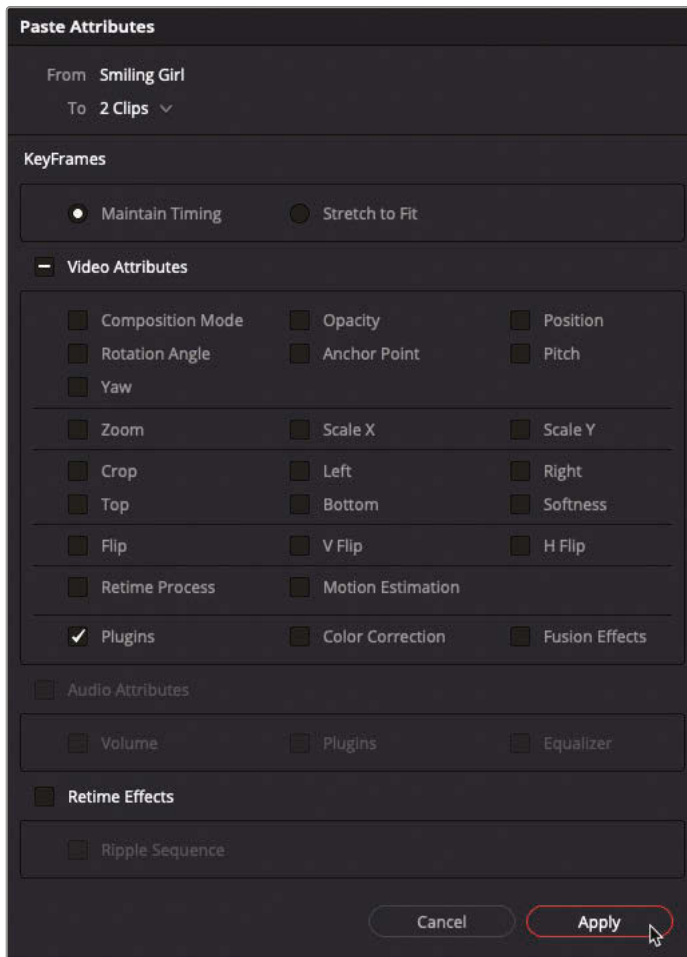
The filter is now ready to be copied to the other clips in the tracks Video 4 and 5.



## Copying and Pasting Attributes

The easiest way to apply the same effect, with the same settings, to the other clips is to use the copy and paste attributes commands, after which you only need to make one or two adjustments to the copied filters for the new clips.

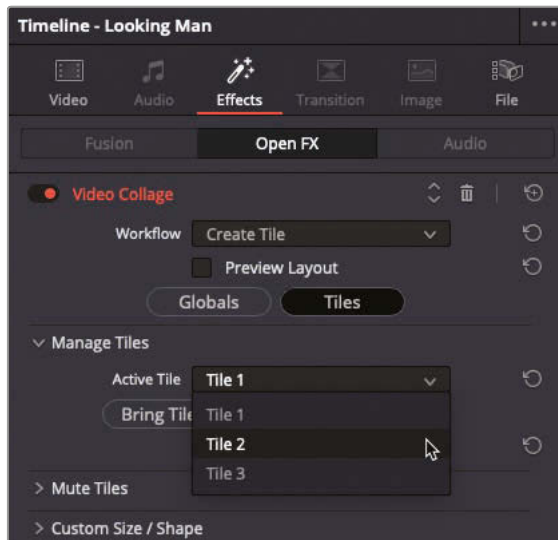
- 1 Click the clip on Video 3 to ensure it is currently selected, and then press Command-C (macOS) or Ctrl-C (Windows) or choose Edit > Copy to copy the clip.
- 2 Shift-click the Enable Video Track button for Video 4 or 5 to enable all disabled tracks.
- 3 Select the clips on Video 4 and 5 and press Option-V (macOS) or Alt-V (Windows) or choose Edit > Paste Attributes.
- 4 In the Paste Attributes dialog box, select Plugins and click Apply.



The Video Collage filter is applied to the selected clips with exactly the same settings as the original clip it was copied from. You will need to make a few changes to these copied filters.



- 5 Command-click (macOS) or Ctrl-click (Windows) the clip on Video 5 to deselect it, leaving just the clip on Video 4 selected.
- 6 Click the Effects tab in the Inspector to reveal the Video Collage settings for the selected clip.
- 7 In the Manage Tiles controls, change the Active Tile pop-up menu to Tile 2.



The clip on Video 2 appears in the position specified for Tile 2.



- 8 Open the Resize Content control and change the Pan to about 0.05 and the Zoom to 0.6.



- 9 Select the clip on Video 5, change the Active Tile pop-up to Tile 3 and, in the Resize Content controls, change the Zoom to about 0.57.



- 10 Return your playhead to the start of the timeline and play back to review the final composited clips.

**NOTE** You can import .drt files of each of these finished timelines from R17 Editing > Lessons > Lesson 08 Effects > Finished Timelines.

Well done! You have successfully completed this lesson and can now use some of the new effects included with DaVinci Resolve 17 to complete common tasks required of editors on a daily basis.

## Lesson Review

- 1 Which DaVinci Resolve FX can be used to key blue- or green-screen footage over a background?
  - a) Luma Keyer
  - b) HSL Keyer
  - c) 3D Keyer
- 2 True or False? The only way to tell if a clip has a Resolve FX applied is to open the Inspector.
- 3 Which Resolve FX can be used to easily adjust a clip's pitch, yaw, width, and height values using intuitive onscreen controls?
  - a) Distort
  - b) Perspective
  - c) Transform
- 4 Which Resolve FX can be used to quickly create complex picture-in-picture effects?
  - a) Grid
  - b) Video Collage
  - c) Blanking Fill
- 5 True or False? Video Collage animation presets cannot be keyframed.

## Answers

- 1 b) and c). Luma Keyer has no controls for selecting hue and saturation values.
- 2 False. The timeline clip displays a small FX badge next to the clip name.
- 3 c) Transform.
- 4 b) Video Collage.
- 5 False.



## Lesson 9

# Editing and Mixing Audio

Your project's soundtrack is an essential part of the overall audience experience. You could have the most wonderful editing, fantastic effects, and superb grading on your film, but if your audience can't hear what's happening clearly, they won't be able to engage with your story and will quickly switch off. And that's as true today for films, TV shows, and videos as it's ever been.

In this lesson, you'll explore some specific techniques for audio editing, sound design, and final mixing for your timelines, including "sweetening" your soundtrack through the use of equalization and dynamic controls, panning and recording track automation, and meeting delivery standards for loudness.

### Time

This lesson takes approximately 60 minutes to complete.

### Goals

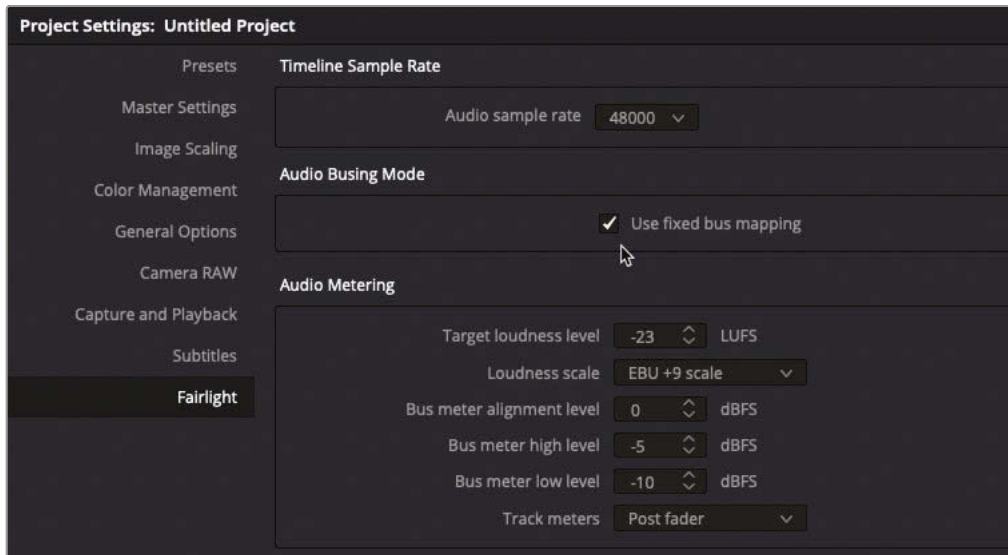
<b>Preparing the Project</b>	459
<b>Balancing the Dialogue Clips</b>	462
<b>Replacing Lines from Other Takes</b>	466
<b>Enhancing the Scene</b>	471
<b>Panning Tracks in Acoustic Space</b>	474
<b>Adding Layers for More Atmosphere</b>	478
<b>Creating a Radio Effect</b>	485
<b>Simplifying the Mix</b>	494
<b>Mixing with the Mixer</b>	501
<b>Adding More Mains</b>	503
<b>Recording Automation in Fairlight</b>	509
<b>Measuring Loudness</b>	514
<b>Lesson Review</b>	519

You will start by exploring what's possible in the edit page, but to truly understand the possibilities DaVinci Resolve 17 offers for working with audio, it's necessary for editors to brave the Fairlight page. Fortunately, while Fairlight is designed to create big Hollywood soundtracks, you'll find it familiar enough for you to use as an editor.

This lesson demonstrates features for audio mixing that utilizes DaVinci Resolve's fixed bus mapping features. As of DaVinci Resolve 17, this is no longer the default busing mode for new projects, which now use the new FlexBus mapping.

The new FlexBus structure completely upgrades Resolve's bus capabilities, offering user defined buses, and is designed to handle extreme numbers of audio tracks. The legacy fixed busing provides a more traditional approach to dealing with Mains, submixes, etc.

If you wish to use the fixed bus mapping in any new projects created in Davinci Resolve, go to the project settings and in the Fairlight section, enable "Use fixed bus mapping" prior to creating any timelines. Once a project contains a timeline, this option can no longer be changed.



# Preparing the Project

Before you start, let's take a moment to open the project and get acquainted with the bins and timelines that you'll use throughout this lesson.

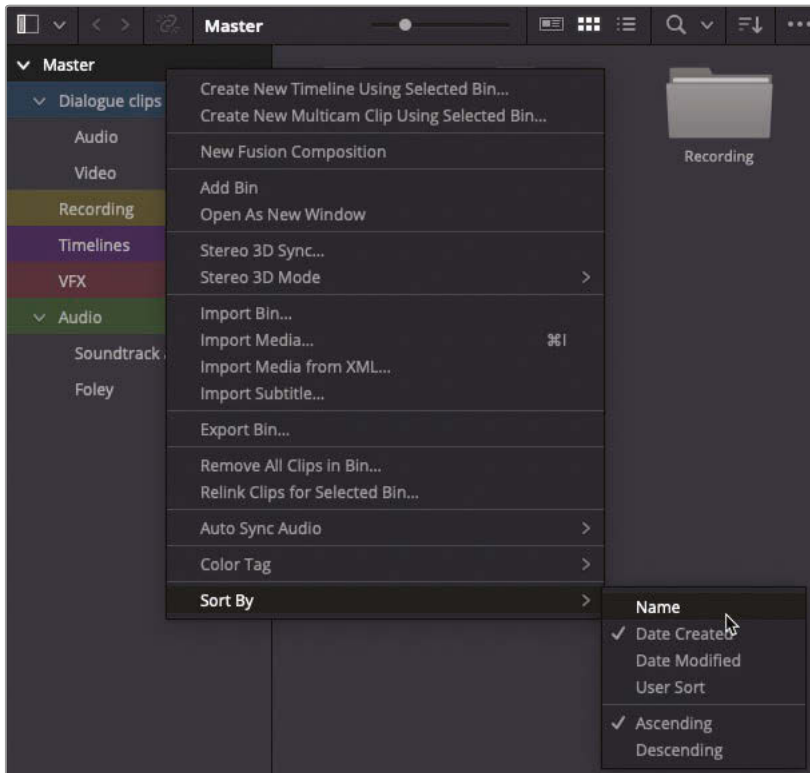
**TIP** Ideally, you'll want to have a good set of speakers or headphones connected to your computer for this lesson to appreciate the audible subtleties.

**1** In the Project Manager, right-click and choose Import Project. Navigate to R17 Editing > Lessons > Lesson 09 Audio. Select the **R17 Editing Lesson 09 Audio.drp** project. Choose Open and click OK to import the project into your Project Manager.

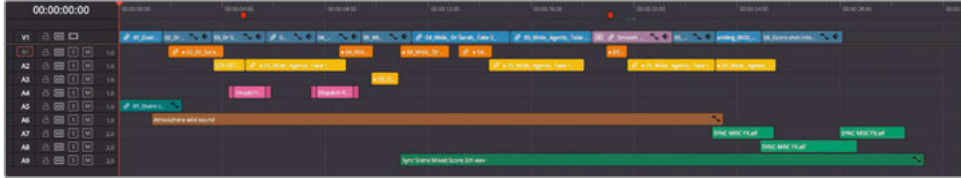
**2** Open the project and relink media files.

In the media pool, you can see a series of bins that contain the elements of your scene with the doctor and the FBI agents.

**3** Right-click the Master bin and choose Sort By > Name to organize the bins by ascending alphabetical order.



- 4 From the Timeline Viewer pop-up menu, choose the **AUDIO EDITING START** timeline to open it.
- 5 Click the Full Extent Zoom button to show the full duration of the timeline.
- 6 Play through the timeline to reacquaint yourself with the scene.



Wow! There's a lot going on in this timeline! You should be familiar with this scene between Doctor Kaminsky and the FBI agents, which you cut in an earlier lesson. This is a slightly refined version of the scene with several lines of dialogue having been removed to help the scene's pacing. Some additional elements have also been added to enhance the soundtrack; the audio clips on A4, for example, are a radio call being received by the FBI agents, and there are also music and sound effects on A6-A8 that drown out Agent Jenkins's final lines.

To get a better sense of how the audio is currently working, you will mute some of the tracks.

- 7 Click the Mute button for tracks A4, A7, A8, and A9, and then play the timeline again to preview the scene.



Notice how the timeline has been arranged with each character in the scene having their own audio track; even the assistant who has only one line in this scene has a track dedicated to that line. This is to aid the audio mixing process, which you will get to in good time.

## When Should You Start Mixing?

Up to now, you have learned how to use DaVinci Resolve to edit audio at the subframe level, adjust audio levels, add fades and Fairlight FX. However, most audio work occurs toward the end of the editing process, and that's why this lesson is the penultimate chapter of this book.

While you will no doubt make basic adjustments to audio levels throughout the editing process, you don't really want to spend too long perfecting the audio mix until the scene has been edited. This is the point that's usually referred to as *picture lock*, where the director or client is happy with the work so far and the fine-tuning can begin. If you start mixing the audio too early, you may find yourself in a position where you'll have to cut out a part of the scene, or maybe the entire scene completely, in which case all your hard work and the time taken to achieve it will be wasted. This is also the reason why *grading* the picture also occurs once the scene is picture locked and no further changes should be made.

In practice though, while picture lock may be aspired to, many edits may need further tweaking after a mix or grade has been started (or in extreme cases, completed). In these cases, the benefit of having the editing, mixing, and grading tools together inside the same application becomes obvious, as Resolve allows you to move seamlessly from one process to another and back again just by clicking the appropriate page.

The vast majority of the timelines you will work on will have three main audio components: *dialogue* (words spoken by actors, interviewees, or in voiceover), *effects* (sounds that occur onscreen or offscreen, such as a door slamming, the tapping of an iPhone's keyboard, an aircraft approaching from a distance, or wolves howling in the wilderness), and *music* (which sets the tone of the scene).

Quite often there might be several clips across different audio tracks for the same type of audio. For example, this timeline has four tracks for dialogue clips: one for each of the speaking actors and a fourth for the radio operator's lines. There are four effects tracks: one for the audience applause at the start of the scene, one for the sounds of the crowd in the room, and then two more for the crashes and bangs at the end of the scene. There's also one music track for the mixed score.

The audio in each of these groups can be *internal* to the scene or *external*. Internal audio (often referred to as *diegetic*) comes from a source the viewer can place somewhere within the scene, such as a specific speaker or music playing from a radio. It doesn't always need to be emanating from a visible source to be classed as diegetic sound; the sounds of cars, buses, sirens, etc., can indicate that the scene is taking place at a busy city intersection, even though not a single vehicle may be seen onscreen! External audio (called *non-diegetic*) is anything in the soundtrack that couldn't possibly come from anything within the onscreen world, such as a narrator's voiceover or music to enhance the audience's emotion.

Again, this scene contains a mixture of *diegetic* and *non-diegetic* audio. Can you identify which is which?

The applause as the doctor walks off the stage in the scene's first shot is obviously meant to be made by a large crowd of people she's just been addressing, while the sounds of people speaking in the background are made by the extras surrounding the doctor and the agents throughout the rest of the scene. (This *walla* track—the non-descript audio of a crowd—also has the advantage of providing a consistent background noise, or *room tone*, that helps fill the gaps in the soundtrack left during the dialogue clips.) However, the sounds of impacts and the music toward the end of the scene are obviously meant only for the audiences' ears to provide an emotional resonance to the end of the scene.

## Balancing the Dialogue Clips

Of the three general types of audio, probably the most important one is dialogue: if your audience cannot hear what's being said, they will not be able to follow the story, whether that is the story told in a drama scene such as in this lesson or through an interview, as with the *Citizen Chain* or *Age of Airplanes* footage you have edited in previous lessons. Think how much information is communicated in what the people onscreen are saying. The only time when dialogue is not the most important element of the soundtrack is for a video that is cut entirely to music (such as the Jitterbug Riot footage in the Multicamera lesson) or when the dialogue is purposefully buried in a mix.

With that in mind, it's not surprising to learn that dialogue is usually the best place to start when it comes to the audio mixing process.

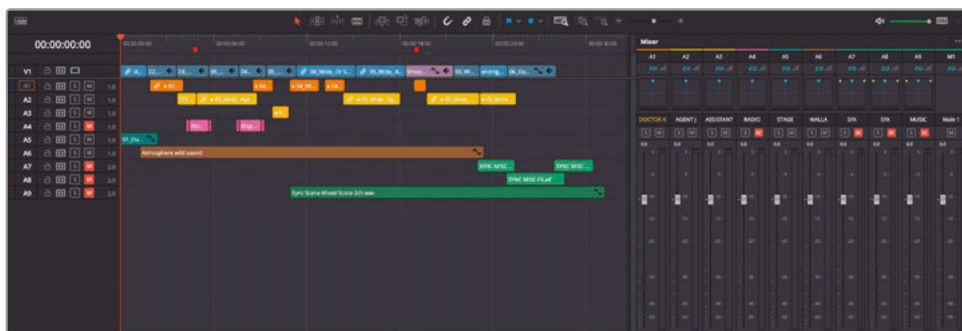
- 1 Play the timeline again, and this time listen carefully to the dialogue clips.

The audio for this scene has been recorded quite well, and the editing so far means just the parts of the clips with spoken words being included. However, you need to set the dialogue clips to the same general level.

- 2 At the top right of the interface, click the Mixer button.



The edit page audio Mixer opens to the right of the timeline. If you don't see the Mixer at full width, drag the left-hand edge of the Mixer to the left in order to reveal all the controls.

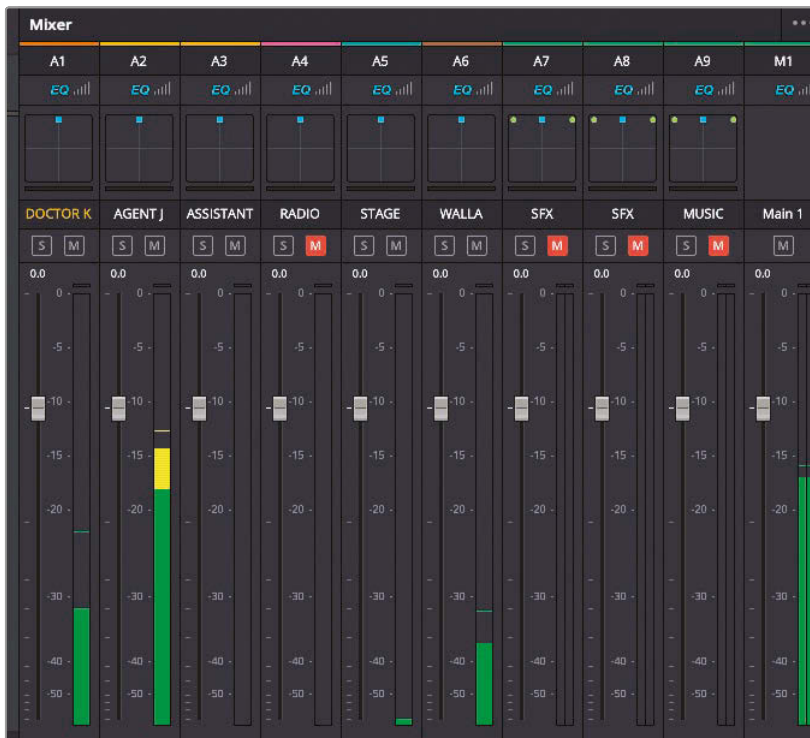


**TIP** If you need more space along the bottom of the interface for the timeline and the Mixer, you can use the Shrink button to the left of the Media Pool button in the interface to use a half-height media pool.



The Mixer contains a strip of controls for each audio track in your timeline, and an additional strip for the *Main*, which is the master control for the entire timeline. In DaVinci Resolve, each audio clip can be adjusted within the track, as you have been doing so far. Each track can then be further adjusted by using the Mixer before the output of the track is passed to the Main output. It is the output from the Main that you hear playing through your speakers or headphones. Any adjustments made to the track controls in the Mixer affect any clips on that track.

- 3 Play the timeline once more, and this time keep an eye on the audio levels for each track as the clips play.



You should see that the levels for Doctor K's audio clips are a lot lower than those of Agent J.

## How Much Should You Adjust Your Clip's Audio Levels?

The Mixer in DaVinci Resolve also gives you a good indication as to where your audio levels should be set, with each meter showing a range of levels color-coded in green, yellow, or red. For your current purposes, it really doesn't matter what level you choose *as long as you are consistent*—that is, you set the volume for the clips on the same track to the same level.

A good guide for dialogue levels is to set them within the yellow area, which is between -18 dBFS and -8 dBFS on the audio Mixer. Quiet, softly spoken lines might be toward the bottom end of this range, and shouted lines will be toward the higher end. A good, general guide for dialogue levels is to set them around the -12 dBFS mark.

At this point you might be tempted to reach for the audio level control for the track, but you first need to adjust the clip levels as much as you can; just because one clip is at one level, doesn't mean all of them are.

- 4 Play the first dialogue clip, which is on track A1, and look at the levels displayed in the track's control strip in the Mixer.

The clip's levels barely peak above -20 dBFS! This clip is a good candidate for increased audio levels.

- 5 Increase the volume of the clip in the timeline until the tooltip reads about +6 dB and play the clip once more.

The volume of the clip has increased and now sits in the yellow, peaking around -15 dBFS and sounds much better compared to the following clip of Agent J.



## Normalizing Audio Levels

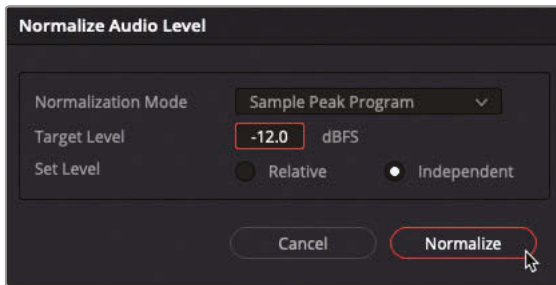
At this point, you now need to balance all the dialogue clips, so they play at a similar level. Remember, your audience must clearly hear each line of dialogue. You can, however, employ normalization across the dialogue clips to help with this process. It's not a "Get Out of Jail Free" card in that it doesn't necessarily *fix* all your audio levels, but it can help streamline the process on many occasions.



- 1 Click and drag to select all the clips on the first three audio tracks, A1, A2, and A3.



- 2 Right-click any of the selected clips and choose Normalize Audio Levels. The Normalize Audio Levels window appears.
- 3 Leave the Normalization Mode set to Sample Peak Program, set the Target Level to -12 dBFS and the Set Level option to Independent. Click Normalize.



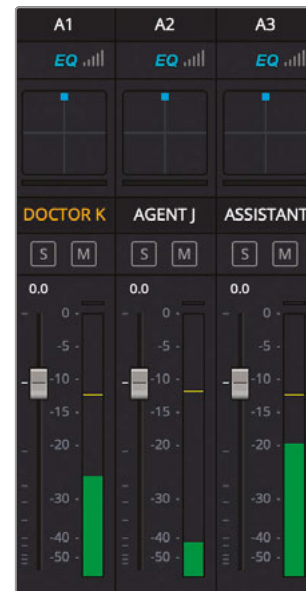
The selected audio clips have their volume adjusted as indicated by the change in the waveforms. Notice how the waveforms for the different clips are now all similar sizes, indicating that they are roughly the same level.

- 4 Once more, play the timeline and see the change in the audio levels in the Mixer.

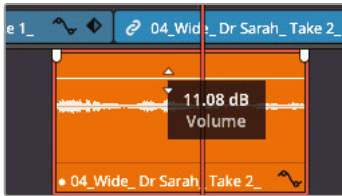
Now all the levels seem to be playing at a much more consistent level. However, as mentioned earlier, the process of normalizing the audio levels isn't a fix in itself; it just gets you in the ballpark. You now need to go through and ensure that the clips' levels are where you want them.

- 5 Play the third clip on A1. This is where the doctor mutters to her assistant.

The clip has been raised to the level you specified when you normalized the clips, but it's totally unsuitable for this particular clip.

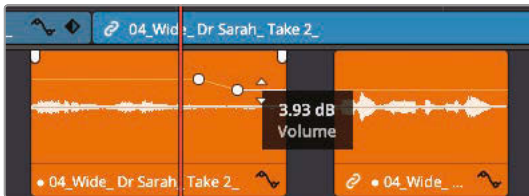


- 6 Lower the clip's volume curve to about 10 dB, which puts the clip at the lower values of the yellow target area on the meters.



You can always refine the levels further by adding keyframes.

- 7 As the clip is still a little noisy at the end, add a couple of keyframes after the doctor has delivered her line by Option-clicking (macOS) or Alt-clicking (Windows) the volume curve and lowering the portion after the second keyframe to about 4 dB to push the rustling noises back into the overall mix.



Continue to balance each of the dialogue clips across the first three tracks so they are consistent throughout the scene.

## Replacing Lines from Other Takes

A common problem that editors often face is that a take might be great visually, but the audio might be less than optimal. Indeed, many takes are often chosen initially on the basis of their visuals rather than their audio. In these cases, it's often easier to replace part of the audio in the timeline with the audio from another take.

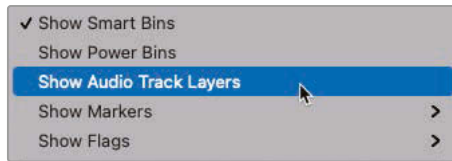
- 1 Move your playhead to the second red marker in the timeline.

**TIP** Pressing Shift-Up Arrow or Shift-Down Arrow jumps the playhead to the previous or next marker, respectively.

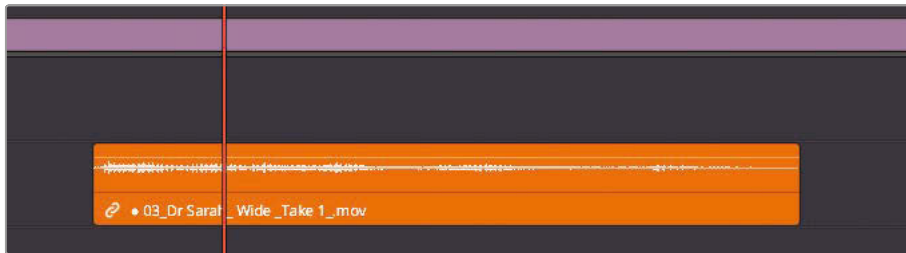
- 2 Press / (slash) to Play Around the current playhead position.

Ouch! It sounds as though the doctor hits herself as she brings her hand down! It's very distracting but probably very difficult to edit out (which should have been your first instinct). Instead, you will use Resolve's audio track layers to replace the line with another take.

- 3 Click the Detail Zoom button to zoom in on the current playhead position.
- 4 Choose View > Show Audio Track Layers.



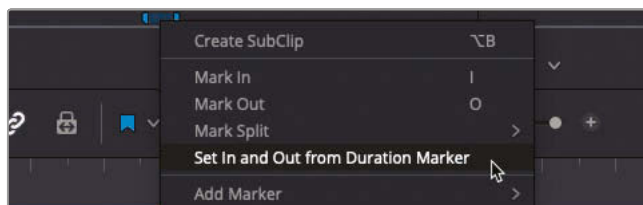
All the timeline tracks appear to shrink in height. But look closer, and you will see a space appear above the clips for each track, separated by a thin dividing line. These are the audio track layers.



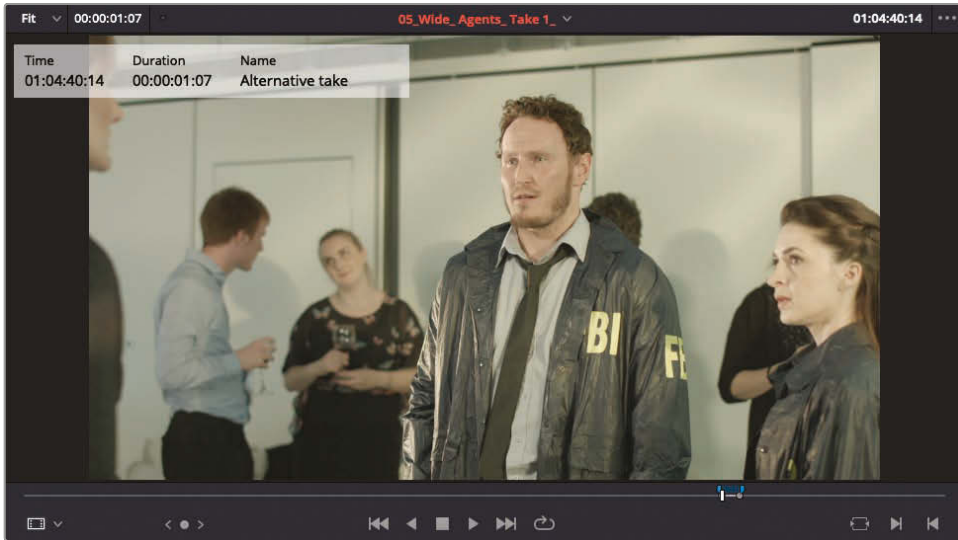
**NOTE** Audio track layers function very similar to the way you work with video tracks. You can add any amount of audio clips to the audio track's layers, and they will appear one above the other. However, only the topmost layer is the clip that plays, similar to how a cutaway works on the V2 track.

It is always the topmost clip that has priority; you can't "mix it" with a clip on a lower level, although you can use audio fades on the uppermost clips to fade them in from a lower clip.

- 5 In the media pool, select the Video bin in the Dialogue Clips bin and double-click the clip **05\_Wide\_Agents\_Take\_1\_** to open it in the source viewer.
- 6 Right-click the blue duration marker in the source viewer and choose "Set In and Out from Duration Marker" to add the required In and Out points.

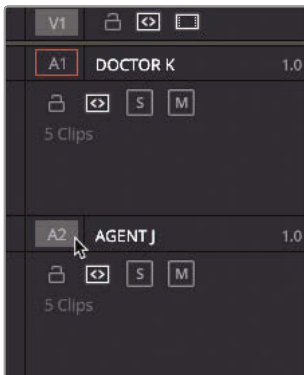


- Press Option-/ (slash) on macOS or Alt-/ (slash) on Windows to play from the In to the Out point.

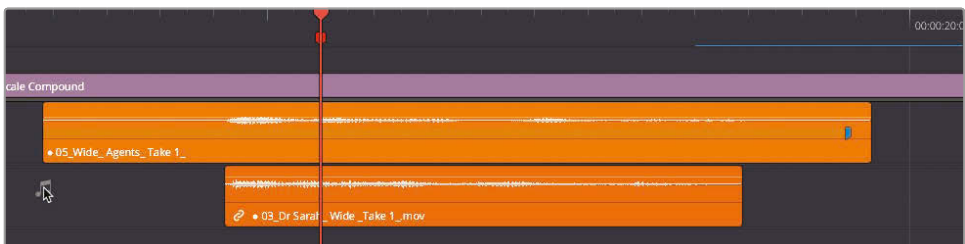


This is a clean version of the same line of dialogue.

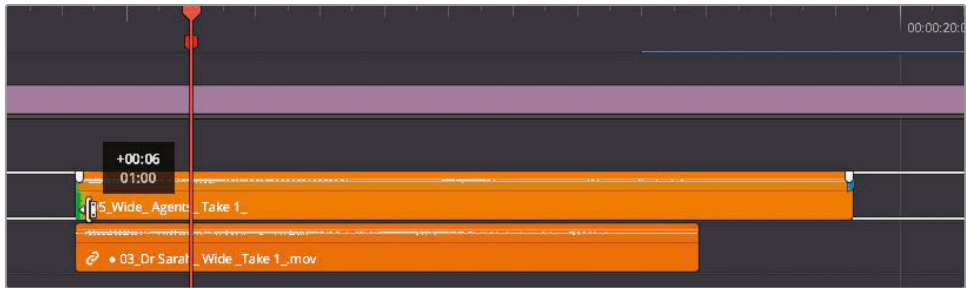
- In the timeline, deselect the track source controls for A2.



- Use the source viewer Overlay button to drag the audio clip into A1 above the existing clip (the doctor's lines are on the first source channel).



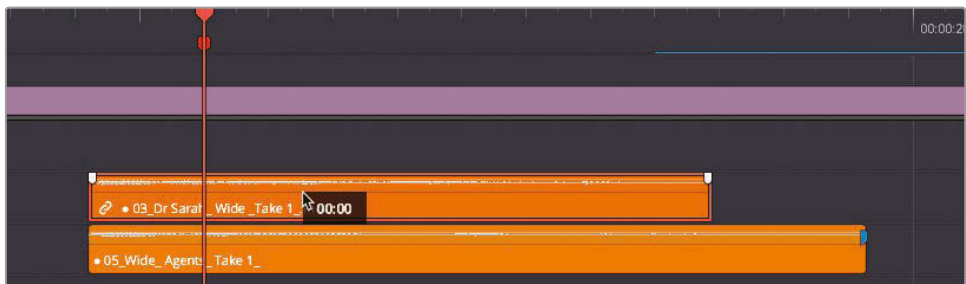
- 10 Trim the new clip so it starts at the waveform where the doctor begins speaking and align it with the beginning of the original clip on the track layer below.



- 11 Press / (slash) to preview the new line of dialogue.

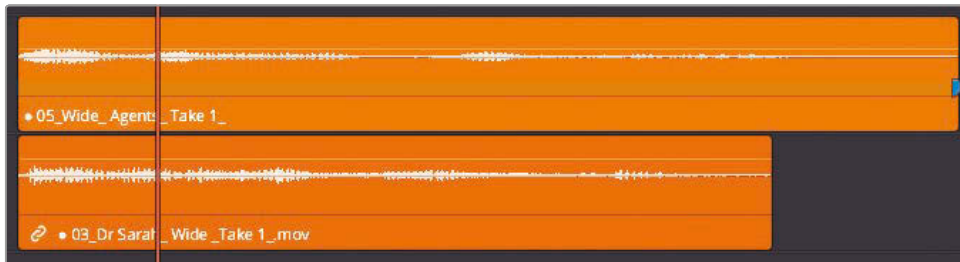
The clap has vanished!

- 12 Click and drag the original dialogue clip up and above the new clip to swap their order in the track layers.



- 13 Press / (slash) again to preview the original take.

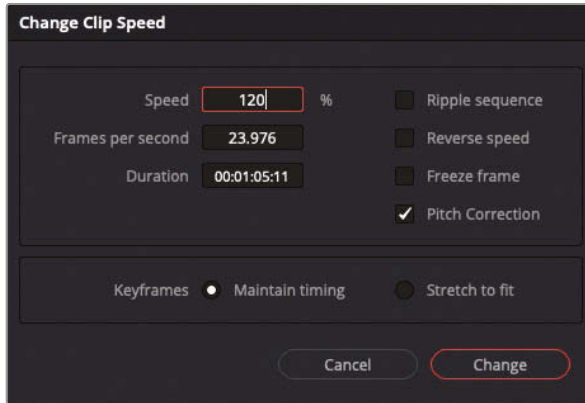
- 14 Change the order again, so the new take sits above the old take on the track layers.



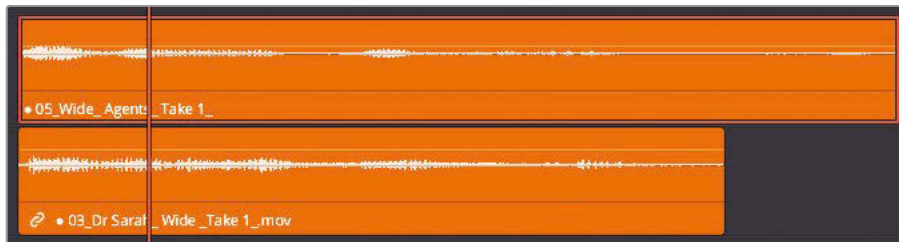
You'll probably get away with using the audio from this different take, as the actress playing the doctor delivered her lines at roughly the same speed and it's doubtful anyone would ever spot a discrepancy between her lips and the words spoken. However, if you look closely, the waveforms of the uppermost layer don't fully align with the original take's audio. But you can easily fix this by adjusting the speed of the audio clip.

- 15 Right-click the topmost audio clip and choose Change Clip Speed.

- 16 Change the speed to 120%. Ensure that Ripple Sequence is not selected but Pitch Correction is selected and click OK.



The speed of the audio clip is adjusted, and the audio pitch is automatically adjusted so the doctor's new audio is now in perfect sync and she doesn't sound like she's inhaled helium.



**TIP** You can also use the Elastic Wave function in the Fairlight page to manually adjust the speed of an audio clip and create variable speed adjustments for audio clips without adjusting the pitch of the audio clip.

- 17 Trim any excess audio from the newly added clip, and then choose View > Show Audio Track Layers to hide the track layers.



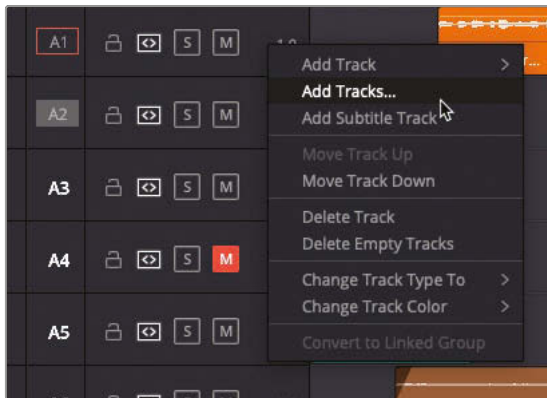
- 18 Preview the audio clip again, adjusting the level to balance this new clip with the rest of the doctor's dialogue clips.
- 19 Select the Full Extent Zoom and adjust the audio track heights so you can see all the audio tracks in the timeline again.

Audio track layers are a useful feature of working with audio in DaVinci Resolve. They can be used for many different things, such as quickly switching between different voiceover takes or auditioning different music cues for a scene. Used this way, they are very similar to using the Take Selector, which cannot be enabled for audio clips.

## Enhancing the Scene

Now that the dialogue has been balanced and repaired, it's time to turn your attention to the sound design for this scene. In the script, this scene is set during a break at a busy technology conference. While the **Atmosphere wild sound** clip on A6 offers some sense of the other people in this room, it's supposed to be in a room full of people chatting, and there's a distinct lack of *atmosphere*, which you will now inject. To begin with, you will duplicate the **Atmosphere wild sound** clip to increase the number of people in the room.

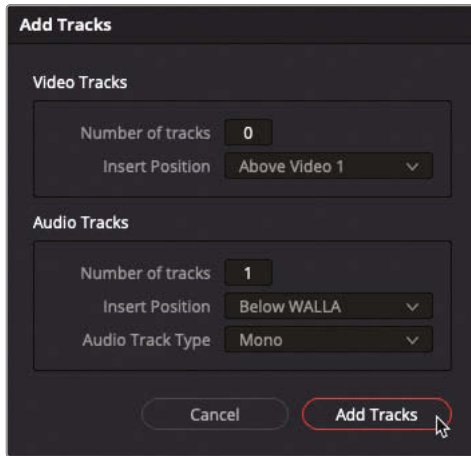
- 1 Right-click on the timeline header controls for any track and choose Add Tracks.



The Add Tracks window opens.

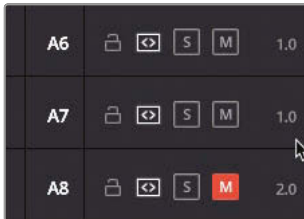
You don't want to add any extra video tracks, but you do want to add an extra audio track into which you will duplicate the mono **Atmosphere wild sound** clip.

- Change the Number of Video Tracks to 0 and leave the Number of Audio Tracks set to 1. From the Insert Position pop-up menu, select Below Walla and set the Audio Track Type to Mono. Click Add Tracks.

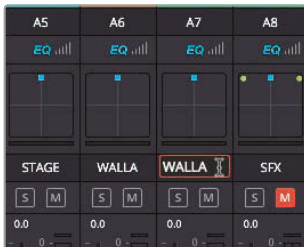


An additional mono track is added below the **Atmosphere wild sound** clip's track.

**NOTE** You can always reposition a track's position in the timeline by right-clicking the track header and choosing Move Track Up or Move Track Down, as appropriate. Alternatively, you can use the Index panel in the Fairlight page to drag any number of selected audio tracks to a different order.



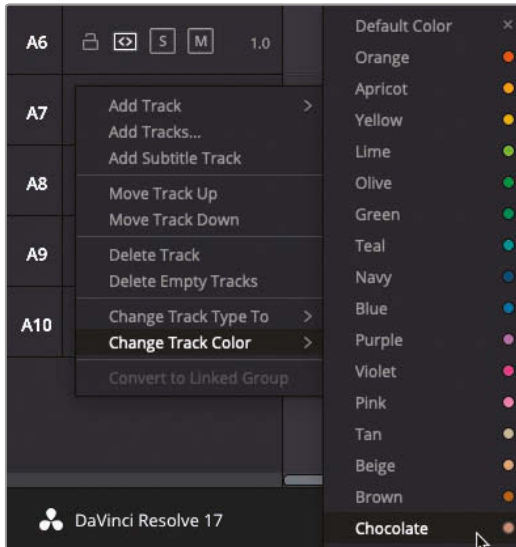
- In the Mixer, double-click the new Audio 7 track name and type **WALLA**.



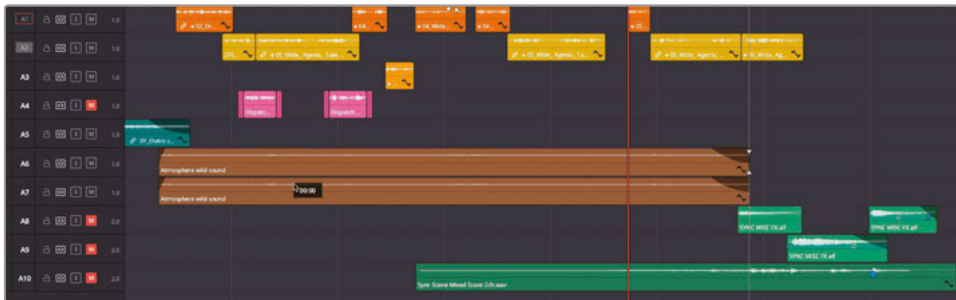


**NOTE** “Walla” is a term used for this type of general, non-descript crowd sound.

- 4 In the timeline, right-click the track header for A7 and choose Change Track Color > Chocolate.



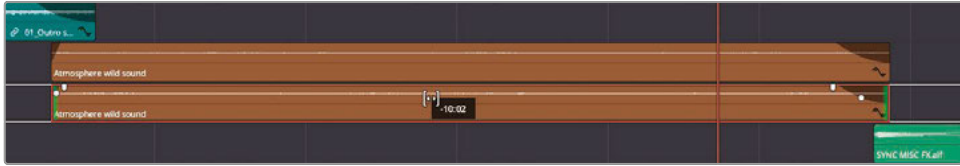
- 5 Press and hold the Option key (macOS) or the Alt key (Windows), select the **Atmosphere wild sound** clip in A6, and drag a copy of the clip into A7.



**TIP** If you don't have snapping enabled before you start duplicating the clip, press and hold Shift together with the above step before you release the mouse to ensure that you constrain the horizontal position of the clip in the timeline.

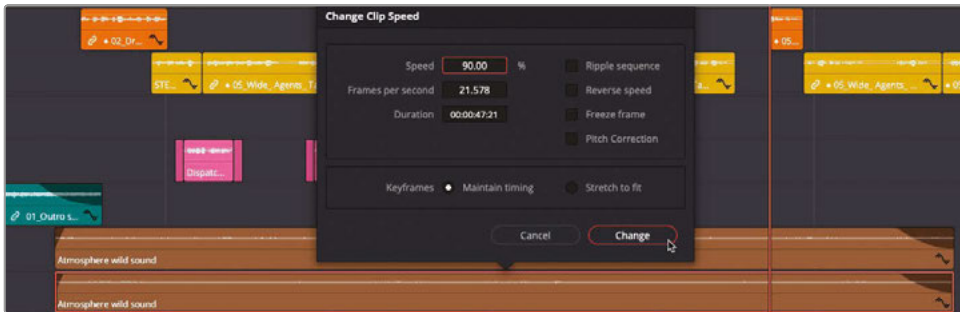
Listen to the change this makes. Maybe you'll agree that it doesn't sound as though you've increased the amount of people in the crowd—rather, they are just louder.

- 6 Press T to activate Trim Edit mode and slip one of the two **Atmosphere wild sound** clips by about -10 seconds.



**NOTE** Slipping the footage backward results in using a later portion of the clip.

- 7 Finally, right-click either of the **Atmosphere wild sound** clips and choose Change Clip Speed. Change the Speed to 90% and uncheck the Pitch Correction option before reviewing the changes.



You're getting there. By offsetting the timing and speed of one of the clips, it sounds as though there are so many more people in the room now, even though only a handful of people are actually onscreen.

Congratulations! You have increased the crowd size without having to pay for additional actors. The producer will be pleased.

## Panning Tracks in Acoustic Space

Pan controls enable you to choose where a track's audio is within a panoramic sound field. They enable you to place the spatial arrangement of audio elements just as a cinematographer composes the visuals of a shot. Mono tracks can be precisely located to sound as if they come from an offscreen source or from somewhere within the frame.

DaVinci Resolve includes advanced pan controls in the Mixer that support both 2D (stereo) and 3D (surround) audio placement.

In this exercise, you'll use the pan controls in the Mixer to "widen" the walla tracks, so they don't "crowd" the dialogue tracks.

**NOTE** If you have been using your built-in computer speakers or an inexpensive single speaker, you are well advised to use headphones for this panning exercise to fully appreciate the changes you will make.

- 1 Return your playhead to the start of the scene and play again, listening carefully with your eyes closed. Can you pinpoint where the dialogue and walla is all coming from?

Your eyes may tell you where things are onscreen, but when you close them everything seems to be coming from directly in front of you. Of course, the crowd should be all around you.

Because the audio is playing from a series of mono tracks, the sound from all these tracks is playing equally from both output channels in the timeline, and therefore both of your speakers. This makes them sound centered within the sound environment.

- 2 Continue playing the scene and, using the Mixer's Pan controls, drag the blue handle for the A6 track to the upper-left corner of the panning control in the control strip.



Can you hear the change? It sounds like you're pushing part of the crowd to the edge of the room.

- 3 Drag the A7 track's blue panning handle to the upper-right corner of the control.



- 4 Play the timeline from the beginning to hear the walla tracks panned to the far left and right of the acoustic space.

In just a matter of seconds, you filled the far reaches of the acoustic space with the walla, making the crowd seem to spread out within a much larger room. Crucially, you've also moved the sound of the crowd away from the actors' audio tracks, thereby making it easier to hear the all-important dialogue.

To take a closer look at the Pan controls, you can open them in a separate window.

- 5 In the Mixer, double-click the Pan controls for the A6 track to open the Audio Pan window.



The Pan controls automatically work with either 2D (stereo) or 3D (surround) panning depending on your setup and project. The center of the control represents the acoustic center from the audience's perspective. The small letters F, R, B, and L—positioned clockwise around the space in the top, right, bottom, and left positions—represent the Front, Right, Back, and Left positions in the panoramic field, respectively.

Where you place audio tracks within the panoramic space will reflect where the audience will locate each audio source. The Spread control is for linked sources, such as stereo clips. Divergence determines the spread of the audio signal to additional speakers in a surround mix, and Boom determines how much of a track's sound is sent to the low-frequency effect (LFE) speaker for a 2.1 or 5.1 channel Main.

Look carefully to see that the A6 track is currently panned to the front-left position. Let's relocate it to the back-left position to hear the difference.

**NOTE** You won't hear the sound change from front to back when you are listening through stereo speakers or headphones. Also, if you are monitoring audio through an audio interface and mixer that outputs only left and right channels, then you may not hear any output that is not panned to the front left, front center, or front right.

- 6 Start playback and drag the blue Pan handle to the lower-left corner of the pan area. Pan the track to the center and then to the right. Return the control to the back left. Could you hear the crowd move around the room as you panned? You can choose where to place the crowd.
- 7 Use the Pan controls in the A6 and A7 tracks to place the walla tracks wherever you'd like in the panoramic field. If you aren't sure of their placements, try putting them in the far left and far right between the back and center locations.
- 8 In the Mixer, change the name of the A6 and A7 tracks to **WALLA-L** and **WALLA-R**, as appropriate.



When you're finished panning tracks to compose the acoustic space within your scene, you can move on to finessing the levels of those tracks. In audio postproduction, volume control is an ongoing process right up until you output the final mix.

## Extra Credit

To practice the above steps, repeat the process on the opening applause clip:

- Create a mono track below the existing STAGE SFX track. Rename this track **STAGE-R** and color code it Teal to match the A5 track.
- Rename the STAGE SFX track **STAGE-L**.
- Duplicate the audio of the **01\_Outro shot from previous scene** clip to this new track.
- Slip the applause audio of one of the clips and adjust the track pan so that the applause fills the room.
- Try adjusting the speed of one of the applause clips, with or without pitch correction.



## Adding Layers for More Atmosphere

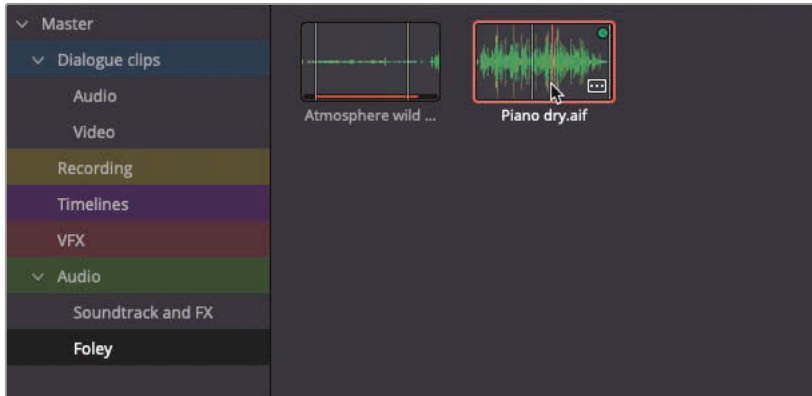
The script for this scene calls for the FBI agents to interrupt the doctor at a high-brow conference with her colleagues. Now that you have increased the number of people in attendance, it's time to add a little more nuance to the scene.

- 1 Select the Foley bin in the media pool.

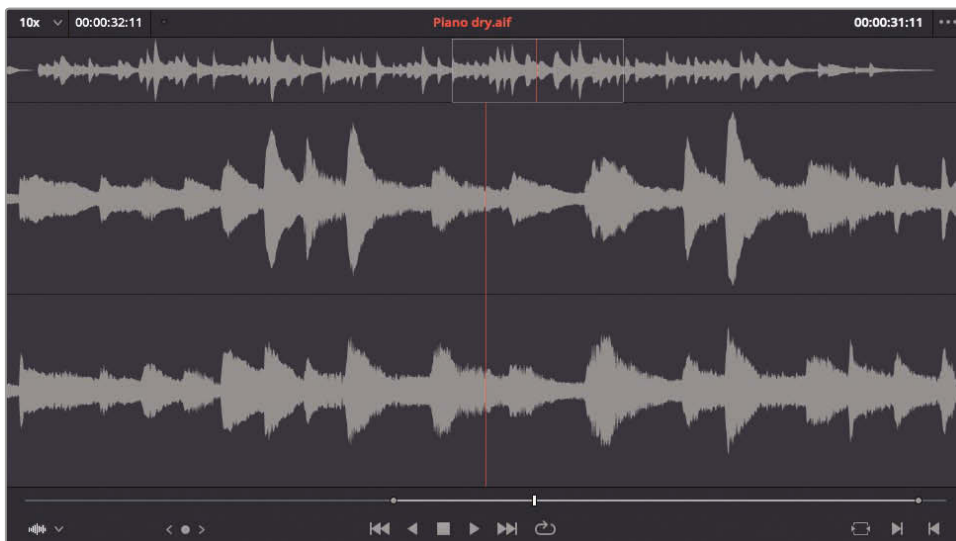
**NOTE** In filmmaking parlance, *foley* is the term used for any audio added to a film's soundtrack that recreates diegetic sounds, such as footsteps on different surfaces, traffic sounds, the rustle of clothing, or the swish of a lightsaber.

Named after Jack Foley, the pioneer of recording and synchronizing such "everyday" sounds for films, it also gives rise to the terms foley studio, where such sounds are often created and recorded, and foley artist, the person who actually performs and/or records the sounds.

This bin contains the original **Atmosphere wild sound** clip, together with another audio clip, **Piano.aif**.

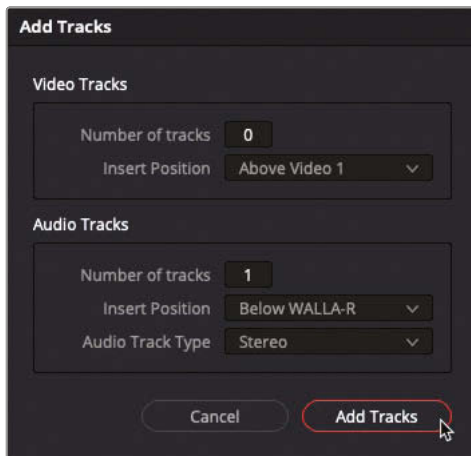


- 2 Double-click the **Piano.aif** clip to load it in the source viewer and play the clip to listen to it.

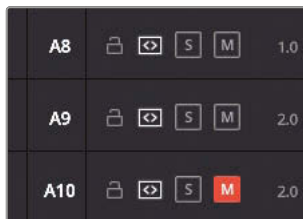


This clip is a stereo recording of a piano being played in a studio. A portion of the clip has already been marked with In and Out points. You will edit this clip into a new track to add to the overall ambience of the scene, as if there was a pianist somewhere offscreen tinkling the ivories for the delectation of the conference attendees.

- Right-click any of the track headers in the timeline and choose Add Tracks. Change the number of Video Tracks to 0, change the Audio Tracks Insert Position to Below Walla-R. Leave the Audio Track Type set to Stereo. Click Add Tracks.



A new, stereo audio track is added, labeled A9.



**NOTE** Because you're adding a stereo clip to this timeline, it makes sense that it should be added to a stereo track to preserve the stereo effect in the mix. If you add a stereo clip to a mono track, only the first of the two stereo channels are used, and if you add a mono clip to a stereo track, the mono audio will only be played out of the first (usually left-output) channel.

Incorrectly created track types can be adjusted by right-clicking the track header and choosing Change Track Type To, and incorrect audio configurations for clips can be adjusted in Clip Attributes.



- 4 In the Mixer, change the name of the new A9 track to **Piano** and right-click the A9 track header in the timeline and choose Change Track Color > Tan.



- 5 Click the Track Destination control for A9 to target the new track.

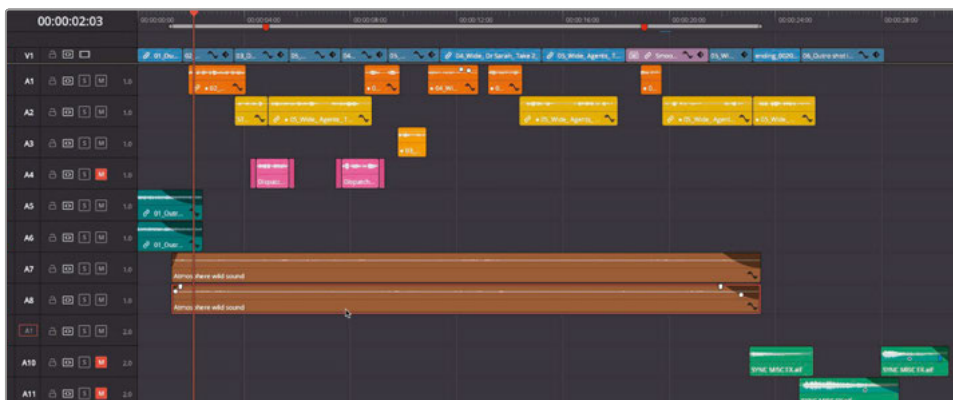


**NOTE** Default keyboard shortcuts exist to quickly target any of the first eight video or audio tracks in the timeline (viewable by choosing Timeline > Track Destination Selection). For any track numbers above this, it's often easier to target them by clicking with the mouse.

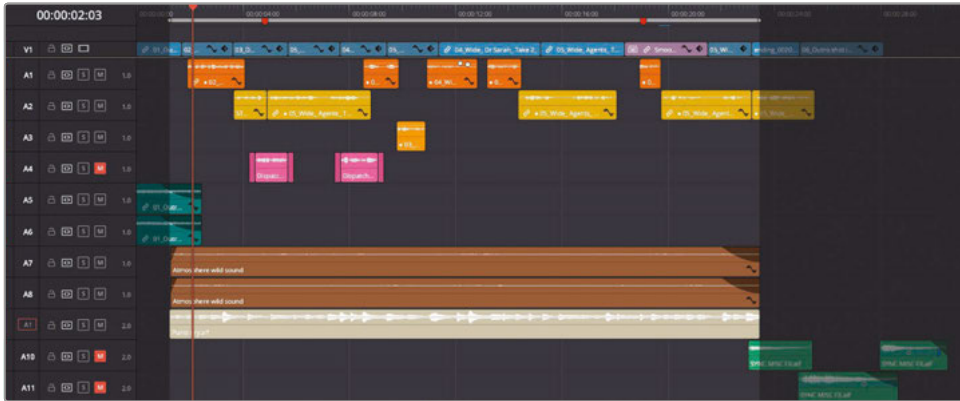
You will now use the duration of the clips on either of the walla tracks to quickly mark a duration for your piano audio.

- 6 Select the clip on the A8 track and choose Mark > Mark Selection or press Shift-A.

In and Out points are added to the timeline for the duration of the selected clip.

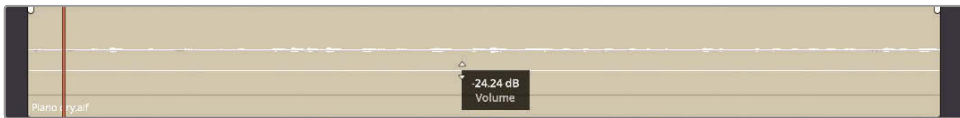


- 7 Perform an overwrite edit.



**NOTE** If necessary, press Option-X (macOS) or Alt-X (Windows) to remove the In and Out points from the timeline.

- 8 Increase the size of the A9 track so you can see the waveform clearly and lower the Piano clip's volume by -25 dB to bring its level down to around the same level as the walla audio (using the levels displayed for A9 in the Mixer as a guide).



- 9 Using the Fade handles, add a short ten-frame fade at the start of the Piano clip and a 2-second fade at the end, changing the curve of the fade-out to create a nice logarithmic fade for the piano.

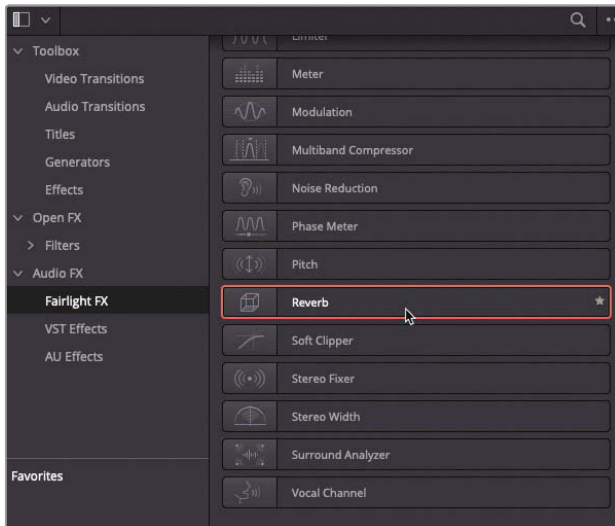


Perfect. Now your conference crowd has some entertainment to listen to while the doctor and the FBI agents discuss things.

## Filling the Room

The piano has added some much needed ambiance to the scene, but it still feels a little *dry*, as it was recorded in a sound studio with lots of foam cones on the wall that reduced any unwanted *sound reflections* from the studio walls. This is ideal for the foley clips because you can then add your own *reverb* to the audio using the built-in Fairlight FX to suit the scene.

- 1 Click the Effects Library and select Fairlight FX from the Audio FX category.



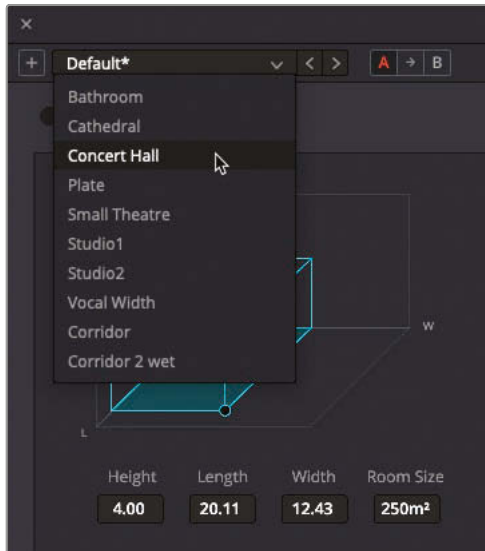
- 2 Locate the Reverb effect and drag it to the A9 track header in the timeline.



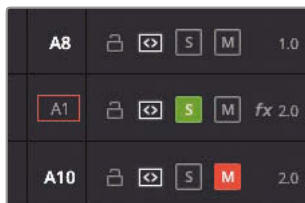
The Reverb FX controls window opens automatically.



- From the presets pop-up menu in the top-left of the controls window, choose the Concert Hall preset.



- Solo track A9 and play the scene back to hear the newly created sound reflections of the piano bouncing around the room.



**TIP** Use the red active switch in the top-left of the Reverb controls to disable and enable the effect to hear the audio clip with and without the effect applied.

- Close the Reverb effect controls window and un-solo the A9 track.

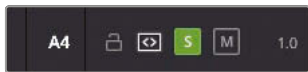
**NOTE** In the edit page, to access the controls for an audio effect applied to a track, click the track header in the timeline and open the Effects Inspector.

Adding an effect to a track rather than individual clips is an easy way to make sure that any clips on any part of the track will have the reverb applied. You can tell if a track has an effect applied to it by the FX badge in the track header in the timeline and the top of the track's controls in the Mixer.

## Creating a Radio Effect

Now that you have some idea of the sort of work that goes into a scene's *sound design*, it's time to turn your attention to adjusting the audio that is supposedly coming from the agents' radios. In this case, you will apply some adjustments to the clips' EQ before changing the track's level for the mix.

- 1 Move your playhead to the first marker in the timeline.
- 2 Click the Detail Zoom button or adjust the timeline zoom so you can clearly see the first three clips on the A4 track.
- 3 Click the A4 Mute button to unmute the track and click the A4 Solo button to solo the same track.



- 4 Press / (slash) to play around the marker.

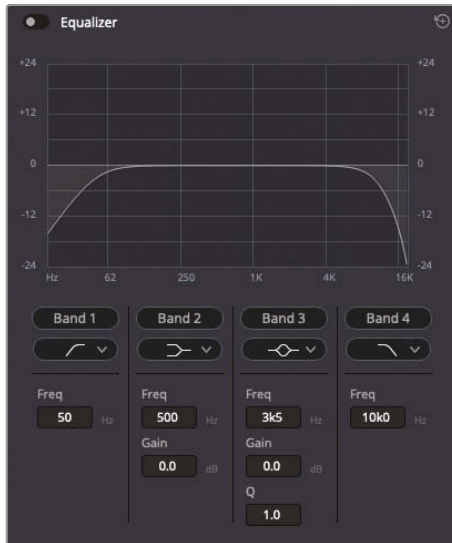
This part of the timeline has a sound effect at the beginning and end of the line from the radio operator to indicate the radios receiving a signal. The actual lines from the radio operator were spoken by an actor and recorded directly into Resolve. However, you'll need to manipulate the audio to make it sound as though you're hearing this over a radio rather than through a studio microphone.



**NOTE** See *The Beginners Guide to DaVinci Resolve 17* for more information on recording audio using the Fairlight page.

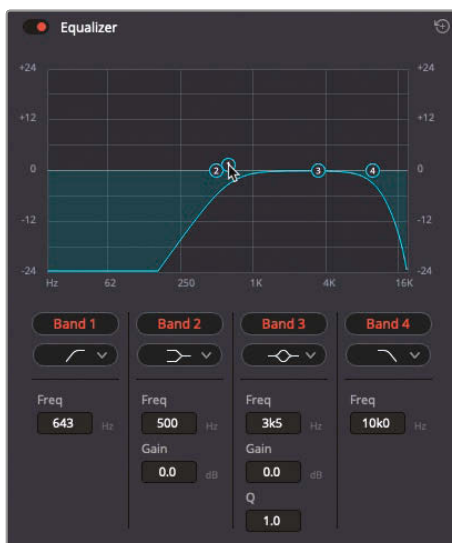
- 5 In the timeline, select the **Dispatch Recording.wav** clip on A4.

- Open the Inspector, click the Audio tab, and scroll down until you see the Equalizer controls.

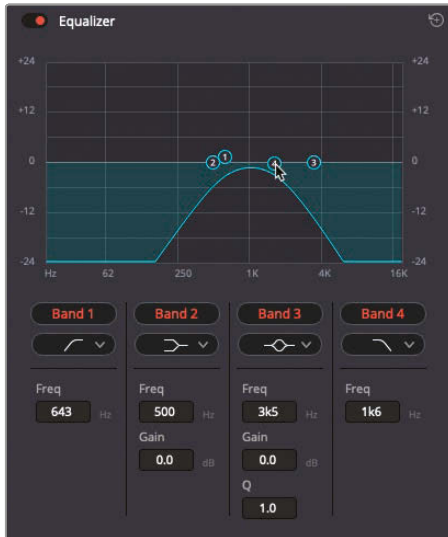


In DaVinci Resolve, each audio clip has a set of controls that includes a four-band parametric equalizer that can be used for boosting or attenuating (reducing) different ranges of frequencies of the clip.

- Enable the Equalizer for the selected clip.
- Press Command-/ (slash) on macOS or Ctrl-/ (slash) on Windows to enable looped playback, and then press / (slash) to play around the marker. Listen to the line a few times to hear how it sounds.

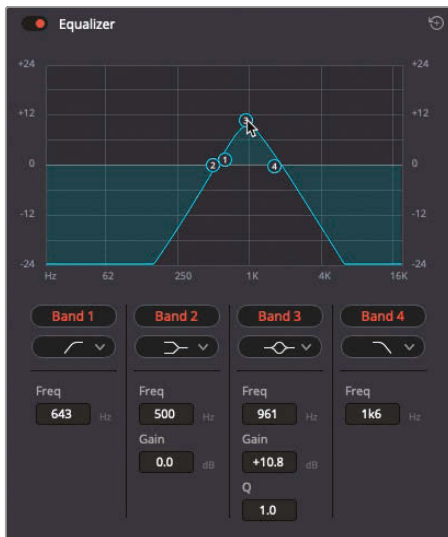


- 9 In the Audio Inspector, move the Band 1 control right to about 650 Hz to cut the lower frequencies of this clip.
- 10 Move the Band 4 control to the left to around 1.5 kHz to cut the higher-end frequencies of the voice.



You have limited the range of frequencies in the voice to just the midrange, and it's already starting to sound a little tinny and artificial.

- 11 Drag the Band 3 control to the area between the Band 1 and 4 controls (around 1 kHz) and then drag it upward by around +10 dB.



This boosts the 1 kHz frequencies by 10 dB.

- 12 Play the clip back to review the changes you've made.

You can hear how the voice actor's dialogue has lost the warmth of the lower frequencies and the brightness of the upper frequencies, making it seem like it's emanating from a radio's tinny loudspeaker.

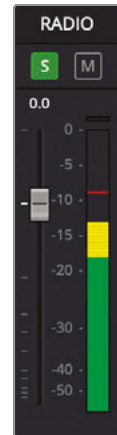
## Controlling Dynamic Range

To further refine the artificiality of the voice, you can reduce the *dynamic range* of the audio levels. Dynamic range refers to the difference in levels between the quietest part of an audio clip and its loudest part.

- 1 Return the playhead to the first marker in the timeline and press / (slash) to play around that frame and watch the audio meters in the Mixer for track A4.

When you play this clip, you will see that the voice starts off around -18 dBFS but then jumps as high as -10 dBFS when the actor says "caution."

This is a natural effect of the emphasis and inflection the speaker puts in their voice. This is also what you'll see during any kind of dialogue, whether it's delivered by an actor, an interviewee, or voiceover artist. To reduce the dynamic range and add a further level of artificiality to these lines of dialogue, you can add a *compressor*, which will limit the dynamic range of the clip by squeezing the levels from the top.



- 2 Open the Effects Library, select Fairlight FX, and locate the Vocal Channel effect.

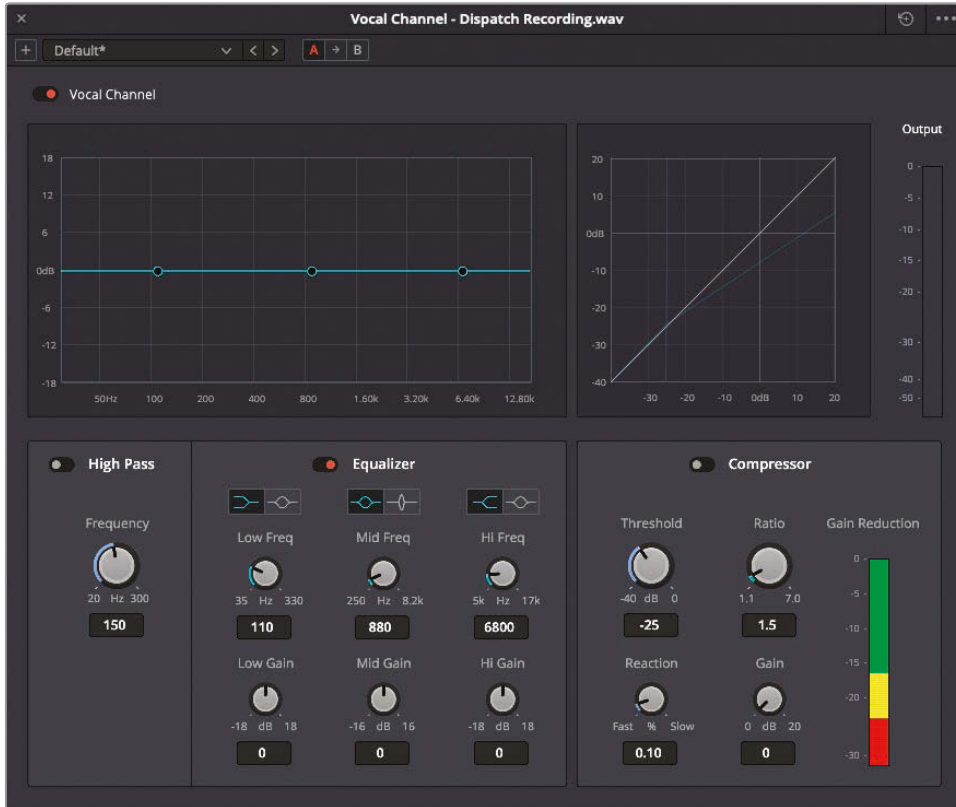


- 3 Drag the Vocal Channel effect to the first **Dispatch Recording.wav** clip in the timeline.





The effect's controls open automatically.



The Vocal Channel effect has two parts to it. On the left side is (what should now be) a familiar set of EQ controls. The High Pass control can be enabled to remove the low frequencies. The Equalizer controls provide three additional bands of adjustment, similar to the EQ controls in the audio Inspector.

On the right side is the compressor.

- 4 Click the switch to enable the compressor.

The compressor controls become active, and the graph indicates how the settings are affecting the audio.

- 5 Press / (slash) to play around the marker again while watching the Output meter.

You should see that by simply enabling the compressor in the Vocal Channel effect, you have prevented the audio from peaking at -10 dBFS. Instead, it now peaks at around -12 dBFS. It's a minor change, but you can go further.

- 6 In the compressor controls, leave the Threshold set to -25.

Threshold is the level at which the compressor begins to take effect. Any audio below this level will not be affected by the compressor. As the quieter lines are delivered around -18 dBFS, a Threshold setting of -25 is more than enough to include all the dialogue.

- 7 Increase the Ratio control to 7.

The Ratio is amount of compression being applied. The default value of 1.5 means that for every 1.5 dB above the threshold level that the audio levels rise, the compressor will only let it rise by 1 dB, hence the reason why the peak dropped from about -10 dBFS to -12 dBFS as soon as you enabled the effect. Pushing the Ratio to 7 means that for every 7 dB, the audio goes above -25 dBFS (the current Threshold value), and then the compressor will only allow it to rise by 1 dB. This is a rather extreme setting but will work for this example.



- 8 Press / (slash) again to see the results in the Output meter.

Now you'll see that the dynamic range of this clip is all but eliminated. The audio level has been *compressed* downward from the top. The result is that it will now sound much quieter. To compensate for this, you can use the Gain control to bring the level back up to where you need it.

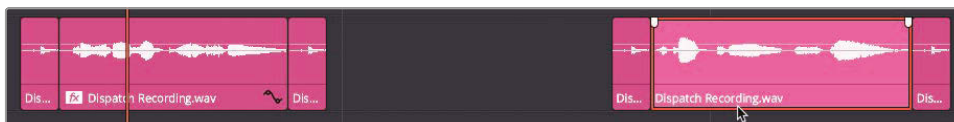
- 9 Set the Gain control to about 6. This returns the radio dialogue to an appropriate level by adding 6 dB of gain.
- 10 Finally, set the Reaction control to 0 (which means the compressor kicks in immediately) before closing the Vocal Channel controls.



## Copying and Pasting EQ and Fairlight FX

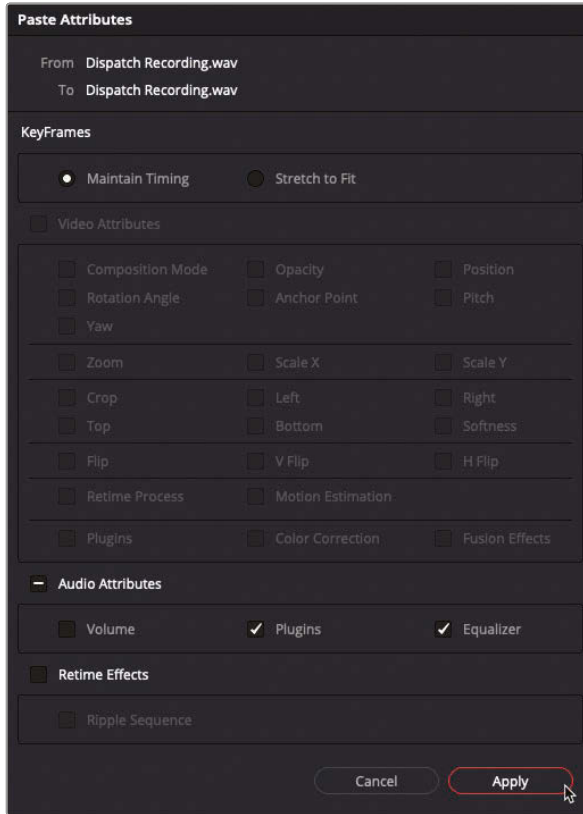
Having adjusted the frequencies and compressed the dynamic range of this first line of radio dialogue, you now need to apply the same adjustments to the second line.

- 1 Select the **Dispatch Recording.wav** to which you've applied the EQ and choose Edit > Copy or press Command-C (macOS) or Ctrl-C (Windows).
- 2 Select the second line of dialogue in A4 (the 5th clip in the track) and choose Edit > Paste Attributes or press Option-V (macOS) or Alt-V (Windows).



The Paste Attributes window appears.

- 3 Select the Plugin and Equalizer settings and click Apply.



The Vocal Channel effect and the EQ settings from the first line of dialogue are applied to the second line of dialogue.

- 4 Place your timeline playhead over the second line of radio dialogue and press / (slash) to hear the change.

## Setting Track Levels

The radio dialogue is coming along nicely, but now you need to listen to it alongside the other dialogue tracks in this scene. In this case, the radio dialogue doesn't need to be heard clearly; it's more to add a sense of urgency to the FBI agents' enquiries.

- 1 Return your timeline playhead to the first red marker.
- 2 Click the Solo button for A4 to un-solo the track.



- 3 Press / (slash) to preview the line of radio dialogue as part of the overall sound design.

The radio dialogue is in the mix, but it's competing with the actual dialogue you need the audience to focus on, so you need to attenuate (lower) its levels so it's less intrusive.

However, the dialogue clips are actually just two elements of the radio track, with the other being the clicking sounds of the radio connecting and disconnecting. If you were to adjust the level of the dialogue clips themselves, you'd also need to lower each of the clicking sounds, too. This is why it's now easier to adjust the level for all of track A4.

- 4 In the Mixer, use the Level slider to lower the audio levels for A4 by about -6 dB.



**TIP** You can see the relative adjustment you're making to the track's levels at the top of the slider controls.

- 5 Once you have made your change, press / (slash) once more to hear the results.

The radio dialogue is now better integrated into the scene without you having to adjust each of the clips' levels individually. This also demonstrates the advantages of having tracks dedicated to specific types of audio and how you can then use the Mixer's track levels to further refine the levels for any track once the individual clips have been correctly balanced.

## Simplifying the Mix

Now it's time to think about how each track needs to be adjusted in the Mixer. Because you already know that each of the dialogue clips is at the right levels, you shouldn't need to do too much to those tracks. However, you might need to make further adjustments to each of the "atmos" tracks—specifically, the walla and piano tracks A7, A8, and A9. While this is still a relatively simple scene with a limited number of tracks, it can still be advantageous to simplify this process by creating *submixes*.

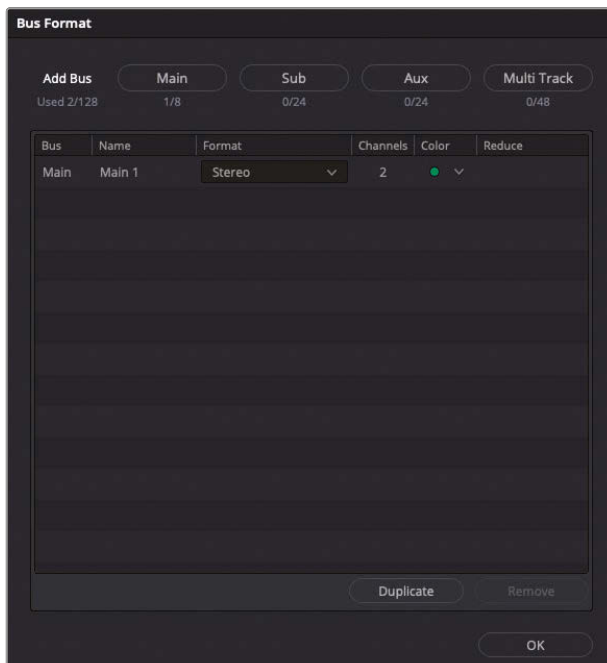
Submixes provide a way in which you can add a further level of control to your audio mixing by routing different tracks through a *bus* in the Mixer, allowing you to adjust the output levels of those routed tracks with one set of controls.

To explore this process, you will create three submixes for this scene's dialogue, including both diegetic effects and non-diegetic effects (including music).

**TIP** You can create up to a total of 24 submix buses, which can then be used to control the audio from multiple tracks, vastly simplifying the process of mixing very complex timelines.

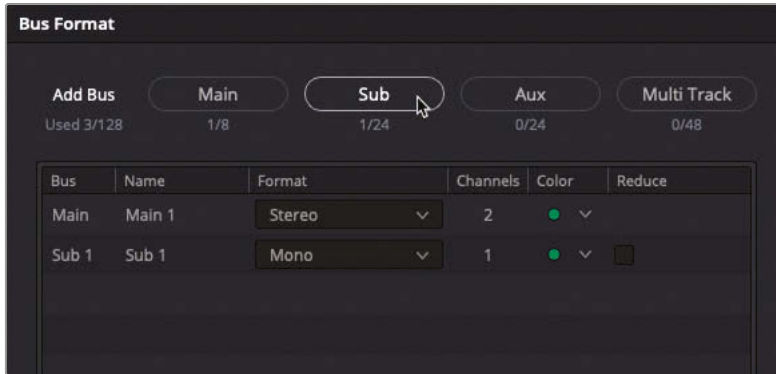
- 1 Choose Fairlight > Bus Format.

The Bus Format window opens.



**NOTE** Even though you are on the edit page, you can still access some Fairlight features directly through the Fairlight menu. However, many options will be unavailable unless you're on the Fairlight page itself.

- 2 Click Sub to add your first submix bus.



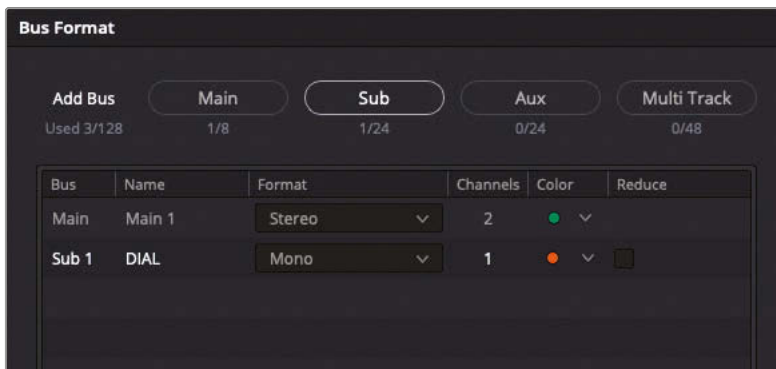
“Sub 1” is added to the list of buses.

Since you'll use this new submix for the dialogue tracks, it's best to rename the bus at this stage.

- 3 Click the Name field for “Sub 1” and type **DIAL**.

**NOTE** “DIAL” refers to “dialogue.” Short names for tracks are often useful since they're easier to read in the Mixer or the track headers.

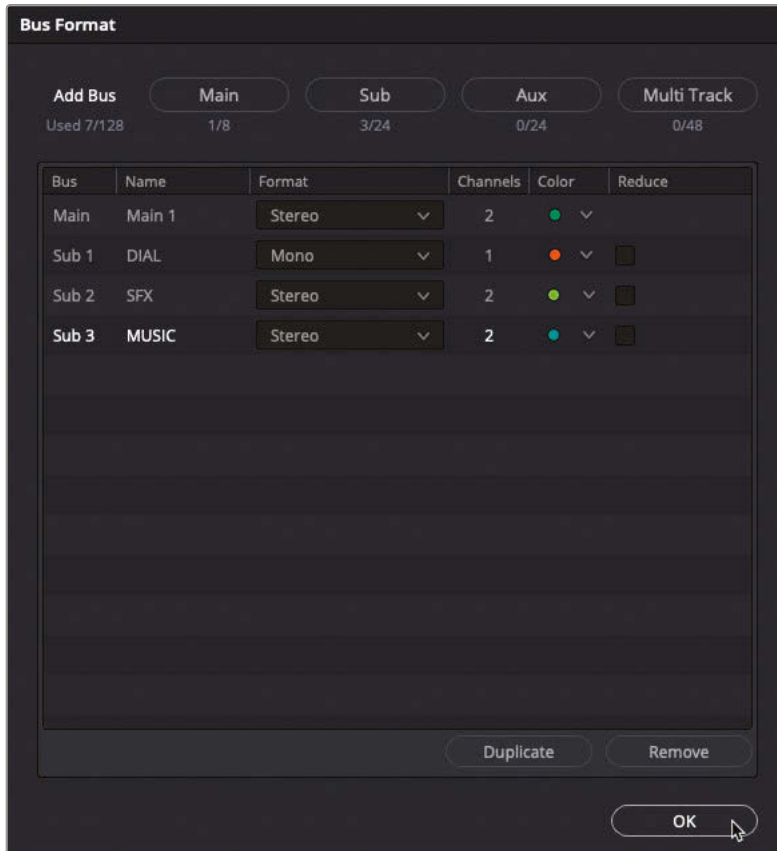
- 4 Leave the Format set to mono (this is for dialogue, after all) but change the color to Orange.



**NOTE** Because a Mixer bus doesn't contain any audio clips, changing its color really only has the benefit of identifying it in the Mixer.

You now need to add two additional submix buses for the diegetic effects, and the non-diegetic effects and music.

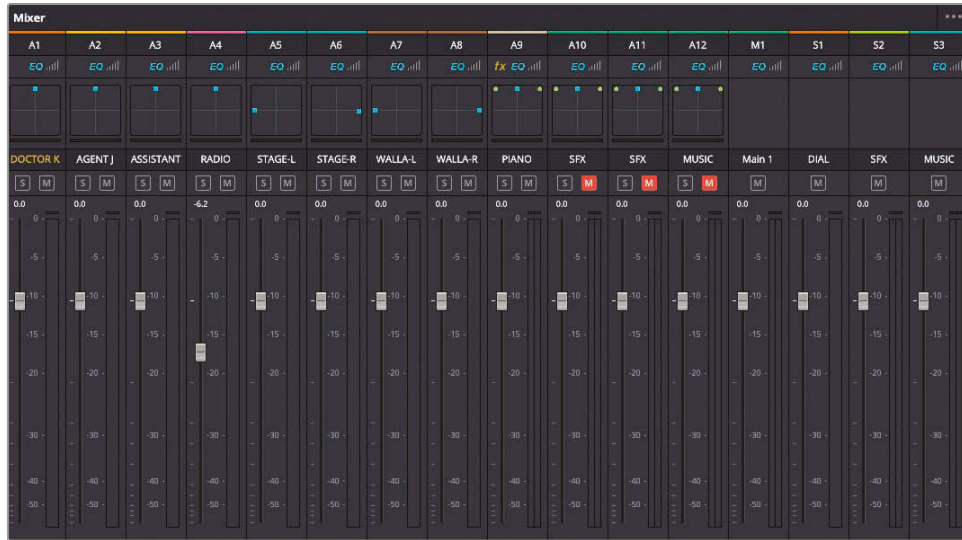
- 5 Click the Sub button twice more to add a Sub 2 and Sub 3.
- 6 Change the name of Sub 2 to **SFX** and change the name of Sub 3 to **MUSIC**.
- 7 Change the format of both Sub 2 and Sub 3 to Stereo.
- 8 Change the color of Sub 2 to Lime and the color of Sub 3 to Teal.



- 9 Click OK to save the changes and close the Bus Format window.



- 10 In the Mixer, drag the dividing area next to the Main 1 channel strip to reveal the controls for each of the submixes.



## Assigning Tracks to Busses

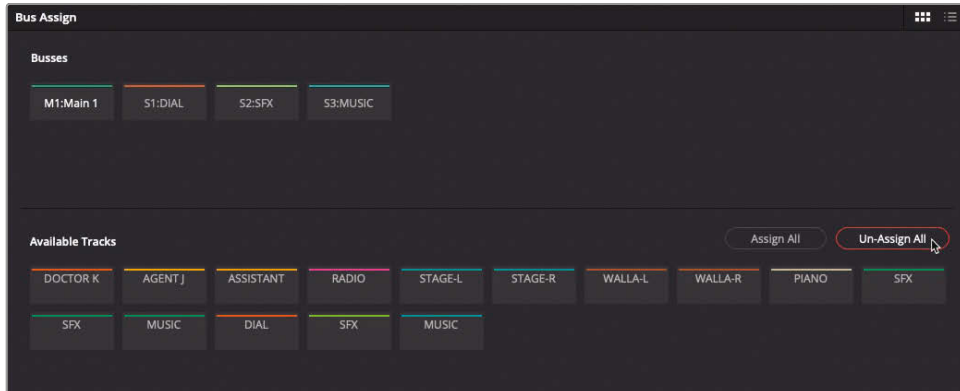
You have successfully created three additional submixes for this timeline. However, now you need to route the audio for each of the tracks to the appropriate submix bus.

- 1 Choose Fairlight > Bus Assign to open the Bus Assign window.



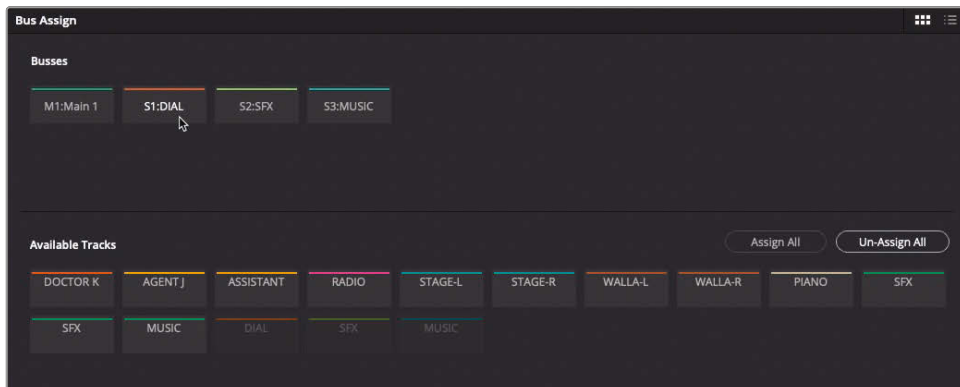
The Bus Assign window is used to view and change the destination of the audio once it leaves a track. By default, all audio tracks are automatically routed to the Main 1 output, abbreviated as M1). This is ultimately what you are listening to when the timeline plays.

- 2 Click Un-Assign All.

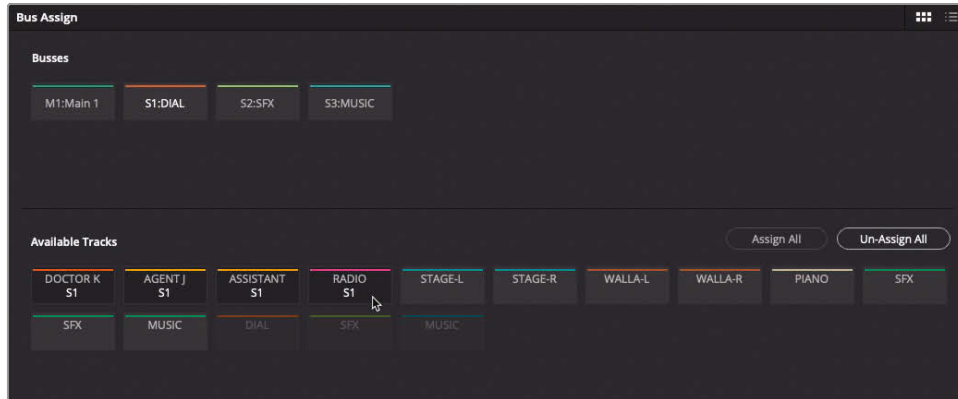


Now the tracks are no longer assigned to any destination, so you won't be able to hear them, as they are no longer being sent to the M1 output bus.

- 3 In the Busses section at the top of the Bus Assign window, click the S1:DIAL bus to select it.



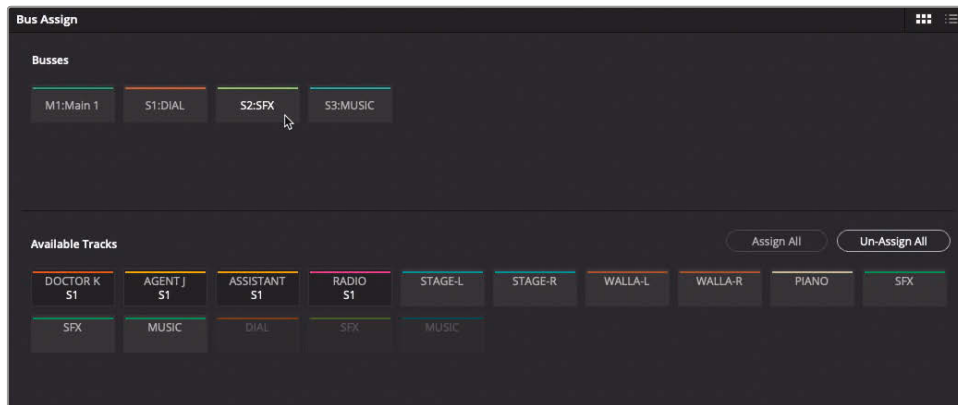
- 4 In the Available Tracks area, click each of the dialogue tracks in your timeline: Doctor, Agent J, Assistant, and Radio.



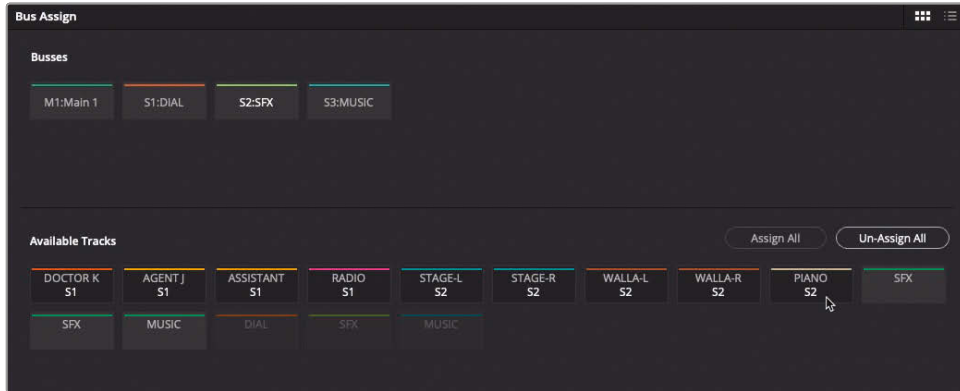
S1 appears below the name of each track to identify which bus it is being routed to.

**NOTE** Tracks can be sent to multiple buses simultaneously, so they might have more than one destination set.

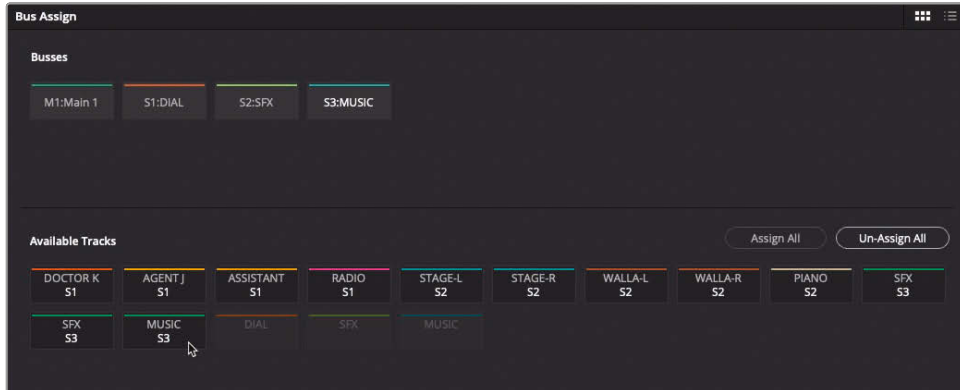
- 5 In the Busses section, click the S2:SFX button to select the SFX submix bus.



- 6 Click the tracks that contain diegetic audio: STAGE, WALLA-L, WALLA-R, and PIANO.



- 7 Click the S3 bus to select the final submix bus for non-diegetic effects and music, and then click the SFX-1, SFX-2, and MUSIC tracks to assign them to S3.



**TIP** To remove a track from a specific bus, click the bus from the Available Busses section of the Bus Format window, and then click the track. Tracks already assigned to the selected bus will be removed.

Lastly, you still won't hear anything from your timeline unless you route the submixes themselves to the stereo Main 1 bus.

- 8 In the Busses section, click the M1:Main 1 button, and then click the DIAL, SFX, and MUSIC buttons in the Available Tracks section.



- 9 Once you have assigned each of the tracks to the correct submix, click Close.

## Mixing with the Mixer

Wow! It might seem like a lot of hard work, but now everything should start to pay off, as it's now easier to mix the audio for the scene just by using the controls for each of the submixes.

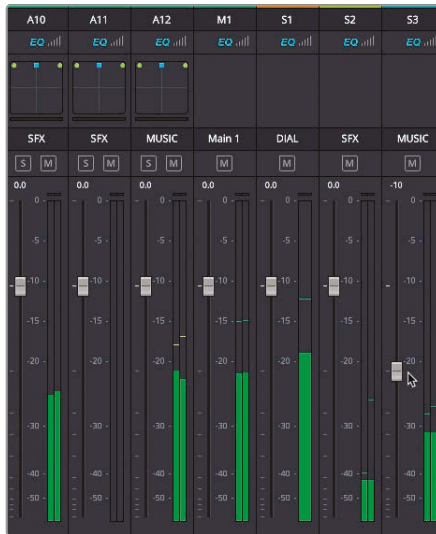
- 1 In the mixer, unmute A10, A11, and A12.

**TIP** Shift-clicking any muted track will unmute all currently muted tracks.

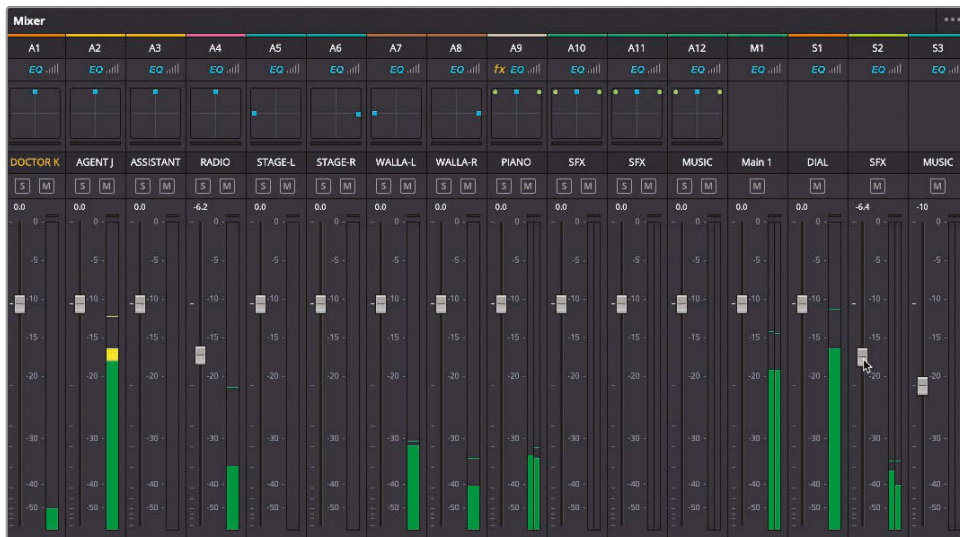
- 2 Play through the timeline from the beginning, listening to the various elements in the soundtrack.

What are your ears telling you? Most likely, you'll identify that the sound effects and music toward the end are far too loud!

- 3 Play the timeline again, and this time use the Music submix slider to bring the level of the music down by about -10 dB (or whatever level you think is suitable that you can hear the dialogue at the scene's climax).



- 4 Using the same technique, adjust the level of the SFX submix to reduce the sounds of the walla and piano together (if in doubt, try about -6 dB).



As you can see (and hear), using the submixes has made it so much easier to mix the audio for the scene. What's more, if you need any greater degree of control (for instance, you may think that the radio dialogue track needs further changes), then you can always adjust the level of a specific track, or you can even go back into the clips themselves and further refine their individual levels if you need to!

# Adding More Mains

Now that you've seen the power of busses in DaVinci Resolve, mixing the audio in your timeline should be so much easier. But there is one other type of bus that an editor should be aware of: Mains.

Mains are the means by which all the different audio, across all the timeline tracks, leaves the timeline to be played out of the speakers attached to your computer. By default, all timelines are created with a single stereo main labeled Main 1. This means that all the audio in the current timeline is mixed down to play out of one of two output channels. But your timeline can have multiple mains out for different mixes.

In the next steps, you will create two additional mains buses for this timeline: the first is for delivering an M&E (music and effects) version of the soundtrack, and the second will enable you to deliver a 5.1 surround sound mix of the same soundtrack!

- 1 Choose Fairlight > Bus Format to reopen the Bus Format window containing your current submixes.
- 2 Click Main twice to add two additional mains buses.

**NOTE** You can have up to eight mains per timeline in total.

- 3 Change the name for Main 2 to **M&E**, the format to Stereo, and the color to Purple.
- 4 Change the name for Main 3 to **5.1**, the format to 5.1, and the color to Violet.



- 5 Click OK to confirm your changes.

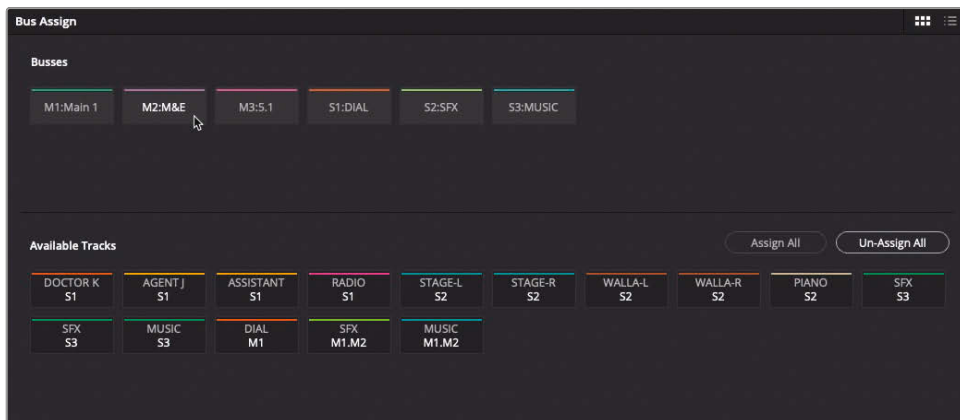
The new M2 and M3 channels appear in the Mixer, but at the moment nothing is being routed to them.



- 6 Choose Fairlight > Bus Assign.
- 7 In the Busses section of the Bus Assign window, select the main M2:M&E.

This main is for the M&E version of the soundtrack—everything the main stereo mix has on Main 1, except the dialogue. This makes it easier for the film to be dubbed into another language if required.

- 8 With the M2:M&E main selected, click on the SFX and Music submixes from the Available Tracks section.



Because you have already set up your submixes previously, you don't have to route every single track to the new main, just the appropriate submixes.



- 9 Select the M3:5.1 main from the Busses.
- 10 Click the DIAL, SFX, and MUSIC submixes in the Available Tracks section to send them to the third main for this timeline.

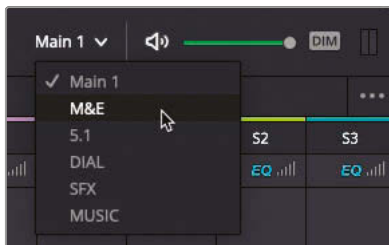


- 11 Click Close to close the Bus Assign window.

## Monitoring the Different Busses

To listen to the different mixes from the same timeline, you just need to change the bus you are listening to, which you can do directly in the edit page.

- 1 Return your playhead to the start of the timeline and begin playing the scene.
- 2 From the Control Room pop-up menu above the Mixer, select M&E.



This is the soundtrack, minus the dialogue tracks.

- 3 Select DIAL from the Control Room pop-up menu.

You're now listening to *just* the dialogue submix for this scene.

- 4 Change the Control Room to 5.1.

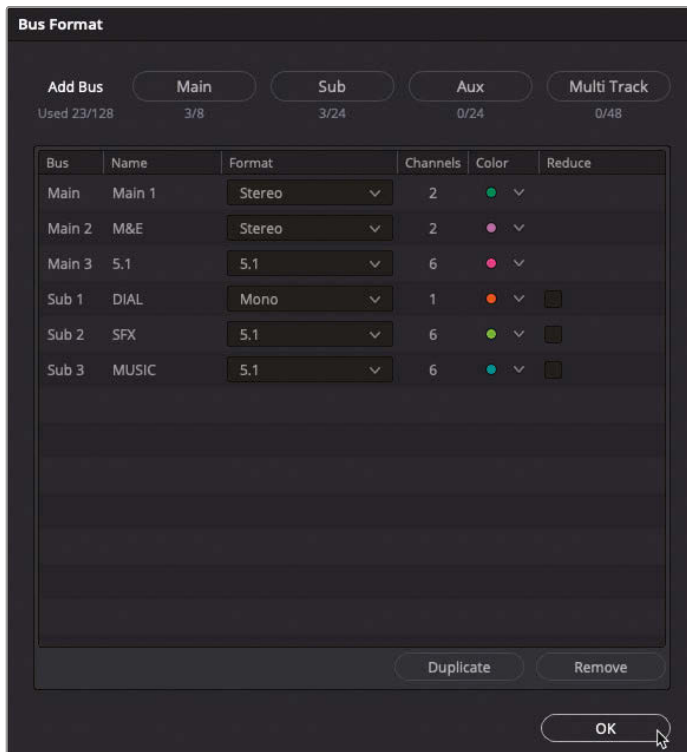


You're now listening to the same mix play as a surround mix. Unfortunately, unless you have a surround system attached to your system and set up correctly for Resolve to use, you won't hear any change, but you can see the meters moving in the Mixer. However, you'll need to make some further changes to how the audio is handled within the timeline, as three channels in the 5.1 main are not currently being used. This is because the submixes for the effects and music are both stereo.

- 5 Select Fairlight > Bus Format to reopen the Bus Format window.



- 6 Change the format for Sub 2 and Sub 3 to 5.1 and click OK.



By changing the submixes from stereo to 5.1, it now means that any audio using the surround panners will have the audio correctly routed.

- 7 Play the timeline again.

Now you can see that the two rear channels of the 5.1 main are being used (even if you can't actually *hear* them), but this is because you originally set the pan for the walla tracks left and right and midway between front and back.

- 8 Expand the Mixer out as much as you can to remind yourself of how the pan controls are set for the WALLA-L and WALLA-R tracks.



- 9 Drag the blue handle for the PIANO track to the bottom of the pan controls so that it will now play out of the rear speakers. For anyone listening in 5.1, it will now sound as though the piano player is behind them.

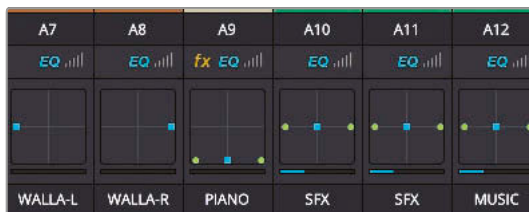


- 10 Double-click A10 SFX track's pan controls.
- 11 Adjust the Front/Back controls to C (for center).

- 12 In the Boom settings, click On to send the audio to the subwoofer channel and set the level to -20.



- 13 Repeat the previous three steps for the A11 SFX and A12 MUSIC tracks.



- 14 Play the timeline once more to see how the channels in the 5.1 main are now being used.
- 15 Return the Control Room pop-up menu to Main 1 for the full stereo mix.

This exercise demonstrates just how comprehensive and flexible working with audio is within DaVinci Resolve 17 and how easy it is to repurpose a mix for different speaker configurations.



# Recording Automation in Fairlight

You have created a very sophisticated mix for this scene just using the audio controls available to you in the edit page. However, there are a few occasions when you need access to additional controls that the edit page can't provide. In these cases, it's easier to move to the Fairlight page. In the last two exercises in this lesson, you will learn how to use the Fairlight page to record level changes in real time and to monitor loudness levels.

Thankfully, in order to make use of these features you don't need to do anything with the timeline other than open it in the Fairlight page. Any changes you then make in the Fairlight page are instantly reflected in the edit page and vice versa. Such is the advantage of DaVinci Resolve!

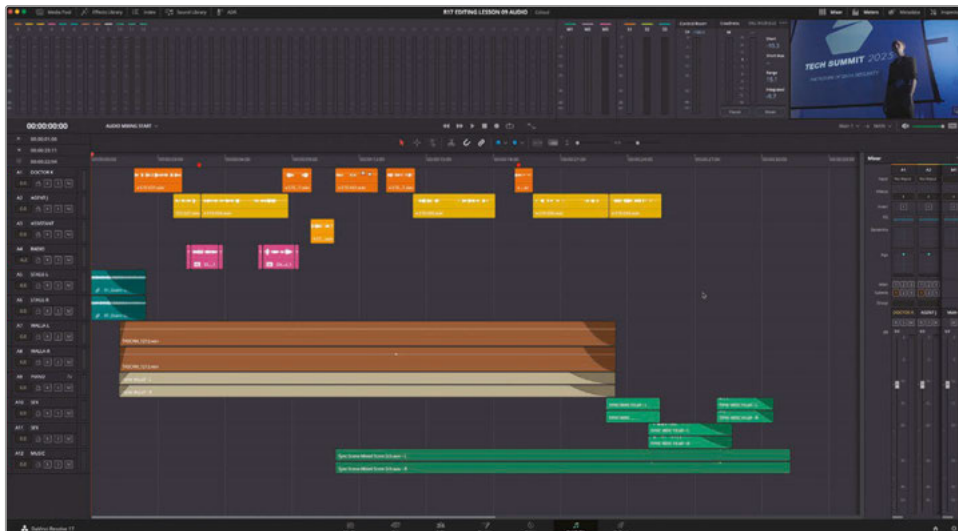
- 1 Click the Fairlight page button or press Shift-7.



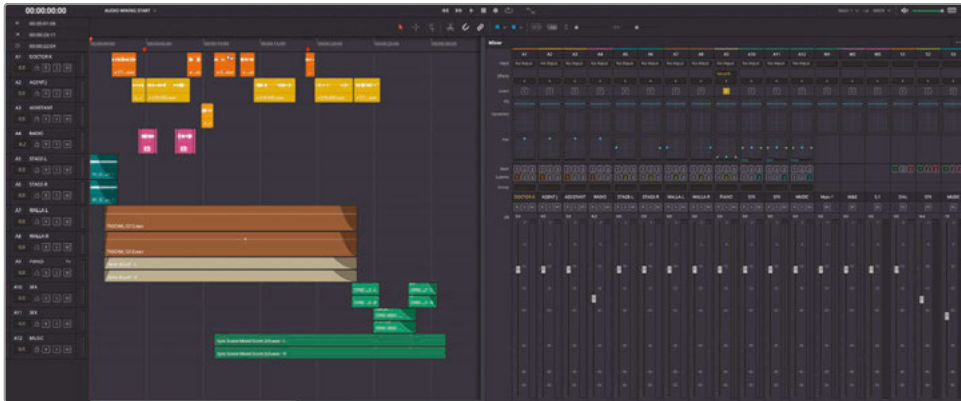
The Fairlight page opens.

**TIP** If you have previously used the Fairlight page, you can reset the interface to its default layout by choosing Workspace > Reset UI Layout. This will also reset the layout for every other page, so consider saving specific layouts.

Layouts presets save the layouts of all the pages together, rather than separately, so consider updating a previously saved layout if saving changes to a specific page's layout.



- 2 Expand the Mixer to reveal all the busses in this timeline.
- 3 Press Shift-Z to automatically resize the timeline to the current timeline window.



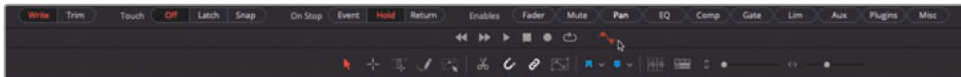
**NOTE** Many familiar edit page functions work in the same way in the Fairlight page, so you should be relatively familiar with how the Fairlight page operates.

To adjust the levels of the Music submix, you will enable the timeline's automation settings.

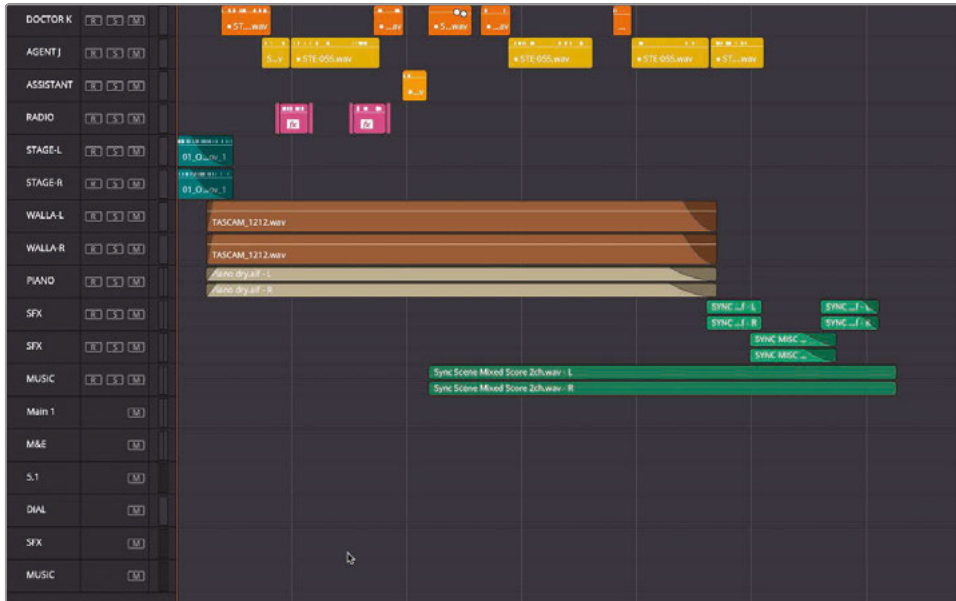
- 4 Click the Automation button next to the transport controls.



The automation toolbar opens above the transport controls, and a new set of tracks appear in the timeline for each of the busses.

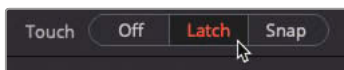


**TIP** Use Shift-scroll to adjust the height of the timeline tracks in a similar manner to how you can adjust track heights in the edit page.



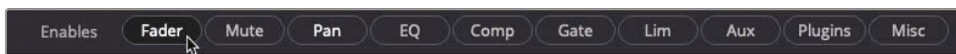
Automation allows you to choose which controls you want to be able to adjust over time. Then, when you adjust those enabled controls during playback, those adjustments are recorded and applied to the controls in real time.

- 5 In the automation toolbar, change the Touch option to Latch.



Latch begins recording automation data when you start moving a control that is enabled in the automation toolbar and continues to record at the level where you leave the control.

- 6 In the Enables section, click the Fader button to activate it.



This tells Fairlight that you only want to enable automation for the *faders*. You can enable more than one set of controls simultaneously, such as pan, EQ and plug-ins, including any Fairlight FX filters from the Effects Library.

- 7 Position your timeline playhead just before the start of the music on A12.

- 8 Play the timeline, and as Agent Jenkins delivers his final line, “We need you to tell us everything you know...,” drag the Mixer fader for the MUSIC submix up by about +5 dB.



When you first select the fader, it turns red to indicate you are recording the changes.

- 9 When the scene ends, stop playback.

The fader control now turns green to indicate that automation has been recorded.



- 10 Return the playhead to the second marker and play to review the changes.

As Agent Jenkins delivers his shocking news, notice how the fader for the music submix starts moving of its own accord!

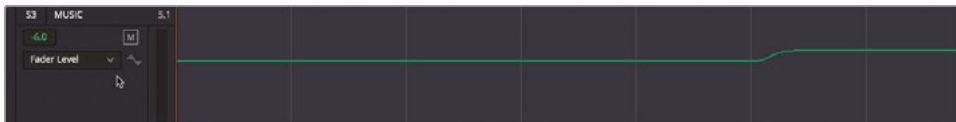
**NOTE** If necessary, you can re-record any automation by playing the timeline again and simply making further adjustments to the enabled controls. Alternatively, you can change from Write to Trim mode to record relative changes to previously recorded automation data.



## Viewing and Adjusting Automation

You can see the recorded automation curves for any track or bus directly in the timeline. You can also use this curve to adjust the automation manually if necessary.

- 1 In the Fairlight timeline, use the vertical zoom slider or Shift-scroll to increase the height of the timeline tracks.
- 2 Scroll to the bottom of the timeline where you will find the bus tracks labelled M1, M2, M3, or S1, S2, S3 for the appropriate mains and submixes.
- 3 For the MUSIC submix track (S3), click the automation pop-up menu and choose Fader Level.



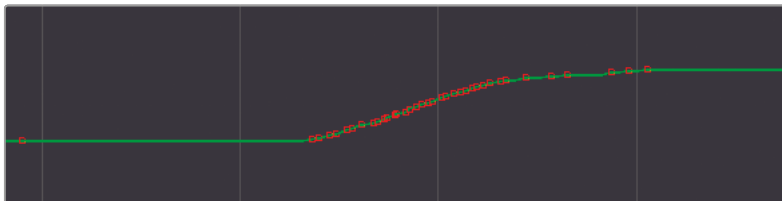
The fader automation curve is displayed in the S3 track.

You can adjust this curve using either the Pencil or Select Range tools.

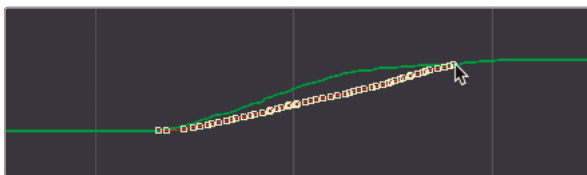
- 4 Select the Pencil tool from the timeline toolbar.



When either of the automation editing tools are selected, the currently active automation curve displays the active control points.



- 5 Using the pencil, simply redraw the automation curve by clicking and dragging a new path.



- Alternatively, selecting the Select Range tool will allow you to select either a single control point by clicking on it, or a range of control points by dragging a selection area across the automation curve. The selected control points can now be adjusted together or removed completely by pressing Delete (Backspace).



**NOTE** If you hide the automation toolbar, any recorded automation is disabled. To re-enable the automation, just open the automation toolbar again. To prevent accidentally recording automation, change the Touch pop-up menu to Off.

## Measuring Loudness

Another feature many editors will need to be aware of in the Fairlight page is the ability to be able to analyze the “integrated loudness” of the overall mix. This is an important part of being able to make sure you are able to deliver a final file to the exact audio specifications required by many broadcasters and online streaming providers.

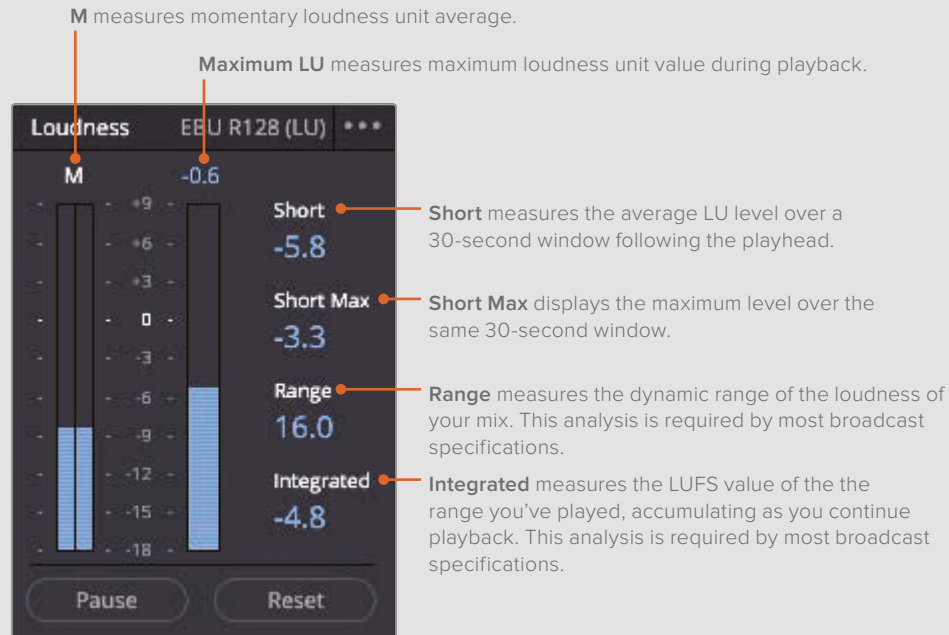
In the past, broadcast standards were based on the highest *peak level* in a soundtrack. As long as audio content did not exceed that level, it would pass quality control. That led to commercials that applied heavy compression to narrow their dynamic range and bring all voiceovers to the maximum allowable (but somewhat overbearing) level.

To level the acoustic playing field, loudness standards now apply to all broadcast programs (television and radio) regardless of their length or type, whether a 20-second commercial or 4-hour film. In North America and parts of Asia, an integrated target of -24 LUFS (Loudness Units Full Scale) is the norm for broadcast content, whereas in the UK and Europe the target is -23 LUFS. (Theatrical films, trailers, and streaming providers such as Netflix and YouTube will all have different standards.)

In the following exercise, you’ll monitor the integrated loudness of the mixed scene to ensure that it comes within +/- 0.5 of the target -23 LUFS.

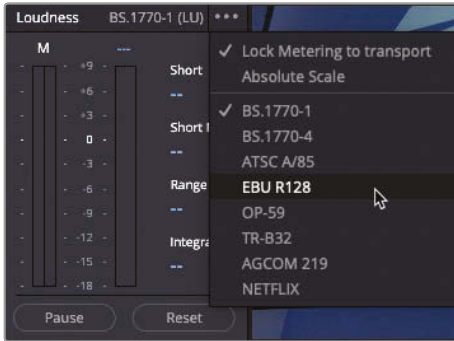
## Loudness Meters

The Fairlight page Loudness meters include both a graphical and numeric display that displays a variety of useful loudness measurements, with the most important being the Integrated level.



- M displays the momentary loudness unit at the playhead location.
- The loudness units meter displays the sum of all channels for the duration of playback. The numeric value at the top is the max LU value over that range.
- Short displays loudness over a 30-second range.
- Short Max displays the played range's maximum true peak level.
- Range displays the dynamic range of loudness in the entire program.
- Integrated displays the average loudness for the entire played range. This is the value that targets either -23 LUFS or -24 LUFS as required by broadcasters.

- 1 Click the Loudness meters options menu.



A list of specific delivery options appears for a variety of international industry-standard loudness monitoring standards, including ATSC A/85 (for US broadcast), EBU R128 (for UK and European broadcast), OP-59 (New Zealand and Australian broadcast), TR-B32 (for Japanese broadcast), and a specific option for Netflix.

- 2 Select EBU R128 to set the loudness meter to monitor for broadcast delivery in Europe.
- 3 Click the Loudness meters options menu again and choose Absolute Scale.



With Absolute Scale selected, the Loudness meters update to reflect the chosen standard. In this case, because you have selected EBU R128, the meters now display the required level of -23 LUFS.



## Starting the Analysis

Now that you have your Loudness meters set to the correct standard, it's time to see how well your levels meet that standard. For Fairlight to analyze the loudness of the mixed scene, you will need to play the whole timeline back in real time.

- 1 Ensure that you will be analyzing the correct main. Select Main 1 from the control room pop-up menu above the Mixer.



- 2 Return the playhead to the start of the timeline.
- 3 In the Loudness meters, click Reset, and then click Start.

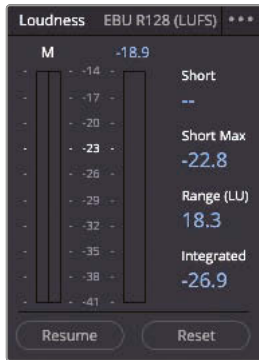


- 4 Play the timeline from the beginning to the end. Watch the integrated loudness display during playback to see how close to -23 LUFS your audio mix measures. When the scene has completely finished, stop playback.

How did you do? How close were your Integrated levels to -23 LUFS? Don't worry if they're not 100% spot on during this first attempt, although you will get better at judging the correct levels with experience. Many broadcasters will also accept an integrated level of +/- 0.5LUFS from the standard's target level, so if your integrated level is anywhere between -23.5 LUFS and -22.5 LUFS, you should be OK. If you're outside that, however, you'll need to make a simple correction.

Although they analyze and measure audio differently, loudness units (LU) and decibels (dB) have a 1-to-1 relationship, which makes it easy to adjust faders when targeting the integrated loudness level. For instance, if the integrated loudness display shows -21 LUFS after you play through your program, you can use the master fader to lower the decibels by -2 dB and reach the targeted -23 LUFS in the Integrated display.

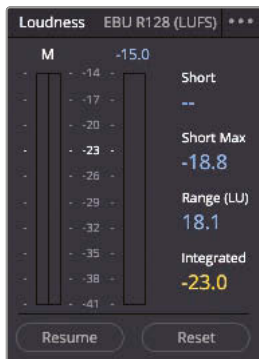
- 5 In the Mixer, raise or lower the Main 1 fader by the amount needed. In the example below, the integrated loudness level is  $-26.9$  LUFS, so you would adjust the Main 1 fader by about  $+3.9$  dB.



- 6 Adjust the main fader as required and return your timeline playhead to the start of the scene.
- 7 In the Loudness meters, click Reset and then Start.



- 8 Play the scene again and see how the adjustment results in a change to the integrated loudness level.



## Extra Credit

Now that you're able to accurately measure your mix for loudness, try measuring the 5.1 main for delivery to Netflix.

- In the Control Room pop-up menu, make sure you are monitoring the 5.1 Main.
- Make sure you select the NETFLIX delivery standard in the Loudness meters options menu. Note that Netflix has an integrated target level of -27 LUFS (+/-2 LU).
- Remember to reset and start the Loudness meter before starting playback.
- Remember to play the whole scene from start to finish to get the most accurate loudness values!

Congratulations! You just completed some high-end professional audio postproduction from the comfort of your own computer workstation. Hopefully, this lesson has opened your eyes (and ears) to the wonderful, yet often underappreciated, world of audio post, as well as the sophisticated audio tools and configurations available as standard in DaVinci Resolve17.

## Lesson Review

- 1 True or False? Normalizing audio levels is a quick way of ensuring that all your audio is at the correct level.
- 2 True or False? You can change the speed of an audio clip in the edit page.
- 3 True or False? You can only mute or solo a track from the track header controls in the timeline.
- 4 Which window allows you to add and remove different submixes?
  - a) Bus Assign
  - b) Bus Format
  - c) Bus Routing
- 5 True or False? Fairlight FX must be applied in the Fairlight page.

## Answers

- 1 False. Normalizing audio will adjust the level of a clip, so the peak is at the level specified.
- 2 True. To adjust the speed of any audio clip, right-click the clip and choose Change Clip Speed.
- 3 False. You can also use the same controls in the Mixer.
- 4 b) The Bus Format window allows you to add, change, and remove different busses, including submixes.
- 5 False. Fairlight FX are available in the Effects Library in the cut, edit, and Fairlight pages.



## Lesson 10

# Delivering Projects

When you're ready to export a project—whether at the end of a workflow, at an intermediate point, or when generating dailies—the render settings and final output are configured in the deliver page of DaVinci Resolve.

The aim of this lesson is to shed some light on how to add, format, and include subtitles and audio submixes for your final output.

### Time

This lesson takes approximately 60 minutes to complete.

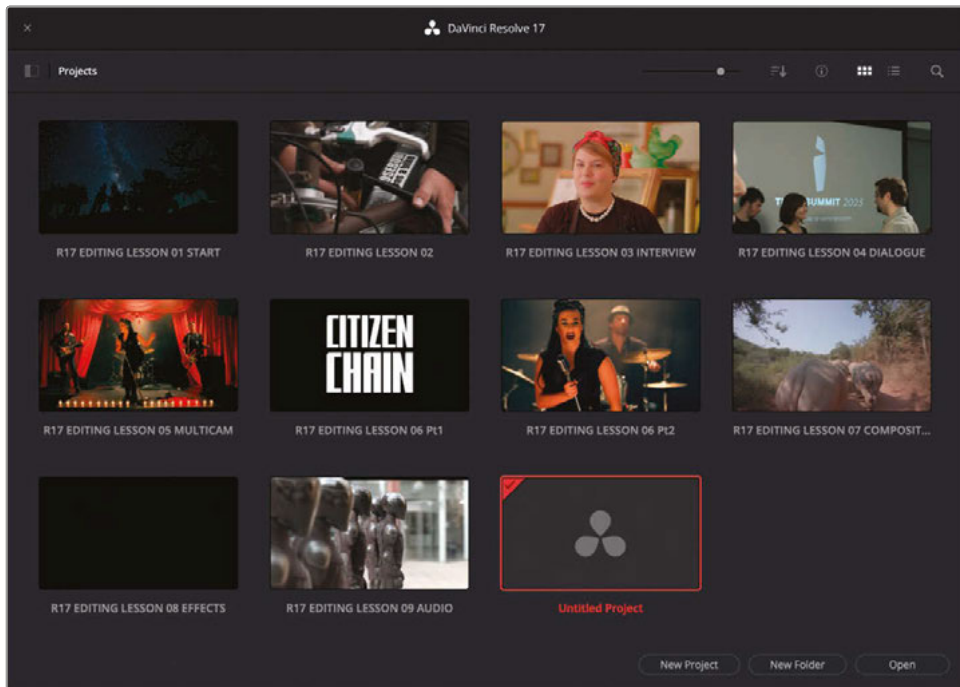
### Goals

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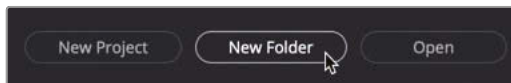
# Preparing the Projects

For this lesson, you will use three different projects you have previously worked on to explore the various options DaVinci Resolve 17 provides for delivering projects in a variety of formats. You will begin by importing all three projects into a separate folder in the Project Manager.

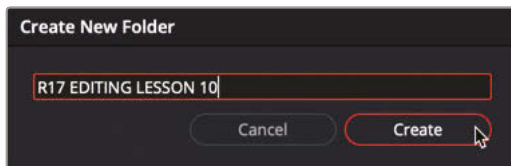
- 1 Launch DaVinci Resolve 17.



- 2 In the Project Manager, click New Folder.



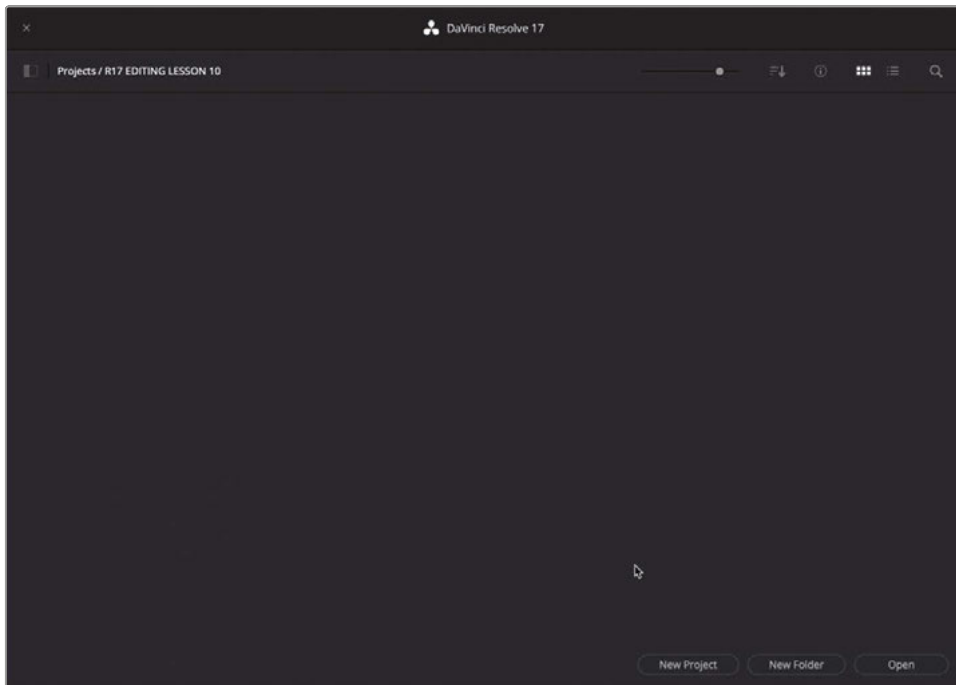
- 3 In the Create New Folder window, type **R17 Editing Lesson 10** and click Create.



A new folder is created in the Project Manager.



- 4 Double-click the R17 Editing Lesson 10 folder to open it.

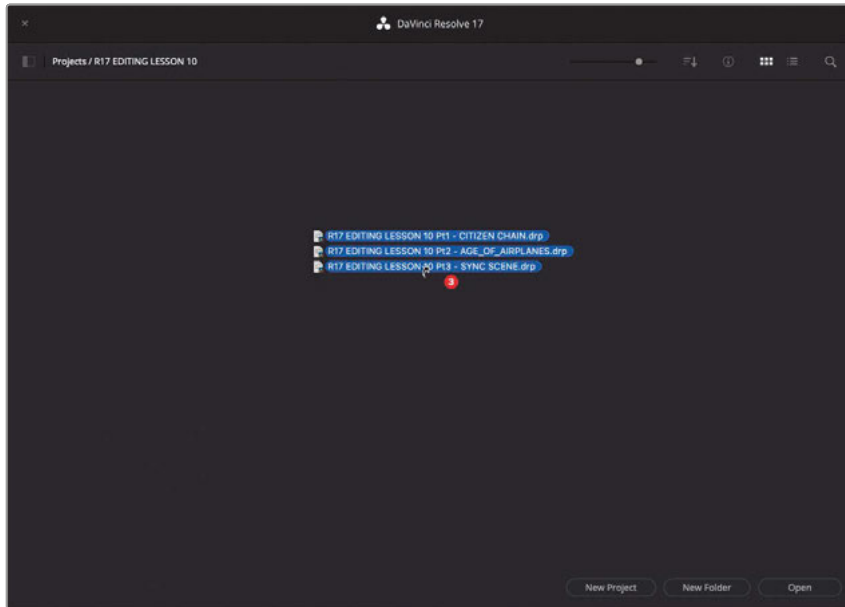


**TIP** You can use the folder path in the top right to navigate back out of this folder.

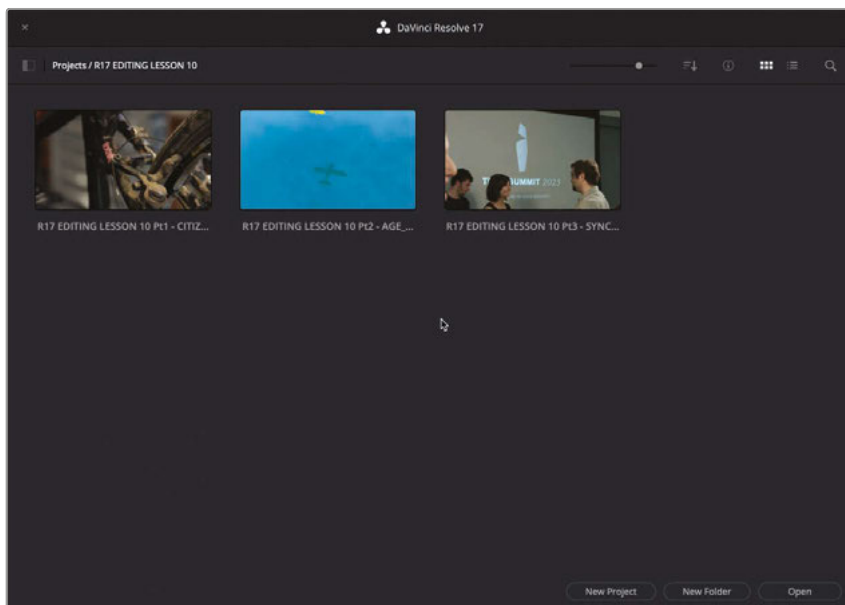
- 5 Open a new Finder window (macOS) or Explorer window (Windows) and navigate to R17 Editing/Lessons/Lesson 10 Delivery.

This folder contains several files that you will use throughout this lesson.

- 6 Select the three DaVinci Resolve Project files (**R17 EDITING LESSON 10 Pt1 – CITIZEN CHAIN.drp**, **R17 EDITING LESSON 10 Pt2 - AGE\_OF\_AIRPLANES.drp** and **R17 EDITING LESSON 10 Pt3 - SYNC SCENE.drp**) and drag them directly into the Project Manager window.



Each of the projects is imported into the Project Manager. You are now ready to continue with the lesson.



# Quick Export

The first delivery option you will explore is the Quick Export function. This is a useful option that can be directly accessed in the cut, edit, color and Fairlight pages and can be used to quickly deliver a file for delivery without having to worry about checking complex settings. What's more, you can also use the feature to upload directly to a variety of video streaming services.

- 1 Double-click the **R17 EDITING LESSON 10 Pt1 – CITIZEN CHAIN** project to open it and relink the media files.

This is a version of the *Citizen Chain* footage that you edited in the cut page.

- 2 If necessary, click the Cut Page button or press Shift-3.

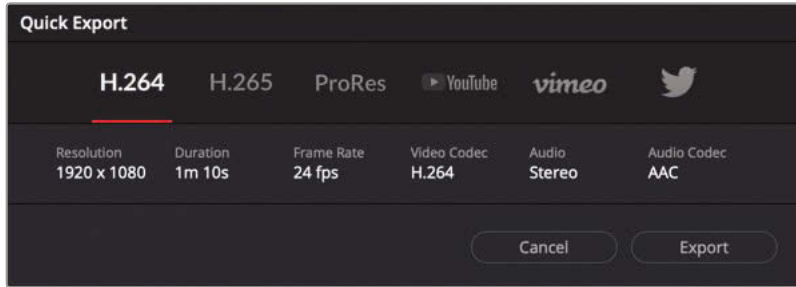


- 3 In the top-right corner of the cut page, click the Quick Export button.



**NOTE** The Quick Export window can also be accessed in the cut page, as well as in the edit, color, and Fairlight pages, by choosing File > Quick Export.

The Quick Export window opens with a set of default options.



**NOTE** On Windows computers, there is no option for exporting ProRes QuickTime files.

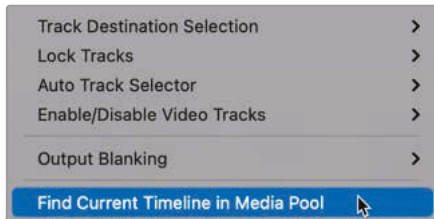
- 4 If necessary, select the H.264 preset.

Information about the file that will be created is listed below the selected preset, including the resolution, duration, frame rate, and video and audio codecs.

**TIP** You can set In and Out points in the timeline if you don't need to export the whole timeline.

In this case, though, your client is asking for a quick export at 720p HD resolution. Unfortunately, you can't override the settings for the Quick Export in the current window.

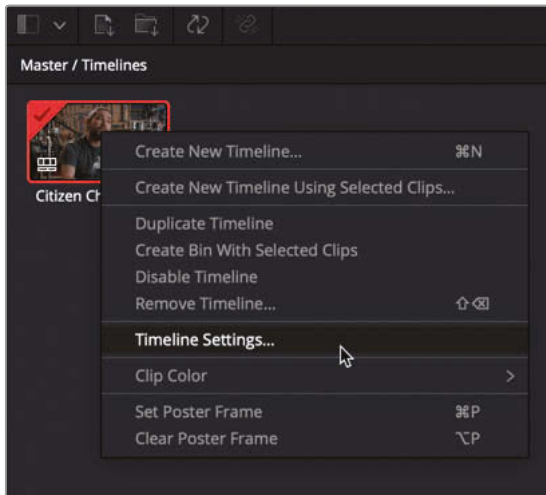
- 5 Click Cancel to cancel the export.
- 6 Choose Timeline > Find Current Timeline in Media Pool.



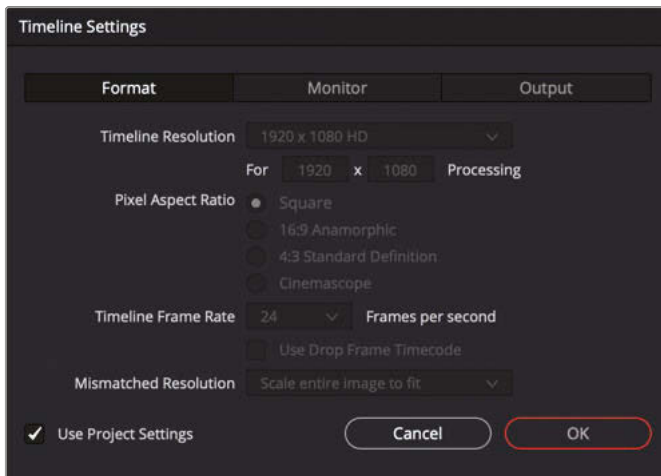
The current timeline is revealed in the media pool.



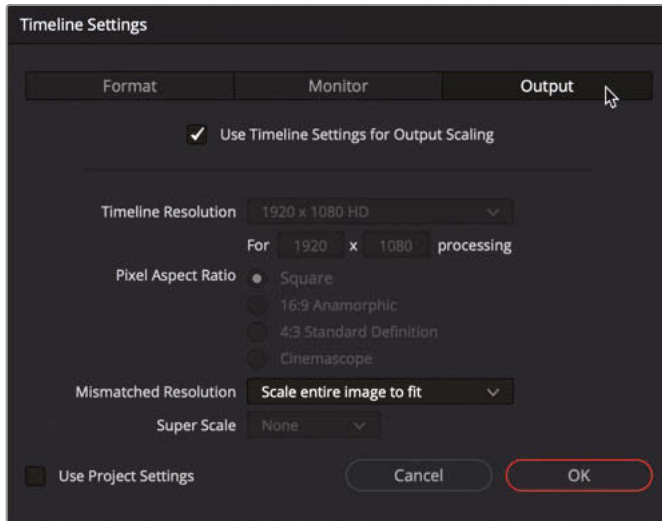
- 7 Right-click the **Citizen Chain Final** timeline and choose Timeline Settings.



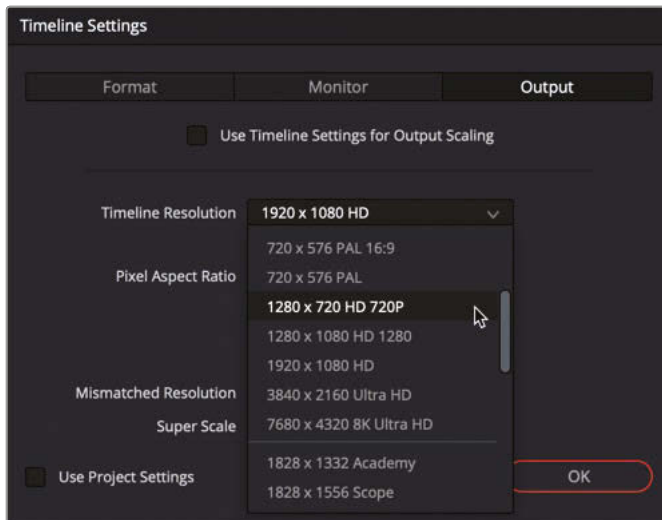
The timeline's current settings are revealed. Note that it was created using the project's settings.



- 8 Deselect Use Project Settings to override the timeline's settings and click the Output tab.

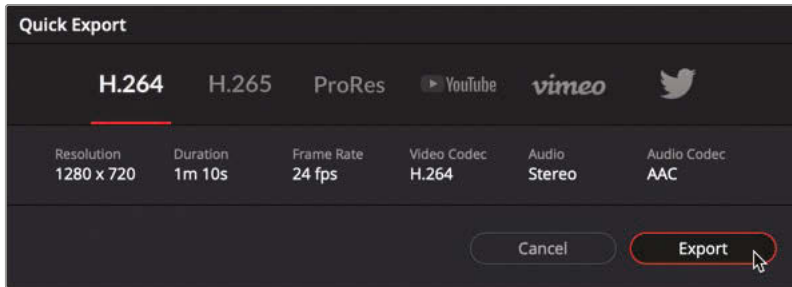


- 9 Deselect the Use Timeline Settings for Output Scaling option and change the timeline Resolution pop-up menu to 1280 x 720 HD 720P and click OK.

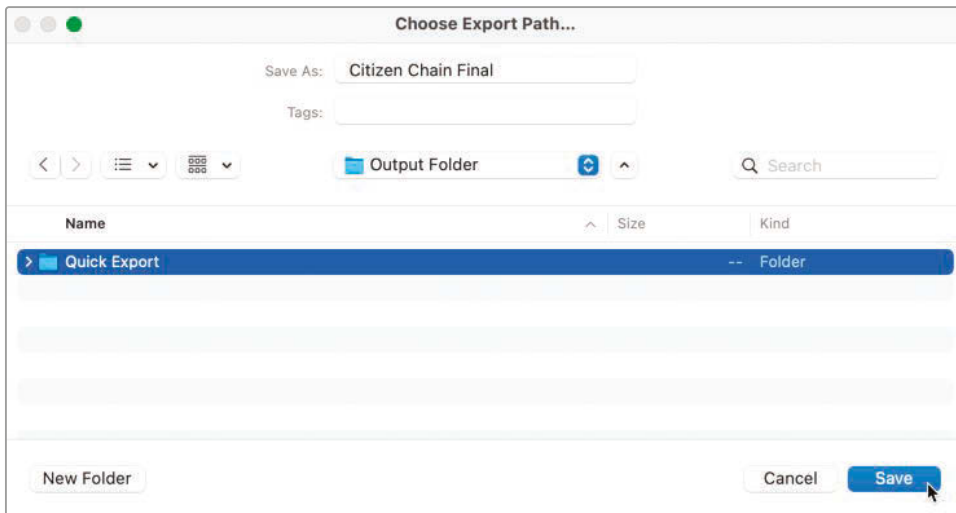




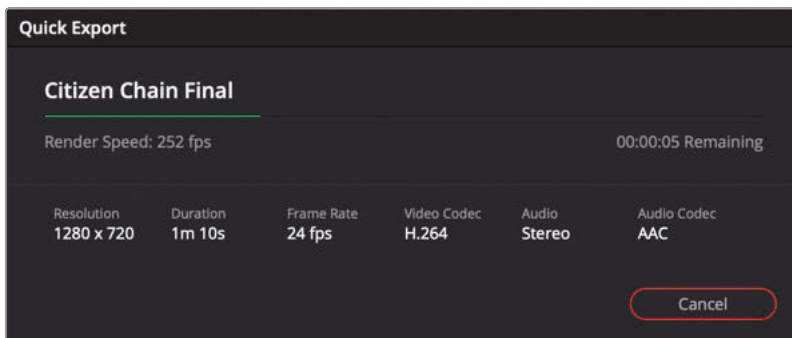
- 10 Choose File > Quick Export to reopen the Quick Export window to see the change to the output resolution. Click Export.



- 11 In the Choose Export Path, navigate to the R17 Editing Lessons/Lesson 10/Output folder. Create a new folder called **Quick Export** and click Save.

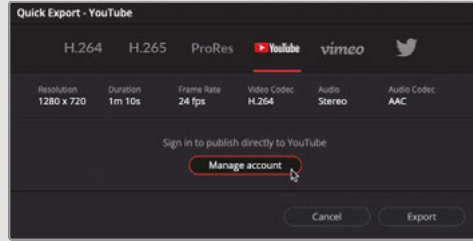


The Quick Export process immediately starts writing a file to the location you have just selected on your computer.

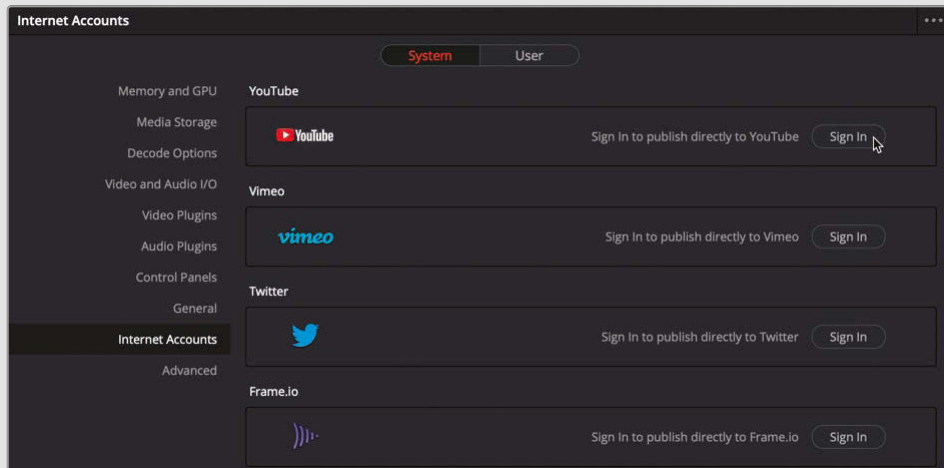


## Uploading Directly to Social Media

You can also use the Quick Export window to upload the exported file directly to social media platforms such as YouTube, Vimeo, and Twitter. To do this, you must sign in to your social media account using DaVinci Resolve's preferences. Just click Manage Account if you are not currently signed in to open the Internet Accounts preferences window.

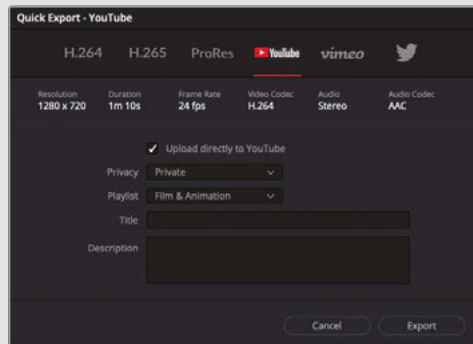


Here you can sign in directly to whichever social media accounts you need. DaVinci Resolve Studio also supports uploading to the online video review and collaboration service Frame.io.



Once you have signed into your accounts and given permission for DaVinci Resolve to access the account, click Save.

In the Quick Export window, you can now choose to have DaVinci Resolve automatically upload the exported file, including setting privacy settings, titles, and descriptions, which people browsing the site can use to search for your video.



# Reformatting for Different Aspect Ratios

While most modern video cameras still shoot traditional 16:9 aspect video footage, that doesn't necessarily mean you are always required to deliver 16:9 footage. In fact, with many videos being watched on mobile devices, many social media content creators prefer an alternative aspect ratio such as 1:1 (square formats such as those favored by Instagram) or 9:16 (vertical formats that are common on TikTok).

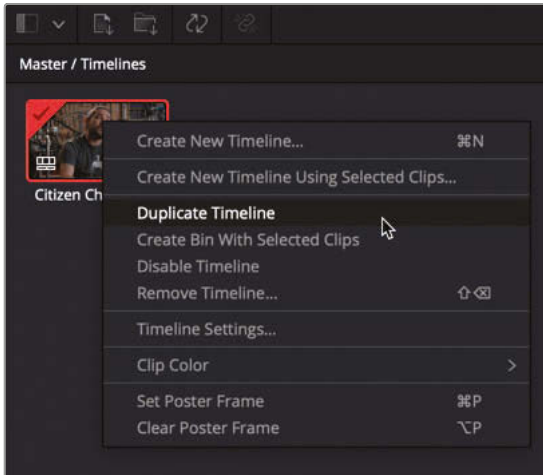
DaVinci Resolve 17 allows you to customize your timeline settings for several different aspect ratios.

In the next exercise, you will learn how easy it is to repurpose a timeline to fit a square aspect ratio.

**NOTE** The cut page viewer has several useful safe areas for different aspect ratios that you can use as a guide to see how well each shot will be framed for any standard aspect ratio before you change the timeline resolution.



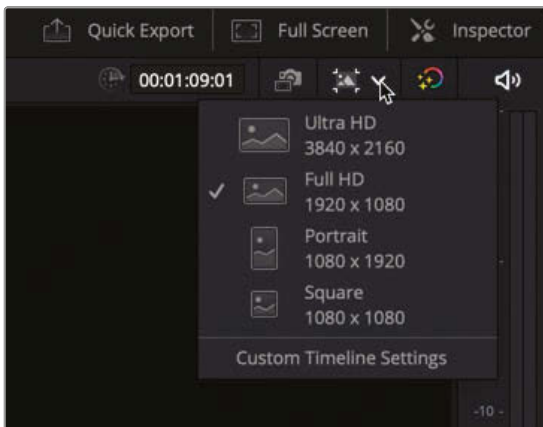
- 1 In the media pool, right-click the Citizen Chain Final timeline and choose Duplicate Timeline.



- 2 Rename the duplicated timeline to **Citizen Chain Final SQUARE** and double-click to open it in the timeline.

**TIP** You can use List view in the media pool to easily see longer clip names, or you can use the Timeline pop-up menu above the viewer to access any currently enabled timeline in your project.

- 3 Click the Timeline Resolution pop-up menu in the top right of the viewer to see a short list of common timeline presets.

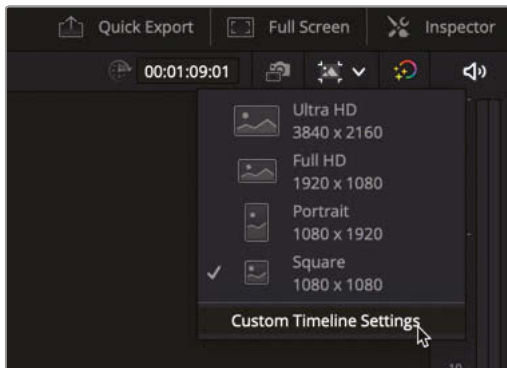


- 4 Choose Square 1080 x 1080.

The current timeline updates to the new aspect ratio. However, it has simply *letterboxed* the 16:9 footage into the square aspect ratio. The client does not like this “empty space” above and below the video and wants the video to completely fill the square aspect ratio.

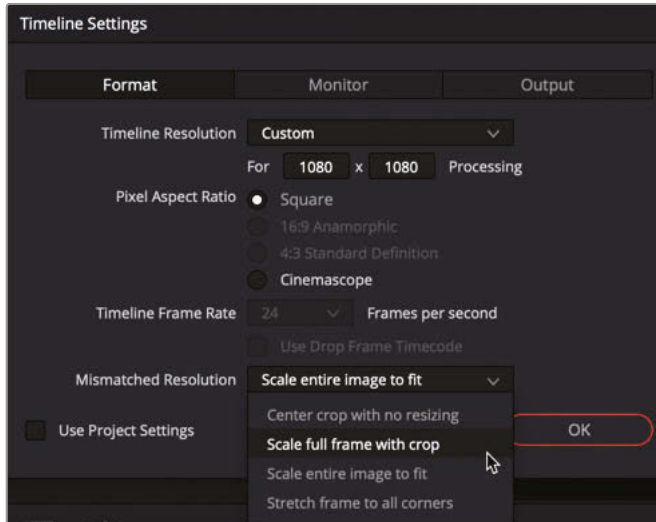


- 5 Click the Timeline Resolution pop-up menu again and choose Custom Timeline Settings.



The Timeline Settings window reopens with the timeline resolution settings reflecting the previous change you made.

- 6 Change the Mismatched Resolution pop-up menu to “Scale full frame with crop” and click OK.



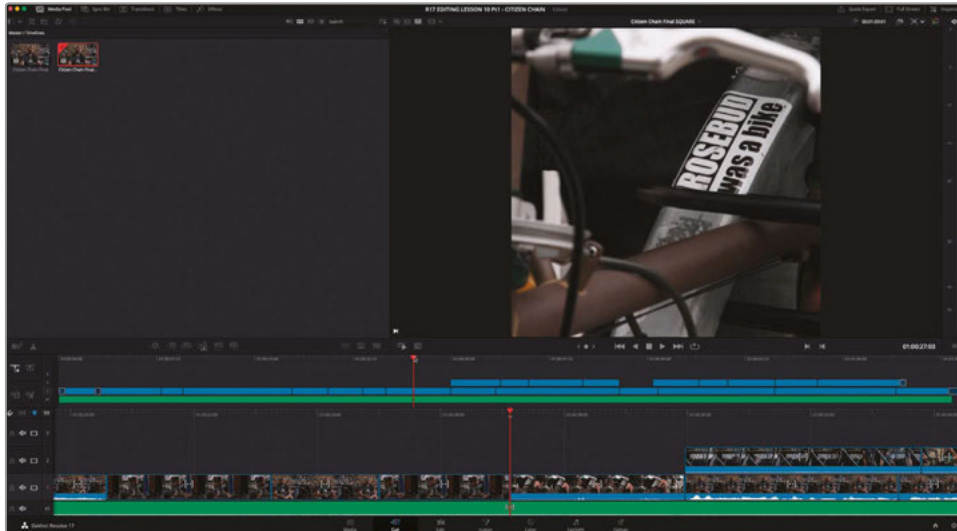
Now all the clips in this timeline correctly fill the 1:1 aspect ratio. However, unless the shots were specifically filmed with repurposing to a square aspect ratio in mind, it's likely that not all of them will be framed correctly.



## Reframing Shots

Unless the director of photography had a clear understanding that all or part of the final film would need to be displayed in a 1:1 aspect ratio, it's very likely that you will just need to adjust the framing of some of these shots. Thankfully, as DaVinci Resolve is *resolution independent*, you always have access to the full picture information, even though it appears currently cropped.

- 1 In the square timeline, locate the shot of Sasha locking the bike, with the sticker declaring “Rosebud was a bike.”

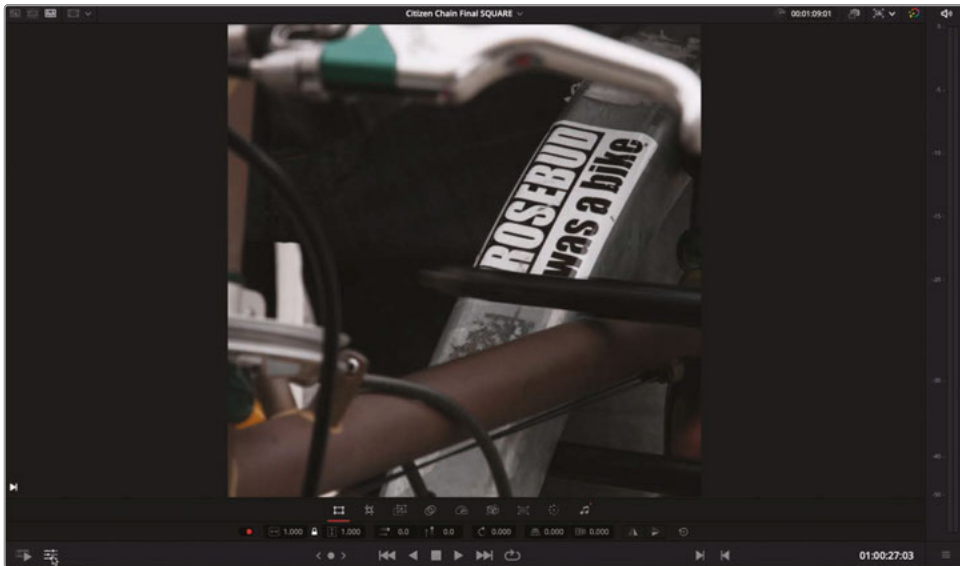


While many of the interview clips seem not to have suffered much during the change in aspect ratio, this shot is losing something of its impact, as the sticker is now slightly off-center.

- 2 Click the Tools button to reveal the transform controls.



The Tools controls in the cut page provide direct access to many parameters from the Inspector. Having them displayed below the viewer in a compact form is useful, though, if you're working on a laptop or other system that doesn't have a large screen.



- 3 Use the horizontal position control to move the clip slightly to the left, leaving the sticker centered in the shot. Click the Tools button again to close the tools when you're finished adjusting the framing of the clip.





**NOTE** You can also use the Transform controls in the Video Inspector if you prefer.

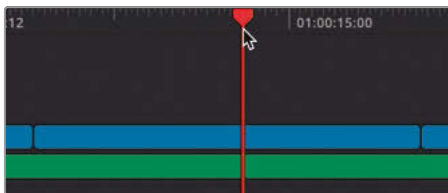
As you can see, it's easy to repurpose content shot in one aspect ratio for another. Sometimes, though, things get slightly trickier.

- 4 Move your playhead to the start of the fourth clip in the timeline and play to review the shot.

This is a tilt up from Sasha and his dog arriving at the store to the store's name. Unfortunately, as the DoP didn't fully take into account the possible need to repurpose this shot for social media, it's now up to you to do the best you can.



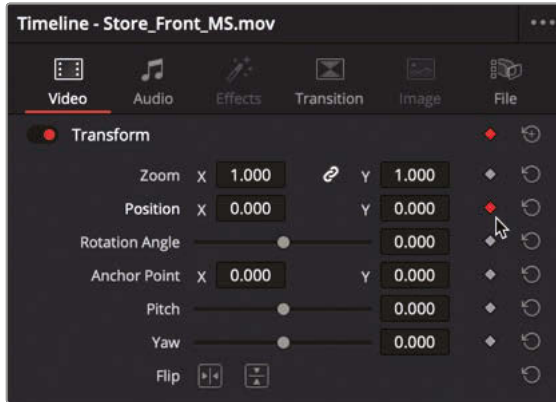
- 5 Place the playhead about halfway through the shot as the tilt begins.



- 6 Open the Inspector.

You can access all the usual Inspector controls directly in the cut page.

- 7 Click the Keyframe button to add a keyframe to the position parameters.



- 8 Play the clip forward until just before the tilt up finishes and stop playback.



- Adjust the Position X parameter field until the left side of the sign is in shot (about 165.0).



- Play forward a second or so further until the camera move finishes.
- Click the Keyframe button to add a third keyframe manually without adjusting the position values.



- 12 Play forward another second or so until Sasha is saying “Welles.” Stop playback and adjust the Position X value field until the right side of the sign is in shot (about -160.0).



- 13 Return to the start of the shot and play back to review.
- 14 To smooth the movement between the keyframes, press [ (left bracket) or ] (right bracket) to move the playhead to the third keyframe, and then right-click the keyframe control for the position parameters and choose Ease In and Out.



- 15 Press ] (right bracket) to move to the fourth and final keyframe. Right-click the keyframe control and choose Ease In.



- 16 Review the changes to the animation.

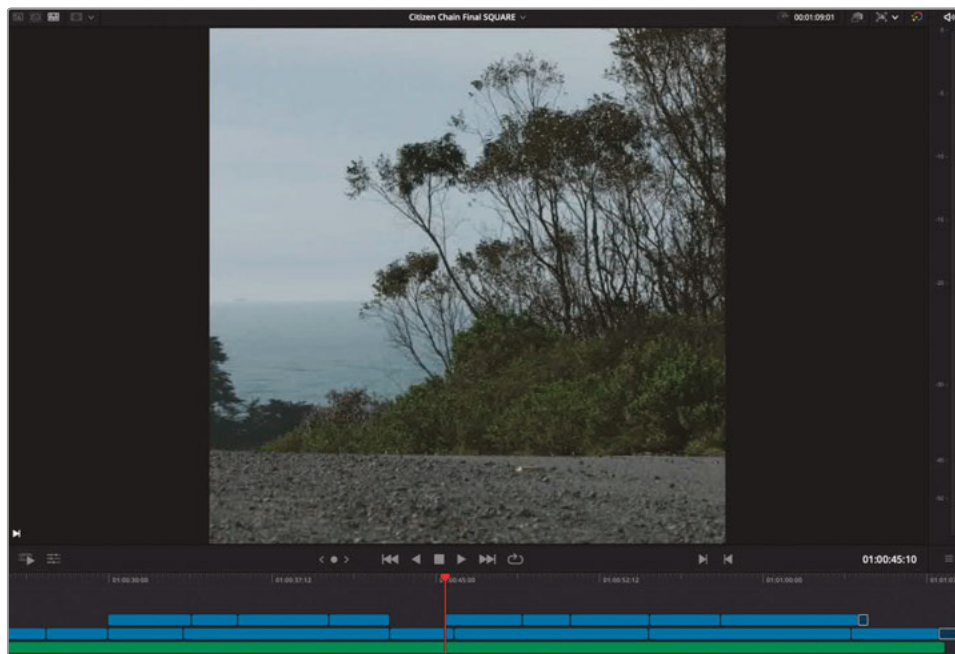
**TIP** If you want more detailed control over the keyframes, just click the Edit Page button, where you can open the keyframe track and animation curves as you did in Lesson 7.

## Smart Reframe (Studio Only)

**NOTE** The following exercise uses the Smart Reframe feature, which is only available in DaVinci Resolve Studio. If you are using the free version of DaVinci Resolve, you will not have the Smart Reframe option and will need to complete these steps manually.

While the ability to manually add keyframes and adjust the framing of a clip is no doubt useful, if you must do this for a large number of shots it can quickly slow down the process of preparing the video for export. If you have several shots to reframe in this manner, using the Smart Reframe feature in DaVinci Resolve 17 can be a huge timesaver.

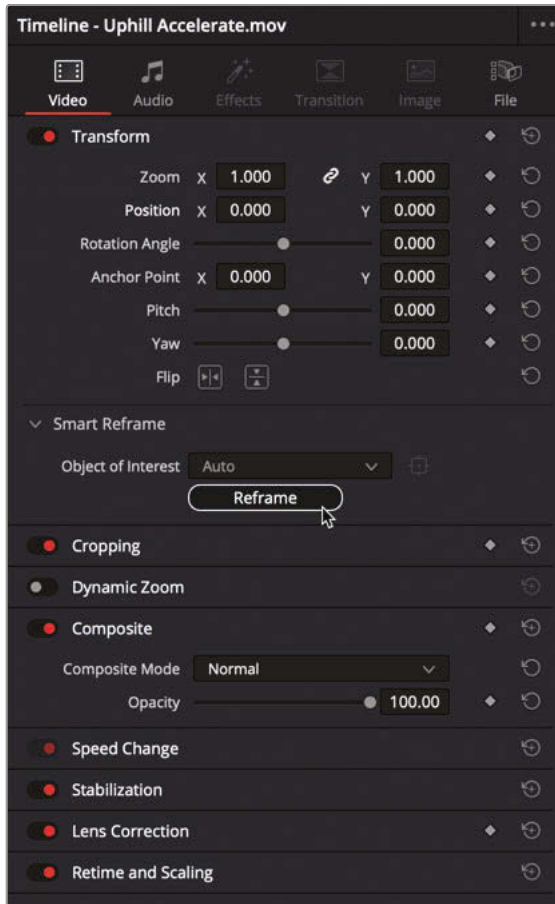
- 1 In the **Citizen Chain Final SQUARE** timeline, move the playhead to the start of the second set of clips on track 2 (at around 01:00:46:00).



- 2 Play the first shot.

This shot remains empty for a long time, and then suddenly Sasha comes cycling past! This is because the shot itself is panning to follow Sasha as he rides into shot on the left side of the frame and out of shot on the right side of the frame. While you *could* simply keyframe this shot as you did with the previous example, you can see how Smart Reframe handles the task instead.

- 3 Select the clip in the timeline.
- 4 In the Inspector, open the Smart Reframe controls and click Reframe.



After a short analysis, the shot updates to show Sasha framed in the viewer.



- 5 Press / (slash) to play around the current frame.

Wow! The shot has been automatically keyframed, so Sasha remains in the shot and the audience isn't sitting and looking at an empty frame for a few seconds wondering what they're supposed to be watching!

**NOTE** Smart Reframe uses the DaVinci Resolve Neural Engine to analyze the clip and determine the best way to reframe for any given shot. If the Neural Engine is unable to determine what it should be following (such as a two-shot of people talking), then you can change the Object of Interest pop-up menu to Reference Point, which will enable a simple onscreen control. Place the box over the object you wish to remain the focus of the analysis and click to Reframe button to let the Neural Engine do the rest.

**TIP** You can select multiple timeline clips and use the Smart Reframe's Auto feature on all of them together. Each clip will be analyzed separately for the best results.

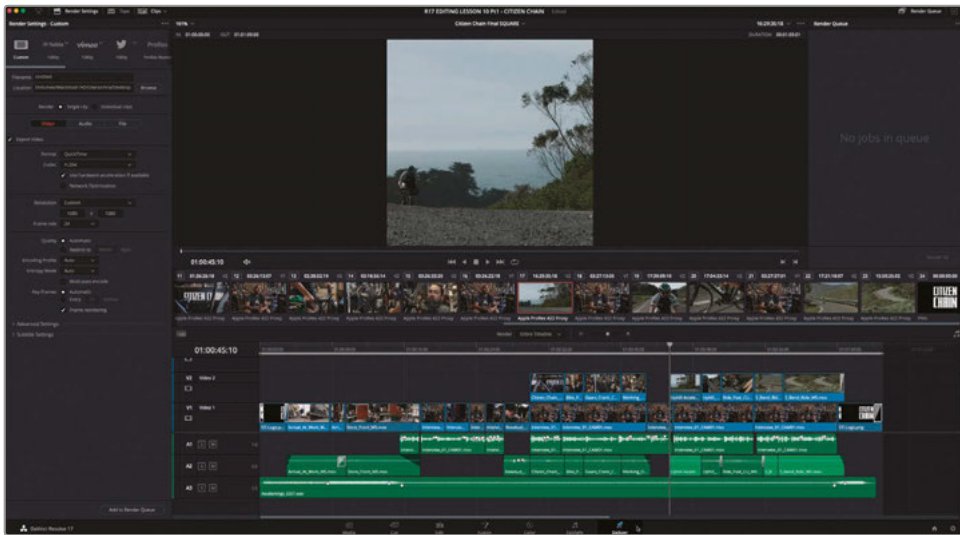
## Using the Deliver Page

Instead of using the Quick Export feature to output this video, you will use the options in the deliver page.

- 1 Click the Deliver Page button.

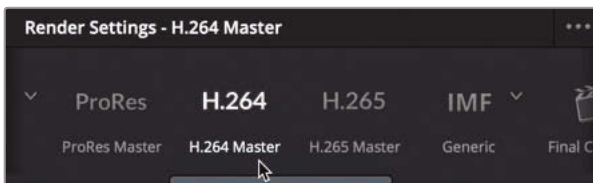


The square timeline opens in the deliver page, where you can assign much more specific settings to the file you want to output.



**NOTE** The Render Settings window features a list of common delivery presets. Click the downward triangles for each preset for additional options, such as different resolutions.

- 2 To export your square video for Instagram or other social media sites that utilize square videos, select the H.264 Master preset.

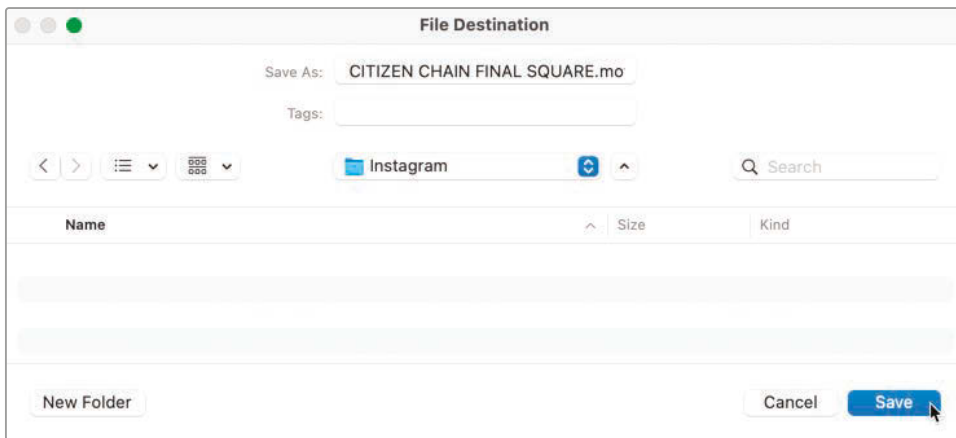




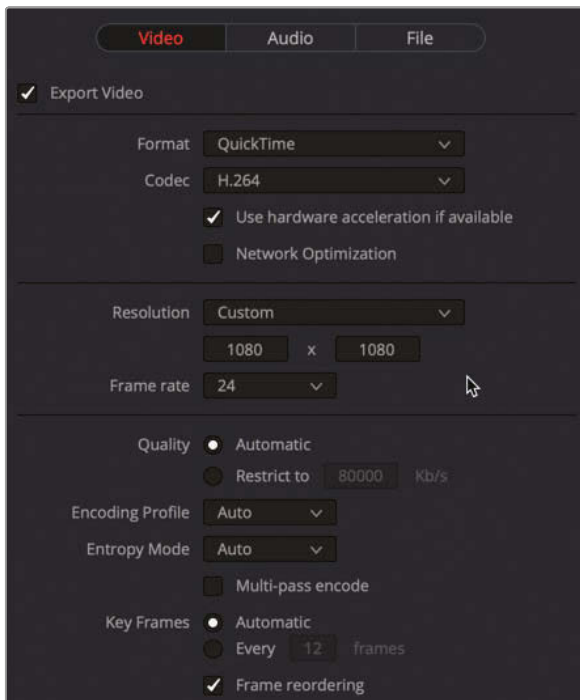
- 3 In the Filename field, type **Citizen Chain Final Square**.



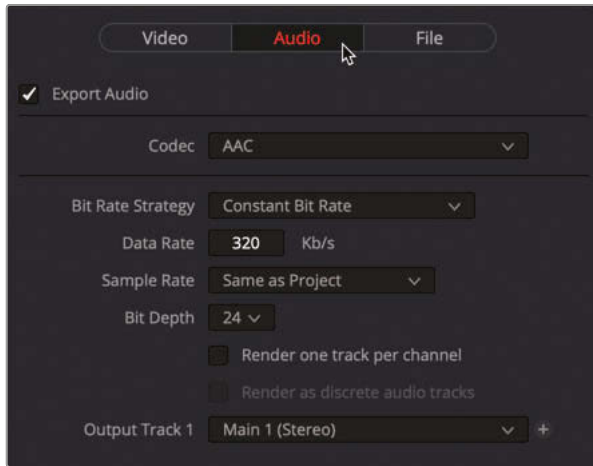
- 4 For the Location, click the Browse button, and in the File Destination window that appears, navigate to R17 Editing Lessons/Lesson 10/Output Folder.
- 5 Create a new folder in this location called **Instagram** and click Save.



- 6 In the Video tab, check that the resolution is set to 1080 x 1080 and the frame rate is 24.



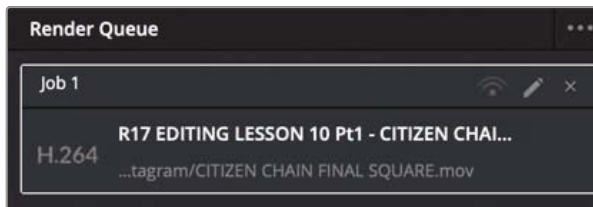
- 7 Click the Audio tab and verify that the codec is AAC, the data rate is 320 Kb/s and the output track is Main 1 (which is the only main output for this timeline).



- 8 Click Add to Render Queue at the bottom of the Render Settings panel.



The job is added to the Render Queue as Job 1. From here you can choose to render out the job, but there are more jobs to add to the queue before you start the rendering.



## Understanding Data Levels

In the Advanced Settings, Data Levels specifies the data range of an image based on its source. The default Auto setting renders media at a data level appropriate for the selected codec. Video refers to YCbCr formats that constrain to pixel data values between 64–940 on a 10-bit system in formats using a Rec.709 video standard. Full expands the range to the film standard of 4–1024 values, which is utilized in digital film formats such as DPX. In general, the best choice is to leave this setting unchanged and let DaVinci Resolve choose the data level automatically. However, if you find that your final video looks substantially darker or lighter than it appears on your calibrated monitor, it's possible that the data levels are being incorrectly distributed. In that rare case, you may want to manually set the Data Levels correctly for your intended distribution.

# Exporting AAF for Pro Tools

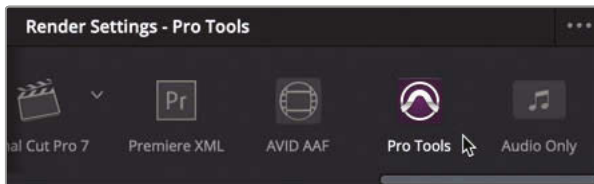
Despite Fairlight having all the tools necessary to mix and master your audio, another task many editors are required to fulfill is to send the audio to be mixed in a Pro Tools system. In this exercise, you will look at using the Pro Tools export preset for doing just this.

- 1 Press Shift-1 to open the Project Manager.
- 2 Double-click the **R17 EDITING LESSON 10 Pt2 – AGE OF AIRPLANES** project. If prompted, save the current Citizen Chain project to prevent the loss of your changes.
- 3 Switch to the edit page and use the Relink Media button to relink the files.



This project is a version of the *Age of Airplanes* promo you edited all the way back in Lesson 1! You may remember that you didn't spend too much time finessing the audio for this project. So now you will export it in a format to be sent to a Pro Tools system where the audio will be mixed for you.

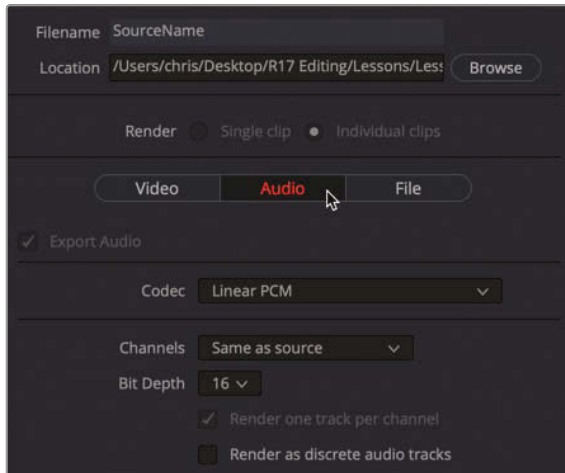
- 4 With the media back online, click the deliver page again, and from the Render Settings panel, select the Pro Tools preset.



**NOTE** Resolve uses the AAF (Advanced Authoring Format) to output sequence information for Pro Tools systems.

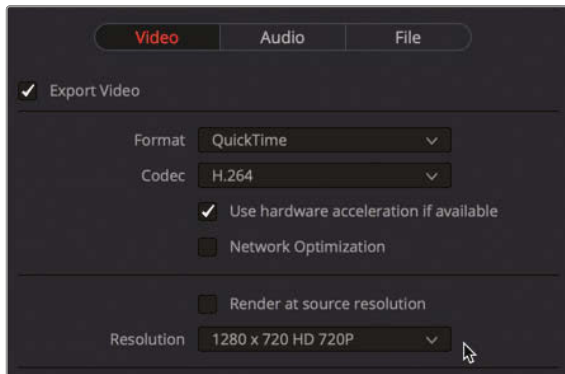
- 5 Click Browse and navigate to the R17 Editing Lessons/Lesson 10/Output folder. Create a new folder here called **Pro Tools AAF** and click Open.

- In the Audio tab, ensure that the codec is set to Linear PCM. This will create a series of uncompressed .wav files for the audio clips in your timeline as preferred by many Pro Tools users.



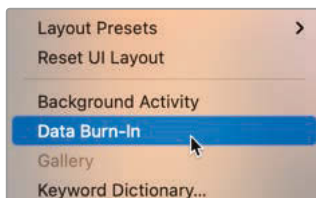
You also must provide a video reference file for the Pro Tools user that they can use to verify the timecode sync for the timeline they will need to import.

- Click the Video tab. Change the Format to QuickTime, and then ensure that the codec is H.264, and the resolution is 1280 x 720 HD 720P.



It would also be useful to have Burned-in Timecode (or BiTC) on the video reference clip.

- Choose Workspace > Data Burn-In.

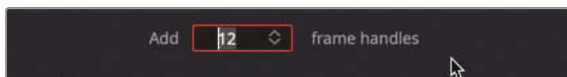


- 9 In the Data Burn-In window, select Record Timecode to display the timeline's timecode. Increase the size to about 85 and the background opacity to 80, and then close the Data Burn-In window.



Finally, you need to add some *handles* to the audio media you are delivering.

- 10 Open the Advanced Settings from the Video tab and add 12 frame handles.



- 11 Click Add to Render Queue to add this job to the render queue window.

Excellent. That's two jobs queued and ready to go. Just one more job to add to the list, and then you can let Resolve render all the jobs together.

## Adding Subtitles

DaVinci Resolve allows you to add subtitles to your timelines in several ways. You can manually create all your subtitles for your project, or you can import a supported subtitle file.

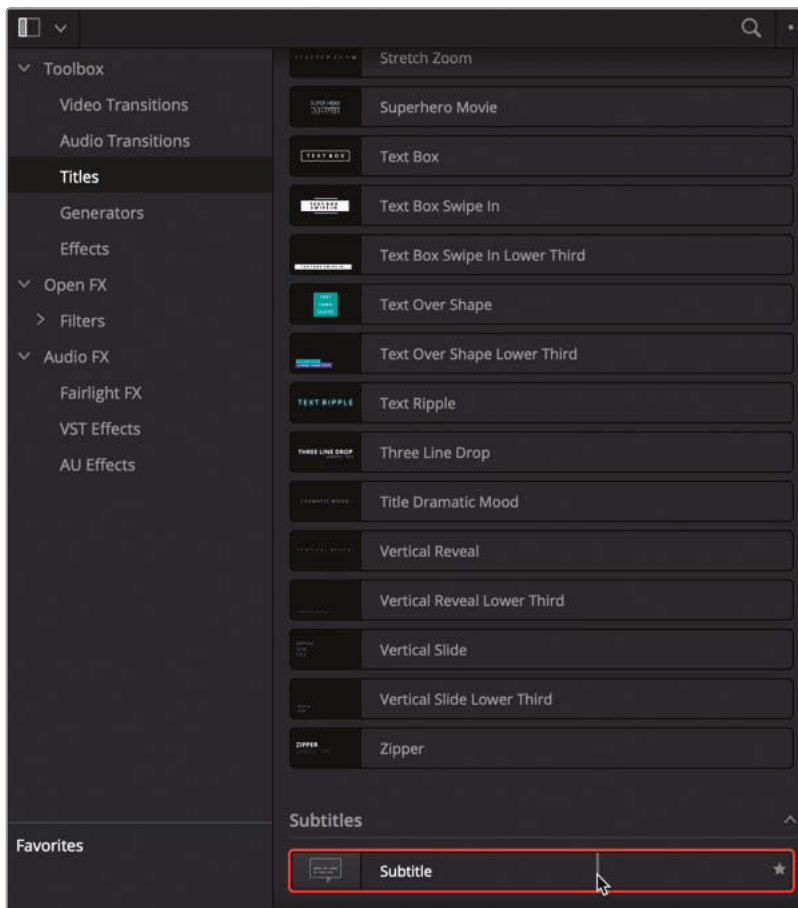
- 1 Press Shift-1 to open the Project Manager and double-click the **R17 EDITING LESSON 10 Pt3 – SYNC SCENE** project, saving the changes to the current open project if prompted.

- 2 Press Shift-4 to jump to the edit page and relink the media for this project.



This project contains a finished version of the scene between the doctor and the FBI agents. Take a moment to reacquaint yourself with the scene and how the audio is mixed. All that's left for you to do is add subtitles before outputting the final files for delivery.

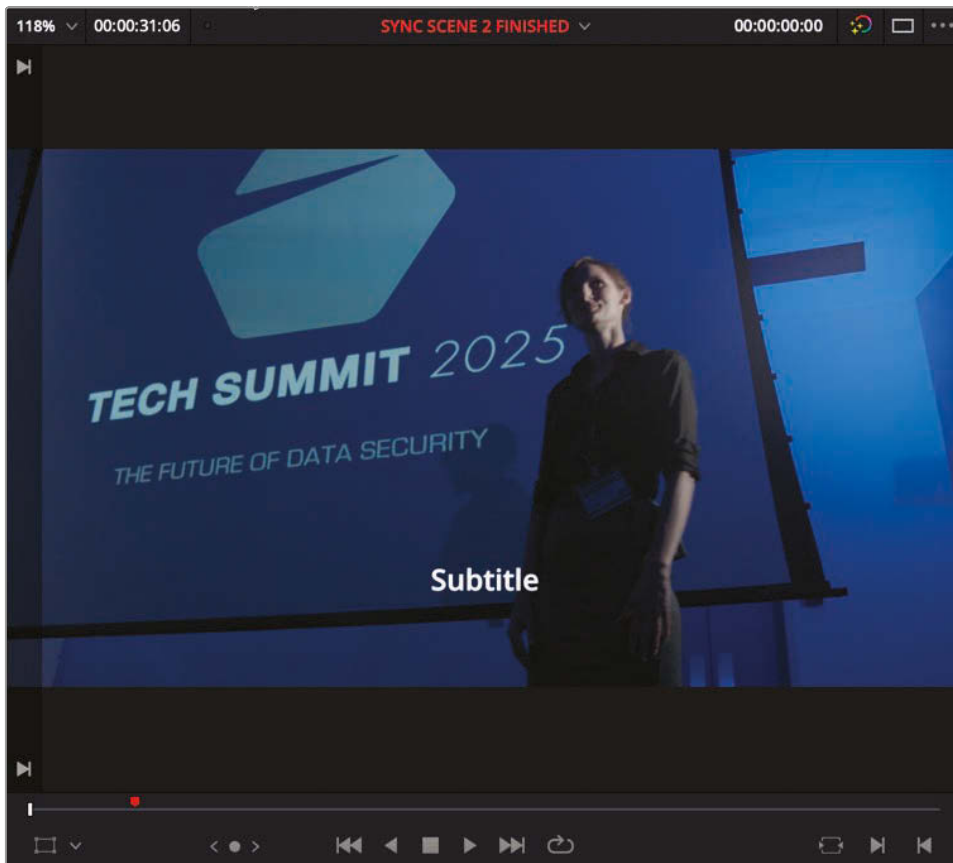
- 3 Open the Effects Library.
- 4 In the Effects Library, in the Titles group, locate the Subtitles section.



- 5 Drag the Subtitle generator to the timeline in the space above the video tracks and snap it to the beginning of the timeline.



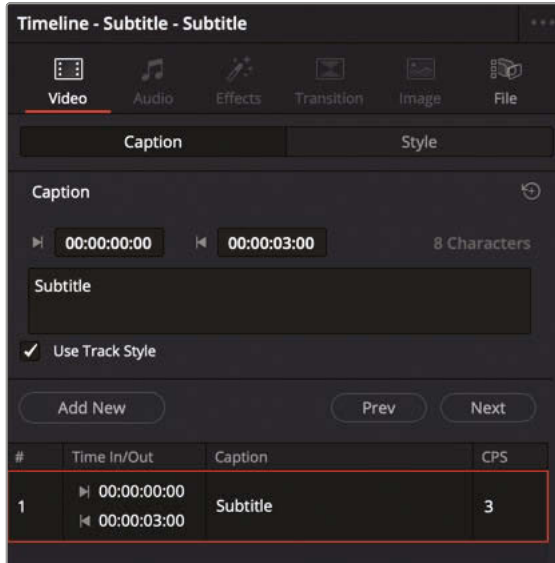
A new track appears in the timeline labeled ST1 Subtitle 1, and the subtitle text appears in the timeline viewer.



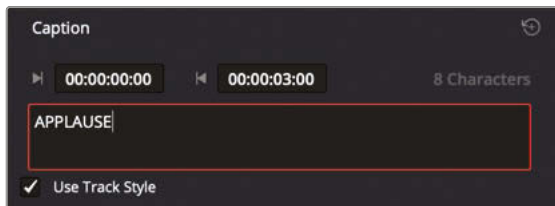
**TIP** You can show and hide existing subtitle tracks in the Timeline View Options menu.

- 6 In the timeline, select the subtitle and open the Inspector.

The Inspector includes the controls for the individual subtitle captions and for the entire subtitle track.



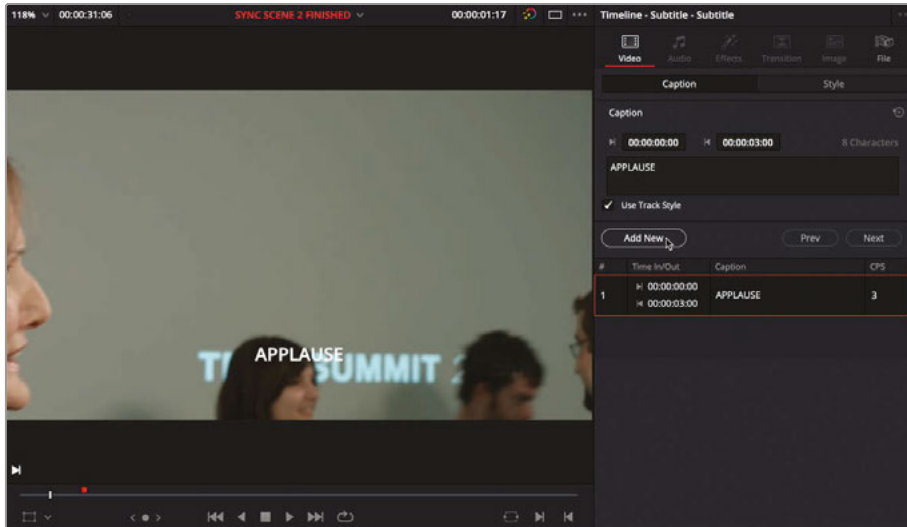
- 7 In the Caption field, highlight the word “Subtitle,” and type **APPLAUSE**.



**NOTE** Settings for the maximum number of characters per line and the minimum duration for each of your captions is set in the Subtitles panel of the Project Settings window.



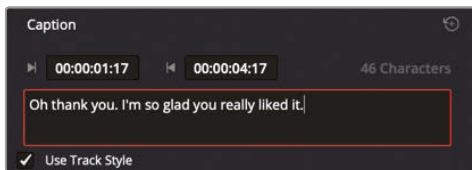
- 8 Place the timeline playhead at the start of the second clip in the timeline, **02\_Dr\_Sarah\_Close Up.mov**, and in the Inspector, click the Add New button.



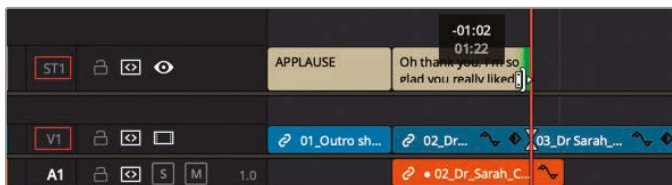
A new subtitle is overwritten into the timeline at the current playhead position.



- 9 Select the new Subtitle generator, and in the Inspector, type the dialogue from the doctor: **Oh, thank you. I'm so glad you really liked it.**



- 10 Trim the end of the second Subtitle generator to the end of the second clip on V1, **02\_Dr\_Sarah\_Close Up.mov**.

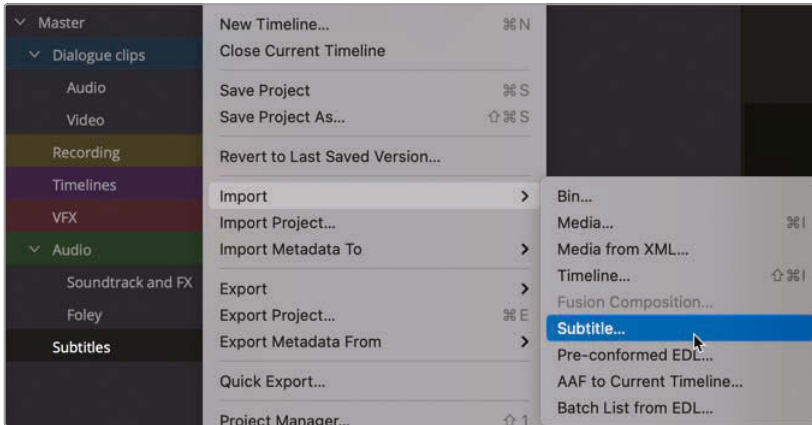


You can edit and trim Subtitle generators just like any other clip on your timeline.

## Importing Subtitle Files

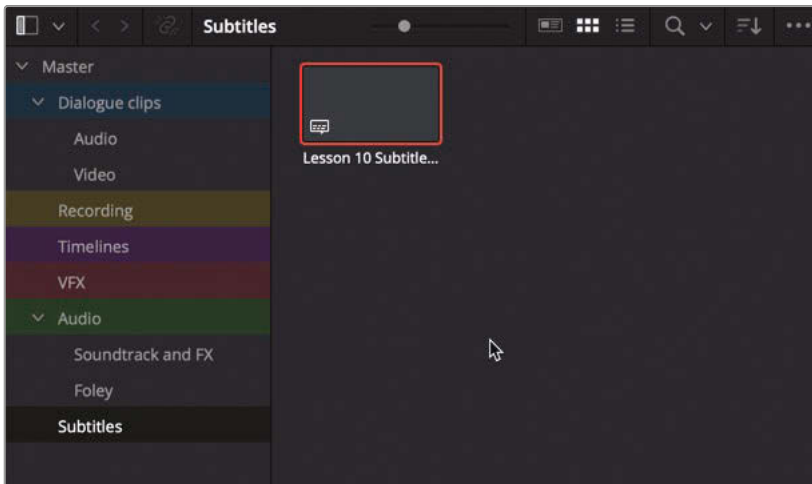
You can continue working through this timeline, adding subtitles for the lines of dialogue. However, it's usually much more efficient and accurate to have someone transcribe the dialogue for you and create a .srt file that you can import directly into Resolve.

- 1 In the media pool, press Shift-Command-N (macOS) or Shift-Ctrl-N (Windows) to create a new bin. Change the name to **Subtitles**.
- 2 With the Subtitle bin selected, choose File > Import > Subtitle.



- 3 Navigate to R17 Editing Lessons/Lesson 10 Delivery/Subtitles and select the file **Lesson 10 Subtitles US.srt**. Click Open.

The .srt file is added to the selected bin as a subtitle clip.



- 4 Select the subtitle file **Lesson 10 Subtitles US** and drag it into the timeline, so it starts at the location of the red timeline marker.

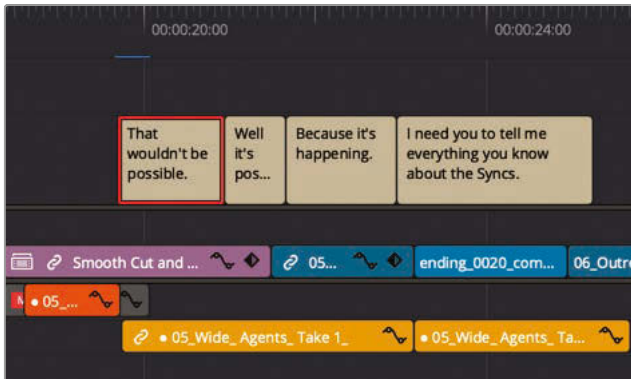


All the subtitles in the .srt file are added to the Subtitle 1 track in the timeline.

## Adjusting Subtitles

Subtitles clips behave just like any clip in the Resolve timeline, so you can easily adjust their timings, as necessary.

- 1 Click in the timeline viewer's Timecode field and type **1800** to navigate to the point before the doctor says, "That wouldn't be possible." Play the timeline from this point to review the dialogue and subtitles.



The subtitles appear onscreen too late for the doctor's line of dialogue. You'll need to adjust the subtitle timing to sync it correctly.

- 2 Press T to enter Trim Edit mode.
- 3 In the timeline, select the lower portion of the subtitle, "That wouldn't be possible," so the mouse pointer changes to a slide icon.

- Slide the subtitle back to the left by about 17 frames, or until it snaps to the beginning of the doctor's audio clip on A1.



- When you have finished sliding the subtitle into the correct position, press / (slash) to review the change.
- Press A to return to Selection mode.

You can also trim and roll trim each of the subtitles using the Selection mode, as well as cut each subtitle into shorter clips using the Blade Edit mode and keyboard shortcuts. Auto track selector controls for the subtitle tracks work the same as they do across all the other tracks in the timeline, so be careful if you're rippling trimming subtitles.

## Maintaining Subtitle Sync

If you want to further ensure that your subtitles remain synced to the appropriate audio clips, you can link the clips. By doing so, if you inadvertently change the timeline and knock the subtitles out of sync, red clip sync indicators will show how far out of sync they are.

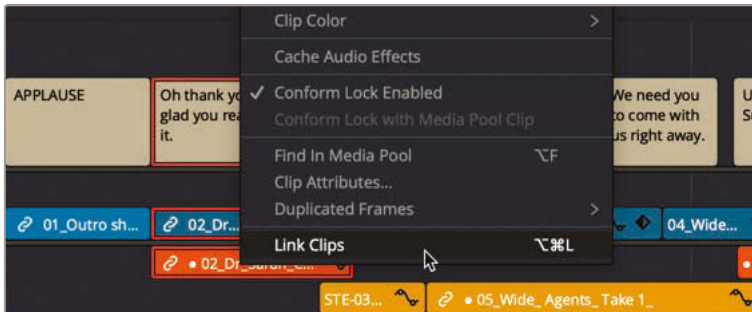
- In the timeline, select the second subtitle clip with the text, “Oh thank you, I’m so glad you really liked it.”

It makes sense to link this subtitle with the audio clip on A1.

- Select the second subtitle clip, and in A1, Command-click (macOS) or Ctrl-click (Windows) the orange audio clip.

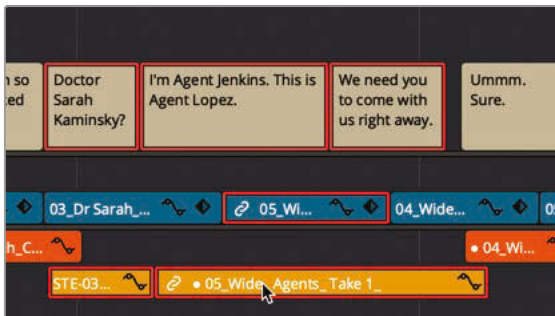


- With both clips selected, right-click either of them, and at the bottom of the shortcut menu, choose Link Clips, or press Option-Command-L (macOS) or Alt-Ctrl-L (Windows) to link these clips.

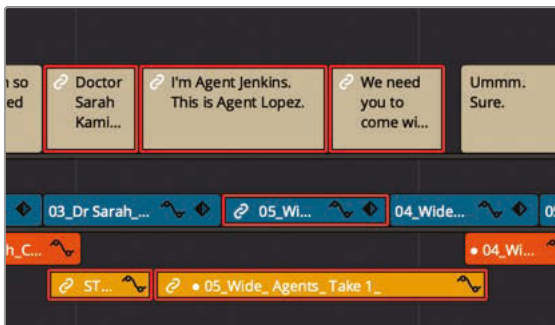


You can also link multiple subtitles to multiple video and audio clips.

- In the timeline, select the next three subtitle clips along with the two yellow audio clips on A2.



- Press Option-Command-L (macOS) or Alt-Ctrl-L (Windows) to link these clips.

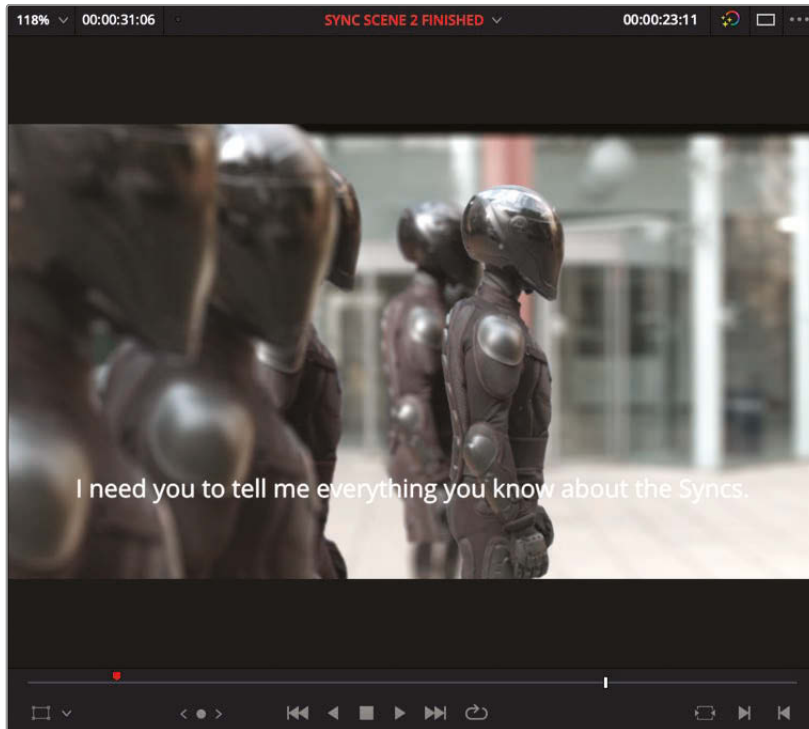


These clips are now linked and will display the red out-of-sync indicators if they lose sync.

## Styling Subtitles

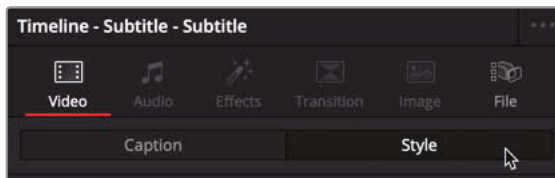
Just as with any other title generator in Resolve, subtitle generators have many parameters that you can change to adjust the style and position of your subtitles and closed captions. One common style applied to subtitles is a semi-transparent box behind the text to help it stand out against video with a similar brightness.

- 1 Move your playhead over the last subtitle in your timeline.



The end of the line appears a little obscured against this final shot and isn't easy to read.

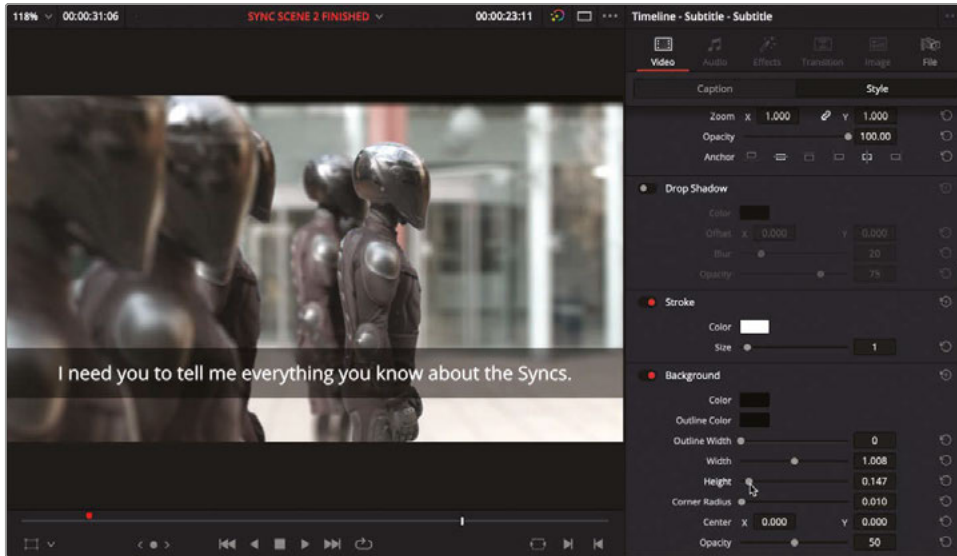
- 2 In the timeline, select the subtitle, and in the Inspector, click the Track Style tab.



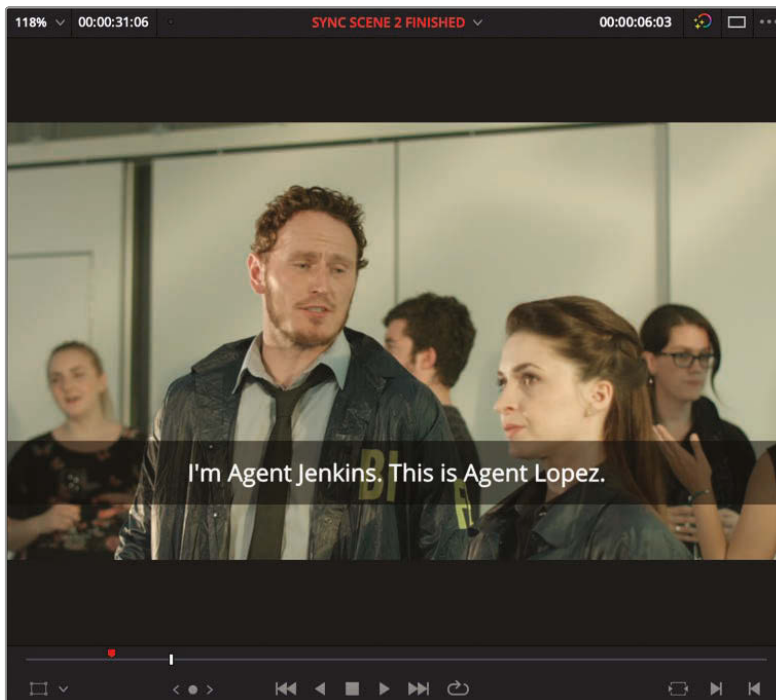
- 3 Scroll down to the Background options and enable the Background settings.



- 4 Adjust the Width and Height settings so that the box extends behind the white text and helps it stand out from the similarly light video background.

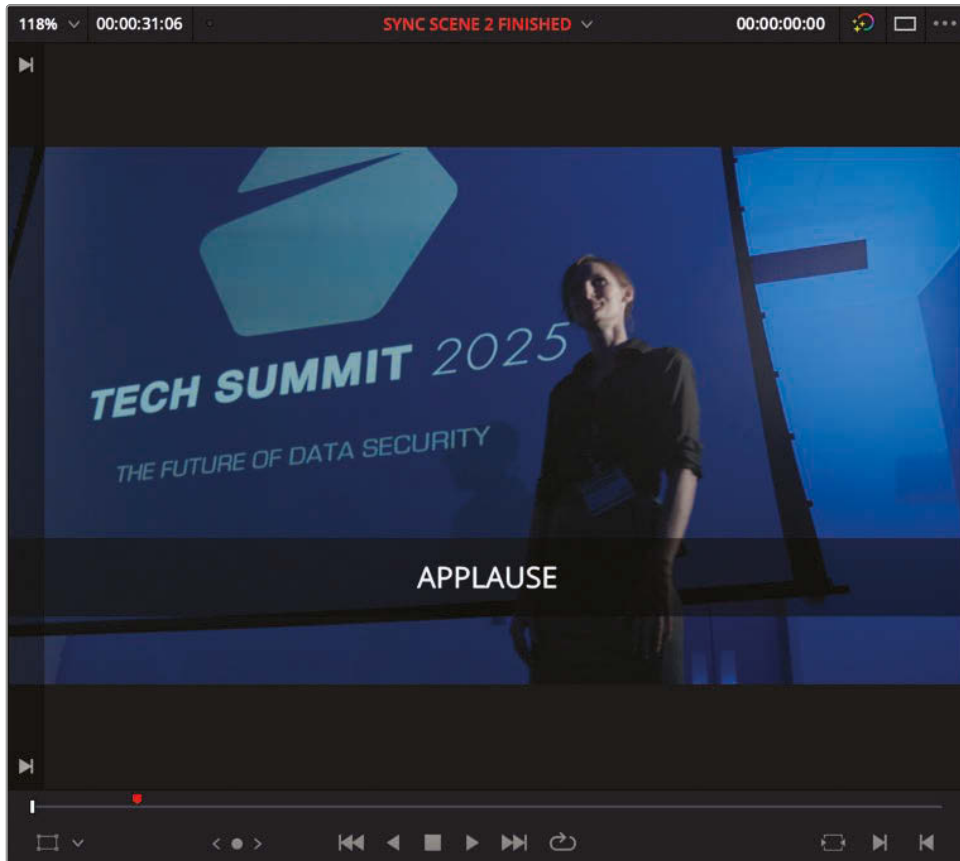


Because you have added this track style, all the subtitles in this track are updated with the change. This behavior is particularly useful when you need to modify style settings for all the subtitles in a track.



You can, however, override those track-wide settings for any individual subtitle when you need to adjust the color, font, or position of one or more subtitles, but not all.

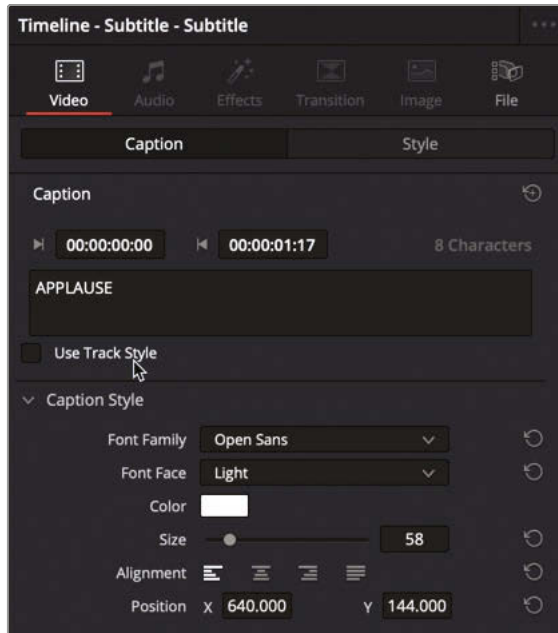
- 5 In the timeline, move the playhead to the first subtitle.



This subtitle indicates a sound effect rather than detailing spoken dialogue. As such, the director would like you to adjust it to appear a little more obvious.

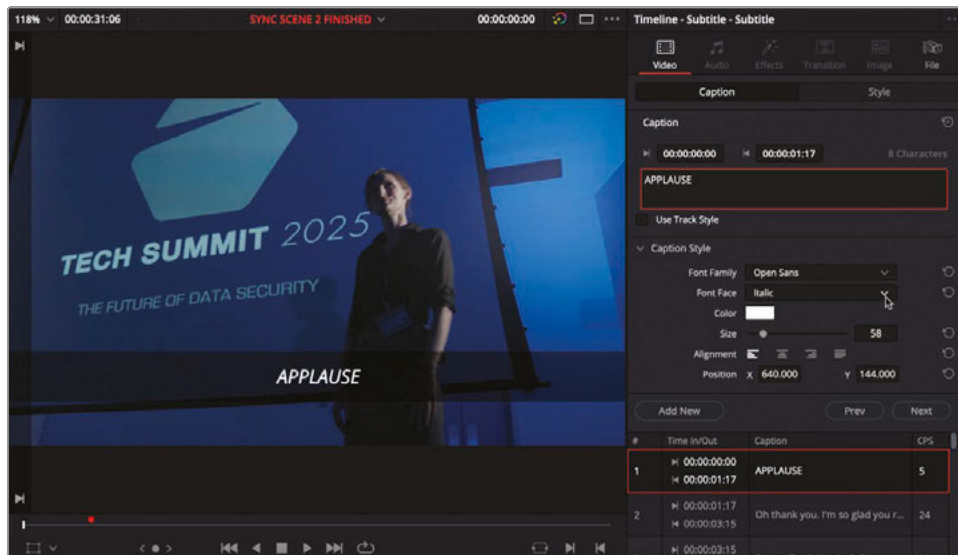


- 6 In the timeline, select the subtitle, and in the Inspector, select the Captions tab. Deselect Use Track Style.



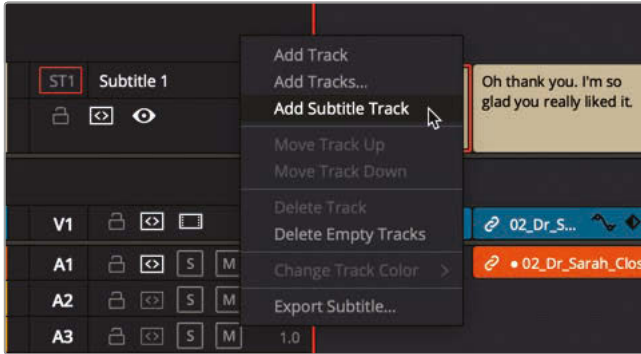
A set of additional controls appear for this caption.

- 7 Change the “Font face” to Italic to distinguish this caption from the other captions. The subtitle updates to reflect the change in style.



You can add multiple subtitle tracks, which is particularly useful when you need to supply subtitles in more than one language.

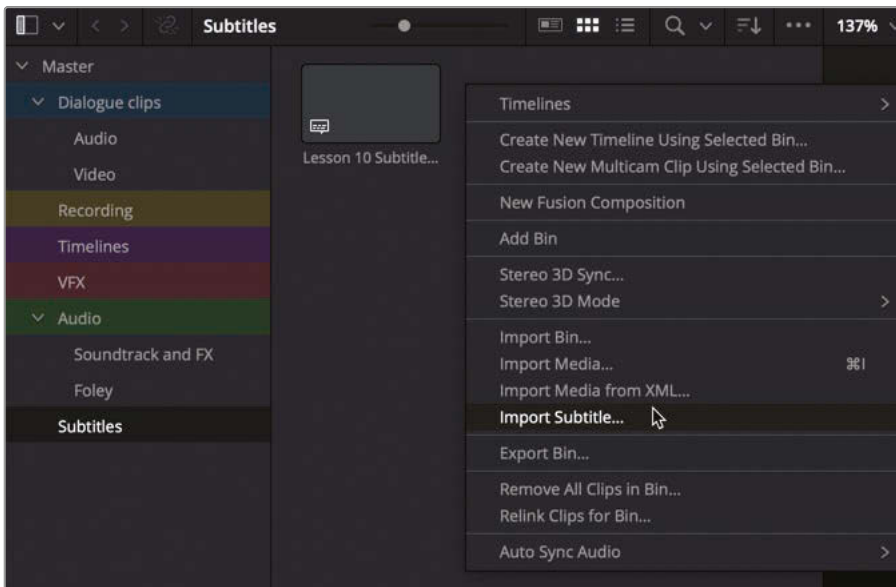
- 8 In the edit page, right-click any one of the timeline track headers and choose Add Subtitle Track.



An additional subtitle track is added to the timeline.



- 9 In the media pool's Subtitles bin, right-click, and choose Import Subtitle.



- 10 Navigate to R17 Editing/Lessons/Lesson 10 Delivery/Subtitles and select the **Lesson 10 Subtitles FR.webvtt** file. Click Open.
- 11 Edit this new subtitle file into the empty subtitle track you just created, starting at the beginning of the timeline.



This subtitle file includes French subtitles. You can rename subtitle tracks to reflect the language used, making it easier to identify the different tracks.

**NOTE** This subtitle has none of the styling included with the previous subtitle you worked with; however, because the WebVTT format supports basic text formatting, the first subtitle is italicized.

- 12 Click the Subtitle 1 track name, and type **en\_US** to identify this subtitle as English for a US audience.
- 13 Click the Subtitle 2 track name, and type **fr\_FR** to identify this subtitle as French for a French audience.



**TIP** To choose the subtitle track visible in the timeline viewer, in the head of the track you wish to view, click the eye icon. You can display only one subtitle track at a time.

## More Info Regarding Subtitles

Depending on your workflow and delivery specifications, you may be required to use standardized two- or three-letter abbreviations for each language as dictated by the International Organization for Standardization.

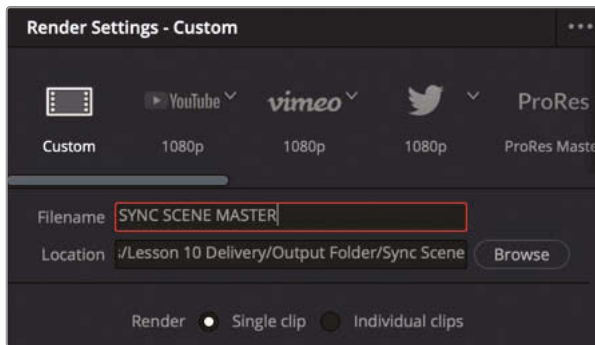
See the website at [www.loc.gov/standards/iso639-2/php/code\\_list.php](http://www.loc.gov/standards/iso639-2/php/code_list.php) for more details.

## Exporting with Subtitles

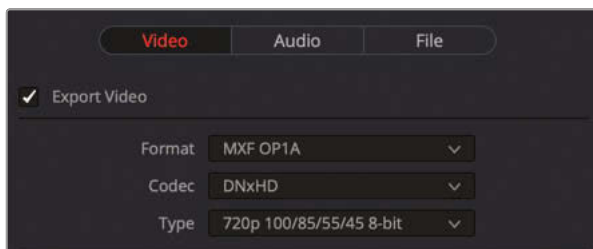
When it comes to delivering subtitles with your finished program, several options are open to you. Depending on your delivery format, you can include subtitles as burned-in graphics, embedded text in a supported media file, or as a separate file.

In this next exercise, you will output a file suitable for broadcast delivery, together with the necessary separate subtitle files.

- 1 On the deliver page, in the Render Settings window, choose the Custom preset, and set the render to single clip to export a single movie file.
- 2 In the Filename field, type **SYNC SCENE MASTER**.
- 3 Click the Location Browse button and navigate to the R17 Editing Lessons/Lesson 10 Delivery/Output folder. Create a new folder called **Sync Scene** and click OK.



- 4 Back in the Render Settings panel, set the Format pop-up menu to MXF OP1A, the Codec to DNxHD, and the Type to 720p 100/85/55/45 8-bit.

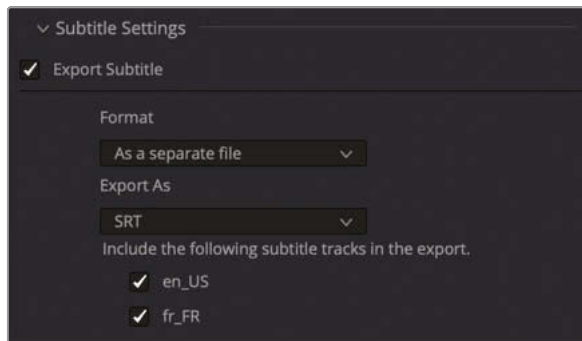


- 5 Scroll to the bottom of the Video tab, expand the option for Subtitle Settings, and choose to Export Subtitle.

- 6 Set the Format options to “As a separate file.”

If you chose the “Burn into video” option, Resolve would burn the currently active subtitles (with their styles) into the final rendered video file, so the subtitles would be permanently included as part of the video content. Choosing “As embedded captions” will output the currently active subtitle track as an embedded metadata layer within those media formats that support it. Currently, DaVinci Resolve supports CEA608 and text captions within MXF OP1A and QuickTime containers.

- 7 In the Export As pop-up menu, choose SRT and select both the “en\_US” and “fr\_FR” subtitle tracks to include them in the export.



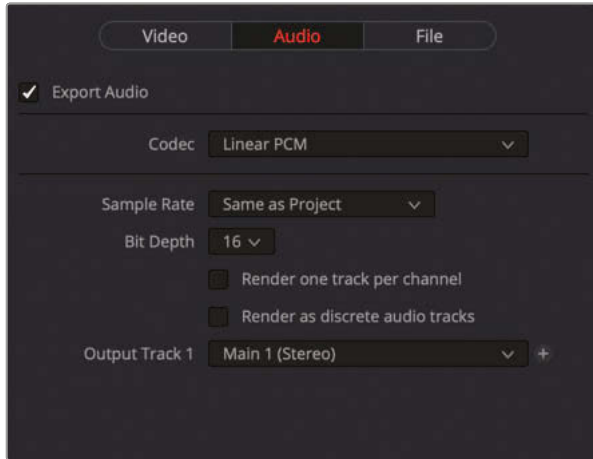
This takes care of the video and file settings. Next, you will choose which audio tracks to output.

## Exporting Audio Tracks

You will remember from the previous chapter that this scene contains three different main busses: a stereo mix, M&E, and a 5.1 mix, together with three submixes for dialogue, effects, and music. In the Render Settings, you can choose to output different combinations of audio tracks and busses. Doing so makes it incredibly easy to export a final movie with stereo, surround, or an M&E mix for international dubbing.

- 1 In the Render Settings, click the Audio tab.
- 2 Leave the audio codec set to Linear PCM (this is also referred to as *uncompressed*, or *lossless*, audio) and leave the sample rate and bit depth settings as they are.

- From the output track 1 pop-up menu, ensure that Main 1 (Stereo) is selected.



- Click the + (plus) button to the right of the output track 1 pop-up menu to add a second main bus to the output file.



The second main bus (M&E) is automatically selected, but you can use the pop-up menu to change this if necessary.

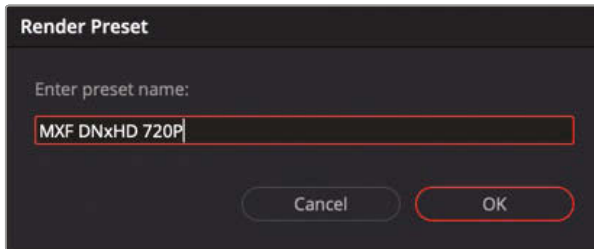
- Click Add to Render Queue.

If you need to use the same settings for more than one export, consider saving the render settings as a preset.

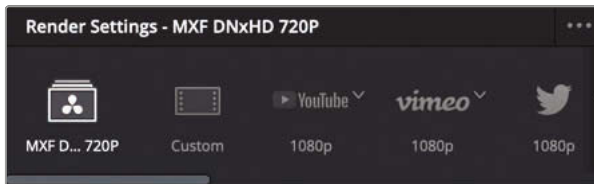
- Click the render settings options menu and choose Save As New Preset.



- 7 Name your preset **MXF DNxHD 720P** and click OK.



The new preset appears at the top of the render settings panel.



**TIP** You can choose to have any saved presets appear in the list of Quick Export options by clicking the render settings options menu and choosing Quick Exports > and the preset name.

## Delivering AS-11 and Other File Formats

DaVinci Resolve 17 now features the DaVinci Resolve IO Plug-In SDK that enables third-party developers to create and distribute plug-in packs. These plug-in packs extend the range of codec and format options that can be rendered directly from DaVinci Resolve Studio.

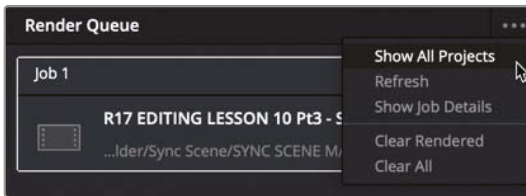
An example of this is the MainConcept Codec Plug-In for DaVinci Resolve Studio. Once installed, this plug-in adds additional MainConcept MXF and MP4 format options, including a specific option to deliver directly to AS-11 DPP, a specific delivery requirement for UK broadcasters.

More information on this plug-in is available at <https://www.mainconcept.com/products/plugins/blackmagic-design-plugins/bmd.html>

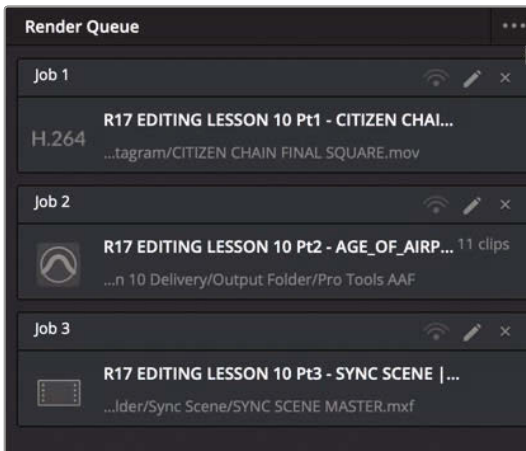
# Changing and Rendering Jobs from Multiple Projects

The Render Queue can show jobs from the current project or from all projects in your database. If you split longer projects into reels, or you are working on different projects for the same client, you might need to access all the jobs in the queue instead of waiting for one batch to render before outputting other projects.

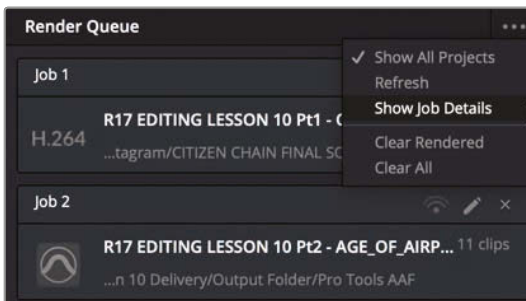
- 1 In the Render Queue options menu, choose Show All Projects.



Any jobs added to the Render Queue in any project currently in the database are displayed for you to select and render.

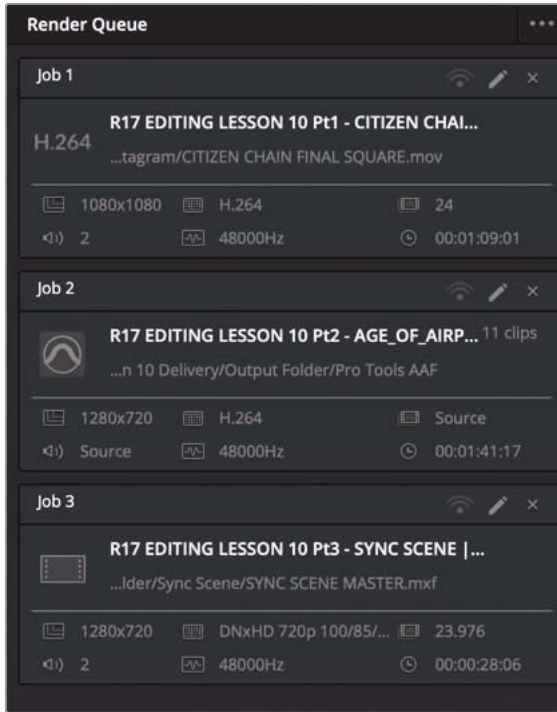


- 2 In the Render Queue options menu, choose Show Job Details.



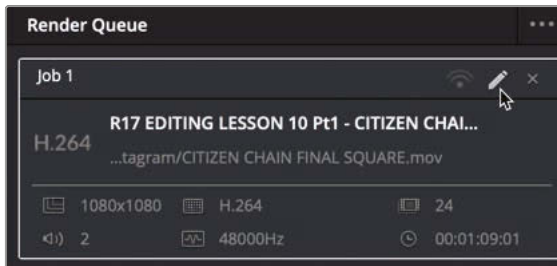


The specific settings for each job are displayed, including resolutions, codec, and frame rate.



Even after you add jobs to the Render Queue, you can update their settings or remove them from the queue entirely.

- 3 In the Render Queue, click the pencil icon for Job 1. If prompted, save the current project.

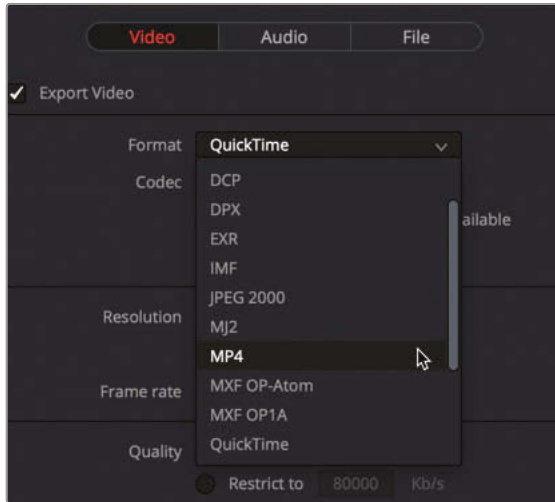


The *Citizen Chain* project reopens automatically, and the current render settings for the selected job become available.

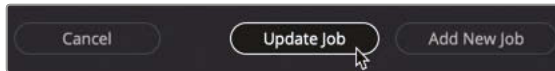
**TIP** The presence of additional Update Job and Cancel buttons at the bottom of the Render Settings indicates that a job is currently being edited.

Now you can make any changes to the job before rendering out the final file.

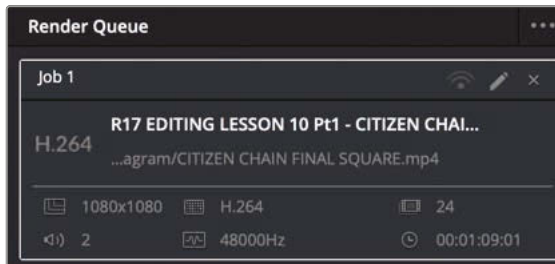
- 4 In the Video tab, change the Format to MP4 instead of QuickTime.



- 5 Click Update Job.

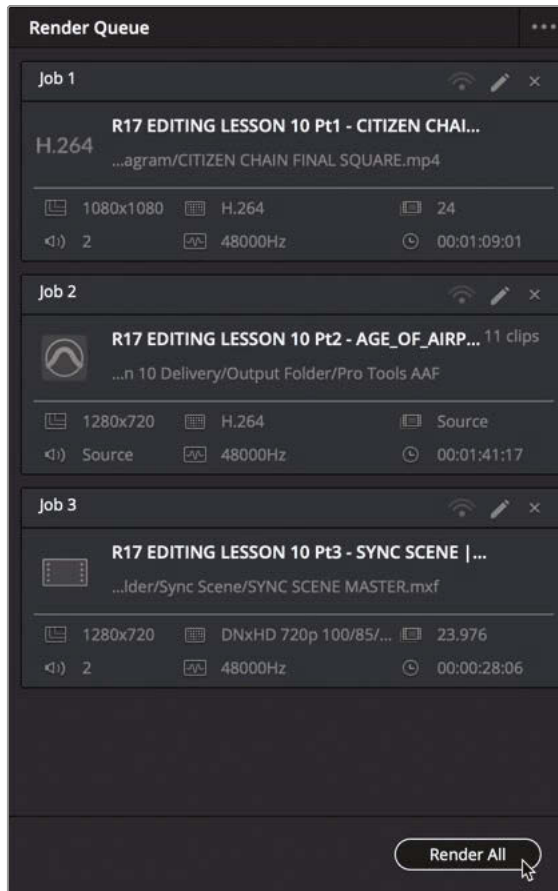


The change updates the original job settings with the new setting as is reflected in the displayed job details in the Render Queue. In this case, you can see the file extension change from .mov to .mp4.

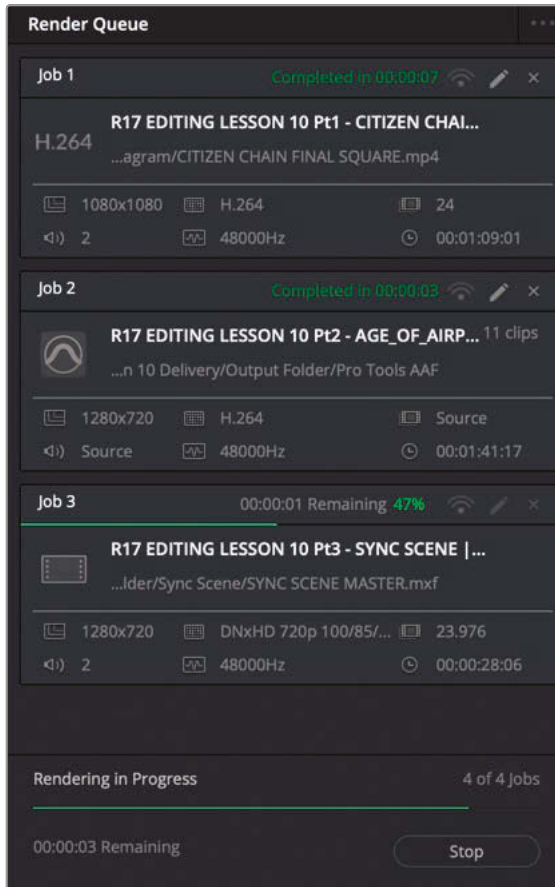


**TIP** To delete a job, click the X in the upper-right corner of the job in the Render Queue.

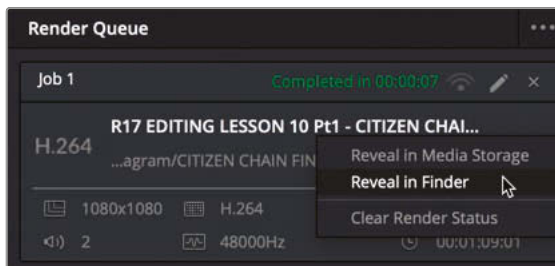
- 6 Finally, click in an empty area of the render queue panel to deselect Job 1, and then click the Render All button to create the output files.



DaVinci Resolve renders each of the jobs in the render queue. Once it has finished outputting the files, you can choose to open the Output folder on your system and verify the files you've created.



- 7 Right-click any of the completed jobs and choose Reveal in Finder (macOS) or Open File Location (Windows).



**NOTE** While you can often open and view many files to check their integrity (such as MP4 files, for example), the only true test of the success of creating the file is to open it back into Resolve.

Utilizing the correct render settings is vital to delivering an aesthetically correct and technically functional video project. Understanding these settings has even greater benefits. It elevates your skill set as an editor and imbues confidence that your projects are delivered at their optimal quality and adhere to industry standards.

### Remote Rendering

DaVinci Resolve Studio allows you to offload rendering to another Resolve workstation. Remote rendering requires that all workstations have a copy of DaVinci Resolve 17 Studio installed, a shared Postgres database, and access to all necessary media files using the same filename path. With one computer acting as a render station, all other Resolve stations can continue to be used for further editing and grading.

## Media Managing Timelines

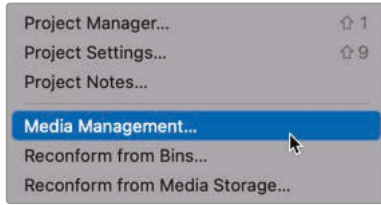
A final step in the delivery options for your projects is to manage the source media files for your projects for easy archiving.

- 1 Press Shift-1 to open the Project Manager and double-click **R17 EDITING LESS 10 Pt3 – SYNC SCENE FINISHED** to reopen the Sync Scene project.

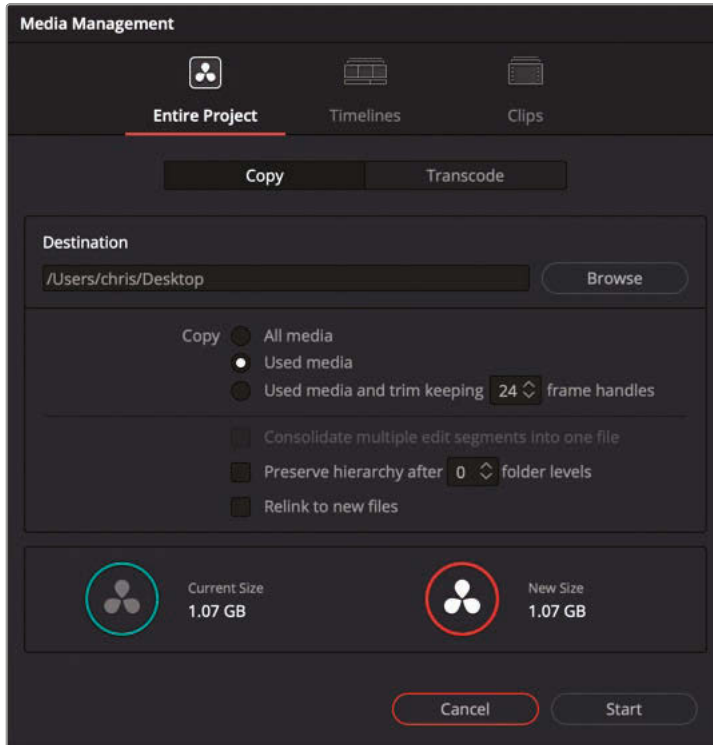
**TIP** You can enable Dynamic Project Switching by right-clicking in an empty area of the Project Manager to allow you to quickly switch between projects without having to close the current project.

- 2 Press Shift-4 to jump to the edit page.

- 3 Choose File > Media Management.



The Media Management window opens.

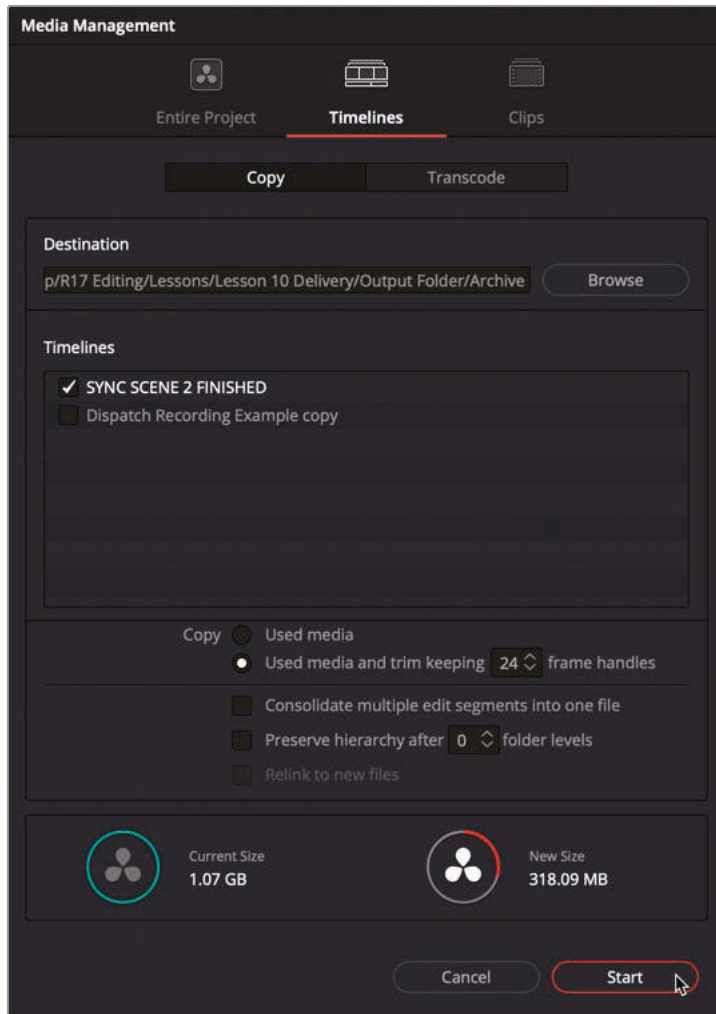


**NOTE** The Media Management window is only available in the media, cut and edit pages.

The Media Management window allows you to copy or transcode the media for the entire project, specific timelines, or clips.

- 4 Select the Timeline tab.
- 5 Next to the Destination field, click Browse.

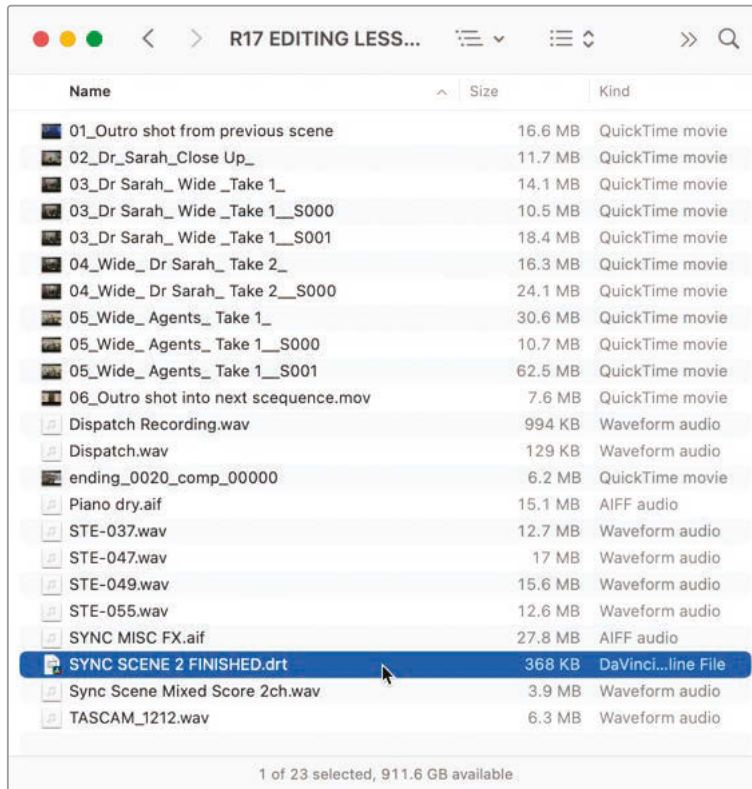
- 6 Navigate to the R17 Editing Lessons/Lesson 10 Delivery/Output folder and create a new folder called **Archive**. Click Open.
- 7 In the Media Management window, select the **SYNC SCENE 2 FINISHED** timeline.
- 8 For Copy, make sure the “Used media and trim keeping 24 frame handles” option is selected.



This option means the media files being copied will only be the parts of those files actually used in the selected timeline, plus an additional 24 frames either side of the In and Out points, just in case a small tweak is ever needed.

At the bottom of the Media Management window, the current size indicator displays the total storage size of all the media currently in this project (including unused clips). The new size indicator shows the amount of storage the trimmed media will use. In this case, you can see that the copied media will only require about a third of the storage of the full project.

- 9 Click Start to begin the media management process.
- 10 Once complete, open the Archive folder to find the copied media and a .drt file.



This is the folder that you can now archive separately. To restore the edit from this archived material, simply create a new project and choose File > Import > Timeline and import the .drt file. The imported timeline will automatically relink to the trimmed media.



# Lesson Review

- 1 True or False? You must use the deliver page in order to export a video file from your project?
- 2 Which function uses the DaVinci Resolve Neural Engine to automatically add keyframes to keep the subject of a clip in frame when reformatting a timeline to a different aspect ratio?
  - a) Auto Conform
  - b) Smart Reframe
  - c) Smart Conform
- 3 What format is commonly used when sending audio to be mic'd on a Pro Tools system?
  - a) AAF
  - b) XML
  - c) EDL
- 4 Which window enables you to add a Burned-in Timecode (BiTC) to your exported video?
  - a) Timecode Window
  - b) Data Burn-In
  - c) Text+
- 5 True or False? All subtitles must be imported from a supported .srt file.

## Answers

- 1 False. You can use the Quick Export option available in the cut, edit, and Fairlight pages.
- 2 b) Smart Reframe.
- 3 a) AAF (Advanced Authoring Format)
- 4 b) Data Burn-In
- 5 False. Subtitles can be manually created inside DaVinci Resolve using the Subtitle title in the Effects Library.

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The Editor's Guide to

# DaVinci Resolve 17

Blackmagicdesign 

DaVinci Resolve 17 is the world's most advanced editing, visual effects, color correction, and audio postproduction solution for feature films, television shows, and commercials. Its revolutionary workflow lets you switch between tasks with a single click, so you don't have to learn multiple programs or translate projects between different applications.

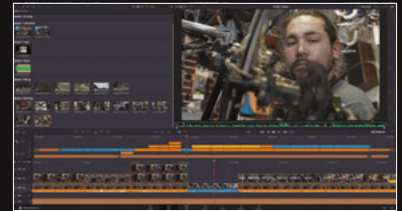
The Editor's Guide to DaVinci Resolve 17 is a step-by-step training guide tailored to the art and craft of video editing. The hands-on lessons demonstrate how to cut interviews, dramatic scenes, documentary material, and music videos in both the edit page and the cut page, as well as how to use the new Speed Editor. Specific lessons also show you how to build eye-catching effects using the new 3D Keyer and Video Collage effects, and how to mix audio and deliver your final film for online distribution, broadcast TV, or streaming services.

## What You'll Learn

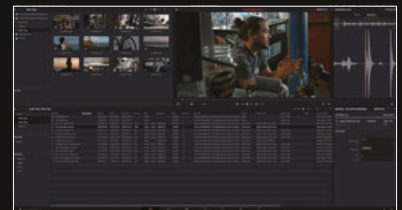
- Advanced editing and trimming techniques covering multiple genres
- Organize large projects efficiently using metadata and smart bins
- Generate and link proxy media files
- Trimming tricks such as extend edit and dynamic, real-time trimming
- Multicamera syncing and editing techniques
- Edit faster than ever using the cut page and the Speed Editor
- Create complex composites on the edit page
- Explore new edit page effects including the 3D Keyer and Video Collage FX
- Edit and mix audio for stereo and surround sound
- Measure and deliver audio for different loudness standards
- Add and edit subtitles for different languages
- Deliver projects for online distribution, broadcast TV, and streaming services

## Who This Book Is For

This book is designed for both beginning and professional video editors. Beginners will find clear and concise lessons to get you up and running quickly. If you're a professional switching from another system, you'll find lessons that cover everything from basic editing and trimming to working with audio, adding text, effects, and more. You'll also find dozens of pro tips and tricks that will help you make the switch to DaVinci Resolve!



Edit faster with the cut page



Media page organization



New Resolve FX



Real-time multicamera editing